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CONTENTS

CAPITAL GAINS TAXATION AND STOCK MARKET INVESTMENTS: EMPIRICAL EVIDENCE

Akinloye Akindayomi, University of Texas – Pan American

ABSTRACT

The objective of this study is to examine stock market investments responses to changes in capital gains tax rate. A priori, rational taxpayers are expected to respond to changes in this tax rate. For example, a reduction (increase) in capital gains tax rates may make taxpayers to unlock (lock-in) substantial amounts of accrued (realizable) appreciated gains. The findings of this study however reveal that capital gains realization and not capital gains tax rates impacts stock market investments in the U.S.

JEL: M40, M41

KEYWORDS: Stock Market Investment, Capital Gains Tax Rates, Realized Capital Gains

INTRODUCTION

In many countries, including the U.S., the concept of deferral is central to capital gains taxation. That is, capital gains are taxed when 'realized' after sale or exchange of the eligible capital assets. On one hand, Haig-Simons 'pure net accretion' regime demands that capital gains (losses) should be subject to tax (deduction) in the year they accrue thereby requiring taxpayers to estimate realizable value of appreciated taxable assets. This may force taxpayers into untimely and inefficient liquidation of some assets in order to meet ensuing capital gains tax liability and obligations. Undoubtedly, this violates the fairness principles inherent in the U.S. taxation system. On the other hand, the double taxation argument ideally suggests a zero capital gains tax on capital accumulation. In corollary, incomes from capital gains enjoy preferential tax treatments.

Arguably, the preferential treatment of capital gains income (especially of long term character) contradicts tax equity doctrine, which suggests that all income (capital gains or ordinary income) should be taxed at same rates. It becomes pronounced if one considers the tax treatment of the 'carried interest' component of the compensation package of hedge fund managers. In fact, the Congressional Budget Office estimates that the treasury will bring in over $20 billion dollars additional tax revenue between 2012 and 2021 if 'carried interest' is treated as ordinary income and taxed at ordinary income rates (CBO, 2011). No wonder then that the literature on desirability of capital gains tax is at best inconclusive in terms of its desirability and optimum capital gains tax rate level that maximizes economic efficiency.

It is widely believed that high-end taxpayers with long-end holding period and substantially appreciated capital assets have the tax and financial incentive to postpone otherwise efficient realization of capital gains in order to defer capital gains tax liability, and that in some cases avoid it by waiting until death in order to enjoy the step-up basis associated with estate taxation. This is a classical manifestation of the lock-in effect rule (Ivkovich et al., 2004. See also Elton et al., 2010) as this allows for resetting the capital assets' tax bases (including the unrealized capital gains) at death. In addition to potential loss in tax revenue, this rule certainly distorts optimal investments portfolio and diversification strategy as capital could be trapped in inefficient investment outcomes. However, the extent at which investors believe in the ability of current tax rates to predict future tax liability remains an empirical question.

Focusing mainly on capital gains generated through stock market transactions, this study attempts to empirically examine whether, on aggregate, investors/taxpayers fully and truly respond to the interaction between changes in capital gains tax rate and capital assets liquidation in a 'rational' way. *A priori*,

rational taxpayers are expected to respond to changes in this tax rate. For example, a reduction (increase) in capital gains tax rates may make taxpayers to unlock (lock-in) substantial amounts of accrued (realizable) appreciated gains. This study specifically finds that on aggregate, total capital gains realized and not necessarily capital gains rate affect stock market investments in the U.S. It must be noted that Barber and Odean (2000) document that some investors tend to misappropriate the timing of their stock transactions by holding 'to losers too long' and selling 'winners too soon' (see Jin, 2006; Sialm and Starks, 2012), although it is believed when investors get trapped in the former, the locked-in gains effects on overall capital allocation is negligible (CBO, 2002). The remainder of the paper proceeds as follows. The next section reviews the relevant literature in order to motivate the research question and the hypotheses. While section 3 focuses on sample, data and methodology; results are presented and discussed in section 4. Also the findings from additional sensitivity analysis performed and the follow-up discussions are provided in the same section. Chapter 5 concludes the study.

LITERATURE REVIEW

Capital gains tax proceeds are not insignificant part of the tax revenue collected by the U.S. treasury through Internal Revenue Service (IRS). For example, between 2002 and 2007, the percentage of realized capital gains relative to total income continues to increase from 3.67% to slightly over 10%. A major reduction in capital gains is the deductibility of capital losses. However, the tax law imposes constraints on the amount of such losses that individuals can deduct in order to prevent taxpayers from generating artificial losses. This study mainly focuses on capital gains generated through stock market transactions as this is the major source of capital gains in the U.S. (see Moore, 2008; Sikes and Verrecchia, 2012). Analytical and theoretical literature suggest that outside tax considerations, investors will nonetheless accelerate realization of capital gains for liquidity and diversification priorities (see Hong and Stein, 2003; Zeng, 2009). Therefore, to always argue that increasing capital gains tax rate will slow stock market activities is an overstatement especially in view of the findings of Jin (2006) which shows that '…on the average, tax insensitive institution is larger than average tax-sensitive institution'.

In fact, Jin further finds what he called 'counterintuitive' as his data indicates that tax-sensitive institutions are more active in turning over their portfolio even with capital gains rate hikes relative to the tax-insensitive institutions. Since 1913 when capital gains were first taxed at ordinary income tax rates, capital gains tax has witnessed numerous historical metamorphoses both in magnitude (i.e. tax rates) and structurally (for example exclusion of gains). Tax reform Act of 1986 increased the maximum rate to 28% while at the same time repealing the exclusion of long-term gains. Despite the fluctuation in rates, the effect of inflation on capital gains is well documented in the literature. In fact, Auten (1999) argues that lower or middle income taxpayer capital gains over time simply represent nominal gains but 'real economic losses'. Hence the need to focus capital gains taxation on high-end individuals with substantial gains more so that Poterba (1987) notes that statutory capital gains tax rate is substantially higher than the true capital gains tax rate (see also Chay et al, 2005; Graham et al, 2012).

Boyer and Russell (1995) argue for reduction in tax rates on income in order to promote economic growth. In the same spirit, Heckman et al (1998) warn that such tax reduction should not be financed by consumption tax alone as such a tax favors *investment* capital at the expense of human capital thereby constraining potentials for growth in human capital stock. In fact, Judd (1998) speculates that human capital could have higher return when compared with financial assets (for related argument, see Becker, 2009) but that the price of risk applied to human is lower than corporate equity and other financial assets (see Kenny, 2005; Sanders and Taber, 2012, for more on taxation dynamics of human capital). According to Tanzi (1969), taxing capital gains fairly and optimally becomes a central equation in fiscal considerations especially if one considers the argument of Tanzi (2011).

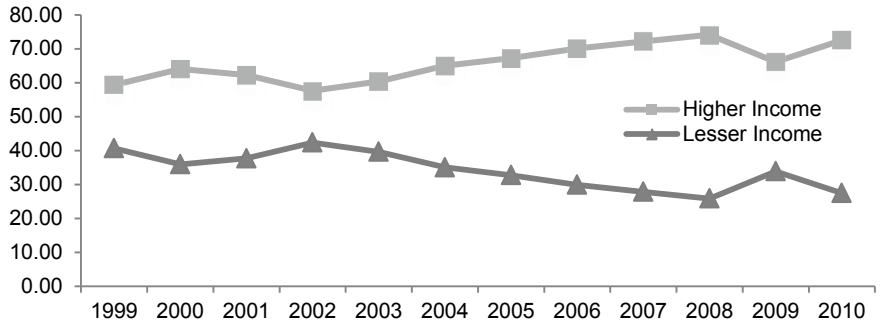
As capital gains taxation is considered an important element in the equation of fiscal adequacy, one can also appreciate its potential to influence the consumption/savings and risk-taking behaviors of individuals and other economic units. For example, the magnitude and allocation of investments may respond to changes in capital gains tax rate. However, the interplay of ordinary income tax and preferential capital gains tax rate potentially could moderate the degree of investment risk-taking in the system. That is, the preferential nature of capital gains taxation, the progressivity of the income tax rates coupled with the deduction of losses limits may encourage healthy balance in the risk-taking activities in the economy. In fact, Kenny (2005) asserts that preferential tax rate on capital gains does not necessarily increase risk taking. The relevance of capital gains taxation to pricing and trading decisions in the stock market is undeniable (see Hanlon and Heitzman, 2010; Arnold et al., 2011).

Typically, in a no-tax regime, investors should accelerate the realization of capital gains, ceteris paribus. However, they may choose to accumulate the gains in order to either net capital losses therefrom; or rebalance such capital gains and capital losses at death, at which time the inherited capital assets reset to the existing market price. The latter is no doubt a major loophole that high-end taxpayers enjoy; a loophole many believe is unfair. It can be further argued that this loophole impedes market liquidity no less than upward change in capital gains tax rate. Closing loopholes is a way to ensure that the tax base approximates closely economic income in a comprehensive manner. One reason for such a delay in realization is that investors consider capital gains tax liability as additional 'transaction costs'.

Jin (2006) suggests that capital gains tax component of the transaction costs could sometimes be higher than the conventional costs. Therefore, investors are expected to adjust their investment behaviors 'rationally' to changes in capital gains tax rates. However, the author suggests that such behavioral response differ between a 'tax sensitive' and 'tax insensitive' taxpayer, claiming that the former group are more 'sensible' than the latter in their trading patterns. He also notes the asymmetry of prices reactions vis-à-vis cumulative capital gains within the context of costly arbitrage. Among its proponents, preferential capital gains treatment is believed to be 'self-financing' due to increase in investment-capital accumulation (Kenny, 2005). This argument alludes to the universal acceptability of preferential capital gains tax rate relative to ordinary income rates. However, the optimum range of rates between capital gains and income taxation remains an empirical issue (see Conesa and Krueger, 2006; Peterman, 2012).

This becomes important if one considers the reality that capital gains inherently is regressive due to the asymmetry of concentration of such gains at the higher-end taxpayers. For example, in 2009, approximately two-thirds (72% in 2010) of taxable net gain was concentrated in the hands of taxpayers with $500,000 dollars or more in adjusted gross income (see Figure 1 and Table 1). In addition to preventing double taxation and locking-in of gains, the main argument for the preferential treatment of capital gains income is that it stimulates growth in investment, job and the economy. However, the link between capital gains tax rate and economy growth is at best unclear. In fact, the current study shows statistically insignificant relationship between the two. Therefore, increasing capital gains from 15% to 20% in the fiscal cliff negotiated package in 2013 between the Congress and the White House provides a context for reexamination of capital gains taxation dynamics in the U.S. So the research question is: do stock market investments increase/reduce in years when capital gains tax rates fall/increase?

Figure 1: Taxable Net Capital Gains by Income Group (1999 – 2010)



This figure shows the percentage of concentration of capital gains wealth by the following income groups: Higher Income = Taxpayers with Adjusted Gross Income of $500, 000 or more Lesser Income = Taxpayers with Adjusted Gross Income of Less than $500,000

Table 1: Taxable Net Gains by Income Group (1999 – 2009)

	[1]	[2]
Year	**Capital Gains Held by High Income Taxpayers (%)**	**Capital Gains Held by Other Taxpayers (%)**
1999	59.32	40.68
2000	64.05	35.95
2001	62.28	37.72
2002	57.63	42.37
2003	60.37	39.63
2004	64.94	35.06
2005	67.22	32.78
2006	70.07	29.93
2007	72.15	27.82
2008	74.12	25.88
2009	66.12	33.88

This table shows capital gains held by different groups of income status. High Income = Taxpayers with Adjusted Gross Income of $500, 000 or more Other Taxpayers = Taxpayers with Adjusted Gross Income of Less than $500,000 Source: IRS, Statistics of Income Division, July 2012.

DATA AND METHODOLOGY

Data for this study are obtained from different sources including Department of the Treasury – Office of Tax Analysis; Internal Revenue Service (IRS); Tax Policy Center (TPC); Bureau of Labor Statistics (BLS); Bureau of Economic Analysis (BEA) as well as DataStream Database. For the most part, each of these sources contains similar data that are overlapping but with consistent numbers. This triangulation of sources attests to the accuracy and reliability of the data used in this study. The capital gains data are collected from the TPC. This center substantially aggregates many tax data from the IRS (and some of the sources mentioned above) which is a primary and dependable source of taxation data in the U.S. The stock market indices data are collected from DataStream Database while the GDP figures are collected from the Bureau of Economic Analysis. The sample period covers a-50 Year period from 1960 to 2009 for many of the capital gains taxation analysis (subject to data availability). The frequency of the data observations used in the study is annual. Consistent with the research question of this study and motivated by the review of relevant literature above, the hypothesis stated below, in alternative form, is tested:

Hypothesis: Changes in capital gains tax rate does affect aggregate investments in the U.S. stock market. The following empirical model is used in the analysis:

$$SMI_t = \alpha_0 + \alpha_1 CGRATE_t + \alpha_2 TRCG_t + \alpha_3 GDP_t + \alpha_4 DUMRATE_t + \alpha_5 INTRATE_t + \varepsilon_t \quad (1)$$

Where:

SMI = stock market investments

CGRATE = the maximum capital gains tax rate

TRCG = the total realized capital gains

GDP = gross domestic product

DUMRATE = a categorical variable that equals 1 in the years when CGRATE falls relative to previous grouped year

INTRATE = interaction of DUMRATE and TRCG

The dependent measure (SMI) is run separately in the time-series regression using the three major U.S. stock market indices, i.e., Dow Jones Industrial, S&P 500, and NASDAQ Composite. I understand that there is some overlapping of companies in these indices. The more reason I use them in separate regression analysis instead of combined in one analysis. This effort is to examine if the results are different in these individual but separate indices. For the categorical variable, ten different groupings of years with the same capital gains tax rate are identified. These periods are then used to specifically capture years of increased or reduced capital gains tax rate (see Table 2). The GDP variable is used to control for real fluctuations and variations in the U.S. economy. The variable – TRCG – may appear redundant relative to the dependent measures. However, its inclusion in the specification is conceptually driven. For example, TRCG data points were solely from individuals as they exclude tax-exempt institutions which by nature are not sensitive to capital gains tax rate changes, but which are major players in the stock market (for more, see Jin, 2006). More so, those entities (and even some tax-sensitive ones) have some regulatory obligations and oversights, suggesting that their stock investment decisions are generally not mainly motivated by changes in capital gains tax regime. Also, the specification allows analysis of TRCG with respect to each of the three major stock indices in the U.S. The results discussed below further accentuate this.

Table 2: Maximum Capital Gains Tax Rate

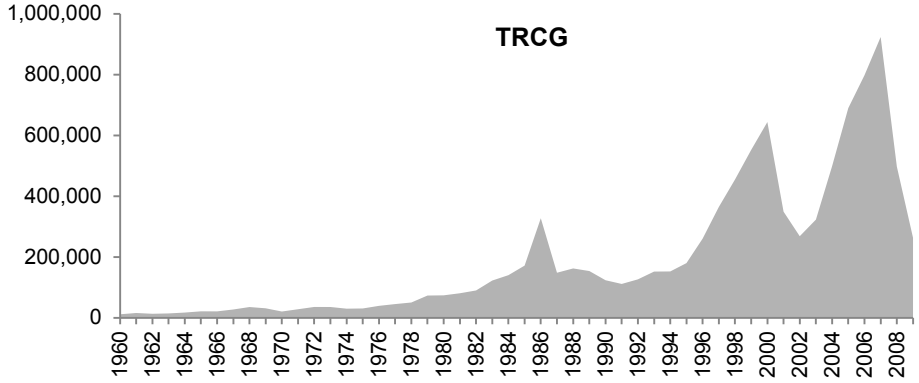
[1] Group	[2] Year Range	[3] Maximum Capital Gains Tax Rate	[4] Group Type
1	1960 - 1967	25%	Reduced
2	1968 -1969	26% - 27.5%	Increased
3	1970 – 1971	32.21% - 34.25%	Increased
4	1972 – 1975	36.5%	Increased
5	1976 – 1978	39.88%	Increased
6	1979 – 1981	28%	Reduced
7	1982 - 1986	20%	Reduced
8	1987 – 1997	28% - 28.93%	Increased
9	1998 – 2003	20% - 21.19%	Reduced
10	2004 - 2009	15% - 16.05%	Reduced

This table shows the maximum capital gains tax rate for the 10 grouped years. Source: Column 3 data comes from Department of the Treasury, Office of Tax Analysis.

RESULTS AND DISCUSSION

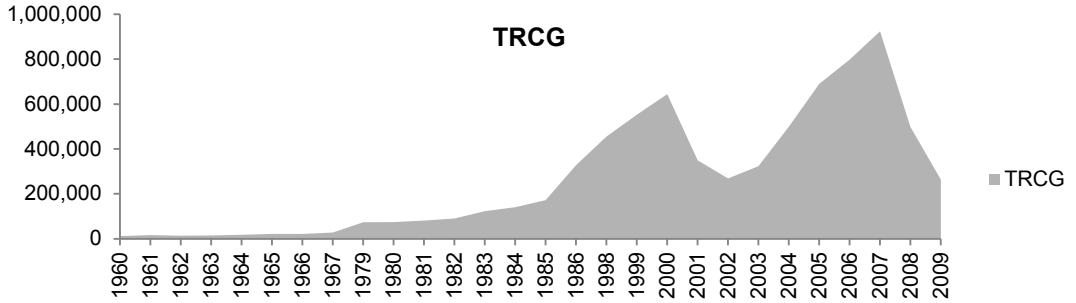
Figures 2 through 4 below provide pictorial representations of the realized capital gains over the 50-year period of this study. It can be deduced from the figures that there is no consistent pattern visibly different from the periods of decrease or increase in capitals gains tax rate. Therefore, in order to further analyze the data, I conduct time-series regression analysis with results presented and discussed below.

Figure 2: Total Realized Capital Gains between 1960 And 2009



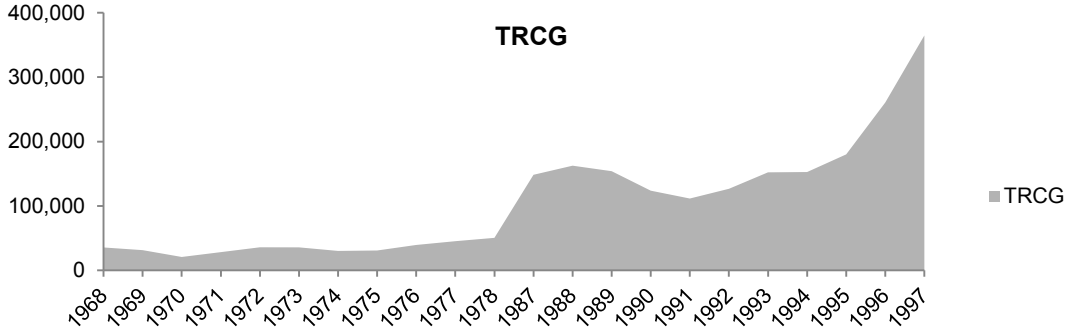
This figure shows the graphical pattern of Total Realized Capital Gains (TRCG) between 1960 and 2009 tax years.

Figure 3: Total Realized Capital Gains between 1960 And 2009 For Reduced Capital Gains Tax Rate Years



This figure shows the graphical pattern of Total Realized Capital Gains (TRCG) between 1960 and 2009 tax years for years of reduced Capital Gains Tax Rate.

Figure 4: Total Realized Capital Gains between 1960 and 2009 For Increased Capital Gains Tax Rate Years



This figure shows the graphical pattern of Total Realized Capital Gains (TRCG) between 1960 and 2009 tax years for years of increased Capital Gains Tax Rate.

Descriptive and Correlation Statistics

The descriptive analysis is presented in Panel A of Table 3. During the study period, the mean (median) of the total realized capital gains is over $196 billion ($123 billion) while the maximum capital gains tax rate has a mean (median) of 26.16% (25.95%). The gross domestic product for same period has a mean (median) of over $5 trillion ($4 trillion). The stock indices of Dow Jones, S&P 500 and NASDAQ have approximately the mean (median) of 3,748 (1,259), 481 (242) and 983 (455) respectively. The GDP figures corroborated by the stock market indices, show that the U.S. economy is vibrant and that total realized capital gains in the economy are substantial, which is approximately 4% of the size of the economy on average during the period under review.

The correlation figures as presented in Panel B of Table 3 are all significant at conventional thresholds. Worth noting is the correlation sign (–) between CGTRATE and all other variables. However, the time-series regression analysis shows a different result. With the level of correlation coefficients reported in the table, a multicolinearity diagnosis reveals that there is no perfect collinearity among the regressors.

Table 3: Descriptive Statistics and Correlation Matrix

	[1]	[2]	[3]	[4]	[5]
Panel A: Descriptive Statistics					
Variables	Mean	Median	Standard Deviation	Q1	Q3
TRCG ($million)	196,276.8	123,278	22,355.44	3,1305	282,287.75
GDP ($billion)	5,204.49	4,074.20	4,346.55	1,210.13	8,447.68
CGTRATE (percent)	26.16	25.95	6.68	21.13	25.95
DJONEs (index)	3,747.86	1,259.39	4,027.28	878.54	7,740.35
SandP500 (index)	481.33	242.17	477.89	97.55	903.25
NASDAQ (index)	983.14	454.82	998.60	195.84	1,950.40
Panel B: Correlation Matrix					
Variables	TRCG	GDP	CGTRATE	DJONEs	SandP500	NASDAQ
TRCG	1					
GDP	0.873***	1				
CGTRATE	-0.647***	-0.633***	1			
DJONEs	0.920***	0.951***	-0.620***	1		
SandP500	0.916***	0.928***	-0.631***	0.982***	1	
NASDAQ	0.861***	0.858***	-0.651***	0.933***	0.972***	1

This table shows the descriptive and correlation matrix for the listed variables. Note on Panel A: The period of analysis covers a 50-year span between 1960 and 2009. TRCG is the Total Realized Capital Gains; GDP is the Gross Domestic Product; CGRATE is the maximum capital gains tax rate: DJONEs is the Dow Jones Industrial; SandP500 is the Standard & Poor's 500; NASDAQ is the Nasdaq Composite. Not on Panel B: Variables remain as described above. All correlations are significant at conventional thresholds., **, *** indicate significance at the 10, 5, and 1 percent levels respectively.*

Regression Results

The regression results are contained in Table 4. Column 1 contains the anticipated coefficient signs for each independent variable. For example, I expect TRCG to have a positive sign, meaning that an increase in realized capital gains is a direct evidence of an increase in stock investments in the U.S. Similar expectation goes for the GDP variable. However, the CGTRATE variable has a negative expectation sign because consistent with general belief (and corroborated by the correlation statistics mentioned above), a drop in capital gains tax rate should increase stock market investments. Recall that DUMRATE is a dummy variable that equals one in the years when CGRATE falls relative to previous grouped year. So, the expectation is that the coefficient of this variable will be negative. The INTRATE is the interaction of DUMRATE and TRCG which coefficient is estimated to be positive, meaning that in years when

CGRATE falls relative to previous grouped year, TRCG is expected to show an increase in stock market investments. In the regression analysis, all the variables exhibit signs consistent with expectations with the exception of the CGTRATE, which is positive in the analysis. This sign is counterintuitive as it implies that in years when the maximum capital gains tax rate is low (high), investments in stock market

as proxied by the three major stock indices in the U.S. is low (high). Interestingly, this counterintuitive result is corroborated in the analysis by the direct relationship between CGTRATE and TRCG.

Table 4: Regression Coefficients

	[1]	[2]	[3]
Variables	**Expected Sign**	**Coefficients**	**t-statistics**
Panel A {Dependent: SMI (DJONEs)			
TRCG	+	0.378***	4.933
GDP	+	0.717***	8.860
CGTRATE	-	0.149*	1.779
DUMRATE	-	-0.042	-0.165
INTRATE	+	0.164	0.748
R2		0.941	
Panel B {Dependent: SMI (SandP500)			
TRCG	+	0.489***	5.216
GDP	+	0.643***	6.531
CGTRATE	-	0.095	0.903
DUMRATE	-	-0.421	-1.352
INTRATE	+	0.461*	1.748
R2		0.913	
Panel C {Dependent: SMI (NASDAQ)			
TRCG	+	0.487***	3.333
GDP	+	0.661***	3.947
CGTRATE	-	0.314	1.535
DUMRATE	-	-0.180	-0.370
INTRATE	+	0.359	0.919
R2		0.827	

*This table shows the regression coefficients for equation 1. The period of analysis covers a 50-year span between 1960 and 2009. Panel A has DJONEs, Panel B has SandP500 and Panel C has NASDAQ as the dependent measures respectively. TRCG is the Total Realized Capital Gains; GDP is the Gross Domestic Product; CGRATE is the maximum capital gains tax rate: DJONEs is the Dow Jones Industrial; SandP500 is the Standard & Poor's 500; NASDAQ is the Nasdaq Composite; DUMRATE is a categorical variable that equals 1 in the years when CGRATE falls relative to previous grouped year; INTRATE is interaction of DUMRATE and TRCG. The numbers in column [2] are Standardized Beta Coefficients. *, **, *** indicate significance at the 10, 5, and 1 percent levels respectively.*

One explanation for the result could be that investors willing to unlock wealth of capital gains may want to take advantage of capital loss realization in order reduce such gains even during the period of higher capital gains tax rate. This becomes plausible if one considers the fact that from marginal tax rate analysis perspective, $1 dollar of a loss (gain) worth more (less) during years of higher marginal tax rates. However, because the variable (CGTRATE) is not significant at the 5% conventional threshold, further interpretation needs to be made with caution.

Further, it is only the TRCG and GDP variables that are statistically significant. Reporting the standardized beta figures, the coefficient (t-statistics) of TRCG 0.378 (4.933) in DJONEs; 0.489 (5.216) in SandP500; and 0.487 (3.333) in NASDAQ. With a non-significant capital gains tax rate, these results indicate that total realized capital gains and not the capital gains rate impacts stock market liquidity after controlling for the overall economic activity as captured by the GDP variable which expectedly is highly significant in all the three regression models. In addition, this study shows that in terms of the magnitude of the coefficients and the t-statistics, total realized capital gains impacts stock market investments more through the S&P 500 index, followed by the NASDAQ and then the Dow Jones indices. However, Down Jones index appears to lead other indices in years when Gross Domestic Product is high. Together, this may be value-relevant to investors in their investment decision choices.

Additional Analysis

On the real econometric concerns of autocorrelation potentially inherent in time series observations used in this study, a one-year lagged *(t-1)* variable of each of the dependent measures is introduced in the regression equation above thus:

$$SMI_t = \alpha_0 + \alpha_1 CGRATE_t + \alpha_2 TRCG_t + \alpha_3 GDP_t + \alpha_4 DUMRATE_t + \alpha_5 INTRATE_t + \alpha_6 SMI_{t-1} + \varepsilon_t \quad (2)$$

The results from the t-statistics show consistent non-significance coefficients of the CGTRATE variable in all the three analysis (DJONEs (1.069), SandP500 (0.860) and NASDAQ (1.488)). In other words, the findings are substantially similar to those of the original model specification.

It must be mentioned that even if there are autocorrelation issues in the model, it should bias the t-value of the regression parameter's estimate in favor of CGTRATE (a main variable of interest) attributing overstated t-ratio to it, thus making it statistically significant. But this variable consistently exhibits statistical insignificance in the analyses across all the three dependent measures. Also, it must be noted that autocorrelation is a common and more severe problem in daily, weekly or monthly data relative to yearly data, the interval used in this study. In spite of the conceptual rationale, the TRCG variable was completely removed from equations (1) and (2) above in order to examine whether it takes explanatory power away from CGTRATE. Still CGTRATE remains, non-significant across the three dependent measures in all specifications. For example, for equation 1 (equation 2), the t-statistics for DJONEs = 1.712 (0.101), SandP500 = 1.240 (0.201) and NASDAQ = 1.905 (0.968). In other words, the tenor of the findings remains unchanged. Also, due to the fact that the period between 1987 and 1997 experienced unusual rapid increase in stock prices, added analysis were made to specifically examine the stock market reactions to capital gains rate during this period.

The findings are substantially similar. Further, I reexamine the regression analysis (albeit with slightly shorter time horizon) using long term capital gains, qualitatively similar results are found. Notwithstanding the above findings, caution should be exercised in interpreting the results/findings of this study. For example, the high R-Squared number reported in Table 4 is consistent with studies having similar econometric properties like the current one. Therefore, it should not necessarily be interpreted as an indication of a good model fit. Greene (2012) clearly states that "…in fact, in using aggregate time-series data, coefficients of determination this high (94.64) are routine" (pp. 45). Also, this analysis excludes state capital gains effect. In addition, it is worthy to note that investors' trading behaviors depend largely on their expectations and horizon (see Gaspar et al., 2013). A pessimistic (optimistic) investor will sell more (less) albeit higher (lower) capital gains tax rate.

Further, even though the tax law substantially prevents taxpayers from converting the character of ordinary income into tax-favored capital gains, by and large, sophisticated taxpayers could still engage in sophisticated and complex tax avoidance strategies. There is also the econometric specification concern regarding omitted variable, which could bias the coefficient estimates. Even though it is believed that autocorrelation "will not affect the unbiasedness or consistency of the OLS regression estimators, it does affect their efficiency" (Pindyck and Rubinfeld, 1998) by making OLS to underestimate the standard error of the coefficients relative to the true standard error. In other words, to the extent that one or combination of these caveats occurs, the tenor of the findings of this study could be biased. Future study could examine how long into the future does the response effect (if any) of changes in capital gains tax rate last. Also, the negative sign of the capital gains tax rate found in the current study deserves further research analysis; notwithstanding its statistical insignificance as reported in this study. This becomes more important if one considers the direct relationship between this variable and the total realized gains variable.

CONCLUSION

This study examines stock market investments responses to changes in capital gains tax rate, and finds that capital gains realization and not capital gains tax rates impacts stock market investments in the U.S.

The sample period covers a-50 Year period from 1960 to 2009, using data obtained from different sources including Department of the Treasury – Office of Tax Analysis; Internal Revenue Service (IRS); Tax Policy Center (TPC); Bureau of Labor Statistics (BLS); Bureau of Economic Analysis (BEA) as well as DataStream Database. The following caveats suggest that caution needs to be applied in interpreting the findings of this study. The analysis excludes state capital gains effect and depending on the state of tax residence of the investor, the combined tax burden may be material. It must also be noted that investors trading behaviors depend largely on their expectations and horizon. In addition, sophisticated taxpayers may engage in complex tax avoidance gimmicks to game the capital gains tax system by converting the character of ordinary income into tax-favored capital gains. Further, there is also the econometric specification concern regarding omitted variable, which could bias the coefficient estimates. Therefore, to the extent that one or combination of these caveats occurs, the tenor of the findings of this study could be biased. Finally, future study could examine how long into the future does the response effect (if any) of changes in capital gains tax rate last. Also, the negative sign of the capital gains tax rate found in the analysis deserves further research analysis; notwithstanding its statistical insignificance as reported in this study.

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BIOGRAPHY

Dr. Akinloye Akindayomi is an Assistant Professor of Accounting, and the Director of Undergraduate Program in the Department of Accounting and Business Law at the College of Business Administration, University of Texas – Pan American (UTPA). He can be contacted at: 1201 West University Drive, Edinburg, Texas 78539-2999, U.S.A. Phone: (956) 665 – 7842. Email: akinloyea@utpa.edu.

DOES EXPERIENCE AFFECT AUDITORS' PROFESSIONAL JUDGMENT? EVIDENCE FROM PUERTO RICO

Carmen B. Ríos-Figueroa, Universidad del Este
Rogelio J. Cardona, University of Puerto Rico-Rio Piedras

ABSTRACT

Auditors use professional judgment to collect and evaluate evidence to issue an opinion on the fairness of a business entity's financial statements. Prior research finds that international auditing firms should consider cultural aspects when planning an audit examination and that the experience and knowledge possessed by an auditor influences the decision-making processes in an audit. This paper examines whether experience could affect the professional judgment of auditors during the planning phase of an audit. The investigation consists of a survey made among auditors working in audit and accounting firms, Independent Practitioners, and university senior students majoring in accounting to determine if the years of work experience of an auditor influences the evaluation of the internal control environment and the assessment of fraud risk for a firm operating in different countries with different cultural characteristics. The results obtained suggest that experience does not seem to affect their decisions when they are based on professional judgment.

JEL: F23, M40, M41, M42

KEYWORDS: Experience, Culture, Internal Control, Fraud Risk, Individualism/Collectivism, Power Distance, Uncertainty Avoidance, Short and Long-Term Vision, Professional Judgment

INTRODUCTION

The assessment of fraud risk is one of the most important steps in an audit examination of the financial statements of a business entity. If the entity (audit client) is located in another country, independent auditors (with or without experience) will have to make decisions based on their professional judgment. The country where an auditor performs the audit field-work procedures is one of the factors that will be considered in the decision-making process, especially when the client is located in a country with different cultural characteristics. Cohen, Pant and Sharp (1993) and Tsakumis, Campbell and Doupnik (2009) assert that international firms of Certified Public Accountants (CPAs) should consider cultural aspects when planning an audit examination.

The results of this study are important because of the increasing professional liability currently faced by CPA firms that provide audit and assurance services. Their reputation and brand name in the global business environment has been tarnished by recent accounting fraud scandals. This implies that auditors must be alert to fraud risk factors ("red flags") that may affect the fairness of the entity's financial statements, which could be caused by significant deficiencies or material weaknesses in a firm's system of internal controls. The literature identifies differences in the audit environments and the performance of multi-cultural analysis between countries using accounting students or auditors in countries like USA, Canada, Asia, and Mexico. Hofstede's cultural dimensions (1980, 2001) are frequently used to predict the effects of cultural differences: individualism and collectivism, power distance, masculine and feminine, uncertainty avoidance, and long versus short-term vision.

Prior research describes the use of auditors with different levels of experience, the most common being the use of students. Several studies have examined the effect of the auditor's experience on professional judgment and the decisions made by auditors (Ashton and Brown, 1980; Hamilton and Wright, 1982; Bedard, 1989; Bonner and Lewis, 1990; Libby and Frederick, 1990; Ho and May, 1993; Davis, 1996). However, these studies do not address how the experience of the auditors could affect their professional judgment in their assessment of the possibility of fraud and on the reliability of a firm's internal control system in environments with different characteristics.

The objective of this investigation is to examine whether experience affects the decisions made by auditors during the planning stage of an audit. To the best of our knowledge there are no previous studies that address whether the number of years of work experience of independent auditors could affect their assessment of fraud risk and the reliability of a firm's internal control environment during an audit examination of a client with global operations and cultural diversity in its workplace. The remainder of the paper is organized as follows. Section 2 describes the relevant literature. Sections 3 and 4 describe the hypotheses development, the research design, and the data sources for this investigation. Sections 5 and 6 present the methodology used and the empirical results obtained. Section 7 presents our conclusions.

LITERATURE REVIEW

Culture

The definitions for culture are many and varied. Kroeber and Kluckhohn (1952) identified over 160 definitions of the word culture. The most often cited definition of culture is the one provided by Hofstede (1983) that defines it as a collective programming of the mind, hard to change, that distinguishes one group of people from others. According to Hofstede (1983), regional and national differences remain and are one of the crucial problems for management, particularly for managers of multinational firms. For Hofstede, cultural programming is difficult to change, unless you isolate or detach individuals from their culture. From 1968 to 1972, Hofstede collected and analyzed data on 100,000 individuals who were working at The International Business Machines Corporation (IBM) in fifty different countries and in three geographical regions. The objectives of Hofstede's 1983 study were to create a terminology to describe cultures that had an empirical basis and use that information systematically gathered from a number of cultures, instead of only using anecdotal impressions. The results of the aforementioned study and subsequent studies allowed Hofstede to develop a model to identify the cultural patterns of each group consisting of four primary dimensions: individualism and collectivism, power distance, uncertainty avoidance and masculinity (or femininity).

In 1985, Hofstede added a fifth dimension looking for a long-term alternative: long-term vision. This dimension was the result of a study in which Hofstede (2001) collected and analyzed data on students in 23 countries. In 2010, Hofstede added a sixth dimension, indulgence versus restriction, based on data analysis made by Minkov with the World Values Survey for 93 countries (Hofstede G, Hofstede G.J, and Minkov, 2010). The dimension of individualism or collectivism essentially measures the relationship that an individual has with others. The dimension of power distance, large or small, considers how societies work with people who are not equal in physical and in intellectual capacities. The dimension of uncertainty avoidance reflects how society deals with the fact that time "flows" in one direction, and that the future although uncertain, will always arrive. The male and female dimension presents the divided gender roles in a society. The dimension of long-term (versus short-term) orientation refers to a future-oriented culture. The sixth dimension, indulgence versus restraint, relates to the topic of happiness in countries.

Impact of Culture on Audit Procedures

Several studies have been made on how culture can affect audit procedures, especially during the planning phase, where the independent auditor can use more professional judgment. For Cohen et al. (1993), increased merger activity among public firms and the expansion of CPA firms have created the need for global CPA firms to consider the impact of international cultural diversity in their decision-making processes and the ethical sensitivity of their employees. Hughes et al. (2009) find that cultural characteristics seem to influence the ability of recently graduated auditors to perform analytical review procedures that require prediction changes in balance sheet accounts. Ge and Thomas (2007) note that Canadian accounting students most frequently used ethical factors and made ethical decisions during an audit more frequently than Chinese accounting students.

According to Tsui (1996), cultural differences seem to affect the levels of ethical reasoning among auditors. Cohen et al. (1995) conducted a study of auditors in Latin America, Japan, and the United States, which suggests that culture is related to the ethical evaluations of the subjects studied and the likelihood that they or their colleagues performed a task. The results obtained by Sim (2010) also imply that the auditors' report on internal controls should be aware that national culture is an important factor to be considered by auditors in their assessment of control risk.

Fraud and Culture

According to Watson (2003), people with different cultural backgrounds have different opinions as to how to deal with fraud. Brulenski and Zayas (2004) assert that if an event of potential fraud is identified, the auditor should evaluate whether it has a material effect or impact on the entity's financial statements. This could involve performing additional audit procedures and considering what other aspects of the audit examination could be affected. Fraud research has increased in recent years because of the many well publicized cases of management misbehavior, weak governance, and corporate failures. Brulenski and Zayas (2004) assert that recent events, new legislation, and new professional guides have increased customer expectations regarding the independent auditor's responsibility to detect fraud. This has been positive since public confidence in auditors was weakened by the occurrence of accounting scandals such as Enron, where fraudulent accounting practices were allowed (or ignored) by the CPA firm of Arthur Andersen LLP. Several studies have identified some factors associated with the culture of a country that may allow the existence of fraud. Davis and Ruhe (2003) find that the dimensions of collectivism and power distance seem to be associated with corruption. For Husted (1999), the cultural profile of a corrupt country is associated with a high level of power distance and high uncertainty avoidance. Getz et al.

(2001) state that a country with a high rejection of uncertainty avoidance and a country with large power distance seems to be positively associated with corruption. The authors also suggest that corruption is inconsistent with a long-term oriented culture. Tax evasion is another event whose occurrence might be considered as fraud. Tsakumis et al. (2007) and Richardson (2008) associate countries that do not meet their tax commitments with a low level of individualism. Tsakumis et al. (2007) also associate countries that do not meet their tax commitments with a culture of large power distance. Bribery is another factor that has been associated with Hofstede's cultural dimensions. Sanyal and Guvenli (2009) find that companies operating in countries with a high degree of individualism and with a long-term vision are less likely to engage in the payment of kickbacks or bribes.

Experience and the Independent Auditor's Professional Judgment

An independent auditor uses professional judgment to collect and evaluate evidence to determine whether an entity's financial statements present fairly, in all material respects, its financial position, results of

operations and cash flows, in conformity with either accounting principles generally accepted in the United States of America (U.S. GAAP), or International Financial Reporting Standards (IFRS). According to Ashton, Keinmuntz, Sullivan and Lawrence (1988, cited in O'Donnell 1995), auditors must integrate their internal information (knowledge stored in memory) to gather evidence and arrive at a conclusion based on their judgment. Several studies have linked the auditor's experience level with their professional judgment and ability to make decisions. According to Ashton and Brown (1980), there is more agreement among the judgment of experienced auditors than among less experienced auditors. In addition, more experienced auditors have an easier time explaining their judgmental decisions than less experienced auditors. Hamilton and Wright (1982) find that although experience has an important role in decision-making, its role is more significant in the context of less structured decisions.

Bedard (1989) reviews the literature on experience in auditing and compares the cognitive approach with the behavioral approach. According to the cognitive approach, the process of thinking and knowing is what determines human behavior; the behavioral approach suggests that external (environmental) factors are what determine behavior. Using the cognitive approach, Bedard (1989) notes that there will be a difference in knowledge between more experienced auditors and less experienced auditors. He also states that these differences may lead more experienced auditors to use a different decision-making process than less experienced auditors. However, using the behavioral approach, Bedard (1989) explains that more experienced auditors do not behave differently than less experienced auditors. Other researchers have studied how audit procedures performed may affect the auditor's professional judgment. The typical hierarchy in a CPA firm is the following (from the highest rank to the lowest rank); Partners, Managers, Senior Auditors, and Staff Auditors. Cohen and Kida (1989) state that the substantive audit procedure known as "analytical review" has a greater effect on the judgment of an Audit Manager than on the judgment of a Senior Auditor. In addition, they note that the reliability of a firm's internal controls affects the Senior Auditor more than the Audit Manager.

Experience and knowledge have been identified as possible factors that may influence an auditor's performance. Bonner and Lewis (1990) note that although experienced auditors have a stronger performance, on average, than auditors with less experience, knowledge, and innate ability provide a better explanation for the difference in their performance. Libby and Frederick (1990) find that experienced auditors exhibit a more complete understanding of the errors in the financial statements and are able to generate a larger amount of explanatory hypotheses to explain them. For these researchers, experienced auditors can reach a proper conclusion more quickly than their less experienced colleagues. Ho and May (1993) used auditors and students to analyze two cases, one in which they used their knowledge in auditing and another that did not need prior knowledge of the subject. The researchers found that the ability to reason and judgment used by auditors and students were not very different from each other in the case where it was not necessary to use auditing knowledge. In the case of an audit, experience and knowledge resulted in different responses between auditors and students.

Davis (1996) finds that the ability to recognize and select relevant information in a complex judgment process is a contrast between the enhanced performance achieved by those who make decisions and those that have experience. Comparing recently promoted (new) Senior Auditors with "more experienced" Senior Auditors, Davis (1996) concludes that the "more experienced" Senior Auditors exhibit a higher level of selective attention to relevant information. In addition, more experienced Senior Auditors demonstrate greater consistency between their responses to selected relevant information and their responses to their preliminary assessment of control risk; selected less relevant information and arrived at their judgment in less time than less experienced Senior Auditors.

RESEARCH DATA AND METHODOLOGY

Hypotheses Development

Experience may be an important factor influencing the judgment made by auditors in their evaluation of the reliability to be placed on a firm's internal control environment and the assessment of possible fraud risk factors. For Ho and Chang (1994), professional knowledge and not national culture, is the factor that plays a dominant role in the auditor's probabilistic judgments. It has been noted that such knowledge and experience are the factors that can determine the difference in the decisions made by auditors. Libby and Frederick (1990) find that experienced auditors may generate more hypotheses that can explain errors in a firm's financial statements. The authors also note that experienced auditors can reach a proper conclusion more quickly than recently designated (less experienced) auditors. Similar to these researchers, Davis (1996) states that more experienced Senior Auditors arrive at a judgment in less time than less experienced Senior Auditors. Ho and May (1993) use students and auditors in their study and agree that experience and knowledge result in a different response in the cases analyzed by each group.

Bedard (1989) uses a cognitive approach and notes that the knowledge gap between more experienced Senior Auditors and less experienced Senior Auditors may result in a different decision-making process by the more experienced auditors. Independent practitioners and university senior students majoring in accounting have been used in prior studies related to audit engagements, culture, and the auditor's experience and professional judgment. University senior students have also been used to investigate the impact of culture on audit procedures (Welton and Davis 1990; Patel and Psaros, 2000; Hughes et al., 2008). Prior research suggests that the years of work experience and knowledge of an auditor influences their decision-making processes in an audit engagement.

In this study we consider whether the number of years of experience of auditors working in CPA firms in Puerto Rico at different levels of responsibility ("Staff Auditors", "Senior Auditors", Managers, Partners) or Independent Practitioners, and university senior students majoring in accounting could affect their professional judgment in their evaluation of the internal control environment and assessment of fraud risk in a client that operates in different countries with cultural diversity in its workplace. We use four of Hofstede's (1980, 2001) cultural dimensions (individualism and collectivism, power distance, uncertainty avoidance and long or short-term vision) to examine the effects of cultural differences and whether experience has any effect on the decisions made by auditors related to their evaluation of an entity's internal controls and their assessment of a client's fraud risk. We predict that the three groups of participants in our study will respond differently to certain situations in their evaluation of the internal control environment and assessment of fraud risk. Based on our prediction we present the following hypotheses:

H1: Participants will make different decisions regarding their assessment of the reliability of a firm's internal controls depending on their years of work experience.

H2: Participants will make different decisions regarding their assessment of the possibility of fraud in a firm depending on their years of work experience.

Research Design and Sample Selection

This study consisted of administering questionnaires (see Appendix I) to the following groups: Staff Auditors, Senior Auditors, Audit Managers and/or Partners of CPA firms in Puerto Rico, Independent Practitioners and university senior students majoring in accounting. Table 1 summarizes the process of the sample selection and the composition of the study sample. A total of 168 questionnaires were distributed during the first quarter of 2011, with 12 questionnaires being discarded because they did not

answer all of the questions, leaving the sample with 156 eligible participants. The scenarios were distributed as evenly as possible: where Scenario I (an individualistic country or a collectivistic country) was analyzed by 37 participants; Scenario II (a country with high power distance and a country with low power distance) was analyzed by 37 participants; Scenario III (a country with a high degree of uncertainty avoidance and a country with a lower degree of uncertainty avoidance) was analyzed by 42 participants; and Scenario IV (a country with long-term vision and a country with short-term vision) was analyzed by 40 participants. The participants in this study were 86 females and 70 males.

The current occupation of the participants in the study is as follows: 57 are university senior students majoring in accounting, 24 are Staff Auditors and 26 are Senior Auditors in a CPA firm, 21 are classified as either Audit Manager or Partner in a CPA firm, 23 are Independent Practitioners, and 5 were classified as "Other". The years of work experience of the participants are as follows: 77 participants have 0-2 years' experience, 23 participants have 3-5 years' experience and 56 participants have 6 years or more of work experience. The place of employment of the participants in the study are as follows: 14 work in international CPA firms, 61 work in local CPA firms, 20 work as Independent Practitioners, three work in industry, 57 are students and one works in a financial institution.

Table 1: Sample Selection

Sample participants	Total surveys distributed	168
	Less:	
	Incomplete surveys	(12)
	Total sample participants	**156**
Participants by Scenario	Scenario I	37
	Scenario II	37
	Scenario III	42
	Scenario IV	40
	Total	**156**
Participants by Gender		86
Female		70
Male	**Total**	**156**
Participants by Current employment status	1. Accounting student (Senior year)	57
	2. Staff Auditor in a CPA firm	24
	3. Senior Auditor in a CPA firm	26
	4. Manager or Partner in a CPA firm	21
	5. Independent Practitioner	23
	6. Other	5
	Total	**156**
Participants classified by Years of Experience	0-2 years	77
	3-5 years	23
	6 or more years	56
	Total	**156**
Participants by Place of Employment	International Firm	14
	Local Firm	61
	Independent Auditor	20
	Corporation	3
	Students	57
	Financial Institution	1
	Total	**156**

This table presents the sample participants in the study classified by gender, occupation, years of work experience and place of employment.

Each participant evaluated two hypothetical countries, with different cultural characteristics depending on Hofstede's dimensions (1980, 2001). Participants were not explicitly informed of the dimension that was analyzed. Each participant answered 12 questions divided as follows: four questions related to the reliability of internal controls, four questions related to the assessed possibility of fraud and four questions requested demographic information (gender, occupation, number of years worked as an auditor,

and name of employer). An ordinal scale was used for the perception of the reliability of internal controls and the likelihood of fraud, ranging from significantly "lower than" to significantly "higher than".

Research Data

The questionnaire used in this study was developed using a model created by Huber (2001). The scenarios that describe the characteristics of the countries using four of Hofstede's dimensions (1980, 2001) were modified. In addition, several questions about their assessment of fraud risk were added. Each participant received an informed consent form and another document that described the countries in which a company operates. The majority of the descriptions used on the questionnaire were the characteristics used by Hofstede (1980, 2001) for each dimension, modifying them only to construct more clear and complete sentences. Each questionnaire took approximately 20 minutes to complete. Some questionnaires were sent online, if the participant so required.

This study investigates the association between years of work experience and the evaluation of the reliability of internal controls and fraud risk. Our model considers years of work experience as the independent variable and the reliability of a firm's internal control environment and the perception of the possibility of fraud as the dependent variables. A nonparametric analysis of variance was used (Kruskal-Wallis test) to compare the different sample groups and determine whether there was a difference among the participants in the study of their perception of the reliability of internal controls and their assessment of fraud risk given their years of work experience.

EMPIRICAL RESULTS

Hypothesis 1 predicts that participants will make different decisions regarding their perception of the reliability of a company's internal controls depending on their years of work experience. Tables 2 through 5 provide the results of questions 1-4 on their perception of the reliability of internal controls for all the scenarios examined. Hypothesis 2 predicts that participants will make different decisions regarding their perception of the potential for fraud in a company depending on their years of work experience. Tables 6 to 9 present the results of questions 5-8 on their perception of the possibility of fraud. The sample was stratified by years of work experience. Group 1 included participants with 0-2 years of work experience; group 2 included participants with 3-5 years of experience; and group 3 included participants with 6 or more years of experience. The Kruskal-Wallis test calculates an average rank of the responses from the participants to examine the difference between the groups. A significance level of 10 percent was established for the perception decisions on the reliability of internal controls and the possibility of fraud. The answer sheet provided to the participants was coded to allow possible answers to the questionnaire's questions as: a, b, c, d and e. To facilitate the analysis of responses, answers were coded as follows: a = 1, b = 2, c = 3, d = 4 and e = 5.

Table 2 presents the results obtained for questions 1-4 from the 37 participants who examined the scenario of one individualistic country and one collectivistic country and their perceived reliability of internal controls. Question 1 (amount of time required to study and evaluate a firm's internal controls) resulted in an average rank for group 1 of 17.63, group 2 has an average rank of 10.5, and Group 3 has a value of 22.79. This results in a 4.284 Chi-square statistic with a significance level of 0.117. Question 2 (effectiveness of the internal control environment) resulted in an average rank as follows: group 1 has 18.60, group 2 has 25.50, and group 3 has 18.18. This results in a Chi-square statistic of 1.38 with a significance level of 0.500. Question 3 (management's vision of the importance of internal controls) resulted in an average rank as follows: group 1 has 20.00, group 2 has 22.50 and group 3 has 16.82. This results in a Chi-square statistic of 1.181 with a significance level of 0.554.

Table 2: Kruskal-Wallis Test to Determine Whether There Is a Difference in the Perception of Auditors Regarding the Reliability of Internal Controls Considering Their Years of Work Experience

Scenario 1: Individualistic country *(Country A) versus Collectivistic country* (Country B).
Panel A: Average Rank of the Responses

Question	Group by experience[a]	**N**	**Average rank[b]**
Question 1	1	20	17.63
As an auditor, you would expect that the amount of time needed to study and	2	3	10.50
evaluate internal control of the company in country A is _____ as the	3	14	22.79
same company operating in country B.	**Total**	**37**	
Question 2	1	20	18.60
As an auditor, you would expect that the effectiveness of the control	2	3	25.50
environment of the company in country A is _____ as the same	3	14	18.18
company operating in country B.	Total	**37**	
Question 3	1	20	20.00
As an auditor, you would expect that management's vision of the importance	2	3	22.50
of internal controls of the company in country A is _____ as the same	3	14	16.82
company operating in country B.	Total	**37**	
Question 4	1	20	20.70
As an auditor, you would expect that the effectiveness of control activities	2	3	16.67
used by the company in country A is _____as the same company	3	14	17.07
operating in country B.	Total	**37**	

Panel B: Statistical tests – Years of Work Experience *

	1	2	3	4
Question number				
Chi-square	4.284	1.388	1.181	1.216
Df	2	2	2	2
Significance Level	0.117	0.500	0.554	0.544

This table presents the average rank of the responses obtained from the participants in the study that examined an individualistic country and a collectivistic country and their perceptions of the reliability of internal controls in a firm based on their years of work experience.
(a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience.
*(b) Refers to the average rank of the participants' responses. * indicates significance at the 10 percent level.*

Question 4 (what an auditor expects regarding the effectiveness of a company's internal control activities) resulted in an average rank for group 1 of 20.70, Group 2 has a value of 16.67, and group 3 has 17.072. This results in a Chi-square statistic of 1.216 with a significance level of 0.544. The significance level of the average rank for all the questions in the questionnaire suggest no statistically significant difference in the responses obtained from the participants in the groups divided by years of work experience. The lowest significance level, although not deemed to be significant, for question number 1, was related to the amount of time required to evaluate a firm's system of internal controls.

Question 2 (effectiveness of the internal control environment) resulted in an average rank as follows: group 1 has 17.94; group 2 has an average rank of 20.83, and group 3 has an average rank of 19.62. This results in a Chi-square statistic of 0.437 with a significance level of 0.804. Question 3 (management's vision of the importance of internal controls) resulted in an average rank as follows: group 1 has a value of 20.31, the average rank for group 2 is 25.00 and for group 3 is 14.42. This results in a 4.916 Chi-square statistic with a significance level of 0.086. Question 4 (what an auditor expects related to the effectiveness of internal control activities) resulted in an average rank for group 1 of 19.25, for group 2 it is 19.75 and for group 3 it is 18.31. This results in a Chi-square statistic of 0.118 and a significance level of 0.943.The significance levels of average rank for questions number 1, 2 and 4, suggest no statistically significant difference in the responses from the participants in the groups divided by years of work experience. However, the average rank for question number 3 (management's vision of the importance of internal controls of a firm) suggests that there is a significant difference in the responses obtained from the participants when they are divided by years of work experience.

Table 3 presents the results obtained for questions 1-4 from the 37 participants who examined the scenario of a country with large power distance and a country with small power distance. Question 1

(amount of time required to study and evaluate a firm's internal controls) resulted in an average rank for group 1 of 18.42, group 2 has an average rank of 16.83; group 3 has an average rank of 20.81. This results in a Chi-square statistic of 0.726 with a significance level of 0.695.

Table 3: Kruskal-Wallis Test to Determine Whether There is a Difference in the Perception of Auditors Regarding the Reliability of Internal Controls Considering Their Years of Work Experience

Scenario 2: Country with high power distance (Country A) versus *Country with low power distance. (Country B).*

Panel A: Average Rank of the Responses

Question	Group by experience[a]	**N**	**Average rank[b]**
Question 1	1	18	18.42
	2	6	16.83
As an auditor, you would expect that the amount of time needed to study and evaluate internal control of the company in country A is _____ as the same company operating in country B.	3	13	20.81
	Total	**37**	
Question 2	1	18	17.94
	2	6	20.83
As an auditor, you would expect that the effectiveness of the control environment of the company in country A is _____ as the same company operating in country B.	3	13	19.62
	Total	**37**	
Question 3	1	18	20.31
	2	6	25.00
As an auditor, you would expect that management's vision of the importance of internal controls of the company in country A is _____ as the same company operating in country B.	3	13	14.42
	Total	**37**	
Question 4	1	18	19.25
	2	6	19.75
As an auditor, you would expect that the effectiveness of control activities used by the company in country A is _____as the same company operating in country B.	3	13	18.31
	Total	**37**	

Panel B: Statistical tests – Years of Work Experience *

Question number	1	2	3	4
Chi-square	0.726	0.437	4.916	0.118
Df	2	2	2	2
Significance Level	0.695	0.804	0.086	0.943

*This table presents the average rank of the responses obtained from the participants in the study that examined a country with high power distance and a country with low power distance and their perceptions of the reliability of internal controls in a firm based on their years of work experience. (a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience. (b) Refers to the average rank of the participants' responses. * indicates significance at the 10 percent level.*

Table 4 presents the results obtained for questions 1-4 from the 42 participants who examined the scenario of a country with a country with a higher degree of uncertainty avoidance and a country with a lower degree of uncertainty avoidance. Question 1 (amount of time required to study and evaluate a firm's internal controls) resulted in an average rank for group 1 of 17.81, for group 2 it is 25.56 and for group 3 it is 23.50. This results in a Chi-square statistic of 3.552 with a significance level of 0.169.

Question 2 (effectiveness of the internal control environment) resulted in an average rank as follows: group 1 has a value of 19.58, group 2 has a value of 19.11 and for group 3 it is 25.23. This results in a 3.902 Chi-square statistic with a significance level of 0.142. Question 3 (management's vision of the importance of internal controls) resulted in an average rank as follows: group 1 has a value of 22.17, group 2 has a value of 20.28 and for group 3 it is 21.43. This results in a 0.170 Chi-square with a significance level of 0.919. Question 4 (what an auditor expects related to the effectiveness of control activities) resulted in an average rank for group 1 of 20.14, for group 2 it is 19.11 and for group 3 it is 24.57. This results in a Chi-square statistic of 2.369 with a significance level of 0.306.

The significance levels of average rank for question numbers 1, 2, 3 and 4, suggest no significant difference in the responses obtained from the participants when they are divided by years of work experience.

Table 4: Kruskal-Wallis Test to Determine Whether There is a Difference in the Perception of Auditors Regarding the Reliability of Internal Controls Considering Their Years of Work Experience

Panel A: Average Rank of the Responses

Question	Group by Experience[a]	N	Average rank[b]
Question 1	1	18	17.81
	2	9	25.56
As an auditor, you would expect that the amount of time needed to study and evaluate internal control of the company in country A is _____ as the same company operating in country B.	3	15	23.50
	Total	**42**	
Question 2	1	18	19.58
	2	9	19.11
As an auditor, you would expect that the effectiveness of the control environment of the company in country A is _____ as the same company operating in country B.	3	15	25.23
	Total	**42**	
Question 3	1	18	22.17
	2	9	20.28
As an auditor, you would expect that management's vision of the importance of internal controls of the company in country A is _____ as the same company operating in country B.	3	15	21.43
	Total	**42**	
Question 4	1	18	20.14
	2	9	19.11
As an auditor, you would expect that the effectiveness of control activities used by the company in country A is _____as the same company operating in country B.	3	15	24.57
	Total	**42**	

Panel B: Statistical tests – Years of Work Experience *

Question number	**1**	**2**	**3**	**4**
Chi-square	3.552	3.902	0.170	2.369
df	2	2	2	2
Significance Level	0.169	0.142	0.919	0.306

** Significant at the 10 percent level.This table presents the average rank of the responses obtained from the participants in the study that examined a country with a higher degree of uncertainty avoidance and a country with a lower degree of uncertainty avoidance and their perceptions of the reliability of internal controls in a firm based on their years of work experience. (a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience. (b) Refers to the average rank of the participants' responses.*

Table 5 presents the results obtained for questions 1-4 from the 40 participants who examined the scenario of a country with a long-term vision and a country with a short-term vision related to the perception of the reliability of a firm's internal controls. Question 1 (amount of time required to study and evaluate a firm's internal controls) resulted in an average rank for group 1 of 20.43, for group 2 it is 23.60, and for group 3 it is 19.50. This results in a Chi-square statistic of 0.493 with a significance level of 0.782. Question 2 (effectiveness of the internal control environment) resulted in an average rank as follows: group 1 is 20.40, for group 2 it is 16.10, and for group 3 it is 22.21. This results in a Chi-square statistic of 1.150 with a significance level of 0.563. Question 3 (management's vision of the importance of internal controls) resulted in an average rank as follows: group 1 has a value of 19.26, for group 2 it is 21.70 and for group 3 it is 21.93. This results in a 0.559 Chi-square statistic with a significance level of 0.756. Question 4 (what an auditor expects regarding the effectiveness of internal control activities) resulted in an average rank for group 1 of 19.55, for group 2 it is 19.10 and for group 3 it is 22.43. This results in a Chi-square statistic of 0.718 with a significance level of 0.698. The significance levels of average rank for question numbers 1, 2, 3 and 4, suggest no significant difference in the responses obtained from the participants when they are divided by years of work experience.

Table 5: Kruskal-Wallis Test to Determine Whether There Is a Difference in The Perception of Auditors Regarding the Reliability of Internal Controls Considering Their Years of Work Experience

Scenario 4: Country with long-term vision (Country A) versus Country with short-term vision (Country B).
Panel A: Average Rank of the Responses

Question	Group by Experience[a]	N	Average Rank[b]
Question 1	1	21	20.43
As an auditor, you would expect that the amount of time needed to study and evaluate	2	5	23.60
internal control of the company in country A is _____ as the same company	3	14	19.50
operating in country B.	**Total**	**40**	
Question 2	1	21	20.40
As an auditor, you would expect that the effectiveness of the control environment of the	2	5	16.10
company in country A is _____ as the same company operating in country B.	3	14	22.21
	Total	**40**	
Question 3	1	21	19.26
As an auditor, you would expect that management's vision of the importance of internal	2	5	21.70
controls of the company in country A is _____ as the same company operating in	3	14	21.93
country B.	**Total**	**40**	
Question 4	1	21	19.55
As an auditor, you would expect that the effectiveness of control activities used by the	2	5	19.10
company in country A is _____as the same company operating in country B.	3	14	22.43
	Total	**40**	

Panel B: Statistical tests – Years of Work Experience *

Question number	1	2	3	4
Chi-square	0.493	1.150	0.559	0.718
df	2	2	2	2
Significance Level	0.782	0.563	0.756	0.698

** Significant at the 10 percent level. This table presents the average rank of the responses obtained from the participants in the study that examined a country with long-term vision and a country with a short-term vision and their perceptions of the reliability of internal controls in a firm based on their years of work experience. (a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience(b) Refers to the average rank of the participants' responses.*

The significance levels for all the scenarios examined (except for one question) do not show a statistically significant difference. Only question number three in Scenario 2, which relates to management's vision of the importance of a firm's internal controls, presents a statistically significant difference. Overall, the results obtained and their significance levels do not seem to support the hypothesis that participants will make different decisions regarding their perception of the reliability of a firm's internal controls depending on their years of work experience.

Table 6 presents the results obtained for questions 5-8 from the 37 participants who examined the scenario of an individualistic country and a collectivistic country. Question 5 (what an auditor expects regarding improper revenue recognition in a company) resulted in an average rank for group 1 of 18.30, group 2 has a value of 15.83, and for group 3 it is 20.68. This results in a Chi-square statistic of 0.780 with a significance level of 0.677. Question 6 (what an auditor expects regarding a firm's understatement of expenses) resulted in an average rank for group 1 of 19.10, for group 2 it is 14.67, and for group 3 it is 19.79. This results in a Chi-square statistic of 0.648 with a significance level of 0.723. Question 7 (what the auditor expects regarding the number of unusual related party transactions in a firm) resulted in an average rank for group 1 of 17.30, group 2 has a value of 17.83, for group 3 it is 21.68. This results in a Chi-square statistic of 1.634 with a significance level of 0.442.

Question 8 (what an auditor would expect regarding the incorrect or inappropriate use of the allowance for uncollectible accounts in a company) resulted in an average rank for group 1 of 16.18, group 2 has a value of 9.00, and group 3 has a value of 25.18. This results in a 9.834 Chi-square statistic with a significance level of 0.007.The significance levels of average rank for question numbers 5, 6, and 7 suggest no statistically significant difference in the responses obtained from the participants who examined Scenario 1, when they are divided by years of work experience. However, the average rank for question number 8 (what an auditor would expect regarding the incorrect or inappropriate use of the

allowance for uncollectible accounts in a company) suggests that there is a significant difference in the responses obtained from the participants.

Table 6: Kruskal-Wallis Test to Determine Whether There is a Difference in the Perception of Auditors Regarding the Possibility of the Existence of Fraud in a Firm Considering Their Years of Work Experience

Scenario 1: Individualistic country (Country A) ***versus Collectivistic country (Country B).***
Panel A: Average Rank of the Responses

Question	Group by experience[a]	**N**	**Average rank[b]**
	1	20	18.30
Question 5	2	3	15.83
	3	14	20.68
As an auditor, you would expect that improper revenue recognition in a company operating in country A is _____ as the same company operating in country B.	**Total**	**37**	
Question 6	1	20	19.10
	2	3	14.67
As an auditor, you would expect that understatement of expenses in a company operating in country A is _____ as the same company operating in country B.	3	14	19.79
	Total	**37**	
Question 7	1	20	17.30
	2	3	17.83
As an auditor, you would expect the number of unusual related party transactions in a company operating in country A is _____ as the same company operating in country B.	3	14	21.68
	Total	**37**	
Question 8	1	20	16.18
	2	3	9.00
As an auditor, you would expect that the incorrect use of the allowance for uncollectible accounts in a company operating in the country to be _____as the same company operating in country B.	3	14	25.18
	Total	**37**	

Panel B: Statistical tests – Years of Work Experience

Question number	5	6	7	8
Chi-square	0.780	0.648	1.634	9.834
df	2	2	2	2
Significance Level	0.677	0.723	0.442	0.007***

This table presents the average rank of the responses obtained from the participants in the study that examined an individualistic country and a collectivistic country and their perceptions of the possibility of the existence of fraud in a firm based on their years of work experience.
(a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience.
(b) Refers to the average rank of the participants' responses. ***, ** and * indicate *significance at the 1, 5 and 10 percent levels.*

Table 7 presents the results obtained for question numbers 5-8 from the 37 participants who examined the perception of the auditors on the possibility of fraud in a scenario of a country with large power distance and a country will small power distance. Question 5 (improper revenue recognition in a company) resulted in an average rank for group 1 of 19.53, group 2 had a value of 17.00, and for group 3 it was 19.19. This results in a Chi-square statistic of 0.284 with a significance level of 0.868. Question 6 (what an auditor would expect regarding the understatement of expenses in a firm) resulted in an average rank for group 1 of 17.03, group 2 had a value of 19.00, and for group 3 it was 21.73.

This results in a Chi-square statistic of 1.663 with a significance level of 0.435. Question 7 (what an auditor expects regarding the number of unusual related party transactions in a company) resulted in an average rank for group 1 of 18.75, for group 2 it was 16.08 and for group 3 it was 20.69. This results in a Chi-square statistic of 0.857 with a significance level of 0.652. Question 8 (what an auditor expects regarding the incorrect or inappropriate use of the allowance for uncollectible accounts in a company) resulted in an average rank for group 1 of 20.81, for group 2 it was 16.33, and for group 3 it was 17.73.

This results in a Chi-square statistic of 1.175 with a significance level of 0.556. The significance levels of the average rank for Question numbers 5-8 suggest no statistically significant difference in the responses obtained from the participants who examined Scenario 2, when divided by years of work experience.

Table 7: Kruskal-Wallis Test to Determine Whether There Is a Difference in the Perception of Auditors Regarding the Possibility of the Existence of Fraud in a Firm Considering Their Years of Work Experience

Scenario 2: Country with high power distance (Country A) ***versus Country with low power distance (Country B).***

Panel A: Average Rank of the Response

Question	Group by experience[a]	**N**	**Average rank[b]**
Question 5 As an auditor, you would expect that improper revenue recognition in a company operating in country A is _____ as the same company operating in country B.	1	18	19.53
	2	6	17.00
	3	13	19.19
	Total	**37**	
Question 6 As an auditor, you would expect that understatement of expenses in a company operating in country A is _____ as the same company operating in country B.	1	18	17.03
	2	6	19.00
	3	13	21.73
	Total	**37**	
Question 7 As an auditor, you would expect that the number of unusual related party transactions in a company operating in country A is _____ as the same company operating in country B.	1	18	18.75
	2	6	16.08
	3	13	20.69
	Total	**37**	
Question 8 As an auditor, you would expect that the incorrect use of the allowance for uncollectible accounts in a company operating in the country to be _____as the same company operating in country B.	1	18	20.81
	2	6	16.33
	3	13	17.73
	Total	**37**	

Panel B: Statistical tests – Years of Work Experience *

Question number	5	6	7	8
Chi-square	0.284	1.663	0.857	1.175
Df	2	2	2	2
Significance Level	0.868	0.435	0.652	0.556

*This table presents the average rank of the responses obtained from the participants in the study that examined a country with high power distance and a country with low power distance and their perceptions of the possibility of the existence of fraud in a firm on their years of work experience. (a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience. (b) Refers to the average rank of the participants' responses. * indicates significance at the 10 percent level.*

Table 8 presents the results obtained for question numbers 5-8 from the 42 participants who examined the scenario of a country with a higher degree of uncertainty avoidance and a country with a lower degree of uncertainty avoidance. Question 5 (improper revenue recognition in a company) resulted in an average rank for group 1 of 21.72, for Group 2 it was 17.67 and for group 3 it was 23.53.

This results in a Chi-square statistic of 1.430 with a significance level of 0.489. Question 6 (what an auditor would expect regarding the understatement of expenses) resulted in an average rank for group 1 of 24.89, for group 2 it was 15.39 and for group 3 it was 21.10. This results in a Chi-square statistic of 4.303 and a significance level of 0.116. Question 7 (what an auditor would expect regarding the number of unusual related party transactions) resulted in an average rank for group 1 of 22.81, for group 2 it was 18.58 and for group 3 it was 21.70. This results in a Chi-square statistic of 0.961 with a significance level of 0.619. Question 8 (what an auditor would expect regarding the incorrect or inappropriate use of the allowance for uncollectible accounts in a company) resulted in an average rank for group 1 of 21.22, for group 2 it was 19.28 and for group 3 it was 23.17. This results in a Chi-square statistic of 0.664 with a significance level of 0.718. The significance levels of the average rank for question numbers 5-8 suggest

no statistically significant difference in the responses obtained from the participants, who examined Scenario number 3, when the groups were divided by years of work experience.

Table 8: Kruskal-Wallis Test to Determine Whether there is a Difference in the Perception of Auditors Regarding the Possibility of the Existence of Fraud in a Firm Considering their Years of Work Experience

Scenario 3: Country with a higher degree of uncertainty avoidance (Country A) ***versus Country with a lower degree of uncertainty avoidance (Country B).***

Panel A: Average Rank of the Responses

Question	Group by experience[a]	**N**	**Average Rank[b]**
Question 5	1	18	21.72
As an auditor, you would expect that improper revenue recognition in a company operating in country A is _____ as the same company operating in country B.	2	9	17.67
	3	15	23.53
	Total	**42**	
Question 6	1	18	24.89
As an auditor, you would expect that understatement of expenses in a company operating in country A is _____ as the same company operating in country B.	2	9	15.39
	3	15	21.10
	Total	**42**	
Question 7	1	18	22.81
As an auditor, you would expect that the number of unusual related party transactions in a company operating in country A is _____ as the same company operating in country B.	2	9	18.56
	3	15	21.70
	Total	**42**	
Question 8	1	18	21.22
As an auditor, you would expect that the incorrect use of the allowance for uncollectible accounts in a company operating in the country to be _____as the same company operating in country B.	2	9	19.28
	3	15	23.17
	Total	**42**	

Panel B: Statistical tests – Years of Work Experience *

Question number	5	6	7	8
Chi-square	1.430	4.303	0.961	0.664
df	2	2	2	2
Significance Level	0.489	0.116	0.619	0.718

** Significant at the 10 percent level This table presents the average rank of the responses obtained from the participants in the study that examined a country with a higher degree of uncertainty avoidance and a country with a lower degree of uncertainty avoidance and their perceptions of the possibility of the existence of fraud in a firm based on their years of work experience. (a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience. (b) Refers to the average rank of the participants' responses.*

Table 9 presents the results obtained for question numbers 5-8 from the 42 participants and their perception of the possibility of fraud in a country with a long-term vision and a country with short-term vision. Question 5 (inappropriate revenue recognition in a company) resulted in an average rank for group 1 of 22.86, for group 2 it is 14.50 and for group 3 it is 19.11.

This results in a Chi-square statistic of 3.060 with a significance level of 0.217. Question 6 (what an auditor would expect regarding a firm's understatement of expenses) resulted in an average rank for group 1 of 22.79, for group 2 it was 19.10 and for group 3 it was 17.57. This represents a 2.677 Chi-square statistic with a significance level of 0.262. Question 7 (what an auditor would expect regarding the number of unusual related party transactions) resulted in an average rank for group 1 of 21.24, for group 2 it was 22.40 and for group 3 it was 18.71. This represents a Chi-square statistic of 0.630 with a significance level of 0.730.

Question 8 (what an auditor would expect on the incorrect or inappropriate use of the allowance for doubtful accounts) resulted in an average rank for group 1 of 22.71, for group 2 it was 18.90 and for group 3 it was 17.75. This represents a Chi-square statistic of 2.025 with a significance level of 0.363.
The significance levels of the average rank for question numbers 5-8 suggest no statistically significant difference in the responses obtained from the participants, who examined Scenario number 4, when the groups were divided by years of work experience. The significance levels for all the scenarios examined

(except for one question) do not present a statistically significant difference. Only question number eight from Scenario 1 presents a statistically significant difference. This question relates to what an auditor would expect on the incorrect or inappropriate use of the allowance for doubtful accounts. Overall, the results obtained and their significance levels do not seem to support the hypothesis that participants will make different decisions regarding their perception of the possibility of fraud in a firm based on their years of work experience. The results of our study do not support our hypotheses that experience is a factor that could determine differences in perception about the reliability of internal controls and the possibility of the existence of fraud. The Kruskal-Wallis tests performed suggest that experience does not seem to affect the decisions made by auditors when these decisions are based on professional judgment.

Table 9: Kruskal-Wallis Test to Determine Whether There is a Difference in the Perception of Auditors Regarding the Possibility of the Existence of Fraud in a Firm Considering Their Years of Work Experience

Scenario 4: Country with long-term vision (Country A) ***versus Country with short-term vision (Country B).***
Panel A: Average Rank of the Responses

Question	Group by Experience[a]	N	Average Rank[b]
Question 5	1	21	22.86
As an auditor, you would expect that improper revenue recognition in a company operating in country A is _____ as the same company operating in country B.	2	5	14.50
	3	14	19.11
	Total	**40**	
Question 6	1	21	22.79
As an auditor, you would expect that understatement of expenses in a company operating in country A is _____ as the same company operating in country B.	2	5	19.10
	3	14	17.57
	Total	**40**	
Question 7	1	21	21.24
As an auditor, you would expect that the number of unusual related party transactions in a company operating in country A is _____ as the same company operating in country B.	2	5	22.40
	3	14	18.71
	Total	**40**	
Question 8	1	21	22.71
As an auditor, you would expect that the incorrect use of the allowance for uncollectible accounts in a company operating in the country to beas the same company operating in country B.	2	5	18.90
	3	14	17.75
	Total	**42**	

Panel B: Statistical tests – Years of Work Experience *

Question number	5	6	7	8
Chi-square	3.060	2.677	0.630	2.025
df	2	2	2	2
Significance Level	0.217	0.262	0.730	0.363

** Significant at the 10 percent level. This table presents the average rank of the responses obtained from the participants in the study that examined a country with a long-term vision and a country with short-term vision and their perceptions of the existence of the possibility of fraud in a firm based on their years of work experience. (a) Group 1 is 0-2 years of work experience, group 2 is 3-5 years of experience, and group 3 is 6 or more years of experience. (b) Refers to the average rank of the participants' responses.*

CONCLUSIONS

The purpose of this investigation was to examine whether the number of years of work experience of auditors has an effect on their assessment of a firm's internal controls and fraud risk in a client that operates in different countries with different cultural characteristics. The results obtained from administering questionnaires to 156 participants (auditors working in CPA firms, Independent practitioners and university senior students majoring in accounting) suggest that experience does not seem to affect their decisions when they are based on professional judgment. The use of university senior students or auditors with limited experience does not seem to have a significant difference on audit-related research. This study has several limitations. First, the data for this study presents a self-selection bias from the participants who decided to respond to the study's questionnaire. Second, we did not obtain the same proportion of participants for the different types of categories in the sample. Third, the questionnaire had several leading questions wherein the participants could anticipate the desired response.

Finally, most of the auditors who responded did not have experience working in companies located in other countries. Future research could incorporate participants from other countries, including internal auditors (of public and private) multinational companies who have experience working in other countries.

APPENDIX I: QUESTIONNAIRE

Scenario I: The following describes the characteristics of two countries (Country A and Country B) in which a company has operations. Based on the information regarding these two countries, you will answer eight questions about planning an audit engagement for that company. Four additional questions are included to obtain demographic information.

Country A	**Country B**
Each person looks for himself and his immediate family.	**People are born into families that continue protecting themselves in exchange for loyalty.**
Identity is based on the person.	Identity is based on the social network to which each person belongs.
Laws and rights are the same for everyone.	Laws and rights differ by group.
There is a greater tendency for income equality among sectors of the economy.	There is a greater inequality between sectors of the economy.
The employer-employee relationship is seen as a mutually beneficial contract.	The employer-employee relationship is perceived in moral terms.
Promotion and employment decisions are based on skills and rules.	Promotion and employment decisions consider employee groups.
Managers choose pleasure, affection, and security as life goals.	Managers choose duty, expertise, and reputation as life goals.
There is a high employee turnover in the company.	There is low employee turnover in the company.
Societies promote individual initiative.	Individual initiative is socially discouraged.

Scenario II: The following describes the characteristics of two countries (Country A and Country B) in which a company has operations. Based on the information regarding these two countries, you will answer eight questions about planning an audit engagement for that company. Four additional questions are included to obtain demographic information.

Country A	**Country B**
Inequality is expected among people.	**Inequalities among people can be minimized.**
There are no channels of defense available against a superior's abuse of power.	There are channels of defense available against a superior's abuse of power.
There are significant differences in society's income levels.	There are no significant differences in society's income levels.
The tax system protects the rich.	The tax system aims to redistribute wealth.
Hierarchical levels in organizations reflect inequality between superiors and subordinates.	Hierarchical levels in organizations reflect a smaller proportion of supervisors.
There is a significant salary difference between top management and lower management.	The salary difference between top management and lower management is not significant.
Managers expect privileges and status symbols.	Privileges and status symbols are not well regarded by managers.
Organizations are highly centralized and operate within large pyramidal structures.	There is less centralization in organizations.
There is a perceived weak work ethic and a frequent belief that people often dislike their work.	There is a strong work ethic and a belief that people enjoy their work.

Scenario III: The following describes the characteristics of two countries (Country A and Country B) in which a company has operations. Based on the information regarding these two countries, you will answer eight questions about planning an audit engagement for that company. Four additional questions are included to obtain demographic information.

Country A	**Country B**
Workplace stress and anxiety levels are high.	**There is a feeling of less anxiety in the workplace.**
There are many laws and rules.	There are fewer rules and laws.
The legal system is fully developed and less tolerant of citizens' protests.	The legal system is more tolerant of protests by citizens.
Emphasis on conservatism, law and order and nationalism.	There is less nationalism and conservatism.
Businesses take fewer risks and there is less desire for job promotions.	There is a strong motivation for taking risks in business and increased desire for job promotions.
Hierarchical structures in organizations must be clear and respected.	Hierarchical structures in organizations can be overlooked or ignored.
Managers are chosen by seniority.	Managers are selected by certain criteria, rather than by seniority.
Competition among employees in the workplace is not promoted.	Competition among employees in the workplace can be fair and reasonable.
Managers are more involved in details, task-oriented and more consistent in their style.	Managers are more involved in strategies and are more flexible in their style.
Managers are less likely to take risky and individual decisions.	Managers are more likely to make risky and individual decisions.

Scenario IV: The following describes the characteristics of two countries (Country A and Country B) in which a company has operations. Based on the information regarding these two countries, you will answer eight questions about planning an audit engagement for that company. Four additional questions are included to obtain demographic information.

Country A	**Country B**
Human relationships are based on status.	**Human relationships are not a major issue.**
Children learn to save.	Children learn respect and tolerance for others.
Investments are mainly in real estate.	Investments are mainly in mutual funds.
People are satisfied with human relationships.	People are less satisfied with human relationships.
In business you are expected to work to obtain job promotions and reach the top positions in your market; immediate results are not expected.	In business, the greatest concern of an entity's control system is on the most recent operating results of the previous month, quarter, or year.
Society is characterized by saving and investment.	Society is characterized by spending rather than by saving.

Questionnaire : The questions must be answered in pencil on the "A" side of the EZDATA answer sheet, using the following guidelines to complete the blank spaces, unless otherwise indicated. In your reply to each question, you should consider Generally Accepted Auditing Standards (US GAAS), Statements on Auditing Standards (SAS), your experience, knowledge, and judgment.

	significantly lower than	**less than**	**equal to**	**greater than**	**significantly higher than**
1 As an auditor, you would expect that the amount of time needed to study and evaluate the company's internal control in country A is _____ as the same company operating in country B.	A	B	C	D	E
2 As an auditor, you would expect that the effectiveness of the control environment of the company in country A is _____ as the same company operating in country B.	A	B	C	D	E
3 As an auditor, you would expect that management's vision of the importance of internal controls of the company in country A is _____ as the same company operating in country B.	A	B	C	D	E
4 As an auditor, you would expect that the effectiveness of control activities used by the company in country A is _____as the same company operating in country B.	A	B	C	D	E
5 As an auditor, you would expect that improper revenue recognition in a company operating in country A is _____ as the same company operating in country B.	A	B	C	D	E
6 As an auditor, you would expect that understatement of expenses in a company operating in country A is _____ as the same company operating in country B.	A	B	C	D	E
7 As an auditor, you would expect that the number of unusual related party transactions in a company operating in country A is _____ as the same company operating in country B.	A	B	C	D	E
8 As an auditor, you would expect that the incorrect use of the allowance for uncollectible accounts in a company operating in the country to be _____as the same company operating in country B.	A	B	C	D	E

The following questions are related to your demographic status:

9. Indicate your gender:

Female
Male

10. From the following choices, select the one that best applies to your current situation:

I am currently employed as:
a. an accounting student in my final year of college studies.
b. Staff Auditor in a CPA firm.
c. Senior Auditor in a CPA firm.
d. Audit Manager or Partner in a CPA firm.
e. Independent Practitioner.
f. Other _____(please indicate the position; you do not have to provide this answer on the EZDATA answer sheet).

11. Indicate the number of years you have worked as an auditor. _____years.

12. If applicable, indicate the name of the firm for whom you work:

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BIOGRAPHY

Carmen B. Ríos-Figueroa, Ph.D., CPA, is Assistant Professor of Accounting at IEN Business School, Universidad del Este, Carolina, Puerto Rico. She can be contacted via e-mail at prof.carmenrios@yahoo.com, or at Tel. (787) 257-7373, Ext. 3152, 3174.

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

A DYNAMIC PANEL MODEL OF CAPITAL STRUCTURE AND AGENCY COST IN NIGERIAN LISTED COMPANIES

Dauda Mohammed, Bayero University, Kano, Nigeria

ABSTRACT

This study examines the impact of agency costs on capital structure of Nigeria listed companies for the period of 2000-2006. Using a dynamic panel model, the study demonstrates the extent to which asset utilization helps explain the financing structure of Nigerian firms. The main finding shows an inverse relationship between capital structure and agency costs of Nigerian firms. Thus, the negative coefficient on the agency cost variable indicates that, on average, the management of Nigerian firms chose either to use retained earnings or to issue new equity offer. Studies have shown that managers have a natural tendency to be cautious about borrowing, given that they have more to lose if the firm goes into liquidation, compared to shareholders with a diversified asset portfolio. Hence, a rise in the ratio of total sales to total assets (agency cost) would mean that the management team is efficient in using the company's assets to generate wealth for their shareholders.

JEL: G32

KEYWORDS: Capital Structure, Agency Costs, Nigeria

INTRODUCTION

In their paper, Modigliani and Miller (1958) showed the assumptions under which financing decisions do not affect the value of the company. They completely state which factors should influence financing decisions of companies. Financial theorist, for example, Sander (2007) has subdivided capital structure determinants into three layers. Layer 1 included fundamental factors such as *returns, risk,* and *value.* Layer 2 comprised classical theories including *tax*, *bankruptcy* and *agency costs* among others. Layer 3 included practical factors such as *legal regulation, the life cycle of a company, human psychology, market conditions, credit ratings, shareholder preferences* and *risk management consideration.* However, discussion in this paper will be concentrated on agency costs as it affects the financing decision of Nigerian companies. It is one of the important classical capital structure theories underpinning previous capital structure studies.

Despite its numerous challenges Nigerian economy display a futuristic prosperity and growth with concomitant high return on investment. Firstly, this study contributes to the present debate on the impact of agency costs on capital structure of Nigeria listed companies. Secondly, this is the first empirical analysis of capital and agency costs in Nigeria using advanced econometric models. Our major findings reveal that impact of agency costs theory on capital structure as found in the developed and emerging economies is relevant in Nigeria. Our result shows an inverse relationship between capital structure and agency cost i Nigeria. It indicates that companies with a higher debt to asset ratio have higher ratio of sales to assets. This is statistically significant at the conventional five per cent confidence level. This finding is consistent with Jenson (1986) theory that debt can reduce the agency costs of free cash flow by reducing the cash flow available to managers. It is also consistent with previous studies including. Li and Cui (2003) and Ang *et al* (2000). This paper is organised as follows. Section 2 reviewed relevant literature. Section 3 explains the data and methodology including the model specification and proxies. Section 4 presents the empirical results and discussion while section 5 provides the conclusion and recommendations.

REVIEW OF RELATED LITERATURE

Agency costs theory popularized by Jensen and Meckling (1976) and Myers (1984) suggests that the separation of ownership and control in a modern corporation may lead to array of conflicts from several sources. For instance, the separation of ownership from control in large public corporations may induce conflicts between creditors and the firm and between managers and shareholders. This may pitch the owners (principals) against the management (agents) given that managers as agents are not entitled to 100 per cent of the residual claims resulting from their professional responsibilities and expertise in running the affairs of the business. They, however, bear the entire costs of these activities and, in the event of financial distress or corporate takeovers, they will be the first in the firing line. It is assumed that faced with this situation, managers of corporations may therefore put less effort into value enhancement activities in the firm through sub-optimal investments.

Conflicts may also occur between creditors and shareholders, or between shareholders and other stakeholders such as customers, suppliers, employees, and competitors. As suggested by Myers (1993), conflict between shareholders and creditors may emerge as a result of underinvestment or overinvestment practices by the firm's management. For instance, conflict between existing shareholders and creditors could be magnified if future investment financed with debt yielded high returns (higher than the cost of debt). In this scenario, equity holders may benefit more from the profits generated by the firm since they are entitled to all the extra gains. However, if such investment failed completely, debt holders would suffer the losses given the limited liability clause of the equity holders. Either way, equity holders' benefit from investing in risky projects even if they are value decreasing since value decreasing investments may also reduce the value of debt. The loss in the value of equity from poor investments can be more than offset by the gains in equity value at the expense of the lenders. To protect themselves against expropriation lenders may impose certain restrictions *(protective covenants*) on the firm. Some of these covenants may include restrictions on the level of dividend paid to shareholders, the level of indebtedness in the firm and the disposal of a major asset. This may remain in force until all the debts are repaid and such restrictions could lead to sub-optimal performance of the firm.

Agency literature has focused on the role of debt as a means of disciplining managers. Grosseman and Hart (1982) were the first to argue that managers could pre-commit to work hard by using debt rather than equity. Similarly, Jensen's (1986) free cash flow theory considers additional debt as beneficial since the firm attempts to improve the productivity of its assets because of additional debt acquired. Debt not only reduces the free cash flow available to manager but also provides discipline to management through the debt market. Debt monitoring hypothesis is formalised by Harris and Raviv (1990) and Stulz (1990) and empirically demonstrated by Shleifer and Vishny (1997) provided extensive survey on the role of debt in reducing the conflict of interests between managers and shareholders. On the other hand, increased leverage also has costs. As leverage increases, the usual agency costs of debt rises, including bankruptcy cost (Jenson 1986). Myers (1977) pointed to the debt overhang problem where firms may forego good projects if they have significant debt outstanding. The reason is that for a firm facing financial distress, a large part of the returns to a good project go to bondholders. Therefore, in choosing their debt-equity level, firms should trade-off between the agency costs of debt and the agency costs of equity. By appropriately allocating refinance between equity and debt, capital structure can balance the conflicts between investors and management as well as that between management and creditors.

There are two previous studies that are more closely related to this. They are Li and Cui (2003) and, Ang *et al* (2000). In the first case, Li and Cui (2003), examine the impact of capital structure on agency costs in China using 211 non-financial listed firms for the period 1999-2003. They found that firms with high debt to assets ratio of annual sales to total assets also has high ratio of returns-on- equity. They also found a significant positive correlation between ownership concentration and the return-on-equity. On the other hand, Ang *et* al (2000) provided evidence on corporate ownership structure and agency costs measured in

terms of asset utilization and operating expenses. Ang, *et al* (2000) used data on small business in America to examine how agency costs vary with a firm's ownership structure. They find among others that agency costs are higher when an outsider rather than an insider manages the firm thus; agency costs are inversely related to the manager's ownership share.

Following the example of the three authors mentioned above, the level of agency costs, present in Nigerian companies is measured in terms of the asset utilization ratio, defined as total sales revenue divided by total assets. As suggested by Ang*, et al* (2000) and Singh and and Wallace (2003), agency costs are inversely related to the asset utilization ratio. Therefore, the greater the proportion of a total firm's assets that is generated through sales, the more effective its management will be in directing assets to their most productive use. Thus, firms with higher asset utilization ratios are seen to be making optimal investment decisions and exerting sufficient effort to increase sales revenue. They are therefore subjected to lower asymmetric information and agency problems. Consequently, we anticipate a negative coefficient for our agency cost proxy.

DATA AND METHODOLOGY

Data Collection

In this paper, we have chosen to define corporate leverage as the book value of the total liabilities (i.e., the sum of short-, medium-, and long-term debts) divided by the book value of total assets. The outcome measures the percentage of funds provided by sources other than equity finance. The use of such a broad definition is in recognition of the fact that for many firms, especially those in emerging economies like Nigeria with underdeveloped capital markets, a combination of short and medium-term finance, including bank overdrafts and trade credits form the greater part of their funding requirements. Moreover, as noted by Chen (2003), the use of such book values helps avoid the limitations of missing information on the share of company stocks issued and openly traded on the stock exchange as well as on the gains in capital value arising from a dramatic rise in asset prices.

Thus, the use of the book value of total liabilities relative to total assets has since been recognized as the broadest definition of the leverage ratio as it captures all the percentage ratio of funds provided by the short- medium and long term borrowings of a firm. The data for our study were obtained directly from the Nigerian Stock Exchange, the Central Bank of Nigeria, and the Nigerian Securities and Exchange Commission. To check the authenticity of data, we compared it with those made available by some of the companies on their respective web sites. Further, we excluded 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 exchanges.

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. We note, however, that such omissions may bias our data set against larger companies to the extent that these firms are the ones that can afford to list on international stock markets. Nevertheless, we believe that the capital structures of cross-listed firms do not generally reflect the capacity of a typical Nigerian company to generate resources. The final sample of our study comprises seven annual observations for 94 companies, thus 658 observations. On the whole, they make up more than three-quarters of shares traded on the Lagos Exchange.

Data Description

Figure 1 depicts the trend in the mean of the percentage changes in the ratio of total debt to assets from 2000 to 2006 for our group of 94 firms. We note from Figure 1 the underlying trend in the year-on-year

changes in the total debt ratio for the overall sample, except in 2000 and 2002. The fall in the average gearing ratio of Nigerian firms is presumably related to the fact the first 2 years of the twenty-first century were a time when Nigeria signed an IMF agreement to receive debt-restructuring from the Paris Club and a $1 billion credit from the IMF itself; both were allied to economic reforms (CIA Fact Book, 2010). From 2003 to 2005, the average leverage ratios for our overall sample firms rose persistently. The start of this period corresponds with the time when Nigeria pulled out of its IMF debt relief program after failing to meet its spending and exchange rate reform conditions. In addition, the Nigerian government and its banks borrowed heavily on the basis of rising commodity prices and export earnings.

Table 1: Leverage Ratio of Nigerian Listed Firms and Its Major Determinants: Descriptive Statistics 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	0.38	0.19	0.02	0.83	0.03
	c	Firms with more than 30 per cent foreign ownership	0.36	0.20	0.05	0.83	-0.05
	d	Firms aged 25years and above	0.36	0.19	0.07	0.80	-0.04
2		***Standard deviation of earnings before interest and tax (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 25 years and above	0.16	0.09	0.11	1.13	-0.01
3		***Total Sales percentage of total assets (agency costs)***					
	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 ratios (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 25 years 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 25 years and above	0.12	0.19	-0.59	0.88	0.05
6		***Log of total sale revenues in 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 25 years 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 25 years and above	18.14	30.59	-59.68	176.41	0.02

*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. The numbers in bracket in column, 1 item 1 represent the numbers of our Nigerian listed firms in the manufacturing sector that have more than 30% of foreign ownership and aged 25 years old and above. *** Statistically significant at 1% confidence level, ** Statistically Significant at 5% confidence level, and* statistically significant at 10% confidence level.*

Thereafter, the leverage ratio for our overall sample declined, presumably because of a renewed determination to implement the market-oriented reforms aimed at modernizing the financial system, as well as restructuring and downsizing the public sector. Overall, descriptive statistics in items 2 and 3 of Appendix Table 1 show that, on average, the leverage ratio of a typical Nigerian company rose by 7.1% over the period 2000 to 2006. The features of a dynamic panel model of Nigerian firms in our data set are discussed in the next section.

Empirical Specification and Proxies

The existing theoretical literature does not provide definitive guidelines on how to determine a priori which functional form should be used when testing the relationship between corporate leverage and its major determinants including agency cost. But, given that this paper predicts an inverse relationship between agency cost and corporate leverage, we follow DeAngelo and Masulis (1980), Castanias (1983), in specifying a dynamic panel model function, which takes the general form outlined in Equation 1. Thus, the following equation was estimated to identify the determinants of leverage ratios of Nigerian listed companies.

$$Y_{it} = \mu + \alpha[D_{it}] + \beta[ACOT_{it}] + \gamma[X_{it}] + \varepsilon_{it} - \varepsilon_{it-1} \quad (1)$$

where Y_{it} is the dependent variable, which is defined as the year-on-year change in the natural logarithm of the ratio of the book value of total leverage to the book value of total assets. Such differencing helps to address the problem of nonstationarity in data (Asteriou & Hall, 2007; Mukherjee, White, & Wuyts, 1998). The sub index i refers to individual companies; t t refers to the business year, and ε_{it} is the white noise error term. The parameter coefficient is the overall constant term. It equates to the mean of the percentage change in the total debt ratio for our typical Nigerian firm where the values of all the determinants in our model remain unchanged.

The symbol D_{it} is a vector comprising data on the changes in the total debt ratio lagged one period ($DLLEV_{it-1}$), two periods ($DLLEV_{it-2}$), three periods (($DLLEV_{it-3}$), and four periods ($DLLEV_{it-4}$). Examples of previous empirical studies to incorporate the effect of debt levels of preceding periods on current borrowing decisions are found in De Miguel and Pindado (2001), Ozkan (2001), and Frank and Goyal (2004). In these models, the relationship between the actual debt ratio in the current and previous periods is measured by the sum of the statistically significant alpha coefficients a, expected to range between 0 and 1. The sign ACOT is used to proxy for agency costs measured by ratio of total sales to total assets, given the limited financial information of our sample.

As mentioned earlier, the computation is consistent with the assets utilization principle. For instance, a higher ratio of total sales to total assets means higher operational efficiency. This also relates to superior revenue and less income variability, which may lead to greater borrowing capacity. . It therefore follows that the higher the total asset turnover ratio, the higher the basic earnings power of the company with associated increase in profitability before interest and tax. Consequently, a high ratio of asset utilization means that the management team of our ninety four listed firms is effective in overseeing its trading operations with related increase in free cash flow. We may therefore infer that firms with high asset turnover ratios are able to meet their debt obligations to creditors 'other things being equal'.

Control Variables

In choosing the extra variables, we focus primarily on those factors whose correlations with the capital structure choices of firms within a country have been shown to be robust and statistically significant regardless of time period and method of analysis. They are business risk, profitability, asset tangibility, company size and its growth prospects.

The symbol X_{it} is a$(K \times 1)$ dimensional vector containing observations on the control variables to be added concurrently. The majority of empirical studies on capital structure recommend the inclusion of additional variables that capture the leverage effect of a host of firm characteristics. Nevertheless, because of a lack of data, we have limited our choice of these extra variables to (a) business risk (b) profitability, (c) tangibility, (d) growth opportunities, and (e) size expressed in terms of the first difference of their natural logarithm. The term $SDEV_{it}$ is the measure of business risk, which was calculated as the standard

deviation of the ratio of operating income to total assets. Such earnings volatility aggravates the problems of asymmetric information between insiders and external debt providers in particular, persuading profitable firms to use internally generated cash flows and equity over debt as a source of finance. Consequently, business risk will be inversely related to the leverage ratio. We anticipate that the β coefficient will have a negative sign (i.e., β <0).

Profitability,PRF_{it}, is calculated as earnings before depreciation, interest, and tax (EBDIT) divided by total assets. According to the Myers-Majluf (1984) pecking order theory, firms generating profits will finance their investment first from retained earnings because of asymmetric information costs. The decision to use external finance, equity in particular, is made only as a final resort. Thus, a negative relationship between profitability and gearing is expected. However, a positive correlation is also supported by the static trade-off, agency cost, and cash flow hypotheses. These models predict that a firm with a high profit may opt for debt in order to take advantage of tax shields. Besides, a firm may issue debt to the extent that its internal controls are ineffective in preventing managers from undertaking investments with a possible negative net present value.

Tangibility,TAN_{it}, is the ratio of the book value of total fixed assets to total assets. Thus, a high tangible fixed asset ratio indicates that the firm has already committed considerable sums of money into past investment projects that can easily be controlled and accessed by investors. Consequently, creditors generally demand higher tangible asset proportions when providing finance for new projects. We would therefore expect a positive relationship between tangibility and gearing.

The growth opportunity of a firm, $GRWP_{it}$, is approximated as the percentage change in the natural logarithm of the book value of total assets in millions of local currency. The pecking order theory postulates that firms with bright growth outlook tend to maintain relatively low debt ratios. Such allows them to create the borrowing reserve capacity needed to avoid potential problems of underinvestment. Consequently, a high growth in total assets during normal trading periods signals a lack of potential growth opportunities, which may lead firms with free cash flows to overinvest in unproductive assets such as excessively fancy office space, office furnishing, automobiles, private jets, and other executive perquisites. As postulated by the free cash flow theory, one manifestation of the overinvestment problem is that firms will issue debt, which commits management to fixed interest payments and the discipline that goes with it (Arnold, 2008). Thus, a positive relationship will likely exist between our total asset growth variable and debt. The size of a firm $SIZE_{it}$ is calculated as the natural logarithm of total sales revenue in millions of local currency. It is expected that debt is positively influenced by size due to the fact that larger firms have more diversified activities. They therefore have lower financial distress costs and are less likely to go bankrupt. Besides, larger companies tend to publish more accurate and timely information. The consequent reduction in agency and asymmetric information costs is usually reflected in lower interest rates and higher debt ratios.

Items 4 to 7 of Appendix Table 1 present the statistics for the control variables used in our empirical estimation. As presented earlier, the information reported is for the overall group of 94 firms from 2000 to 2006. However, unlike in this earlier section, these results are obtained from an ‘‘unbalanced panel’’ in the sense that there is an unequal number of annual time-series data for individual firms. Such may bias our results in favour of those variables with more observations. Nonetheless, our results are derived from a dataset comprising 363 observations for our overall sample of firms. They show that, on average, profitability, measured in terms of either return on total assets or an asset utilization ratio, declined by at least 10% a year. Nevertheless, despite the reduction in operational efficiency, Nigerian firms raised their investment in fixed tangible assets by roughly 10% per annum during this period. Table 2 presents contemporaneous pairwise correlation coefficients for all the variables in our overall sample data set.

Table 2: Pairwise Correlation Matrix for Leverage and Its Determinants

Variables	Dllev	Sdev	Dacot	Dlprf	Dltan	Grw	Dsls
Sdev	-0.061	1.000					
	[-1.332]	[-]					
Dacot	-0.019	0.077	1.000				
	[0.414]	[1.681]	[-]				
Dprof	-0.005	0.039	-0.11	1.000			
	[0.103]	[0.854]	[0.245]	[-]			
Dtan	0.236	-02.013	-0.008	0.039	1.000		
	[5.254]	[0.290]	[0.177]	[0.853]	[-]		
Grw	0.198	-0.076	-0.282	-0.026	0.231	1.000	
	[4.375]	[1.660]	[6.361]	[0.556]	[5.165]	[-]	
Dsls	-0.026	0.060	0.260	0.011	0.030	0.025	1.000
	[0.564]	[1.306]	[5.825]	[0.233]	[0.652]	[0.550]	[-]

This table shows the pairwise correlation matrix.

Expected relationships that are evident include statistically significant positive correlation between debt ratio changes and the tangibility, growth opportunities, and size variables. As expected, a rise in the asset utilization ratio (the proxy for agency costs) is inversely related to leverage, albeit at a 12% confidence level. Other interesting correlations observed include the association between current and prior debt ratios. The sum of the significant coefficients on the second and fourth lags is 0.05, suggesting a disequilibrium correction rate of 94% a year. Nigerian firms, it seems, were very quick to adjust their actual debt level to the target ratio. This evidence is consistent with predictions of adjustment models comprising firms with low transaction costs.

The coefficients $\mu, \alpha, \beta, and\ \gamma$ are the parameters to be estimated. We have used the dynamic panel data models proposed by Mukherjee et al. (1998) and Attanasio, Picci, and Scorcu (2000). These authors recommended the use of a generalized method of moments (GMM) instrumental variable (IV) estimator when some of the explanatory variables are correlated with the error terms and there are no cross-equation restrictions on the parameters in the model. We use the GMM-IV model proposed by Arellano and Bond (1991) after a Wu-Hausman test for endogeneity revealed that some of the right-side variables, such as profitability, agency costs, and firm size, are simultaneously determined with the debt ratio. To improve model efficiency, we used the natural logarithm of all the regressors in Equation 1 at level lagged 2 years as instruments (Nwachukwu, 2009) see also Nwachukwu and Mohammed (2012). To check for potential misspecification of the GMMIV model, previous researchers have normally reported two diagnostic test statistics. The first test is the $M1$ and $M2$ statistics, which verify for a lack of first and second-order serial correlation in the differenced residuals in that order. In a valid model, the test for the null hypothesis of the absence of a first-order serial correlation ($m2$) is not rejected.

By contrast, a test for a lack of a second-order serial correction is always rejected. Together, these results indicate the error terms in the original model at level are not serially correlated (De Miguel & Pindado, 2001). The second test is the Sargan statistic, which checks for over-identifying restrictions in the model. This statistic is asymptotically distributed as a chi-square under the null hypothesis that the instruments are uncorrelated with the first-difference residuals. The next section presents the results of Equation 1 as estimated using the GMM-IV application in EVIEWS version 6. We adopt a stepwise approach beginning with the assumption that leverage and business risk form a simple two-variable system without the need to control for other additional factors. We then add jointly the five control variables described earlier. Evidence from the pairwise correlation coefficient between these independent variables in Appendix Table 2 suggests that potential multicollinearity problems are minimal.

RESULTS AND DISCUSSION

Generalized Method of Moments – Instrumental variable (GMM-IV) estimates were obtained from our unbalanced panel of 94 listed firms from 2000 to 2006. The results are presented in Table 3 and our

argument here is conducted under (a) a simple two-variable empirical model and (b) a simple multivariate empirical model. The statistically negative coefficient for the agency costs proxy of roughly _0.24 is robust to linear and nonlinear specifications. A number of previous studies, notably Rajan and Zingales (1995) and Gatchev, Spindt, and Tarhan (2008), showed a similar inverse relationship, even though they used different proxies for agency costs. As we said earlier, a rise in the ratio of total sales to total assets (used as a substitute for lower perceived agency problems) would mean that the management team was efficient in using company assets to generate wealth for shareholders.

Table 3: Estimation of Our Capital Structure Model

Column 1	Column 2	Column 3	Column 4
Estimation method	DLLEV	GMM-IV	GMM-IV REG 3
Deprendent variable (y)	Mean	REG 2	
Indepedent(x) variables			
DLLEVL1	0.13%	***-0.146****	***-0.078****
		[-5.208]	[-2.581]
DLLEVL4	0.15%	0.047	***0.250****
		[1.090]	[5.150]
SDEV	0.15%	***1.121****	***-0.852***
		[4.579]	[-22.237]
DLACOT	0.08%	***-0.271****	***-0.241***
		-[5.972]	[-4.374]
DLPRF	-0.30%	***-0.095****	***-0.208****
		[-5.159]	[-37.469]
DLTAN	0.08%	***0.104****	***0.066****
		[2.567]	[4.409]
GRW	19.79%	***0.003****	0.002
		[2.027]	[0.974]
DSLS	0.11%	***-0.288****	-0.113
		[-4.574]	[-1.139]
Marginal Impact on Leverage		***1.121***	***9.938***
Model fit and diagnostic test statistics			
Wu_Hausman (F-statistics)		3.85	3.85
Wu-Hausman- F-statistics (Prob Value)		0.001	0.001
m2 test		0.398	0.327
Wald test		0.001	0.001
Sargan test		0.87	0.87
Adj R^2		0.18	0.67

Mean of dependent variable 37.75%, Standard deviation of dependent variable 19.70%, Number of observations 609
This table shows the regression estimates of equation 1, $Capital\ Structure\ (Y_t) = \mu + \alpha[D_{it}] + \beta[Agency\ Cost_{it}] + \gamma[X_{it}] + \varepsilon_{it} - \varepsilon_{it-1}$
Table 1 above shows the results for the 94 firms listed on the Nigerian stock Exchange for the period o 2000 -2006. The estimated coefficients in bold italics are the t-statistics (, ** and *** indicate significance at 10, 5 and 1 per cent levels respectively. The values are the coefficients and the figures in brackets […] are the t-statistics unless otherwise stated. The instrumental sets includes the lagged values of all the right-hand side variables dated* $t = 4$ *. The m2 tests are for second-order AR (2) serial correlation in the differential residuals equation under the null hypothesis of no serial correlation. The test is asymptotically distributed as N (0, 1). The formal Wald tests reject the null that the original idiosyncratic errors are serially uncorrelated. These are obtained using Eviews 'view-coefficients test-Wald –coefficients restriction and entering the restriction C (1) =-0.5 in the edit box'. The Sargan test is used to test the over-identifying restriction and is asymptotically distributed as* x *(p-*k*) under the null of instrument validity. (*k *is the number of estimated coefficients and p is the instrumental rank). The Sargan tests for the three models in column, 2, 4 and 4 are not significantly different from zero. This implies that the null hypothesis that our instrumental variables are valid cannot be rejected at the conventional 5% confidence level.*

The negative coefficient on the agency cost proxy indicates that, on average, firms chose to finance through a relatively cheaper new stock offering. The agency cost variable negative coefficient indicates that, on average, management of the firms in our sample chose to use either retained earnings or to issue new equity offer. It has also been argued that managers have a natural tendency to be cautious about borrowing, given they have more to lose if the firm goes into liquidation, compared to shareholders with a diversified asset portfolio. A number of previous studies on determinants of capital structure including the papers by Titman and Wessels (1988), Rajan and Zingales (1995), Akhtar (2005) and Gatchev *et al.*(2009) obtained a similar inverse relationship between leverage and agency costs. In explaining the relationship between leverage and agency costs, the previous studies mentioned above suggested that a rise in the ratio of total sales to total assets (used as our measure of agency cost) would mean that the management team is efficient in using the company's assets to generate wealth for shareholders. As a result, providers of capital, particularly debt holders, would have little or no reason to restrict the firm's

operating freedom and investment flexibility by building complex covenants into loan agreements. The lower agency cost is passed on in the form of a lower premium required by debt and equity holders.

The other coefficient estimates that are significantly different from 0 are for those firm-specific attributes representing (a) previous debt ratios, (b) total operating profit, (c) agency costs, and (d) asset tangibility. The coefficient of the debt ratio observed in the previous year t_1 (DLLEVt-1) shows a significant negative value of _0.08. From the static trade-off theory, this negative correlation indicates that the percentage changes in the debt ratio in the preceding year say 2005, were considered to be excessively high, prompting our average firm to reduce the proportions of borrowing in total assets in the following year. By contrast, changes in debt ratios observed 4 years earlier in 2002 were probably deemed to be lower than the target level, persuading firms to raise their borrowing ratios over the subsequent 4 years by an average of 0.25% per annum for every 1% deviation from the overall sample mean leverage.

The sum of the coefficients on the lagged debt variables is 0.15, which suggests an adjustment factor of 0.85. This means that it would take roughly 1 year 2 months i.e. 1 year 0:85 ¼ 1:18 years for our average firm operating under the same management and market conditions that existed between 2000 and 2006 to return to its target debt ratio once it has deviated from it. The negative coefficient estimate of _0.21 for the profitability variable is consistent with the observation of the conventional Myers-Majluf pecking order theory that profitable firms often borrow very little. They prefer instead to finance potentially beneficial investments with retained earnings that are without transaction and administrative costs. The coefficient estimate on the asset tangibility variable bears the expected significant positive sign, although the magnitude of between 0.07 and 0.10 varied with whether the leverage model was deemed to be nonlinear or linear. However, we should point out that the size of our estimated slope coefficient for asset tangibility is much lower than the positive figure of between 0.22 and 0.27 normally reported in previous empirical studies. The lower asset tangibility effect on debt ratio annual changes observed for our group of Nigerian listed firms is probably due to the country's ineffective legal system.

CONCLUSION

There have been many studies conducted concerning agency costs in the developed and emerging markets, yet no research focussed on undeveloped economies including Nigeria. Despite its numerous challenges, Nigeria exhibit economic prosperity and growth with concomitance high return on investment. Firstly, this study contributes to the present debate on the impact of agency costs on capital structure of Nigeria listed companies. Secondly, this the first empirical analysis of capital and agency costs in Nigeria using advanced econometric models. Our major findings reveal that impact of agency costs theory on capital structure as found in the developed and emerging economies is relevant in Nigeria. Our result shows an inverse relationship between capital structure and agency cost i Nigeria. It indicates that companies with a higher debt to asset ratio have higher ratio of sales to assets. This is statistically significant at the conventional five per cent confidence level. This finding is consistent with Jenson (1986) theory that debt can reduce the agency costs of free cash flow by reducing the cash flow available to managers. It is also consistent with previous studies including Li and Cui (2003), and Ang *et al* (2000).

Given this result and challenges of the Nigerian capital market and the economy in general, we make the following recommendation. *First,* the government needs to implement policies aimed at increasing the depth and efficiency of the market so as to "correctly" price shares. Such market-orientated reforms involve initiatives which will encourage a greater openness and private sector participation in the economy. Then too, policies should be introduced to automate trading on the stock exchange as well as to educate all registered asset managers on the linkages between risk and expected returns. Moreover, agency costs arising from the conflicts of interest between managers and external providers of finance can be mitigated by setting up regulatory bodies with legal powers to enforce the rights of investors. Additionally, an independent arbitration agency should be set up to settle disputes between firms and their

employees, together with an ombudsman who deals with complaints by customers, suppliers and other companies. Furthermore, regulations that ensure that firms publish timely and accurate information in their accounts, as well as the provision of competent and trusted auditors, will help reduce the potential costs of financial distress for external investors.

Second, policies, which create an appropriate enabling macroeconomic environment, will help our firms identify and invest in profitable long-term projects and hence increase the potential market value of their assets. To this end, the Government should persist with the implementation of appropriate fiscal and monetary policies allied to the debt-restructuring programme originally agreed with the IMF in 2002. Such budgetary adjustments may relate to the de-regulation of prices as well as privatization and cuts in public enterprise subsidies. Monetary reforms that will enhance the capacity of Nigerian firms to generate higher profits will include those aimed at lowering high inflationary pressures, the appreciation of real exchange rates and the reduction of inefficiency within the banking sector.

Appendix A: Definitions of Variables Used in the Study

$LLEV$	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
$SDEV$	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)
$SDEV_{t-1}$	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged one year, t-1
$SDEV_{t-2}$	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged two years, t-2
$SDEV_{t-3}$	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged three years, t-3
$SDEV_{t-4}$	the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets lagged four years, t-4
$SDEV^2$	the square of the standard deviation of the ratio of earnings before depreciation, interest and tax to total assets
AGENCY COSTS	the ratio of earnings before depreciation, interest and tax (EBDIT) to total assets
PROFITABILITY	the ratio of total fixed assets to total assets
TANGIBILITY	percentage change in the natural logarithm of total assets in millions of Nigerian naira
GROWTH	natural logarithm of total sales revenue in millions of Nigerian naira
SIZE	

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BIOGRAPHY

Dauda Mohammed teaches Finance and Statistics at the Department of Business Administration and Entrepreneurship, Bayero University Kano Nigeria and 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.

OWNERSHIP STRUCTURE AND STOCK REPURCHASE POLICY: EVIDENCE FROM FRANCE

Rim El Houcine, Faculty of Management and Economic Science of Tunis, Tunisia

ABSTRACT

This article studies the relationship between ownership structure of French companies and their stock repurchase policy. According to financial theory, the presence of institutional investors negatively influences repurchasing policy because the preference of these investors is to reinvest in projects. The theoretical hypotheses of interest alignment and entrenchment have been used to justify the relationship between management stockholding and repurchasing policy. We tested the validity of our hypotheses on a sample of 40 French companies using data from 2004-2008. The results show that institutional investors positively affect the repurchase because institutional investors can control managers by forcing them to repurchase stocks to pay their excess cash flows. Moreover, we found a positive relationship between management stockholding and the repurchase. This finding is explained by the power of entrenchment from the repurchase that can raise the stockholding percentage of managers who repurchase the stocks.

JEL: G35, G32

KEY WORDS: Stock Repurchases, Ownership Structure, Institutional Investors, Managerial Ownership

INTRODUCTION

In this paper, we study the relationship between stock repurchases and ownership structure. Stock repurchases have greatly increased in France from €1,682 million in 1998 to €10,902 million in 2009. They have grown considerably since the law of July 2, 1998, which significantly relaxed the regulation of these operations. Thus, the initial French regulation controlling stock repurchasing, defined by the law of July 24, 1966, allows stock repurchases according to a very strict and rigid procedure. This law was significantly reformed on July 2, 1998. The new law relaxed the conditions under which companies can repurchase their own stocks. Because of the increasing use of repurchases, studies have examined the motives of these operations.

If distribution policies are intended to limit agency conflicts, they should be influenced by the stockholding structure (concentration and nature of stockholders), which is a decisive element of the agency conflicts. We observe little investigation into the relationship between ownership structure and company policies for repurchasing its own stocks. A point of particular interest in this research is to study the effect of property structure on repurchase policy in a context characterized by its concentration and where there are an excess of certain types of stockholders, including institutional investors or managers.

Our study considers a sample of 40 French companies listed at the CAC 40 index, during a five-year period from 2004 to 2008, including 200 observations. The final sample consists of 160 observations. This article is presented as follows. The first section underpins the literature. The second introduces the sample and methodology. The results are shown in the third section, and the last part concludes the work.

LITERATURE

Two data types allow us to characterize ownership structure: ownership concentration and nature of the largest stockholders. Whatever the data source, various studies agree on the highly concentrated character

of the stockholding in France and the importance of family capital. Institutional comparisons bring out the characteristic of continental Europe, in particular France regarding stockholding structure.

The Institutional Investors

Generally, institutional stockholders (banks, insurance companies, pension funds) hold only minority interests (less than 10%) in listed companies. Their role is still important as they define to a great degree the stock value of companies. They exert a big influence on the dynamics of financial markets and within the companies.

Agency costs may become considerable in the case of diffuse external stockholding due to the high costs of information and the heterogeneity of external stockholder interests. The presence of institutional investors can then have a direct effect on the agency costs resulting from separation between ownership and control. The manner with which institutional investors influence the manager's conduct is an empirical question since we can find cases of a passive policies (Porter, 1992) and cases of active control from a certain category of investors (Bushee, 1998).

The exact consequences of institutional stockholding on the companies remain unknown to date. Implicitly, the main question about the relationship between the presence of institutional investors, company performance and the policy of repurchasing emerges. These general questions require reviewing the knowledge we have about these stakeholders.

The holders of control blocks, like institutional investors, can plan an important role in taking on surveillance activities to the extent that they possess a considerable portion of the stocks. In this context, Shleifer and Vishny (1986) and Allen and al. (2000) suggested that these stockholders can control managers more than scattered owners. They have a privileged position to access company information and its competitors. Therefore, they can better assess the manager's performance by comparing them to those in the other companies of the same sector with whom they have information. Starting from the general description by Jensen (1986), with a strict surveillance of the managers, companies have to pay their excess liquidity flow as dividends.

Grinstein and Michaeley (2003, 2005) showed that a large ownership stake by the investors would be linked to a high level of distribution because of the surveillance functions exercised. It is the role of the mechanism of controlling the managers and the majority stockholders which is brought out here. Repurchases have become a real means for distributing funds to stockholders. It represents an alternative to the classic cash dividend.

Fama and French (2001) noted a significant fall in the percentage of companies distributing dividends, and Grullon and Michalely (2000) observed for the first time in 1998 the amount stock repurchasing programs was higher than that of dividends. Grullon and Michalely (2000) explained this behavior by the existence of different fiscal conditions between the two distribution modes. Companies were attracted to repurchases in part because of important fiscal advantage pertaining to it. In a period characterized by different fiscal regimes, the results of Rau and Vermaelen (2000) on the English market prove this fiscal hypothesis. It is the tax system borne by the institutional investors and not by the individual investors that determines the distribution policies of the companies.

Yet, another research trend predicts a negative relationship between the presence of an institutional investor and the distribution policy. Indeed, given the importance bestowed by these investors upon projects and reinvestment, this stockholder type prefers holding the profits and reinvesting them instead of distributing them.

The Managerial Property

Given that the investors often incorporate the managerial decisions concerning the choice of the company policies (debt policy, distribution policy) in assessing future performance (De Angelo and al., 1996 et Benartzi and al.1997), a thought trend has recently focused on the study of managerial holdings and distribution policy link.

Prime facie, a research trend showed that Free Cash Flow distribution decreases with the stockholding importance of managers, considering it a means of aligning interests between agent and principal. (Charlier and Du Boys, 2010. Thus, the more shares owned by the manager, the more their objectives converge. So, resorting to other disciplinary mechanisms including the payment of dividends or the repurchase of stocks has proved useless by he theory of alignment of interests (Jensen et Meckling, 1976). Actually, the larger stock holdings by managers, the more managers will be motivated to search for more profitable projects and the more their interests converge with those of others stockholders. This implies a reduction in the costs born to control the manager. On the other hand when their right for residual profit is weak, managers may make profits from other sources in the company, which risks affecting its value (Ali, Chen and Radhakrishnan, 2007).

However, on introducing other variables, recent studies have contradicted this idea leaning on the entrenchment effect which can dominate the managerial property and profit distribution relationship. It is the theory of entrenching the managers (Collins and Wansley, 2003). The model of managerial entrenchment stipulates that at a certain ownership level, managers benefit from a control power that consolidates their position and they enter into a position not to maximize the company value once the costs relating to a certain behavior are lower than the control benefits.

In the absence of complete contracts, the principal-agent problem reveals itself owing to a divergence of interests of different stakeholders; the owners want to maximize the value of the company and the managers look for maximizing their own utility, which reduces the value of the company. This type of conflicts appears mainly in big companies with diffuse stockholding where managers do not hold any significant part of the capital (Charreaux, 1997; Alexandre and Paquerot, 2000). Separating power and ownership might offer the non-owner managers the scope of pursuing the specific objectives, most often not compatible with those of the stockholders. (Burkart and al., 2003; Anderson and Reeb, 2003; Sharma, 2004; Charlier and Lambert, 2009).

This divergence of interests between the principal and the agent is more pronounced given that capital is scattered among several stockholders. The agency relationship is due to the fact that the principal (owner) thinks the agent (manager) is better placed than him to control his property. Information asymmetry is then the origin of the conflicting relationship. The information differential generates an opportunist behavior of the manager who acts against the interests of the other party. It follows a moral-risk phenomenon which occurs due to the fact that an agent has not learned how to realize his promises when his behavior is non- observable by the other party.

The agency theory provides a new interpretive framework to go through the distribution policy which is a means for reducing the real or potential conflicts between the stockholders and managers. As put forward by Jensen and Meckling (1976), each group of individuals is supposed to maximize its utility function and consequently conflicts might appear. Easterbrook (1984) and Jensen (1986) proposed a partial solution to this problem. If the stockholders can minimize the free cash under the control of the managers, managers will not have the ability to spend on projects with a negative Current-Net-Value.

For Easterbrook (1984), collecting capital in the financial markets creates a behavioral discipline for managers because of the surveillance activity generated by the investors. It is therefore necessary to

intensify access to financial markets while limiting self-financing to control conflicts between the managers and external stockholders. The sole means to reach that is the regular distribution of profits.

For a given investment policy, the profit distribution leads the managers to search for the necessary funds to keep the same investment policy. The additional borrowings require implementing an audit and reviewing procedure in the company. Accordingly, the repurchase puts together an implicit mechanism to control the management of the leaders and to know if they act in the interest of the company.

In general, the scattering of the capital weakens the power of controlling the stockholders, leaving greater operation margins to the managers. More particularly, the managers are interested in giving up the payment of dividends that allow them to receive the payment in excessive kind, which is reflected by a drop in the company value. This drop entails a fall in prices of which only the stockholders (as principals) suffer the consequences.

Using the repurchase programs can be linked to the will of the companies to declare their undervaluation at the stock market. Contrary to the rise in capital sanctioned by the negative abnormal profitabilities (Myers and Majluf, 1984 and Asquith et Mullins, 1986), the announcement of a repurchase program must correspond to good news for the investors. The American studies of Comment and Jarrel (1991) and of Grullon and Michaely (2000) present the abnormal profitabilities on announcing a program of repurchasing actions from 2 to 3%. This positive result exists in Europe, as well.

Nevertheless, launching a repurchase program is a low-costly signal because it is quite easy to get the consent of stockholders. The company managers do not commit themselves; they assume the possibility of buying the stocks on the stock market. From this standpoint, the repurchase program looks strongly like a free option from which the managers benefit when the stock price strays off the "real" value of the company. This option hypothesis was checked by Ikenberry and Vermaelen (1996). They showed that the effect of announcing a repurchase program depends on the volatility of the stock profitabilities and the number of concerned stocks. However, all the companies do not permanently have an active program of purchasing stocks. The option of repurchasing stocks is valuable only if the company has the funds to be invested in it and the managers are qualified to mark out the errors of the economic development on the market. Under these circumstances, the option is stimulated by the managers who really buy the stocks.

On the one hand, the risk of the company disappearance often prompts the managers to diversify the activities of the company. On the other hand, such a strategy is confronted with the refusal of the stockholders who prefer a less costly diversification of their stock portfolio rather than an expansion of the activity field of the company. Consequently, the interest divergences form a source of potential conflicts between the managers and the stockholders.

SAMPLE AND METHODOLOGY

There is little investigation into the relationship between the ownership structure and the company's policy of repurchasing its own stocks. A point of particular interest in this research is to study the effect of the property structure on the repurchase policy in a context characterized by its concentration and where there is a wealth of certain types of stockholders, either being the institutional investors or the managers.

The study is based on a sample of 40 listed French companies during a five-year period from 2004 to 2008, hence having 200 observations. To maintain sample coherence, we eliminated banking and financial companies as well as the real estate businesses because their repurchase policies, their governance systems and also their borrowing notions are different in comparison to the non-financial companies. Through this procedure the sample is reduced to 32 companies including 160 observations.

For each company, we collected accounting data and data concerning the profit distribution, stockholdings and governance over the five years from 2004 to 2008. Data concerning dividends are extracted from the financial statements (statement of accounts and statements of results) and the activity reports published on the Internet sites of the concerned companies. Data regarding the stockholding and governance were gathered from the company annual reports. Data concerning the repurchase of stocks were derived from the "information note relating to the programs of repurchasing stocks" and "the company's declarations of the purchases and the concerning sales of their of their own stocks", as well. These documents are published on the Internet site of the Authority of the Financial Market (AMF).

The data indicated that there exist many forms of effective repurchasing (repurchase, transfers, cancellation), used according to the motivations presented by the company. In order to isolate the stock purchases resulting from a distribution decision, we eliminated all the accomplished repurchases with the aim of providing the stock-option plans, controlling the price, or investing. So, we retain the notion of NET REPURCHASE; i.e., it is the number of repurchased stocks during the year, which is reduced by the sold and transferred stocks.

This repurchase measure estimates stocks which are cancelled or kept within the company, which corresponds neither to a coverage to stock-option plans, nor to an investment, and nor to a price control. In the case of a negative net repurchase, we considered that repurchases of the company were not carried out with a view to distribute to the stockholders. The net repurchase has been considered as non-existent.

Institutional property is the percentage of the institutional investors measured by the number of stocks held by the institutional investors over the total number of stocks. Allen and al. (2000) suggest that these stockholders are more capable of controlling managers than other owners. They have a privileged position for acceding to company data. So, they will be more influential concerning the financial decisions of the company, especially the policy of distributions in the form of repurchasing.

The property of the managers is the percentage of the stocks held by the managers, the employees and the directors of the same company. According to the theory of interest convergence (Jensen et Meckling, 1976), the possession of a part of the capital by the managers makes up an excellent encouragement to run the company in accordance with the interests of the stockholders. The more capital held by the managers is important, the more interest divergences between the stockholders and the managers will be low. Therefore, resorting to repurchase policies as a controlling mechanism turns out to be useless.

METHOD OF DATA ANALYSIS

To test our research hypotheses, we used linear declines that are robust against heteroscedasticity problems or residue normality. In this case, the estimators obtained by ordinary least squares are unbiased. Furthermore, we have given attention to the problem of collinearity between explanatory variables. Thanks to the study of the indexes of conditioning and VIF (Variance Inflation Factor) of each variable, we conclude that there is not any problem of collinearity in the declines.

The followings regressions equations were estimated to identify the determinants of stock repurchases:

$$NET\ REPURCHASE\ = \beta_0 + \beta_1 INS + \beta_2 SIZE + \beta_3 DEBT + \beta_4 FCF + \beta_5 ROA + \beta_6 DIV + \mu_{IT} \quad (1)$$

$$NET\ REPURCHASE\ = \gamma_0 + \gamma_1 MNG + \gamma_2 SIZE + \gamma_3 DEBT + \gamma_4 FCF + \gamma_5 ROA + \gamma_6 DIV + \mu_{IT} \quad (2)$$

Ordinary-Least-Squares estimates were obtained. The results are presented in Table 2 and 3. In the following section, we discuss the presentation and interpretation of the results.

EMPIRICAL RESULT AND DISCUSSIONS

The descriptive provides information on the characteristics of our sample. Table 1 summarizes the statistics of the variables. With respect to the nature of stockholders, we notice the percentage of stocks held by the institutional investors is the highest (40.01%). This result shows that these latter are the preferred stockholders of French companies. These investors participate increasingly in the stockholding of the French firms. The fact that French pension funds have not been sufficiently developed up to now does not hinder an astounding growth of the other institutional investors.

Table 1: Descriptive Statistics

	Mean	Standard-deviation	Minimum	Maximum	Median
NET REPURCHASE	1, 494,767	3, 350,504	0	21,100 ,000	58,945
INS	0.4001	0.2781	0.0001	1	0.3570
MNG	0.3182	0.0446	0	0.1916	0.0005
SIZE	16.206	1.451	12.458	18.404	16.649
DEBT	0.2331	0.1296	0.0034	0.5828	0.2265
FCF	0.0227	0.0351	-0.0764	0.1418	0.0219
ROA	0.0625	0.2428	0	1	0.0399
DIV	-2.7502	3.2847	-9.2103	0	-1.2132

This table presents the descriptive statistics of the sample variables. NET REPURCHASE: is the repurchase of stocks measured by the number of stocks repurchased during the year reduced in the sold stock and transferred stocks. INS: is the percentage of the capital held by the institutional investors.MNG: the percentage of the capital held by all the employees, managers and directors of the same company. SIZE: is measured by the logarithm of the total assets. DEBT: is measured by the total debts/ total assets. FCF: is measured by the net profit decreased in dividends and increased in depreciations (paying off) divided by the sum of credits of the company. ROA: is measured by the net profit/total credits ratio. DIV: is the rate of dividend distribution measured by the Naperian logarithm (of dividend / net profit ratio).

Tables 2 present the results of the linear regressions. Most retained variables seem to highly affect the level of the net share repurchases. Panel A shows regression results based on equation (1) and Panel B presents those of equation (2)

Table 2 shows that net repurchases increase with the presence of institutional investors among the stockholders of the company. This relationship can be explained by the fact that these investors (investment funds, banks, insurance companies…) have considerable power within the organization, which allows them to ensure management follow-up to take advantage of opportunities, which present themselves to the company. A way of controlling the managers consists of distributing the available free cash flow in the form of repurchases to limit absurd uses of funds by the Manager.

Grinstein and Michaley (2001), found that institutional investors invest in companies which would repurchase their stocks and reduce their investment in companies which distributed the dividends, and so they would have a preference for repurchases compared with dividends. Also, in 2005 these authors showed that these investors benefit from the opportunities which would arise in the company. A way of controlling the managers consists of distributing the available free cash flow in the form of repurchases so to limit an aberrant use of the funds by the manager.

This result is opposite that of Maury and Pajuste (2002), who found a negative relationship between repurchases and the investment of institutional investors. These authors affirm that the distribution ratio

declines when the controlling owner is an enterprise or a financial institution affiliated with a company group. According to these authors, it is possible for these companies to prefer holding these funds in order to exploit them in group projects.

Table 2: Regression Results

Panel A: Equation 1 Estimates		**Panel B: Equation 2 Estimates**	
INS	0.2798* (0.083)	**MNG**	0.4542*** (0.002)
SIZE	0.0754*** (0.000)	**SIZE**	0.0939*** (0.000)
DEBT	-0.6118** (0.013)	**DEBT**	-0.7180*** (0.010)
FCF	-0.0383 (0.737)	**FCF**	-0.0647 (0.896)
ROA	0.5662*** (0.000)	**ROA**	0.5754*** (0.000)
DIV	0.0262 (0.359)	**DIV**	0.0150 (0.628)
Adj. R^2	0.2424	**Adj. R^2**	0.2898
Number of obs.	160	**Number of obs.**	160

*This table present the regressions of the distribution under the form of repurchase on the property variables as well as on the control variables. The coefficients are estimated from linear regressions. The second figure in each cell is the t-statistic. INS: is the percentage of the capital held by the institutional investors. MNG: is the percentage of the capital held by all the employees, managers and directors of the same company. SIZE: is measured by the logarithm of the total assets. DEBT: is measured by the total debts/ total assets. FCF: is measured by the net profit decreased in dividends and increased in depreciations (paying off) divided by the sum of credits of the company. ROA: is measured by the net profit/total credits ratio. DIV: is the rate of dividend distribution measured by the Naperian logarithm (of dividend / net profit ratio). ***, **,*, mean that the coefficients are statistically significant for the respective thresholds of 1%, 5%, and 10%.*

The payment of FCF to the stockholders is an efficient mechanism to help resolve agency conflicts, whatever the form of this distribution including the repurchase of stock. Therefore, according to Jensen (1986) FCF represents the cash flow (or discretionary funds) held by managers after financing all the positive Current-Net-Value projects. Managerial ownership can form an important mechanism for aligning the interests of managers with those of stockholders bringing about a reduction in the costs that they support to control the manager. Besides, when their right to residual profit is weak, managers may take profits from other sources in the company, which risks affecting its value. When managers do not hold all the capital, they will raise their withdrawals from the company from the time that they do not bear all the costs of their opportunism. In fact, managers constitute the agent who can use the resources of the company to establish or increase their power as well as other advantages they receive (freedom of action, job security, remuneration, payments in kind…)

Stiglitz and Edlin (1992) showed how managers could use information asymmetry with different partners and competing managing groups to dissuade these latter from applying for the direction of the company. The investment policy represents, in this respect, a conspicuous entrenchment tool for the managers.
The entrenchment strategy developed by managers aims to increase their discretionary space using all the means at their disposal, namely their human capital as well as the company assets, to neutralize the control systems and increase the dependence of all the company partners on the resources they control (specific human capital, information asymmetry…)

Therefore, the positive relationship observed for the managerial ownership can be explained by the fact that the repurchases constitute an additional means of entrenchment for the managers. This result is in agreement with that of Skjeltorp and Odegaard (2004). Definitely, managers who want to raise the proportions of their stockholdings in the companies they run must repurchase the stock. The financial choices (in terms of dividend and indebtedness policy or stock repurchase) can represent a vector of managerial deep-rootedness. Indeed, the financial policies can enlarge the discretionary power of the manager.

Our model includes company characteristics as control variables. The results show that net repurchase is positively linked to the performance of the company and its dividend policy. The coefficients of these variables are statistically significant. However, both the indebtedness and the FCF negatively influence the repurchase. Indebtedness represents a control mechanism which is replaceable for the repurchase. While these two variables have the control mechanism of the agency costs linked to the FCF_S, the companies using less indebtedness should, equally, repurchase more stocks.

The negative relationship between the repurchase and FCF contradicts the hypothesis of Jensen (1976) which specifies that a company having high FCF_S raises these distributions to reduce the problem of abnormal use of the funds by the manager in non-profitable investments. This let us suggest that the French stockholders do not use repurchases as a means of controlling the funds made available to the manager. They use other disciplinary instruments for their needs. A debt issue can be one of these instruments, which obliges the manager to allocate the FCF_S as a priority to the repayment of the loan.

We observe the most successful companies repurchase more stocks. This positive relationship was first identified by Nohel and Tarhan (1998) who showed that the market disciplinary power would replace a mechanism of internal governance. Still, as suggested by Denis and McConnel (2003), the distribution policy could improve the company performance by reducing agency conflicts. The positive relationship between repurchasing stocks and distributing dividends can be explained by the fact that these two policies are rather complementary than substitutable; i.e., the repurchase and the dividend coexist and do not substitute each other.

CONCLUSION

In this paper, we tested the relationship between institutional stockholding and managers, and the policy of repurchasing stocks. We used Ordinary-Least-Square on a sample of 77 French companies during the 5 years, from 2004 to 2008. The results show that institutional investor's ownership positively influences the repurchase of stocks which can be explained by the fact that distributing the available free cash flow in the form of repurchases is a way to control the managers and limit an aberrant use of the funds. We found a positive relationship between the stockholding of the managers and repurchases. This has been accounted for by entrenchment power which can be a factor for the repurchase by increasing the percentage of manager stockholdings.

The paper has limitations. We used a sample of 40 French firms. In future studies a larger sample would provide more insights. Future research might also study the relation between the concentration of French companies and their repurchase policy.

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BIOGRAPHY

Rim El Houcine, Ph D Student, Faculty of Science Economics and Management of Tunis. She can be contacted at: 79 Route de la plage 4011 Hammam sousse-Tunisie. Phone: +21627256745. E-mail: rimelhoucine@yahoo.fr

THE IMPACT OF ECONOMIC FLUCTUATIONS ON EARNINGS FORECASTS

Ronald A. Stunda, Valdosta State University

ABSTRACT

Prior studies in the area of management forecasts contain a common characteristic, they make no distinction as to the economic cycle of the U.S. when assessing voluntary earnings disclosures. This research tests whether voluntary earnings disclosures released during periods of an economic downturn differ from disclosures released during periods of economic expansion. In terms of bias and information content, findings suggest that forecasts tend to significantly differ during these distinctly different periods. With the U.S. in the grip of what may be a protracted recessionary period, these findings have practical and important implications for users and disseminators of forecast information.

JEL: G10, M410

KEYWORDS: Accounting, Forecasts, Security Markets

INTRODUCTION

The 2008-2012 global economic crisis is considered by many economists to be the worst economic crisis since the Great Depression of the 1930s (Haidar, 2012). It resulted in the threat of total collapse from large financial institutions, the bailout of banks, industries and nations, and downturns in the stock markets around the world. The housing market also suffered due to evictions, foreclosures, and prolonged unemployment in the private sector. The crisis played a significant role in the failure of key businesses, declines in consumer wealth estimated in the trillions of dollars and a downturn in the economic activity leading to the 2008-2012 global recession and contributing to the European sovereign debt crisis. The U.S. Financial Crisis Inquiry Commission reported in its findings of January, 2011 that "the crisis was avoidable and was caused by; widespread failures in financial regulation, including the Federal Reserve's failure to stem the tide of toxic mortgages, dramatic breakdowns in corporate governance resulting in firms assuming too much risk, an explosive mix of excessive borrowing and risk-taking by U.S. households, and over-leveraging by many U.S. banks." (NY Times, 2011). This study assesses the impact that shifts in economic cycle have on the voluntary release of earnings forecasts. There exists much extant literature on the analysis of earnings forecasts, none, however, articulate any differences during periods of shifts in economic cycle. This study will attempt to do that. The article will first provide a summary of past and current relevant literature, followed by the hypotheses of the study. The data and methodology used in the study will then be elaborated, followed by results by hypotheses and then concluding comments.

LITERATURE REVIEW

Some extant research concludes that earnings forecasts may be less beneficial during unsettled economic periods (Miller, 2009), and as a result fewer may be issued during such periods. Other literature concludes that earnings forecasts help to cut through the fog of economic uncertainty (Anilowski et al, 2010) and are encouraged to assist users particularly during such periods. An analysis of the Dow Jones News Retrieval Service (DJNRS) was made for the years 2003-2012(third quarter) in an attempt to determine the number of quarterly forecasts recorded by the DJNRS for this time frame. Results are shown in Table 1.

Table 1: Quarterly Firm Point Forecasts of Earnings Dow Jones News Retrieval Service

Year	Number
2003	504
2004	489
2005	517
2006	476
2007	530
2008	521
2009	482
2010	509
2011	473
2012 (Three Quarters)	383

Table 1 indicates the numbers of quarterly earnings forecasts made by U.S. firms from 2003 through three quarters of 2012, as reported by the Dow Jones News Retrieval Service. Even though the table reflects fluctuations in numbers of forecasts per year, they do not reflect any significant change from year to year.

As can be seen from Table 1, there appears to be no discernible drop-off in the number of voluntary earnings forecasts during the economic crisis of 2008-2012. Having demonstrated this, the next step is to ascertain whether or not there are any inherent differences in the quality of the earnings forecast with respect to bias and information content during economic downturn periods (2008-2012) and economic growth periods (2003-2007). Prior research in the study of voluntary earnings forecasts finds that managers release information that is unbiased relative to subsequently revealed earnings and that tends to contain more bad news than good news (Baginski et al, 1994; Frankel, 1995). Such releases are also found to contain information content (Patell, 1976; Waymire, 1984; Pownell and Waymire, 1989). Although forecast release is costly, credible disclosure will occur if sufficient incentives exist. These incentives include bringing investor/manager expectations in line (Ajinkya and Gift, 1984), removing the need for expensive sources of additional information (Diamond, 1985), reducing the cost of capital to the firm (Diamond and Verrechia, 1987), and reducing potential lawsuits (Lees, 1981).

All of the aforementioned empirical studies have one common characteristic, they assess voluntary earnings forecasts irrespective of economic climate (i.e., during both economic expansions and contractions). The research question addressed in this study is: Do voluntary earnings forecasts differ depending upon the economic environment? This question links earnings management to voluntary disclosures of earnings. For several years researchers have found that some degree of earnings management may exist in mandatory earnings disclosures. I argue that incentives leading to earnings management may manifest in voluntary disclosures as well. If the potential exists for voluntary disclosures to be managed, then to what extent do investors rely upon the forecast information? In addressing this research question, I rely upon literature that indicates potential earnings management during periods with differing incentive structures. DeAngelo (1986) shows that managers have incentives during management buyouts to manage earnings downward in attempts to reduce buyout compensation. Collins and DeAngelo (1990) indicate that earnings management occurs during proxy contests, and market reaction to earnings during these contests is different than during non-contest periods.

DeAngelo (1990) finds that managers have incentives during merger activities to manage earnings upward so as to convey to current stockholders that the potential merger will not adversely affect their investment. Perry and Williams (1994) find that management of accounting earnings occurs in the year preceding "going private" buyouts. Stunda (1996) finds that managers exert greater upward earnings management during mergers and acquisitions. And Stunda (2003) finds greater earnings management when a firm is under Chapter 11 protection. This study assesses any differences that the economic environment may have on management forecast credibility. In accomplishing this, the presence of earnings forecast management is tested by using bias measures along with the market reaction to the forecasts. The study focus is on firm forecasts during a period of relative economic expansion (2003-2007) versus firm forecasts during a period of relative economic contraction (2008-2012). Based upon

statistical analysis, conclusions are reached that identify whether or not economic environment is a factor that has the potential for influencing voluntary earnings forecasts. The results have implications for all public firms during both periods of economic expansion and contraction, in addition to investors and potential investors in those firms.

HYPOTHESES DEVELOPMENT

Hypotheses about bias of management forecast: As previously noted, most past studies of voluntary earnings forecasts do not find evidence of bias in such disclosures. These studies of management forecasts must be considered along with the earnings management literature. For instance, voluntary disclosures facilitate additional information to the investor at a lower acquisition cost. However, if only partial communication flows from management to investors and acquiring full information is costly, there exists asymmetric information and the potential for earnings management of the forecast. If the same degree of earnings management (whether positive or negative) exists in both the forecast of earnings and actual earnings, the expectation is that there would be no difference in forecast error. If, however, the ability to perform earnings management is anticipated but not realized, some difference of forecast error would be present. If greater upward earnings management of the forecast occurs (or less actual earnings management), a negative forecast error should exist. If greater downward earnings management of the forecast occurs (or less actual earnings management), a positive forecast error should result. Thus, the first hypothesis tests for the existence of forecast error. The null hypothesis tested is:

H1: Average management forecast error (actual EPS – management forecast of EPS) equals zero for firms regardless of economic environment.

Introducing a firm-specific control (i.e., a forecast for the same firm during economic expansion versus economic contraction) allows a test of the relative forecast error in both economic environments. If firms display the same degree of earnings management in both periods, the expectation is that there will be no difference in forecast error. If, however, there exist different incentives to manage earnings (either upward or downward) during times of economic fluctuation, then a positive or negative forecast error would result. Stated in null form:

H2: The average forecast error for the firm is not significantly different during periods of economic expansion and economic contraction.

Hypothesis about information content of accounting earnings and management forecasts: If mandatory disclosures of earnings contain some degree of earnings management, then voluntary disclosures may possess the potential for such earnings management as well. Investors may react to managed earnings in one of two ways; they may discount the information as additional noise, or they may view this information as enhancing the properties of the signal (i.e., in terms of amount or variance). Research during the past two decades has shown that accounting earnings possesses information content. Current literature finds that the information content of earnings announcements is different during non-routine periods (i.e. stock proxy contests, mergers and acquisitions, buyouts, Chapter 11 proceedings, etc.). If investors interpret managed earnings forecasts as just additional noise, the market would discount this information. If, however, investors view the managed earnings forecast as a positive (or negative) signal form management, the market would not discount the information. The expectation for information content of management forecasts in varying economic environments would revolve around these two notions. These alternative notions suggest the following null hypothesis:

H3: The information content of management forecasts during periods of economic expansion is not significantly different from the information content of management forecasts during periods of economic contractions.

DATA AND METHODOLOGY

The sample consists of quarterly management forecast point estimates made during two sample periods, 2003-2007 (representing economic expansion), and 2008-third quarter 2012 (representing economic contraction). The sample met the following criteria: 1) The management earnings forecast was recorded by the Dow Jones News Retrieval Service (DJNRS). 2) Security price data was available from the Center for Research on Security Prices (CRSP). 3) Earnings data was available from Compustat. The samples consist of firms which made at least one management earnings forecast in each sample period. Table 2 provides details on the samples.

Table 2: Study Samples by Sample Period

Economic Expansion Study Period	
Year	Number of forecasts
2003	215
2004	189
2005	207
2006	176
2007	218
Total	**1,005**
Economic Contraction Study Period	
Year	Number of forecasts
2008	204
2009	180
2010	212
2011	178
2012	127
Total	**901**

Table 2 reflects the two study periods that are evaluated in this study. Years 2003-2007 reflect the years of economic expansion and contain 1,005 quarterly earnings forecasts. Years 2008-2012 reflect the years of economic contraction and contain 901 quarterly earnings forecasts for the same firms identified in the economic expansion sample. The information was obtained from the Dow Jones News Retrieval Service.

Test of Hypothesis 1

The management forecasts of earnings must be related to actual earnings in order to determine if bias exists. McNichols (1989) analyzes bias through the determination of forecast error. Stated in statistical form, the hypothesis is represented in Equation 1 as follows:

$$\Sigma \frac{fei}{n} = 0 \qquad (1)$$

Equation 1 describes how forecast error is determined:

Where:

f_{ei} = forecast error of firm *i* (forecast error = actual eps – management forecast of eps), deflated by the firm's stock price 180 days prior to the forecast.

In order to test hypothesis 1, firm forecasts included in the combined study samples were analyzed. Statistical analysis is performed on the samples in order to determine if the average forecast error is zero. McNichols (1989) and DeAngelo (1988) conduct a t-test on their respective samples in addition to a Wilcoxon signed rank test. Lehmann (1975) reports that the Wilcoxan tests has an efficiency of about 95% relative to a t-test for data that are normally distributed, and that the Wilcoxan test can be more efficient than the t-test for non-normal distributions. Therefore, this analysis consists of performing a t-test and a Wilcoxan signed rank test on the average cross-sectional differences between actual earnings per share and the management forecast of earnings per share.

RESULTS

Hypothesis 1 Results

Test of hypothesis 1 was conducted on the combined two samples (i.e., forecasts made during periods of economic expansion, and forecasts made during periods of economic contraction), a total of 1,906 firm forecasts. Table 3 contains the results of this test.

Table 3: Average Management Forecast Error Deflated by Firm's Stock Price 180 Days Prior to Forecast

Model: $\Sigma \frac{fei}{n} = 0$

n	Mean	Medium	Minimum	Maximum	Standard Deviation	(t-statistic)
1,906	0.04	0.01 ***	-0.127	0.229	0.0017	(2.25) **

Table 3 assesses the bias of voluntary earnings forecasts for all quarterly forecasts included in both samples. That is, the 1,005 forecasts from the expansion study period, and the 901 forecasts from the contraction study period, for a total of 1,906 total forecasts. This analysis is made to determine a baseline measurement of all forecasts in this study to ensure that results are comparable with prior studies that assess forecast bias.
*** Significant at the .05 level (two-sided test).*** Significant at the .01 level using the non-parametric sign-rank test. fei = forecast error of firm i (actual eps – management forecast of eps) n = sample of 1,906 firm forecasts during 2003-2012*

Table 3 indicates a mean forecast error for these forecasts is 0.04 with a p-value of .05. Using the distribution-free rank test, significance is observed at the .01 level. These results are consistent with the preponderance of extant earnings forecast literature that indicates that management forecasts tend to reflect more bad news in the forecast relative to actual earnings. As a result, Hypothesis 1 which states that average management forecast error equals zero regardless of economic environment is overturned, since the forecasts in the sample, on average, exhibits downward bias of the management forecast.

Test of hypothesis 2

The second hypothesis introduces firm-specific and time-specific controls, namely, it assesses potential bias of the management forecast by the two study periods, those made during economic expansion, and those made during economic contraction for the same firms. This permits a test of the relative forecast error in these two respective periods. Stated in statistical form the hypothesis is represented in Equation 2 as follows:

$$\Sigma \frac{fei}{n\ expansion} = \Sigma \frac{fei}{n\ contraction} \qquad (2)$$

Equation 2 reflects the hypothesis that in null form suggests that forecast errors in expansion periods are equal to forecast errors in contraction periods.

In order to test hypothesis 2, the same firms are selected from both samples. Required criteria for this test is at least one management forecast of earnings had to exist during each sample period for each firm. When this constraint is applied to the firms, the sample size as indicated in Table 2 is greatly reduced. For the sample period 2003-2007 (economic expansion), a total of 147 firm forecasts are observed. For the sample period 2008-2012 (economic contraction), a total of 121 firm forecasts are observed.

Hypothesis 2 Results

Test of hypothesis 2 was conducted on two samples; one sample including firm forecasts between 2003-2007 (economic expansion), and the other sample including firm forecasts between 2008-2012 (economic contraction). As mentioned above, both of these samples contained the same firms. Table 4 contains the results of this test.

Table 4: Average Management Forecast Error Deflated by Firm's Stock Price 180 Days Prior to Forecast

Model: $\Sigma \frac{fei}{n\,expansion} = \Sigma \frac{fei}{n\,contraction}$						
Panel A- Management Forecasts during Economic Expansion (2003-2007)						
n	**Mean**	**Medium**	**Minimum**	**Maximum**	**Standard Deviation**	**(t-statistic)**
1,005	0.03	0.01 ***	-0.027	0.229	0.0020	(2.26) **
Panel B- Management Forecasts during Economic Contraction (2008-2012)						
n	**Mean**	**Medium**	**Minimum**	**Maximum**	**Standard Deviation**	**(t-statistic)**
901	-0.12	-0.05***	-0.220	0.121	0.0011	(-2.35) ***

*Table 4 reflects forecast error of the two samples. Panel A, reflecting the economic expansion sample, indicates a mean forecasts error that is positive (i.e., .03). This means that the earnings forecast was lower than the actual earnings number for these sample forecasts. Panel B, reflecting the economic contraction sample, indicates a mean forecast error that is negative (i.e., -.12). This means that the earnings forecast was higher than the actual earnings number for these sample forecasts. These results indicate that these two study periods are different from an earnings forecast perspective. Panel A: ** Significant at the .05 level (two-sided test).*** Significant at the .01 level using the non-parametric sign-rank test. fei = forecast error of firm i (actual eps – management forecast of eps) n = sample of 147 firm forecasts during 2003-2007. Panel B: *** Significant at the .01 level (two-sided test). *** Significant at the .01 level using the non-parametric sign-rank test. fei = forecast error of firm i (actual eps – management forecast of eps) n= 1,005 firm forecasts during expansion periods and 901 firm forecasts during contraction periods.*

Table 4 reflects forecast error of the two samples. Panel A, reflecting the economic expansion sample, indicates a mean forecasts error that is positive (i.e., .03). This means that the earnings forecast was lower than the actual earnings number for these sample forecasts. Panel B, reflecting the economic contraction sample, indicates a mean forecast error that is negative (i.e., -.12). This means that the earnings forecast was higher than the actual earnings number for these sample forecasts. These results indicate that these two study periods are different from an earnings forecast perspective.

Panel A of Table 4 indicates results for the economic expansion sample of firm forecasts of earnings per share. Mean forecast error for these forecasts is .03 with a p-value of .05. Using the distribution-free rank test, significance is observed at the .01 level. As seen with hypothesis 1, these results are consistent with prior earnings forecast literature which indicates that management forecasts tend to reflect more bad news in the forecast relative to actual earnings. Panel B of Table 4 provides results for the economic contraction sample of firm forecasts of earnings per share. Mean forecast error for these firms is -.12 with a p-value of .01. Using the distribution-free rank test, significance is observed at the .01 level. These results are inconsistent with those from Panel A. They indicate that forecasts during economic contraction tend to reflect more good news in the forecast relative to actual earnings. Therefore, hypothesis 2 which states that there is no significant difference in forecast error between these two sample periods must be rejected.

Test of hypothesis 3

The purpose of this test is to assess the relative information content of management earnings forecasts during periods of economic expansions and economic contractions. The following model in Equation 3 is used to evaluate information content:

$$CARit = a + b1UEit + b2UEEit + b3UECit + b4MBit + b5Bit + b6MVit + eit \quad (3)$$

Where:

CARit = *Cumulative abnormal return forecast i, time t*
a = *Intercept term*
UEit = *Unexpected earnings for forecast i, time*
UEEit = *Unexpected earnings for forecast i, time t during economic expansion*
UECit = *Unexpected earnings for forecast i, time t during economic contraction*
MBit = *Market to book value of equity as proxy for growth and persistence*
Bit = *Market model slope coefficient as proxy for systematic risk*
MVit = *Market value of equity as proxy for firm si*
eit = *error term for forecast i, time t*

Equation 3 indicates the regression model that is used to assess the information content of the earnings forecasts for both expansion and contraction study periods. In addition to assessing those two specific periods, (i.e., b2 and b3 variables), an assessment is also made for total forecast samples (b1 variable), and other variables that have shown significance in prior studies such as growth, risk and size (b4, b5 ,b6 variables).

The coefficient a in the above model measures the intercept. The coefficient b_1 is the earnings response coefficient (ERC) for all firms (i.e., 1,906) in both samples. The coefficient b_2 represents the incremental ERC for firm forecasts made during periods of economic expansion (i.e., 1,005). The coefficient b_3 represents the incremental ERC for firm forecasts made during periods of economic contraction (i.e., 901). The coefficients b_4, b_5, and b_6 are contributions to the ERC for all firms in the sample. To investigate the effects of the information content of management forecasts on ERC, there must be some control for variables shown by prior studies to be determinants of ERC. For this reason, the variables represented by coefficients b_4, b_5 and b_6 are included in the study. Unexpected earnings (UE_i) is measured as the difference between the management earnings forecast (MF_i) and the security market participants' expectations for earnings proxied by consensus analyst following as per Investment Brokers Estimate Service (IBES) (EX_i). The unexpected earnings are scaled by the firm's stock price (P_i) 180 days prior to the forecast. This is illustrated in Equation 4:

$$UEi = \frac{MFi - EXi}{Pi} \qquad (4)$$

This equation is used to assess unexpected earnings. Unexpected earnings is measured as the difference between the management forecast of earnings and the expected earnings level as determined by consensus analyst following per Investment Brokers Estimate Service. This value is then deflated by the firm's stock price 180 days prior to the forecast.

For each disclosure sample, an abnormal return (ARit) is generated for event days -1, 0, and +1, where day 0 is defined as the date of the forecast disclosure identified by the DJNRS. The market model is utilized along with the CRSP equally-weighted market index and regression parameters are estimated between days -290 and -91. Abnormal returns are then summed to calculate a cumulative abnormal return (CARit). Hypothesis 3 is tested by examining the coefficients associated with unexpected earnings during economic expansion (b_2) and economic contraction (b_3). There are two possible conclusions of results; the forecast may be noisy, which in this event, the coefficient < 0, or the forecast will possess an information-enhancing signal to the investor, which will result in the coefficient > 0.

Hypothesis 3 Results

Hypothesis 3 tested information content of management forecasts during periods of economic expansion and economic contraction. Table 5 reports the results of this test. As indicated in the table, the

coefficient representing the overall ERC for all firm forecasts in both study periods (b_1) has a value of 0.14 with a p-value of .01. This is consistent with prior management forecast literature regarding information content. The coefficient representing the incremental ERC for firm forecasts during economic expansions (b_2) has a value of 0.10 with a p-value .01. The coefficient representing the incremental ERC for firm forecasts during economic contractions (b_3) has a value of -0.03 with a p value of .01. All other control variables are not significant at conventional levels. These findings indicate that not only do forecasts contain information content, there is a difference between the information content of forecasts made during periods of economic expansion versus those made in economic contraction. Those made during economic expansion possess an information-enhancing signal to investors and other users while those made during economic contraction are interpreted by investors and other users as being noisy information that may or may not be usable.

Table 5: Test of Information Content of Management Forecasts

Model: $CARit = a + b1UEit + b2UEEit + b3UECit + b4MBit + b5Bit + b6MVit + eit$

CARit	=	*Cumulative abnormal return forecast i, time t*
a	=	*Intercept term*
UEit	=	*Unexpected earnings for forecast i, time*
UEEit	=	*Unexpected earnings for forecast i, time t during economic expansion*
UECit	=	*Unexpected earnings for forecast i, time t during economic contraction*
MBit	=	*Market to book value of equity as proxy for growth and persistence*
Bit	=	*Market model slope coefficient as proxy for systematic risk*
MVit	=	*Market value of equity as proxy for firm si*
eit	=	*error term for forecast i, time t*

Coefficients (t-statistics)

a	b1	b2	b3	b4	b5	b6	Adjusted R^2
0.20	0.14	0.10	-0.03	0.11	-0.05	0.04	0.189
(.78)	(2.35)***	(2.40)***	(2.42)***	(0.32)	(-0.18)	(0.28)	

Table 5 reflects the results of the assessment of information content through the running of the regression formula above. For the total forecast sample (b_1 variable) the Earnings Response Coefficient is positive (0.14) and significant at the .01 level. For the economic expansion forecast sample (b_2 variable) the Earnings Response Coefficient is positive (0.10) and significant at the .01 level. For the economic contraction forecast sample (b_3 variable) the Earnings Response Coefficient is negative (-0.03) and significant at the .01 level. This indicates that all forecasts possess information content but those during economic contractions are perceived by investors to be noisy or unusable. Other variables assessed in the model are not significant at traditional levels. ***Significant at the .01 level (two-sided test) b_1, b_4, b_5 and b_6 sample = 1,906 firm forecasts b_2 sample = 1,005 firm forecasts b_3 sample = 901 firm forecasts

In addition, whenever a set of multiple regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an interpretive prospective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIF) was utilized. Values of VIF exceeding 10 arte often regarded as indicating multicollinearity. In the test of hypothesis 3, a VIF of 1.9 was observed, thus indicating the non-presence of significant multicollinearity.

CONCLUDING COMMENTS

This study provides empirical evidence regarding the credibility of management forecasts of earnings during differing economic cycles, namely, economic expansion, and economic contraction. Past research on earnings forecasts assess the forecast over time periods which do not consider the effects of the economic cycle on the forecast. This study is the first to attempt to do so. Earnings forecasts were broken into two sample periods; an expansion period (2003-2007), and a contraction period (2008-2012). Firms that issued forecasts in both of these sample periods were evaluated. The evaluation consisted of conducting a study of bias for all firms in both periods combined to assess if results are comparable to previous studies. In addition, a study of bias was conducted for each sample separately to assess any differences between expansion and contraction samples. Lastly, a regression analysis was made for each sample period in order to assess any differences in information content of the

earnings forecasts between the two periods. Bias results indicate that during periods of economic expansion, managers exert greater downwards earnings management on the forecast (relative to actual earnings). This is consistent with prior management forecast literature. However, during periods of economic contraction, managers exert greater upwards earnings management on the forecast (relative to actual earnings). Information content results indicate the presence of information content in management forecasts during both economic expansion and contraction periods. During economic expansion, forecasts tend to exhibit an information-enhancing signal to users. However, during economic contraction, investors interpret the forecast as being more noisy and potentially less informative.

These findings have significant implications for managers issuing earnings forecast during an economic contraction. If investors become aware of a potentially positively biased forecast, there will be a tendency for these users to discount the information provided by the forecast. Both managers and users of the management forecast must be cognizant of potential upward bias of earnings forecasts during contraction periods. Although the time periods that were utilized were constrained by the length of time of the contraction period (i.e., not quite five years of economic contraction forecasts were available, thus the economic expansion study period had to be limited to a similar time period for more comparable results), this was partially offset by the total number of forecasts used in the study. Most prior studies evaluating earnings forecasts use limited numbers of forecasts, normally under 100 in total, this study utilized almost 2,000 forecasts. Future studies might encompass greater time frames with even larger numbers of forecasts.

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BIOGRAPHY

Ronald Stunda is Professor of Accounting at Valdosta State University. He also serves as reviewer for several journals. His research deals mainly with market-based applied accounting research and has appeared in such journals as *Academy of Business Journal*, *Journal of Business and Behavioral Sciences*, *Advances in Business Research*, and the *Journal of Accounting and Financial Studies*. He can be reached at Valdosta State University, 1500 North Patterson Street, Valdosta, GA, 31698, rastunda@valdosta.edu.

DOES A SIZE LIMIT RESOLVE TOO BIG TO FAIL PROBLEMS?

Mohamed Drira, University of New Brunswick
Muhammad Rashid, University of New Brunswick

ABSTRACT

Does limiting the size of a large bank reduce its insolvency risk? This paper shows that the answer to this question depends on how exactly paring down of the bank size is done. In fact, the insolvency risk may go down or up depending on the composition of assets and liabilities of the bank relative to its pre-paring down composition. In addition, this study investigates mean-standard deviation efficiency of a typical Canadian large bank and its various possible paring down scenarios and finds both the original bank and its pared-down versions are inefficient. It then suggests mean-standard deviation efficient compositions of assets and liabilities, which do not depend on limiting the size of the bank. Therefore, the findings of this paper raise a serious doubt about the validity of the "limit on size" solution to the too-big-to-fail problem.

JEL: G21, G01, G18

KEYWORDS: Banking, Too-Big-To-Fail, Assets and Liabilities Management, Mean-Variance Analysis

INTRODUCTION

During and after the 2007-2009 financial crisis, the term too-big-to-fail, to be denoted by TBTF hereafter, has been commonly used for a bank that is so large that its failure will trigger significant adverse financial and economic consequences for both financial and non-financial sectors (Ashcraft, 2005). These consequences termed the spillover effects, or systemic risk, were the main rationale behind governments' bailouts of large troubled banks in the USA and Europe during the crisis. The public rescue of a financially distressed large bank is known as the TBTF policy.

The gains of the TBTF policy are the avoidance of the expected spillover effects and maintenance of financial stability, but this policy involves both short–run and long-run costs. Johnson and Kwak (2010) and King (2009), among others, argue that TBTF policy creates moral hazard problem and thereby encourages excessive risk-taking and inefficiency in resource allocation in the long-run. In addition, with the TBTF policy, the frequency of future financial crises is expected to rise, which will entail more significant financial and real costs (Goodlet, 2010). The short-run costs of the TBTF policy consist of the bailout funds which are a transfer of wealth from taxpayers to financial industry. Stern and Feldman (2009a) report that long-run costs were three times the short-run costs of rescuing the savings and loans associations in the USA in the 1980s. Because of the short-run and long-run costs and competitive non-neutrality in favor of large banks of the TBTF policy, this policy is termed to be the TBTF problem.

Various measures have been proposed to tackle the TBTF problem such as, limit on size, tax on profit of TBTF banks, improving bank governance, raising capital adequacy requirements for TBTF banks, and embedded contingent capital (for a comparative evaluation of all the possible solutions to the TBTF problem that have been covered in the extant literature, see Rashid et al., 2012). Among these measures, the "limit on size" solution has been more popular in policy and academic circles. In Belgium, the Netherlands, Switzerland, U.K, and USA, calls have been heard to cap the size of domestic banks (Dermine and Schoenmaker, 2010). A sample of prominent observers who have promoted limiting the size of large financial institutions are Reich (2008), Schultz (2008), Greenspan (see Buiter, 2009),

Drucker (see Dickson, 2010), King, Ex-exchequer U.K (see Treanor, 2009), Johnson and Kwak (2010), and Moosa (2010).

As stated by Stern and Feldman (2009b), the size limit solution has seemingly two attractive features that make it more popular and appearing easy to implement in practice. First, a bank's size is easily measurable. Second, the regulator can simply order across-the-board shrinkage of balance sheets for TBTF banks. However, a deeper analysis shows that the difficulties in implementing the "limit on size" solution are more serious than pretended by many of its advocates. Difficulties lie, for example, in identifying TBTF institutions, finding the optimal cut-off size, engaging into efforts to disentangle complex large banks into parts without substantially losing synergies, and the ensuing loss of positive effects of diversification and economies of scale and scope.

The main rationale for shrinking large banks into smaller sizes is that smaller banks have lower systemic risk. There are two problems with this rationale. Although systemic risk may be affected by size, there are host of complex micro-level and macro-level factors which can also affect a bank's systemic risk level. In addition, there is no agreed-upon definition and measure of systemic risk (Bisias et al., 2012), which makes the empirical test of this rationale rather difficult. Instead of systemic risk, we focus in this paper on bank's insolvency risk. The argument is that reducing the insolvency risk of a bank is equivalent to decreasing the likelihood of occurrence of its systemic risk. Accordingly, this study investigates whether limiting the size of a large bank reduces its insolvency risk and shows that insolvency risk of a large bank can be affected positively or negatively depending on how exactly shrinkage in balance sheet is done. Then, the paper tests whether the original large bank and its pared-down version are mean-standard deviation, μ/σ, efficient. Finally, it shows that achieving an efficient combination of assets and liabilities of a bank at lower risk does not require reducing the size of the bank. What matters is the portfolio composition of assets and liabilities, not the size of assets.

The rest of the paper is organized as follows: Section 2 reviews the extant literature on the topic. Section 3 provides data and methodology used in the study. Section 4 reports results. Section 5 provides concluding comments.

LITERATURE REVIEW

The "limit on size" solution seems straightforward to implement as it requires only three steps: (i) identify too-big-to-fail (TBTF) banks, (ii) shrink their balance sheets organically (e.g., non-renewal of maturing loans) and/or by divesting certain operations or assets, and (iii) not allowing small banks to rise beyond a specified threshold size. Rationale behind the solution is twofold: (i) a large bank is difficult to manage properly, resulting in higher likelihood of failure, and (ii) there are less significant spillover effects following the failure of a small bank.

Aguilar (2010) states that Paul Volcker and many others propose that the regulator should rein in the speculative activities of banks because of the key role played by speculative activities in the recent financial crisis. This requires restrictions on bank's proprietary trading and their ownership and sponsorship of hedge funds and private equity funds. Section 619 of the Dodd-Frank Act (2010), known as the Volcker Rule, is aimed at imposing such restrictions (see Acharya and Richardson, 2012).

Dickson (2010) reports the following statement from Peter Drucker, which is tantamount to the "limit on size" solution: "there comes a point where firms are too big to manage." Johnson and Kwak (2010) in their book, *13 Bankers: The Wall Street Takeover and Next Financial Meltdown*, argue in favor of limiting banks' sizes for many reasons, including: (i) the TBTF policy creates competitive disadvantages for smaller banks because their debts are not perceived by market participants as risk free as those of the TBTF institutions, and (ii) the TBTF banks have vast power and control over media, politicians, and

regulators. They can campaign and lobby effectively to shape regulation in the way they want (see also, Ferguson, 2010).

Other arguments for a limit on size solution of a large bank include the size of the spillover effects, the cost/benefit analysis of the TBTF policy, and market discipline. It is commonly believed that the present value of the TBTF policy costs far exceeds the present value of its benefits (Goodlet, 2010). Moreover, depositors, creditors, and stockholders of large banks do not exercise market discipline on TBTF banks because of the expectation of government's bailouts in case of failure. Conversely, since smaller banks do not enjoy this downside protection, their investors will be vigilant about excessive risk taking activities by these banks due to possible losses in financial distress situations.

There are also several points raised by opponents to the limit on size solution. First, the regulator needs to identify banks which can cause significant spillover effects, but there is no agreed-upon benchmark for such identification (Fernholz, 2009, Moosa, 2010). Second, reducing the size of a large bank entails substantial costs of downward paring down as well as costs arising from the loss of economies of scale and scope (Allen and Friedland, 2012). Third, a limit on size will adversely impact on the diversification effect, making a bank more vulnerable to insolvency. Fourth, there is the question of regulatory regionalism. If only domestic banks are subject to a limit on size, they will be competitively disadvantaged compared with their international counterparts. Fifth, several analysts such as Allen and Friedland (2012) believe the size was not one of the most important reasons for the recent financial crisis. According to these authors, the main causes were: regulatory forbearance, banks' excessive risk-taking activities, and the Fed's low interest rate policy. In the same vein, there are also doubts whether there are significant adverse spillover effects of failure of a large institution, as claimed by the TBTF policy advocates (Helwedge, 2009, Moosa, 2010). Sixth, even if one accepts the merits of a "limit on size", there is the difficult issue of determining the "critical cut-off" size. Assuming that increasing size does increase economies of scale and scope and does increase spillover effects, there must be a trade-off between these opposing factors in determining the critical cut-off size. Further, optimal levels of economies of scale and scope may occur at different levels of size due to differences in their leverage, liquidity, capital, diversification, and the degree of interconnectedness with other financial institutions. Finally, keeping the pared down bank small overtime should be challenging to both the regulatory authorities and banks.

DATA AND METHODOLOGY

The systemic risk of a bank refers to the adverse spillover effects, also called "contagion" or "domino" effects, of its failure on other financial institutions and on the real economy. Korinek (2011) explains the amplification effects arising from fire sales of financial assets by individual banks in distress. The channels by which these spillover effects may occur are: (i) the ensuing reduction in the money supply and its effect, through the multiplier process, on the economy, (ii) the interconnectedness with other financial institutions and corporations (through inter-financial institutions' deposits and off balance sheet counterparty positions in contingent assets and liabilities), and (iii) investors' adverse reaction to the failure of a bank that leads them to reassess the vulnerability of other market segments or countries (Bekaert et al, 2009).

Despite the abundant studies on systemic risk in the economics and finance literature, there are no widely accepted definition and quantitative measure of systemic risk (Martinez-Jaramillo et al., 2010, Bisias et al., 2012). There have been several attempts to measure systemic risk. For example, Kelly (2012) quantifies it by conditional tail risk of monthly rate of return, Acharya et al. (2012) measure it by the financial firm's marginal expected shortfall, Carlson et al. (2008) use the option theory to measure the systemic risk by distance to default, Khoury and Naftilan (1999) measure it as the sequential domino effect, and others used the value-at-risk models. It appears that none of these approaches can pick up the national and global spillover effects adequately. Also, Khoury and Naftilan (1999) show that modeling

systemic risk as the "domino" effect fails to explain the real world phenomenon in the banking sector. We recognize that in the context of the "limit on size" solution, measuring bank's systemic risk would have been preferable but because of the above-mentioned measurement difficulties, we opt to deal with insolvency risk in our analysis. Our argument is based on the fact that systemic risk will occur only if a bank will become insolvent. Therefore, if the insolvency risk of a bank is reduced, that will decrease the probability of occurrence of systemic risk.

The methodology of the paper involves the measure of banks' performance and bank's insolvency risk and then the computation of mean-standard deviation, μ/σ, efficiency frontier. We measure bank's performance by the rate of return on its equity, to be denoted by ROE. Other possible measures are rate of return on bank's assets, market rate of return on equity, Tobin's Q, etc. Despite the apparent desirability of the market rate of return and Tobin's Q, our use of aggregative data prevents us to consider any of such measures.

We measure the bank's insolvency risk by the standard deviation of the rate of return on its equity, to be denoted by σ_{ROE}. Equation (2) shows that the rate of return on a bank's equity depends on rates of return on all its assets and interest costs of all its liabilities. Therefore, σ_{ROE} embodies in itself the bank's financial risk: liquidity risk, default risk, funding risk, etc. The verification of this assertion can be found in equation (4) below. Therefore, σ_{ROE} can be perceived as the composite risk measure of the bank. A high level of σ_{ROE} will represent a high likelihood of failure of the bank.

To calculate rate of return and insolvency risk of a bank, we have to estimate rates of return on its assets and interest costs of its liabilities, operating expenses, and the tax rate on bank's profit. To obtain all these estimates, we use data from the Office of the Superintendent of Financial Institutions Canada (OSFI) (http://www.osfi-bsif.gc.ca/osfi/index_e.aspx?ArticleID=554). These data consist of quarterly aggregate figures of the items in the consolidated balance sheets and consolidated income statements of 76 Canadian chartered banks over the 2000Q1-2011Q2 period. The choice of the sample period is dictated by the fact that consistent data are not available before the first quarter of 2000 and the end point of the current data set is the second quarter of 2011. In Table 1 below, the main summary statistics of the data are provided.

For the balance sheet items in Table 1, we combine CA with OA for two reasons: (i) the most dominant part of OA is banker's acceptances which are credit substitutes not credit themselves, and (ii) to calculate rates of return on individual assets, the data used do not give segregation of non-interest income into a part coming from OA and other part arising from CA. On the liabilities and equity side, we combine CL and OL for the similar reasons. Appendix A provides definitions of a bank's balance sheet items according to Canadian Chartered Banks annual reports and Bank of Canada Review.

Table 1 reports mean, standard deviation, minimum level and maximum level of each of the items in the balance sheet and income statement of the banks, which are needed to measure mean rate of return on equity and insolvency risk. The notable point from the assets side is that contingent assets and other assets have the highest standard deviation per dollar of mean value, the liquid assets have also similar coefficient of variation. This may be explained by the recent financial crisis where banks' liquidity levels rose sharply. The average levels of all assets, liabilities, shareholder's equity, incomes of assets, and costs of liabilities are as expected. The coefficient of variation of demand and notice deposits is larger relative to those of other liabilities as normally is the case.

Table 1: Summary Statistics of the Data

Panel 1: Balance Sheet Items				
ITEM	**MEAN**	**STANDARD DEVIATION**	**MINIMUM**	**MAXIMUM**
Liquid assets (LA)	297,503,232	102,266,515	195,274,280	522,780,619
Non-mortgage loans less allowance for impairment (NML)	762,747,373	184,960,181	557,328,618	1,110,549,458
Mortgage loans less allowance for impairment (ML)	443,742,457	104,660,967	285,504,318	648,303,330
Other securities less allowance for impairment (S)	392,979,197	99,779,925	225,464,548	526,642,636
Contingent assets and other assets (CA/OA)	337,967,166	117,827,803	190,569,045	707,594,982
Demand and notice deposits (D)	566,591,320	217,399,424	299,587,569	1,017,508,778
Fixed-term deposits (TD)	905,719,059	157,451,681	721,611,197	1,206,584,421
Contingent liabilities and other liabilities (CL/OL)	654,465,626	186,776,601	374,146,841	1,065,923,052
Equity (E)	108,163,420	33,528,360	69,979,492	177,366,708
Panel 2: Income Statement Items				
ITEM	**MEAN**	**STANDARD DEVIATION**	**MINIMUM**	**MAXIMUM**
Interest income on deposits with regulated financial institutions	825,942	349,149	288,604	1,557,648
Interest income of securities issued or guaranteed by various levels of government	1,102,853	242,220	736,889	1,758,812
Interest income from non-mortgage loans	10,517,518	2,367,090	6,857,078	14,765,073
Interest income from residential mortgages and commercial mortgages	5,494,481	711,678	4,619,741	7,082,943
Interest and dividend income from other securities	3,650,214	1,060,377	1,563,452	5,773,536
Total non-interest income	9,436,501	1,656,730	5,496,178	12,855,371
Interest expense of demand and notice deposits	1,755,956	811,645	748,013	3,371,789
Interest expense of fixed-term deposits	7,494,603	2,489,670	4,494,119	12,462,692
Interest expense of subordinated debt	427,003	50,841	313,005	531,408
Other interest expense	2,485,953	922,848	1,372,910	4,684,070
Total of non-interest expenses	12,293,522	1,582,822	9,946,271	15,593,298
Total of current and deferred taxes	1,181,604	553,885	-275,070	2,301,307
Taxable income	5,131,309	1,882,272	1,701,572	9,045,262

This table provides descriptive statistics (mean, standard deviation, minimum and maximum) of items in the consolidated balance sheets and consolidated income statements of 76 Canadian chartered banks over the 2000Q1-2011Q2 period.

The estimates of ROE and σ_{ROE} are obtained as follows. Denoting asset i by A_i where i=1,2,3,4,5, liability j by L_j where j=1,2,3, non-interest expenses as C, the rate of return on asset A_i as r_i, the rate of interest paid on liability L_j as i_j, and bank's tax rate as t, and assuming that C and t are constant, the net income to bank' stockholders in a given period is:

$$\text{Net Income, } \widetilde{NI} = \left(\sum_{i=1}^{5} A_i \tilde{r}_i - \sum_{j=1}^{3} L_j \tilde{\imath}_j - C\right)(1-t) \quad (1)$$

Where tilde on a variable indicates the variable is random.

The rate of return on equity is:

$$\widetilde{ROE} = \left[\sum_{i=1}^{5} \left({}^{A_i}/_{E}\right) \tilde{r}_i - \sum_{j=1}^{3} \left({}^{L_j}/_{E}\right) \tilde{\imath}_j - {}^{C}/_{E}\right](1-t) \quad (2)$$

The expected level of ROE is given by:

$$\overline{ROE} = \left[\sum_{i=1}^{5} \left({}^{A_i}/_{E}\right) \bar{r}_i - \sum_{j=1}^{3} \left({}^{L_j}/_{E}\right) \bar{\imath}_j - {}^{C}/_{E}\right](1-t) \quad (3)$$

where bar over a random variable indicates its average value.

We measure the insolvency risk by the standard deviation of ROE. This standard deviation is given by the following equation:

$$\sigma_{ROE} = \left[\left(\frac{1-t}{E}\right)^2 \left[\sum_{i=1}^{5} A_i^2\sigma_i^2 + \sum_{j=1}^{3} L_j^2\sigma_j^2 + 2\sum_{i=1}^{5}\sum_{s>i}^{5} A_i A_s \sigma_{i,s} + 2\sum_{j=1}^{3}\sum_{q>j}^{3} L_j L_q \sigma_{j,q} - 2\sum_{i=1}^{5} A_i \sum_{j=1}^{3} L_j \sigma_{i,j}\right]\right]^{1/2} \quad (4)$$

Historical estimates of the rates of return and interest rates are obtained by using quarterly data in the consolidated balance sheets and consolidated income statements for all Canadian banks over the 2000Q1-2011Q2 period. In these estimations, rates of return on assets are derived by associating categories of incomes in the income statement in quarter t with the corresponding assets categories in the balance sheet at the end of quarter t-1. Similarly for derivation of interest rates paid on liabilities, categories of costs in the income statement are associated with corresponding liabilities in the balance sheet. Definitions of rates of return and interest rates used in this study are: (a) r_{LA} = (Interest income on deposits with regulated financial institutions$_t$ + Interest income of securities issued or guaranteed by various levels of government$_t$)/Liquid assets$_{t-1}$; (b) r_{NML} = Interest income from non-mortgage loans$_t$/Non-mortgage loans less allowance for impairment$_{t-1}$; (c) r_{ML} = Interest income from residential mortgages and commercial mortgages$_t$/Mortgages loans less allowance for impairment$_{t-1}$; (d) r_s = Interest and dividend income from other securities$_t$/Other Securities less allowance for impairment$_{t-1}$; (e) $r_{CA/OA}$ = Total non-interest income$_t$/(Contingent assets and other assets$_{t-1}$); (f) i_D = Interest expense of demand and notice deposits$_t$/Demand and notice deposits$_{t-1}$; (g) i_{TD} = Interest expense of fixed-term deposits$_t$/Fixed-term deposits$_{t-1}$; (h) $i_{CL/OL}$ = (Interest expense of subordinated debt$_t$ + Other interest expense$_t$)/(Contingent liabilities and other liabilities$_{t-1}$). Finally, C was obtained by total of non-interest expenses and the tax rate t was estimated by the ratio of total of current and deferred taxes to taxable income.

Following Brewer and Jagtiani (2007) who found that banks were willing to pay a premium for a merger deal that would take them over $100 billion in assets, we choose size of $100 billion in total assets for a bank to be considered too-big-to-fail. In Table 2 below, we obtain the levels of assets, liabilities, and equity by multiplying $100 billion with average composition of each dollar of total assets and each dollar of liabilities and equity in our data set.

Table 2: Balance Sheet of a Bank, with Total Assets' Size of $100 Billion (Figures are in $Billion)

ASSETS ($BILLION)		LIABILITIES AND SHAREHOLDERS' EQUITY ($BILLION)	
LA	13.3	D	25.4
NML	34.4	TD	40.5
ML	19.9	CL/OL	29.3
S	17.6	E	4.8
CA/OA	15.1		
TA	**100**	**TL + E**	**100**

This table shows the levels of assets, liabilities, and equity of a bank with total assets' size of $100 billion with average composition of each dollar of total assets and each dollar of liabilities and equity in our data set.

This table reports the assets, liabilities and shareholders' equity of a TBTF Canadian bank. The biggest assets on the assets side are NML, following by ML. On the liabilities side, term deposits TD constitute the largest liability. Equity is about 5% of TA.

In this study, we test also whether a given composition of assets and liabilities of a bank is μ/σ efficient. The theoretical framework used is the same as that of Markowitz (1959) recently restated in Markowitz (2010). The numerical simulations used to derive the Markowitz μ/σ frontier for infinite portfolio composition of a given bank are computed using MATLAB as suggested by Chen et al. (2010) who show how the MATLAB program can be used to solve the quadratic programming problem.

RESULTS

Using the methodology described in the previous section, the following table provides the estimated levels of all required rates of return and interest costs. Because of length, only estimates of Q2 of each year of the sample period are reported.

Table 3: Rates of Return on Assets and Interest Costs of Liabilities

	r_{LA}	r_{NML}	r_{ML}	r_S	$r_{CA/OA}$	i_D	i_{TD}	$i_{CL/OL}$
Q2-2000	0.0110	0.0195	0.0162	0.0124	0.0475	0.0078	0.0129	0.0072
Q2-2001	0.0102	0.0190	0.0166	0.0125	0.0374	0.0070	0.0124	0.0069
Q2-2002	0.0084	0.0113	0.0143	0.0087	0.0376	0.0026	0.0069	0.0042
Q2-2003	0.0071	0.0124	0.0137	0.0087	0.0285	0.0029	0.0066	0.0045
Q2-2004	0.0057	0.0119	0.0126	0.0081	0.0327	0.0024	0.0059	0.0038
Q2-2005	0.0068	0.0132	0.0119	0.0094	0.0307	0.0030	0.0072	0.0048
Q2-2006	0.0068	0.0153	0.0122	0.0094	0.0354	0.0043	0.0093	0.0060
Q2-2007	0.0078	0.0166	0.0129	0.0111	0.0343	0.0052	0.0107	0.0070
Q2-2008	0.0068	0.0142	0.0126	0.0100	0.0144	0.0040	0.0094	0.0046
Q2-2009	0.0049	0.0104	0.0100	0.0104	0.0143	0.0013	0.0059	0.0023
Q2-2010	0.0035	0.0105	0.0090	0.0067	0.0274	0.0008	0.0050	0.0022
Q2-2011	0.0033	0.0104	0.0092	0.0072	0.0299	0.0013	0.0049	0.0028
Average	**0.0072**	**0.0142**	**0.0129**	**0.0095**	**0.0304**	**0.0037**	**0.0084**	**0.0048**

This table reports the estimates of rates of return on assets and interest rates paid on liabilities obtained for the second quarter of each year from 2000 to 2011. It also shows the average rates of return on assets and average interest costs of liabilities.

In Table 3, quarterly $\bar{r}_{LA}$ = 0.72%, $\bar{r}_{ML}$= 1.29%, $\bar{r}_{NML}$= 1.42% are as one would expect, but quarterly $\bar{r}_S$ at only 0.95% needs some explanation. This rate is relatively low because of generally low interest rates and lackluster performance of the stock market in most of the decade of 2000-2010. The highest quarterly expected rate of return earned by the bank was on its contingent assets and other assets. On the liabilities side, the term deposits entailed the highest interest cost to the bank.

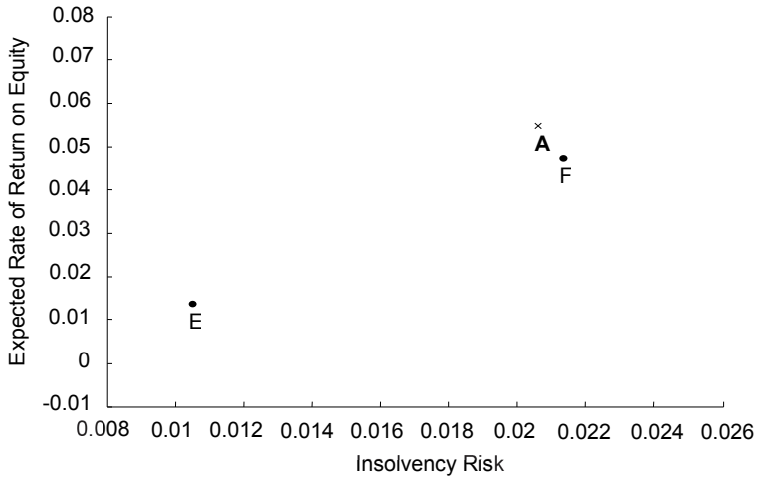
Using equations (3) and (4), and the estimates of expected rates of return, expected interest rates, C ($550,061), t (22.26%), and Table 2 data, the expected rate of return on equity, $\overline{ROE}$, was 5.47%, and insolvency risk, σ_{ROE} , was 2.06%. This plots as point A in Figure 1 below. The $\overline{ROE}$ is beyond the levels of rates of return on assets in Table 1 because individual weights are greater than 1 and the leverage effect. However, weights of all the assets and liabilities sum to 1.

We assume that the regulator requires the bank to reduce its size by $10 billion – a 10% shrinkage in bank's size. We now show that insolvency risk may go down or up depending on which asset(s) are pared down and correspondingly which liability (liabilities) are reduced. The possibilities of the 10 billion dollars shrinkage are infinite but to make the point and, without loss of generality, we report only two simulations, one showing a reduction in risk (point E in Figure 1 below) and the other indicating an increase in risk (point F in Figure 1 below).

The first simulation consists of reducing by $10 billion only one asset, contingent assets and other assets, CA/OA, on the assets side and only one liability, contingent liabilities and other liabilities, CL/OL, on the liabilities and equity side. The remaining assets and liabilities maintain the same levels as given in Table 2. Clearly, the composition of the balance sheet changes significantly by this simulation. Using equations (3) and (4) and the resulting composition of the bank's balance sheet, $\overline{ROE}$ and σ_{ROE} are now 1.36% and 1.05% respectively. This scenario does reduce insolvency risk from 2.06% to 1.05% – a decrease of 49%, but the corresponding reduction in return is from 5.47% to 1.36% – a decline of 75%. Even though, the regulator may like this substantial reduction in risk yet the bank will not accept such a sharp decline in return.

For the second simulation, we let other securities, S, to decline by $10 billion on the assets side, and CL/OL to decline by the same amount on the liabilities and equity side. As a result, insolvency risk rises from 2.06% to 2.13% – a 3.4% increase, while rate of return on equity declines from 5.47% to 4.74% – a 13.3% decrease. This scenario shows that although the bank becomes smaller, the insolvency risk has increased. What appears to be the key factor in affecting a bank's insolvency risk (and simultaneously its rate of return) is the portfolio composition of its assets and liabilities, not its size.

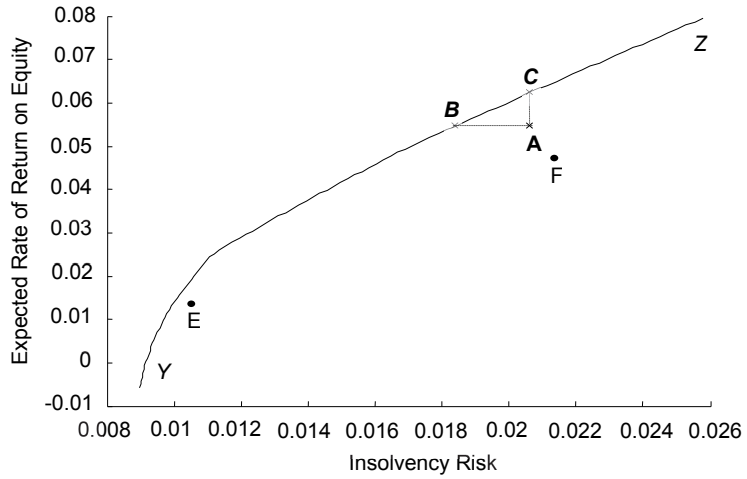
Figure 1: The Effect of Paring Down Exercises on Insolvency Risk and Expected Return



This figure shows point A which corresponds to the expected return/ insolvency risk combination of a given bank with the estimates of expected rates of return, expected interest rates, C, and t, obtained by using the quarterly data in the consolidated balance sheets and consolidated income statements for all Canadian banks over the 2000Q1- 2011Q2 period, and Table 2 data. In addition, it shows the effect of two simulations of shrinkages in bank's size on expected return and insolvency risk of the bank: $10 billion shrinkage in only CA/OA and in only CL/OL (point E) and $10 billion shrinkage in only S and in only CL/OL (point F).

Using the MATLAB program and the data as estimated above, Figure 2 plots the mean-standard deviation efficiency frontier, labeled as Y, B, C and Z. The results of the two simulations described above are again plotted as points E and F.

Figure 2: Efficiency of Various Compositions of Assets and Liabilities of the Bank



This figure plots the mean-standard deviation efficiency frontier, labeled as Y, B, C and Z. In this figure, the results of the paring down exercises in Figure 1 are again plotted as points E and F. In addition, B and C show the return/risk combinations of different compositions of assets and liabilities with the same bank's size. B corresponds to equity's return level of 5.47% - the same equity's return as at point A, but with insolvency risk of 1.84%. Point C corresponds to risk level of 2.06% - the same risk as at point A, but with equity's return of 6.23%.

The figure shows that none of the portfolio compositions considered above is efficient. Thus, a paring down, which may be regulator mandated, may not achieve a point on the efficient frontier. However, keeping size the same as before and changing composition of assets and liabilities can achieve point B in the figure, where the risk declines from 2.06% to 1.84% – a 10.7% decline and return stays the same as before (5.47%). To obtain point B, the composition of assets and liabilities required is provided in Table 4: Panel 1. In the same vein, point C in Figure 2 corresponds to risk level of 2.06% – the same risk as at point A, but with $\overline{\text{ROE}}$ of 6.23% – a 13.9% increase. Therefore, if the risk level of 2.06% is desired by the regulator, it does not require a limit on size of the bank; instead it would require the composition of assets and liabilities as given in panel 2 of Table 4.

Table 4: Balance Sheet Reflecting Efficient Points B and C

Panel 1: point B

ASSETS ($BILLION)		LIABILITIES AND SHAREHOLDERS' EQUITY ($BILLION)	
LA	11.52	D	28.8
NML	38.4	TD	38.08
ML	24	CL/OL	28.8
S	14.4	E	4.8
CA/OA	12.18		
TA	**100**	**TL + E**	**100**

Panel 2: point C

ASSETS ($BILLION)		LIABILITIES AND SHAREHOLDERS' EQUITY ($BILLION)	
LA	11.22	D	28.05
NML	37.41	TD	39.22
ML	23.38	CL/OL	28.05
S	14.03	E	4.8
CA/OA	13.97		
TA	**100**	**TL + E**	**100**

This table shows the composition of assets, liabilities, and equity of a given bank with the return/risk combination indicated by points B and C in Figure 2.

Table 4 panel 1 shows that to reach point B in Figure 2, the bank will need to raise its investments in NML and ML by 11.6% and 20.6% respectively and correspondingly reduce its investments in LA, S and CA/OA. On the liabilities side, demand and notice deposits increase by 13.4% with correspondingly declines in TD and CL/OL. In panel 2 of Table 4, again NML and ML rise but not as much as in panel 1 and correspondingly downward adjustments are done in LA, S and CA/OA. In liabilities, reshuffling is similar as in panel 1 but amounts adjusted are different.

In sum, the size does not need to shrink to achieve an efficient portfolio and simultaneously a lower level of risk. Assuming that a regulator will like to keep the bank on the efficiency frontier, which level of insolvency risk the regulator will choose on the efficiency frontier? It obviously depends on the degree of risk aversion of the regulator. The Association of Investment Management and Research, AIMR, commonly employs the following utility function (Chen et al., 2010), which, using our notation, is:

$$U = \overline{ROE} - 0.005\lambda\,\sigma^2_{ROE} \qquad (5)$$

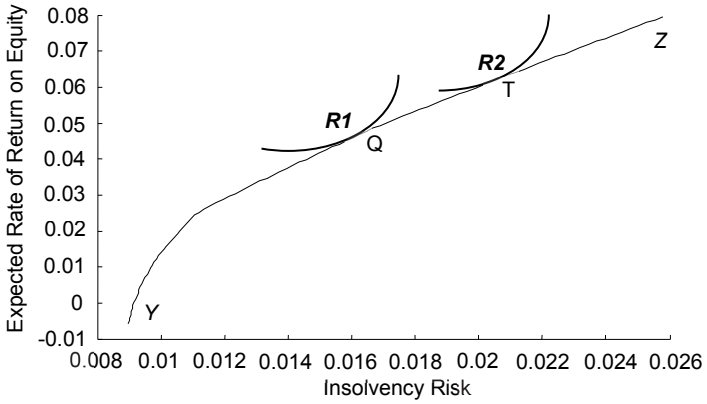
where λ is the coefficient of risk aversion.

The higher is the value of λ, which means higher is the degree of risk aversion, the lower level of insolvency risk will be chosen by the regulator and vice versa. Regulators of different countries may have different coefficients of risk aversion which may explain why their respective desired risk levels may be

different. As suggested by Figure 2, different desired risk levels will entail different optimal compositions of a bank's assets and liabilities.

Figure 3 shows two indifference curves: R1 and R2. R1 refers to a regulator whose degree of risk aversion is higher. The country of that regulator will have to impose more restrictive regulation to achieve a lower level of risk. The opposite is the case for a regulator whose preferences are indicated by indifference curve R2.

Figure 3: Regulator's Choice of Insolvency Risk



This figure shows two indifference curves of regulators R1 and R2. R1 refers to a regulator whose degree of risk aversion is higher. R2 refers to a regulator whose degree of risk aversion is lower.

CONLUDING COMMENTS

The purpose of this paper was to investigate whether a size limit resolves the too-big-to-fail, TBTF, problems. In this context, it first analyzes the effect of limiting size of a bank on its insolvency risk and then, it examines the mean-standard deviation efficiency of the limit on size policy. For the empirical analysis, the study used quarterly consolidated balance sheet and quarterly consolidated income statement data of 76 Canadian chartered banks over the 2000Q1-2011Q2 period. The methodology used consists of measurements of the rate of return on bank's equity and insolvency risk as well as the computation of the mean-standard deviation efficiency frontier using MATLAB.

The first result of the paper was to show that the "limit on size" solution of the TBTF bank cannot necessarily lower insolvency risk of the bank involved, as a reduction in risk can take place, not by paring down, but by changing the composition of assets and liabilities of the bank. The second result of the paper is that the "limit on size" solution may not provide an efficient composition of bank's assets and liabilities. It was also shown that an efficient composition can be achieved at the same size of the bank. Finally, the paper argues that the choice of the level of insolvency risk depends on the degree of risk aversion of the regulator. Higher (lower) is the degree of risk aversion; lower (higher) level of insolvency risk will be mandated.

Some limitations are present in this research. First, since separate return on contingent assets and separate cost of contingent liabilities are not available, the paper combined other assets (liabilities) with contingent assets (liabilities). As a consequence, paring down using the essence of the Volcker Rule was not possible. Second, a size limit may have adverse implications on economies of scale and scope but the methodology of the paper did not allow us this kind of analysis. Finally, the paper uses aggregative data, not micro or individual bank's data; therefore, the effects of liquidity, leverage, and interbank interconnectedness on insolvency risk of paring down simulations could not be analyzed.

In the future research, the use of micro-level data will permit interbank comparisons and control of relevant extraneous factors in linking size with insolvency risk. Three other possible future directions of the paper are: (i) to measure systemic risk instead of insolvency risk; (ii) to incorporate market-based measures of bank's performance, and (iii) to do cross-country comparisons of the "limit on size" policy.

APPENDIX

Appendix A: Definitions of a Bank's Balance Sheet Items

BALANCE SHEET ITEM	DEFINITION
Liquid assets	Bank of Canada notes and coins, Bank of Canada deposits, Treasury Bills, Government of Canada direct and guaranteed bonds, and holdings of selected short-term assets
Non-mortgage loans	Loans to business, persons, investment dealers, regulated institutions and governments
Mortgage loans	Residential and non-residential mortgages
Other securities	Long-term corporate bonds, government bonds not included in LA, mortgage-backed securities, preferred stocks, and common stocks
Contingent assets	Derivatives and related amounts
Other assets	Assets such as goodwill and customer liability under acceptances, land, buildings and equipments, receivables from brokers, dealers, and clients, accrued interest receivable, and insurance-related assets
Demand and notice deposits	Deposits from individuals, businesses, various levels of government, and other financial institutions
Fixed-term deposits	Fixed-term deposits from all the entities listed under
Contingent liabilities	Derivatives and related amounts
Other liabilities	Acceptances, obligations related to securities sold short, and some other liabilities such as amounts payable to brokers, dealers and clients, accounts payable, insurance related liabilities, accrued interest, and cheques and other items in transit
Equity	Preferred shares, common shares, contributed surplus, and retained earnings

This table provides definitions of bank balance sheet items according to Canadian Chartered Banks annual reports and Bank of Canada Review.

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BIOGRAPHY

Dr. Mohamed Drira is an Assistant Professor of accounting at the Faculty of Business Administration, University of New Brunswick at Fredericton. He recently earned a PhD in accounting from HEC Montreal. His research interests include auditor's client acceptance and continuance decisions, auditor liability, corporate governance, and the too-big-to-fail problem. University of New Brunswick, PO Box 4400, Fredericton, NB, E3B 5A3, Canada. Email: mdrira@unb.ca.

Dr. Muhammad Rashid is a Professor of finance at the Faculty of Business Administration, University of New Brunswick at Fredericton. He holds a PhD in finance from Queen's University. His research interests are diverse and include investments, capital budgeting, financial markets and institutions, small business finance, corporate capital structure, dividend policy and profit sharing. He has published over forty journal articles or book chapters. His publications have appeared in journals such as the Journal of Banking and Finance, the Journal of Financial Research, Financial Review, Economics Letters, the Journal of Business Finance and Accounting, Applied Economics, the Canadian Journal of Administrative Sciences, and the Quarterly Journal of Business and Economics. University of New Brunswick, PO Box 4400, Fredericton, NB, E3B 5A3, Canada. Email: mrashid@unb.ca.

THE IMPACTS OF A MICROFINANCE LENDING SCHEME ON CLIENTS IN GHANA

Paul A. Onyina, Pentecost University College, Accra
Sean Turnell, Macquarie University, Sydney

ABSTRACT

Owning to the success of the Grameen Bank and other microfinance institutions in recent years, microfinance institutions' role as a potential policy tool in poverty alleviation has received considerable attention. Empirical evidence from existing research shows some positive results in poverty reduction from some microfinance programs. This paper adds to existing literature on the industry by evaluating the effects of microfinance on clients who have received loans from the Sinapi Aba Trust of Ghana. Our data show that earlier clients in the program received greater impacts and are more empowered from the program than new clients, even though the latter on average receive larger volumes of credit. We construct empowerment indicators, finding that years of membership duration with the SAT lending scheme matters in empowering clients. The results show that old clients are more likely to purchase assets, expand their businesses, and spend larger amounts on their children's education than new clients.

JEL: G23, O16

KEYWORDS: MFIs, Credit, Impact, Assets, Income

INTRODUCTION

Following the perceived success of microfinance institutions (MFIs) in recent years, the role of MFIs as a potential policy device for poverty reduction has increased in many countries around the world. Empirical evidence from existing research shows some positive results from various microfinance schemes (see for example Hashemi, et. al, 1996; Pitt and Khandker, 1998; Pitt et al, 2003; Pitt et. al, 2006; and Maldonado and Gonzales-Vega, 2008**)**. In contrast, other findings shown negligible and even negative impacts, and suggest that most MFIs are profit oriented and aim at their own financial sustainability (see Goldberg, 2005 for a review). They do not benefit the poorest of the poor **(**Amin et al, 2003**)**.

This paper is centred on interviews conducted with clients of the Sinapi Aba Trust (SAT) which, is a major microfinance institution in Ghana. Among the aims of SAT is to provide financial services to vulnerable but industrious people. SAT employs group-based lending. As such, the loans are 'collateral-free' in the conventional sense. Of course, under this method, group members' are 'collectively responsible' should a member default, and they accordingly act as peer monitors. The SAT solidarity groups range in size from 2 to 38 members. SAT does lend to individuals. However, we did not interview any client who procures individual loans because the group-based clients outnumbered the individual clients by a great margin, and are easily located, unlike individual clients, during weekly or biweekly community meetings.

To effectively explore and evaluate the impact on microfinance clients, data was collected between July and September 2009 from clients of SAT. In addition to clients depicting a spirit of entrepreneurship, they have been empowered in other areas. We used the cohort approached to classify clients into two groups: old and new clients. Old clients are defined as clients that had borrowed from the SAT more than three years and new clients as less than three years with the scheme. The data analysis shows that even though

new clients on average have received bigger loans, old clients have greater benefits in income earned and other factors.

Furthermore, we constructed empowerment indicators from the survey instrument similar to Hashemi et. al, (1996); and Garikipati (2008)., and found that *old clients* of the MFI have received greater impact than *new clients*. They have greater benefits in areas such as asset ownership, increased expenditure on food and children's' education, improvement in business operations, economically secure and in the overall empowerment. We used the constructed indicators as independent and dependent variables to run logistic regression to determine the effects of the independent variables on the dependent variables.

Literature in the field suggests that while some MFIs are making positive impact in the lives of their clients, others are not. One of the most difficult but profound questions in the microfinance industry is whether it 'works' or not — which, as Odell (2010, p.6) noted, is a complex question to answer. The difficulty arises from two factors. First, microfinance comprises not just a simple tool, but rather a compilation of products and methods. Second, microfinance programs operate in very different environments in Asia Africa, Eastern Europe and Latin America. Hence, it is not surprising that findings from impact assessment studies have yielded mixed results (Meyer, 2007).

The primary aim of this study, in taking the debate further, was to examine the impact of a microfinance institution that uses group-based lending to clients in Ghana. Findings of the study are consistent with findings of other studies on group-based lending programs such as Pitt and Khandker (1998); Pitt et al. (2003); Amin et al. (2003); Coleman (2006**);** Pitt et al. (2006); and Maldonado and Gonzales-Vega (2008).

This study has been organized into five sections. The next section briefly reviews the literature on the group lending methodology. This is followed in Section 3 by the details of the data used for the study and how we deal with selection bias which is a nadir in most impact assessment studies. Before we run the regression model and discuss empirical results in Section 4, we describe the variables and show how we constructed then from the survey instrument. We also discuss how some of the questions were reduced to dichotomous variables to allow us run the logistic regression model. Concluding remarks are ventured in Section 5.

LITERATURE REVIEW

The term 'microfinance' refers to the provision of diverse financial services to people who may have no access to such financial services from formal banks. These financial services often go beyond providing credit (see Rhyne and Otero, 2006; Maes and Foose, 2006). Since formal financial institutions do not provide loans to such poor people, not the least due to a lack of collateral, MFIs have developed various innovations in lending that reduce not only riskiness, but also the cost of making small loans without depending on collateral (Morduch, 2000). The methodologies deviate from formal banking institutions operations in offering financial services and in other ways (Morduch, 1999). There abound impressive theoretical and empirical literature supporting peer lending in Stiglitz (1990), Besley and Coate (1995), Ghatak (1999), Armendáriz de Aghion and Gollier (2000), Laffont and N'Guessan (2000), Armendáriz de Aghion and Morduch (2005), Bhole and Ogden (2010). In recent years, however, due to the rigid nature of group lending, the Grameen Bank (the erstwhile great populariser of group lending) has restructured its methodology and no longer lends exclusively to groups.

Empirical evidence abounds on microfinance schemes impacting positively on the lives of their clients (see for example, Pitt and Khandker, 1998; Morduch, 1999; Smith, 2002; Pitt et. al, 2003; Amin et.al, 2003; Pitt et.al, 2006; Karlan, 2007; Maldonado and Gonzales-Vega, 2008). However, there are still inadequate studies on the impact assessments of microfinance schemes; and, few have accounted for

selection bias, where accounting for fungibility of funds remains a major issue (Hulme, 2000). To avoid the tendency for impacts to be exaggerated this study accounts for selection bias. For positive impact on employment creation, regular income generation, and consumption smoothing see Pitt and Khandker (1998), Khandker (2005), Maes and Basu (2005) and Hartarska and Nadolnyak (2008). Also for impact on improvements in children's education see Maldonado and Gonzales-Vega (2008), Pitt and Khandker (1998). On assets and empowerment see Cheston and Kuhn (2002), Hashemi et. al (1996), Pitt, et.al, (2006) and, Pitt and Khandker (1998)

DATA AND METHODOLOGY

We carried out the field work for this study in Ghana from July to September 2009 via interviews with 672 SAT borrowers from three of its branches. We selected clients randomly during community meetings at several centres of the branches. The gender composition of clients in the data is 87 percent female and 13 percent male. We deal with selection bias, a major problem that researchers encounter in impact assessment next.

As argued by Maldonado and Gonzales-Vega (2008), the inclusion of clients and the selection of program venues are some of the sources of worry in impact assessment studies. Clients are not randomly selected; as such members of the program and non-members may differ in several ways. For example, unobserved characteristics may account for the reasons why some people participate and others do not. In order to circumvent or curtail the effects of selection bias in any assessment study, such main endogeneity concern should be considered (Pitt and Khandker, 1998; Maldonado and Gonzales-Vega, 2008). Again, since placement of programs is not random, but based on certain criteria used by program officials, unmeasured local factors like infrastructural services and household characteristics, could affect program participation (Maldonado and Gonzales-Vega, 2008).

They grouped the sample into 'old' (more than one year) and 'new' (less than one year), and controlled for the unobserved characteristics that influence program participation. They opined that, after controlling for individual and local variables, differences in schooling gap between the children of the two groups of clients that emerged can be acknowledged as rational program impact. The suitability of this approach, however, depends on the nonexistence of systematic differences between the two groups of clients. They tackled the problem using two approaches. Firstly, they investigated the screening criterion by the institutions, and secondly, they applied the data set to demonstrate that there were no significant differences between important characteristics of the groups.

In order to control for any possible unobserved characteristics that may influence program participation, we divided the sample into two groups — old (over three years) and new (under three years). The differences in impact of the program between the two groups of clients in our study can be categorized as program outcomes, just as we expect that the regression models are not biased. We therefore expect that asset purchases (for example), by clients would be greater for old members. We held discussions with both program officials and clients, and found that continual screening of clientele for lending, and entry into the scheme depends on agreements with other members in the group. In addition, the program communities have similar characteristics; they are all located in poor urban communities. We also analyzed the individual characteristics of the sub-sample of the two groups of clients; and are virtually the same.

A critical analysis of the loan statistics show that SAT practices progressive lending, and that on average, new clients received higher loans than old clients. However, for new clients, their mean monthly income was GH¢116.09 before they joined the scheme, and increased to GH¢176.32 after they joined the program (an increase of about 52 percent). In contrast, that for 'old clients' was GH¢337.68 and GH¢594.01 respectively (an increase of almost 76 percent). This suggests greater impact for old clients.

Description of Variables

We investigate the impact of credit on clients using the logit model on empowerment indicators constructed. These indicators have been designed similar to the indicators used by Hashemi et. al (1996); and Garikipati (2008). We constructed the indicators for analysis from some of the clients' answers to specific questions. Following Hashemi et. al (1996) and Garikipati (2008), we assigned equal weights to each component if a client satisfies a set of selected conditions; this was intended to minimize the issue of subjectivity. The outcome variables employed in our data for empowerment were reduced to dichotomous variables (a score of zero or one) for the analysis. This allowed us to use the logit regression model for our estimates (see Amemiya, 1981; Hosmer and Lemeshow, 2000). We describe the variables below.
First in the series are dependent variables which we have called empowerment indicators. In this study, we looked at empowerment as being: able to own assets; able to spend on child education; improve or expand business; and is economically secure in the future. Hence, as clients receive loan from the scheme, it enhances their empowerment, and this we analyzed in the Ghanaian context.

a) *Asset Ownership* (ASSETS): Great respect is attached to asset ownership in Ghana — from 'minor' personal durable properties such as clothing to 'major' properties such as a house and many more. The definition of assets here includes property of any form that a borrower purchased after he or she joined the scheme. Clients who have purchased assets of any form were coded 1 and 0 otherwise.

b) *Improvements in Business* (IMPBUS): Clients' empowerment is also linked to acquiring an asset for business use. We asked clients about the use(s) of asset(s) they purchased after they joined SAT. Clients who use the purchased asset for business purposes were coded 1 and 0 otherwise.

c) *Expenditure on education (*EDUEXP): Another indicator we used is expenditure on childrens' education. A score of 1 was awarded a client with expenditure on education otherwise 0.

d) *Economic Security in the Future* (ECOSEC): Respondents rated their i) economic security, ii) future prospect, iii) respect level in society, iv) self confidence and v) participation in decision making, on a five point scale from very high (1), high (2) to very low (5) before and after they borrowed from SAT. If economic security became better after they joined the scheme (a score of 1 or 2), compared to a pre-scheme membership situation (a score of 3, 4 or 5), then 1 point was awarded otherwise 0. We used the same criterion to award points to the clients for all items. A respondent with a total score of three out of the five items was coded 1, and otherwise 0.

e) *Composite empowerment* (EMPOWER): A client was classified as empowered and coded 1, if for all the (4 indicators here) he or she has a score of 3 or 4 and 0 otherwise.

Second in the series are independent variables; these have been divided into three: namely. Program variables, household characteristics and respondents' characteristics. The first program variable is *Number of years with SAT* (SATDUR). Clients who have borrowed for over three years were classified as 'old clients', and those with less than three years as 'new clients'. 'Old clients' were coded 1 and 0 otherwise. *Average loan size received by a client* (AVLOAN) is the second variable related to the program. Clients average loan received was computed by dividing total loan received by number of loan(s). The last program variable is *Before SAT loan* (LBSAT). Clients who took loans from other sources before they joined the program were coded 1, and 0 other wise.

We had two variables related to household characteristics. The *Head of household gender* (SEXHH); female household heads were coded 1 otherwise 0. The second was the *Household size* (HSIZE); thus, we recorded size of the household for each client and used it as independent variable. Also, respondent's characteristics composed of two variables. They are *Respondent's age* (RESAGE) and *Respondent's*

education (RESEDU). The latter we coded as a categorical variable. It takes the value of 1, 2, 3 and 4 (where 1 represents no schooling years, 2 represents basic schooling of up to 10 years, 3 symbolizes secondary schooling, between 10 to 13 years, and 4 corresponds to tertiary education, over 13 years of schooling). A summary statistics of the data is presented in Table 1.

Table 1 Descriptive Statistics for the Variables

Description of variables	Mean	Standard deviation	Minimum	Maximum	Number of observations
		Dependent variables			
Vulnerability indicators					
FDEXP	0.380	0.486	0	1	672
LVHD	0.690	0.462	0	1	671
ABSAVE	0.700	0.460	0	1	672
NTVULN	0.670	0.469	0	1	671
Empowerment indicators					
ASSETS	0.390	0.488	0	1	672
IMPBUS	0.260	0.440	0	1	672
EDEXP	0.440	0.496	0	1	672
ECOSEC	0.640	0.481	0	1	672
EMPOWER	0.270	0.445	0	1	672
		Independent variables			
Program variables					
SATDUR	0.180	0.318	0	1	672
AVLOAN	559.747	329.906	80.00	4933.330	672
LBSAT	0.250	0.435	0	1	672
Household characteristics					
SEXHH	0.320	0.465	0	1	672
HSIZE	4.28	1.839	1	10	669
Individual characteristics					
RESAGE	40.210	8.498	21	65	672
RESEDU	2.63	0.815	1	4	672

This table presents descriptive statistics of the sample.

EMPIRICAL RESULTS: EFFECTS OF CREDIT ON THE EMPOWERMENT INDICATORS

Table 2 presents the effects of the independent variables on the indicators; it reports the odds ratios, and the confidence intervals for the odds ratios. Each dependent variable estimates a separate equation. Generally, when an odds ratio of an independent variable is greater than 1, it shows a positive relationship with the dependent variable. In contrast, an odds ratio less than 1 shows a negative relationship between the variables. Statistical significance ($p < 0.05$) is shown when 1 falls outside the confidence interval of the variable (Hashemi et. al, 1996).

The column in Table 2 under ASSET estimates the regression equation using the logit model:

$$ASSETS = \alpha + \beta_1 SATDUR + \beta_2 AVLOAN + \beta_3 LBSAT + \beta_4 SEXHH + \beta_5 HSIZE + \beta_6 RESAGE + \beta_7 RESEDU + ui \quad (1)$$

where *ASSETS* asset ownership; *SATDUR* is membership duration or number of years with SAT;

AVLOAN average loan size received by a client; *LBSAT* took loan before joining SAT; *SEXHH* head of household gender of the client; *HSIZE* the size of a client's household; *RESAGE* age of the respondent; *RESEDU* education level of a client; α is the intercept; the βs are coefficients of the variables; and ui represents unobserved characteristics.

The odds ratio for membership duration (SATDUR) is 5.15 and it is statistically significant at the 1 percent level. This suggests that 'old clients' are 5.15 times more likely to own assets than 'new clients' in the sample. This result is similar to most findings in the literature where microfinance clients increase their asset ownership over the years (see Pitt and Khandker, 1998; Hashemi et. al, 1996; and Garikipati,

2008). It shows that old members of the scheme are 5.15 times more empowered in terms of assets ownership than new members, hence the longer the years a client borrows from the scheme, the more assets the client is likely to purchase. Again, the odds ratio of average loan received is 1.00068, and it is statistically significant. Other significant variables are loan before SAT and the age of respondents; however, the other variables are negatively related.

The column under EDEXP in Table 2 estimates the effects of the dependent variables on education expenditure using the logit regression:

$$EDEXP = \alpha + \beta_1 SATDUR + \beta_2 AVLOAN + \beta_3 LBSAT + \beta_4 SEXHH + \beta_5 HSIZE + \beta_6 RESAGE + \beta_7 RESEDU + \iota ri \quad (2)$$

Table 2: Effect of the Independent Variables on the Empowerment Indicator, Reporting Odds Ratio from Logistic Regression Models (N=672)

	Dependent Variables				
Independent Variables	**ASSET** **Odds Ratio**	**EDEXP** **Odds ratio**	**IMPBUS** **Odds ratio**	**ECOSEF** **Odds ratio**	**EMPOWER** **Odds Ratio**
SATDUR	5.146 ((7.04)[a] *	2.248 (3.57)***	3.423 (5.52)***	0.5446 (-2.51)**	3.374 (5.52)***
AVLOAN	1.001 (2.46)**	1.001 (2.55)**	1.000 (1.49)	1.000 (3.70)***	1.001 (2.43)**
LBSAT	1.247(1.09)	0.5432 (-2.90)**	1.118 (0.51)	0.0817 (-10.87)***	1.053 (0.49)
SEXHH	0.6217 (-2.29)***	3.018 (5.24)***	0.8133 (-0.93)	0.5614 (-2.65)***	0.727 (-1.44)
HSIZE	0.902865 (-1.83)*	1.617 (7.97)***	0.9524 (-0.81)**	0.9094 (-1.59)	1.014 (024)
RESAGE	0.9534 (-4.13)***	0.9731 (-2.38)	0.9647 (-284)***	1.013 (1.04)	0.9722 (2.28)**
RESEDU	1.079 (1.10)	0.8745 (-1.19)	1.353 (2.43)**	0.8692 (-1.17)	1.209 (1.59)
Log likelihood	401.74	402.48	-359.21	-352.66	-366.86

Notes to the table: Each column estimates a separate equation. When odds ratio is greater than 1, it indicates positive relationship between the variables, when it is less than 1, it shows a negative relationship. As the results suggest, membership duration is significant at 1% for all the variables but ECOSEF. We see that membership duration is an important factor in determining the impact of the lending program. Z-statistics are given between parentheses. *** ,**, and * indicate significance at the 1,5, and 10 percent levels respectively.

where EDEXP represents education expenditure of a client; and α, the βs and ιri are as defined before. With the support of MFIs, most clients spend more on their children's education. This comes in two ways. Clients make additional expenditure on children who are already in school, or clients enrolled more children in school due to increased income. Significant variables positively related to this are membership duration, gender of household head, and household size. Pre-SAT loan and clients' age are also significant but negatively related. Central to this paper, our results show that the odds ratio for membership duration (SATDUR) is 2.25; this suggests that 'old clients' are 2.25 times more likely to spend on their children's' education than 'new clients'. This is similar to what Maldonado and Gonzales-Vega (2008) found in Bolivia.

The odds ratio for household head is 3.02 and statistically significant. It suggests that female household heads are 3.02 times more likely to spend on their children's education than their male counterparts.

One major aim of microfinance institutions is to help their clients move out of poverty by providing them with credit to expand their economic activities. It is therefore in line with this objective if clients take the credit and use it to improve their businesses. Here we estimate the latent variable with the logit equation below:

$$IMPBUS = \alpha + \beta_1 SATDUR + \beta_2 AVLOAN + \beta_3 LBSAT + \beta_4 SEXHH + \beta_5 HSIZE + \beta_6 RESAGE + \beta_7 RESEDU + \upsilon i \quad (3)$$

Where IMPBUS is the improvements in business resulting from asset purchase, and α, the βs and υi are as defined before.

The major aim of MFIs is to help their clients move out of poverty as they give them credit to expand their economic activities. Positively related significant variables are membership duration and the education level of clients. Our results suggest that old members of the program are 3.42 times more likely to improve upon their businesses than new members. The results also suggest that a client with high level of education who is an old member is more likely to improve his or her business than a less educated client.

We looked at the clients' self-confidence, economic security, the level of respect they have, participation in decision-making and their perceived future prospects, since most microfinance clients claimed to have become better off in these areas which we called ECOSEC. The effects on ECOSEC are estimated using the equation:

$$ECOSEC = \alpha + \beta_1 SATDUR + \beta_2 AVLOAN + \beta_3 LBSAT + \beta_4 SEXHH + \beta_5 HSIZE + \beta_6 RESAGE + \beta_7 RESEDU + \upsilon i \quad (4)$$

Where ECOSEC is a respondent's economic security, and α, the βs and υi are as defined before.

It is important to be economically secure in everyday day life, and we asked our clients to indicate their perception of economic security. The results indicate that average loan size, is positively related and statistically significant; whereas membership duration (SATDUR) is statistically significant but negatively related.

We next look at the composite empowerment (EMPOWER) which we derived from the four indicators (ASSETS, EDEXP, IMPBUS, and ECOSEC), Equation 1.5 presents the effects of the independent variables on the composite empowerment estimating the logistic equation:

$$EMPOWER = \alpha + \beta_1 SATDUR + \beta_2 AVLOAN + \beta_3 LBSAT + \beta_4 SEXHH + \beta_5 HSIZE + \beta_6 RESAGE + \beta_7 RESEDU + \upsilon i \quad (5)$$

where EMPOWER is the empowerment derived from: ASSET purchased, expenditure on education, improvement in business, economic security; and α, the βs and υi are as defined before.

With the composite empowerment, membership duration is statistically significant; the odds ratio is 3.37. This result suggests that 'old clients' are 3.37 times more empowered than 'new clients' on the overall empowerment. Average loan is also positively related and statistically significant suggesting, the importance of average loan received. On the other hand, age of the respondent is negatively related and significant. This suggests that empowerment reduces with increase in age of a client.

We used two methods Garikipati (2008) adopted to check the robustness of the results. First, we used the 'backward stepwise regression' to test SATDUR which starts with a full model (reported), and non-significant variables illuminated in an iterative process. We tested the fitted model when a variable is illuminated. The aim was to make sure that the model fits the data adequately. Once there are no more variables to be illuminated, the analysis is accomplished. We then used the likelihood ratio test to accept or reject the illuminated variables. The analysis indicated that the SATDUR coefficients were stable throughout the process, suggesting that our conclusion made on membership duration on the credit

program are robust. Second, we tested the significance of each of the indicators separately before we developed them. At the individual level, we found that the important variables maintained their signs and significance.

CONCLUDING REMARKS

The paper used a survey of SAT clients in Ghana as a case study. From this, in turn, we hoped to reflect on some of the most pertinent issues in the microfinance sector more broadly. The areas we assessed included clients' impacts. The originality and uniqueness of the study comes from the use of both qualitative and quantitative data analysis to examine the impact of the scheme on clients. With the qualitative data, we used descriptive statistics of survey responses to show the impact of income generation of the clients. With the quantitative analysis, we constructed empowerment indicators, which we used to assess how they affect the independent variables in the logistic model. We collected primary data from the field with the help from field assistance. The constructed indicators were used as independent and dependent variables to run logistic regression.

To analyzed the data, the study divided clients into two groups — new clients who have been with SAT for less than three years, and old clients who have been with SAT for over three years. We found that even though 'new clients' on average received larger loans, it was 'old clients' who received greater benefits. 'Old clients' on average had earned higher monthly incomes than the 'new clients'. The results of the regression suggest that membership duration in the program is an important determinant of assets ownership, the level of spending on a child's education, and improvements in clients' businesses. In all these areas, old members of the program were seen to be more likely to have received greater benefits. In this, these findings largely concur with most others in the literature in suggesting a role for MFIs in the alleviation of poverty.

We found that the provision of financial services by a SAT has improved the life of its beneficiaries in employment creation to generate regular income, spend on children's education and increase their asset ownership. This research provides adequate evidence in the various survey questions that we administered to suggest that 'long-time borrowers' became better off than those with less exposure to affordable credit.

There is enough evidence to show from the findings that the provision of financial services by the Sinapi Aba Trust has helped to improve the life of its customers in Ghana. The study has detailed how clients benefited from credit provided by the institution. The success chalked up here could be a good guide, not only for Ghana, but also for the providers of financial services to the poor everywhere.

One major shortfall of the study is that we collected data for a short period (due to limited time and resources), and the data may contain several distortions as a consequence. In addition, the data on income and expenditure was self-reported, so we could not verify the authenticity of these data. The best way out is the collection of time-series data or panel data which could be suggestions for future research.

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BIOGRAPHY

Paul A. Onyina, Faculty of Business, Pentecost University College, Accra, Ghana. He can be reached at: Tel: +233-268 031 905, agyeiop@yahoo.com

Sean Turnell, Faculty of Business Administration. Macquarie University, Sydney, He can be reached at: sean.turnell@mq.edu.au

THE EFFECT OF TYPE A PERSONALITY ON AUDITOR BURNOUT: EVIDENCE FROM INDONESIA

Intiyas Utami, Satya Wacana Christian University
Ertambang Nahartyo, Universitas Gadjah Mada

ABSTRACT

This study examines the moderating effect of type A personality on the influence of role stressors (role conflict, role overload, and role ambiguity) on burnout. Most burnout research has focused on various environmental factors, while individual differences also play an important role in the development of burnout (Maslach et al., 2001). Participants of this study are 58 auditors (junior, senior and manager) who work at public accounting firms in Yogyakarta, Semarang, Jakarta and Palembang. The regression analysis shows that type A personality intensifies the influence of role conflict and role overload on burnout. However, the research does not find the evidence the effect of role ambiguity on burnout. The paper concludes with a discussion of the implications of these results.

JEL: M20

KEYWORDS: Burnout, Type A Personality, Role Conflict, Role Overload, Role Ambiguity

INTRODUCTION

For more than a decade, the body of literature on accounting practice has been recognizing the relevance and importance of job-related stress to the independent auditing work context. Job-related stress is important in explaining a wide range of behaviors and attitudes high stress audit work environments. Since auditor is one of the critical points in audit practice beside audit process and post audit work (Tuanakotta, 2011; Morris and Empson, 1998), then the psychological well-being of an auditor is a central point in behavioral accounting research. Research shows that individual characteristics of an auditor are significant determinants of her judgment performance (see for example a review by Solomon and Trotman, 2003). These characteristics are considered as more important than other elements in public accounting firm management, such as tangible assets (Brocheler et al., 2004).

Studies that focus on audit characteristics and settings (for instances: Fisher, 2001; Rebele and Michaels, 1990) typically argue that auditors are exposed to stressful work environments, which have potential to reduce the quality of audit performance. Job stress generally arises when an auditor is overwhelmed by negative stressors on the job. Auditors experience job stress when they have little to no control over their situations, or when job demands exceed their abilities. The possibility of job stress occurrence should acquire attention from accounting professionals since the emergence of stress may create job dissatisfaction, high employee turnover, and decreasing level of performance, which in turn may damage the credibility of the profession.

Academic research involving stress in public accounting has identified numerous organizational and job stressors. Stress is accumulative and additive that increases individual's stress level in a long period of time (Larson, 2011). Burnout is one type of job stress that is believed to have only dysfunctional consequences for behavioral performance. Job burnout has been an important concept for 40 years since its introduction to psychological literature. Currently, burnout is a well-established academic subject on which over 6,000 publications have appeared (Schaufeli et al., 2009). The term "burnout" was first used Freudenberger (1974) and is denoted as the inability to function effectively in one's job as a consequence of prolonged and extensive job-related stress. Job burnout is a response to chronic job-related emotional

and interpersonal stressors that emerge from long-term exposure to demanding situations. An individual suffering from job burnout may appear to have lost energy and enthusiasm for life as well as self-confidence (Larson, 2011). Burnout is progressing through three stages. First, an individual feels exhausted from responding to the job pressure. Second, the individual will depersonalize her relationships with co-workers. Third, she may perceive low personal accomplishment (Cordes and Dougherty 1993). If job burnout progresses further, then mental or physical illness may occur (Larson, 2011).

A review by Cordes and Dougherty (1993) categorizes three antecedents of job burnout: role conflict, role ambiguity and role overload. Lee and Asforth (1996) in a job burnout meta-analysis reveal the originators of job burnout as workload, work stress, role ambiguity and role conflict. Fogarty et al. (2000) find that the burnout experienced by accounting professionals is the result of a number of stressors, and mediate the relationship between the stressors and traditional behavioral outcomes.

The primary objective of this study is to propose and test hypotheses about the moderating effect of type A personality on the influence of role stressors (role conflict, role overload, and role ambiguity) on burnout. We extend current knowledge of the job stress in auditing background by examining the variable relationships, which therefore have not been investigated, and by including burnout as a special type of job stress and type A personality in the relationships.

Burnout is the focus of this research for a couple of arguments. First, burnout is an important variable that not only indicates low employees' prosperity, but also involves their attitudes, health, and behavior (Cordes and Dougherty, 1993; Lee and Ashforth, 1996; Maslach et al., 2001). An understanding of the antecedents of burnout along with the effect of auditors' psychological characteristics will enable management of public accounting firm to institute policies designed to minimize the effect of job burnout. This will save a great deal of expenses due to turnover, absenteeism, and reduced productivity. Second, this study aims to fill the preceding gaps in the literature by providing evidence regarding the moderating effect of type A personality. For many years, previous research has focused on the evidence associating burnout with work concerns but an individual personality type (Maslach et al., 2001). Jackson and Schuler, 1985) in their meta-analysis conclude that type A personality should be included in the role stress model. Empirical support concerning the existence of type A personality in the role stress model would provide a platform for public accounting firms for managing individual-related stress determinants (Goolsby, 1992).This study addresses the question on the effect of auditors' personality type in burnout research by partially replicating and extending prior study by Fogarty et al. (2000).We intend to increase the generalizability of the extant empirical burnout research findings.

Fifty-eight auditors that have junior, senior, and manager level in public accounting firms participate in this study. They work in public accounting firms in four cities in Indonesia: Yogyakarta, Semarang, Jakarta, and Palembang. We collect data with the assistance of a number of contact persons. Data are also collected in a seminar organized by Indonesian Institute of Public Accountants. The results demonstrate that role conflict and role overload have positive associations with burnout. Interestingly, type A personality intensifies the associations. The data do not support the association between role ambiguity and burnout.

In the following section, we provide an overview of the concept of burnout and the three factors that lead to burnout and type A personality. The described theoretical foundation followed by proposed hypotheses for empirical testing. The next section presents research method adopted for testing the proposed model. Research results are described next and followed by discussion of the findings. The final section concludes and describes the possible limitations of the study and the avenue for future research.

LITERATURE REVIEW

Burnout

Burnout is a specific psychological stress syndrome in which a pattern of negative responses emerges from job demands or stressors (Cordes and Dougherty, 1993). In a more detail definition, Freudenberger (1974) describes burnout as a specific psychological condition in which people suffer emotional exhaustion, experience a lack of personal accomplishment, and tend to depersonalize others. The consensus in burnout literature is that burnout involves a psychological condition characterized by three interrelated symptoms and may share common origins (see for example Maslach et al., 2001). The sequential three-component conceptualization of burnout has received acceptance among researchers, but only the emotional exhaustion and depersonalization have generated empirical support (Cordes and Dougherty, 1993).

A number of studies have examined the antecedents of burnout. Emotional exhaustion is the result of role overload, role conflict, and role ambiguity (Fogarty et al., 2000; Jones et al., 2010), unrealistic personal expectation (Stevens and O'Neill, 1983), excessive interpersonal interactions (Cordes and Dougherty, 1993) and ineffective stress-coping mechanisms (Erera-Weatherley, 1996).

Burnout is a prolonged process and its three-related symptoms appear sequentially. Emotional exhaustion occurs first, as excessive job demands exhaust an individual's psychological resources (Kalbers and Fogarty, 2005). Emotional exhaustion is a necessary condition for burnout. Individuals suffer from exhaustion and in turn will experience actions to distance themselves emotionally and cognitively from their work (Maslach et al., 2001). Emotional exhaustion is indicated by feelings of used-up energy and related commotions as a result of psycho emotional demands. These demands originate from problems that require creative and innovative solutions, and are most obvious in an environment of time pressure or related matters of great consequences (Kalbers and Fogarty, 2005).Following emotional exhaustion is reduced personal accomplishment, a feeling of inefficacy, reduced motivation, or self-esteem. This situation is characterized by a tendency to evaluate oneself negatively (Advani et al., 2005). Reduced personal accomplishment is due to lack of recognition and positive feedback (Jackson, Scwab and Schuler, 1986). The third dimension of burnout, depersonalization, is tendency to exert negative and uncaring attitudes toward others (Fogarty et al., 2000). It represents the tendency to treat people as objects. Individuals may display a cynical, callous, uncaring, and negative attitudes toward co-workers, clients, and the organizations (Cordes and Dougherty, 1993).Depersonalization may occur because of excessive interpersonal interaction and workload (Burke, 1989). Kalbers and Fogarty (2005) argue that each burnout symptom is a distinct psychological condition with its own unique pattern of antecedent relationship with role stressors.

Role Stressors as Antecedents of Burnout

Prior burnout studies testing role stress model in auditing contexts have advanced to a state where burnout mediates the relations between job stressors and job outcome (Fogarty et al.,2000). In Indonesia, a study by Murtiasri and Ghozali (2006) supports the findings of Fogarty et al. (2000). Jones et al. (2010) extends the role stress model by adding healthy life style of accountants as a mitigating factor for burnout.
Burnout has been researched primarily as a pattern of responses to role stressors, such as role conflict, role ambiguity, and role overload (Cordes and Dougherty, 1993; Fogarty et al., 2000). Siegel and Marconi (1989) define role as a part played by an individual in her relationship with others. Role conflicts involve the burden of mutually incompatible expectations (Gaertner and Ruhe, 1981). Stated in a more specific manner, role conflict is incompatibility or incongruence between an individual with her job tasks, resources, rules, or policies (Dale and Fox, 2008). Also, incompatibility in communicating expectations between executives and employees may cause role conflict (Ussahawanitchakit, 2008).

Mulki et al. (2007) find that employees are the ones that have tendency to experience role conflict due to gaps between their organization's needs and customers' expectation. Similar phenomena happen when perceived productive employees are exposed to constraints that limit their ability to carry their job effectively (Boles and Babin, 1996). Role conflict also denotes discordance between individual's role and expectation (Shih and Chen, 2006). Further, Viator (2001) states that role conflict emerges when an individual is expected to act in a way that contradicts to her needs, capacity, and values.

Wolf and Snoke (1962) argue that role conflict arises as a consequence of two different and conflicting orders received simultaneously and carrying out one order will put aside the other one. In public accounting setting, role conflict emerges from two consecutive but inconsistent orders. Auditors have two roles, as a member of a profession that requires compliance to the law and conformance to the ethical conduct, and as an employee within a public accounting firm. Possessing these two roles, which frequently lead to a conflicting position, posts the auditors in dilemmas that have undesirable consequences, such as burnout. Role conflict has been found to be an antecedent of burnout in longitudinal studies (e.g. Jackson et al., 1986).

Role ambiguity is defined as a stressful condition caused by an employee's confusion concerning expectations of what her job responsibilities are (Low et al., 2001). Role ambiguity implies uncertain expectations of role senders to guide role behavior (Senatra, 1980). This suggests that individuals in role ambiguity situations experience a lack of information regarding their tasks and responsibilities. The lack of information or unclear goals and directions leads to burnout because performing under role ambiguity conditions requires a excessive levels of energy and mental resources (Maslach, 1984). This used up energy situation is conducive to feelings of burnout (Jackson et al., 1986). Role overload denotes an inappropriately burdensome magnitude of role requirements (Schick et al., 1990).Literature characterizes work overload, unwanted overtime, and time pressure as the primary organizational sources in public accounting (e.g. Gaertner and Ruhe, 1981). Schick and Haka (1990) state that role overload occurs when an individual must consider a highly demanding position. Research has consistently associated higher levels of role overload with higher levels of job burnout (Cordes and Dougherty, 1993).

Type A Personality and Burnout

Research shows that feelings of burnout cannot be separated from individuals' personality type (e.g. Khan, 2011). There are several personality types, which can be characterized by their susceptibility to stress and health conditions. Type A personality has long been implicated as risk factor for health. Type A personality as conceptualized by Friedman and Rosenman (1974) describes such type of people as impulsive, competitive, aggressive, impatient and more susceptible to develop the symptoms of coronary heart disease. Friedman and Rosenman identify patients with the heart disease tend to do work faster and usually have orientation toward success. Choo (1983) states that fast life style adopted by individuals with type A personality would put them in a high anxiety when they face their daily work environment. As the consequence, these individuals have difficulties in coping with job stress.

Abush and Burkhead (1984) investigate the relationship between Type A personality, perceived job characteristics and feeling of job tension. The results demonstrate a significant relationship between job tension and linear combination of Type A personality and job characteristics. Froggatt and Cotton (1987) find that Type A individuals experience more stress when their volume of workload increases. Pradhan and Misra (1996) examine the relationship between Type A behavior and burnout. The results indicate that the moderate level of Type A behavior pattern subjects demonstrate lower levels of burnout. Choo (1986) finds the relation between job stress and type A personality. Fisher (2001), however does not find the moderating effect of type A personality on the relation between role stress and auditors' job satisfaction and performance.

The Relation between Role Conflict and Burnout

A number of studies consistently support the positive relation between role conflict and emotional exhaustion (Jackson et al., 1986; Fogarty et al., 2000; Jones et al., 2010). Role conflict results in emotionally charged role environments, wherein high levels of effort are required to perform tasks. High role conflict results in burnout tendency (Fogarty et al., 2000; Murtiasri and Ghozali, 2006; and Jones et al., 2010). Based on the conceptual arguments discussed earlier and previous findings, we reason that the greater the conditions of role conflict, the more likely they are to produce burnout, and present a hypothesis as follows.

H1: There will be a positive relationship between role conflict and burnout tendencies among the auditors.

The Relation between Role Ambiguity and Burnout

Maslach et al. (2001) argue that unclear direction and goal contribute to the occurrence of burnout and this situation will require excessive mental energy. The chronic role ambiguity leads to emotional fatigue, which is one of the dimensions of burnout (Jackson et al*.,* 1986).

Empirical findings support the influence of role ambiguity on burnout (Fogarty et al., 2000; Murtiasri and Ghozali, 2006; and Jones et al., 2010). Auditors who are exposed to unclear work objectives, vague responsibilities, indistinguishable work procedures, ambiguous expectations of audit team, and lack of feedback will experience emotional fatigue, depersonalization, and perceived reduced personal accomplishment. This leads to the following hypothesis.

H2:There will be a positive relationship between role ambiguity and burnouttendencies among the auditors.

The Relation between Role Overload and Burnout

Fogarty et al. (2000), Murtiasri and Ghozali (2006) and Jones et al. (2010) provide empirical support on the relation between role overload and burnout. In public accounting, the increased workload of some critical periods (when most audits occurs, tax returns are due, and professional services are in high demands) is the major cause of stress. Accountants in this busy periods work more than ten hours a day for months (Jones, et al., 2010). Sweeney and Summers (2002) find that by the end of busy season auditors experience significantly greater emotional exhaustion from their work and are more depersonalized in their approach to the job. Based on literature reviewed above and the empirical findings, we present the following hypothesis.

H3: There will be a positive relationship between role overload and burnout tendencies among the auditors.

The Moderating Effect of Type A Personality

Fisher (2001) asserts that two individuals having in the same position and getting the same role stress will perceive the role stress differently. Lazarus and Folkman (1984) argue that in a transactional model, individuals and their environments are in a dynamic state; they have reciprocal and influential relationships. This model explains that age, needs, values, education, and other personal characteristics have different effects on role stress perception. Choo (1986) argue that these individual differences moderate the relationship between stress and outcome.

In a high role conflict situation, auditors are facing with pressures from, usually, the public accounting firms. Those with type A personality will tend to experience more stress due to their competitive nature, impatience in achieving their objectives, or susceptibility to emotional exhaustion. Following the literature and reasons above, the hypothesis can be stated as follows.

H4: Type A personality will intensify the effect of role conflict on burnout tendencies among the auditors.

Fisher (2001) states that individuals with type A personality are inclined to control their environment. Lee et al. (1990) affirm that type A personality positively interact with individuals' susceptibility to control their environment to facilitate the relation between job performance and satisfaction. Brunson and Matthews (1981) investigate type A and type B personality coping strategy in a laboratory and find that individuals with type A personality tend to have ineffective problem solving strategies because they are more vulnerable to anxiety and stress. Having inclination to control environment while possessing a tendency to have ineffective problem solving strategies may cause more frustration to individuals with type A personality. In ambiguous role conditions, auditors with type A personality have a tendency to be more aggressive and impatient in carrying out their duties, and this will lead to burnout situation. The previous literature and reasons presented above are the base for the following hypothesis.

H5: Type A personality will intensify the effect of role ambiguity on burnout tendencies among the auditors.

As auditors with type A personality are more frustrated when they cannot control their environment (Lee et al., 1990; Brunson and Matthews, 1981), role overload condition will lead to feelings of losing basic talent and capabilities among them (Cordes and Dougherty, 1993). This reasoning results in the following hypothesis.

H6: Type A personality will intensify the effect of role overload on burnout tendencies among the auditors.

Figure 1: Study Framework

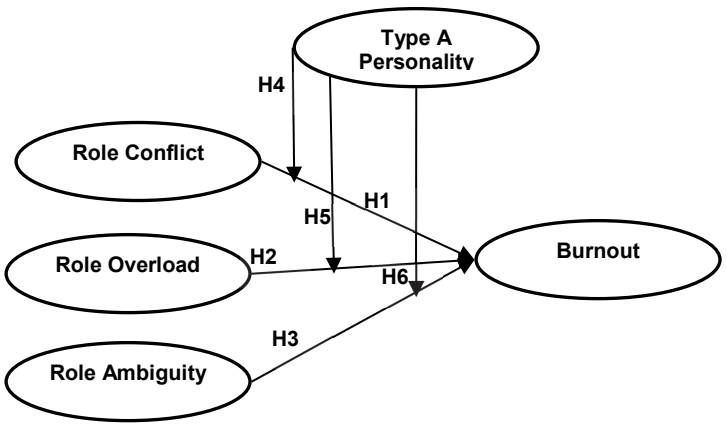

Figure 1 shows the research framework.

DATA AND METHODOLOGY

In this study, we use correlation research design to examine the moderating effect of type A personality on the influence of role stressors (role conflict, role overload, and role ambiguity) on burnout among auditors. The research takes on a field setting with individual auditor as the unit of analysis. Data were

collected through a structured questionnaire sent to auditors working at public accounting firms in four major cities in Indonesia: Jakarta, Semarang, Palembang, and Yogyakarta at the second semester of 2011/2012 academic year. The survey implementation followed three steps: conveniently selecting public accounting firms in which we have contact persons, purposively selecting auditors as our study participants (only junior, senior, and manager auditors were selected), and sending out the questionnaire. To generate more response, we also collected data from a seminar forum held by Indonesian Institute of Public Accountants (IAPI) in Yogyakarta. We also notify respondents in the form of a letter, phone call or e-mail. A mail-out package including a cover letter, the questionnaire and a business reply envelope was then sent to every contact name. In a few cases, the questionnaire was sent by fax or e-mail.

Table 1: Distribution of Survey

Source of Data	Distributed	Responded
Yogyakarta	50	9
Semarang	20	4
Palembang	30	12
Jakarta	50	20
Seminar IAPI	50	30
Total	200	75
Invalid		17
Usable data		58

Two hundred questionnaires were sent and we got 75 responses (37.5% response rate). Fourteen questionnaires were completed by partners in public accounting firms so we exclude those from our samples. Three questionnaires were not completed so we dropped them as well from our analysis. Hence, we have 58 questionnaires eligible for further analysis. Table 1 below describes the distribution of our data.

Table 2 below presents the detail of the participants' demography. Table 2 below presents the detail of the participants' demography. Participants consist of 29 female (50%) and 29 male (50%). Their ages range from 20 to 30 years(51.7%), 30.1 to 40 years (31%), 40.1 to 50 years (12.1%), and above 50 years (5.2%). Participants have diploma level (1.7%), undergraduate level (84.5%), master's degree (10.3%), and doctorate degree (3.4%). The positions in public accounting firms are manager (13.8%), senior (46.6%) and junior (39.75). The tenure of participants extends from <2 years (25,9%), 2-5 years (34.5%) 5.1-10 years (25.9%), and above 10 years (13.8%).

This study's dependent variable is burnout and its independent variables are role conflict, role ambiguity and role overload. We use instruments developed by Rizzo and Lirtzman (1970) to measure role conflict and role ambiguity. The instruments contain 10 items for role conflict and 8 items for role ambiguity on 7-point Likert type rating scale. Role overload is assessed using instruments developed by Beehr et al. (1976), which also was used by Fogarty et al. (2001) and Jones et al. (2010).

The Maslach Burnout Inventory (MBI; Maslach and Jackson, 1984) was used to assess the degree of burnout of the participants. The scale contains 22 items and each item is rated on 7-point Likert type rating scale, ranging from very mild (1) to very strong (7). The scale measures three dimensions of job burnout: emotional exhaustion, depersonalization, and reduced personal accomplishment. This research extends the MBI by measuring auditors' perception on burnout when the auditors are exposed to an audit case. This extension is employed to prevent the respondents from attributing their situation on something that they like (social attribution bias; Hartono, 2008).

Table 2: Profiles of Respondents

	n = 58	Percentage
Sex		
Female	29	50
Male	29	50
Age (years)		
20 – 30	30	51.7
30.1- 40	18	31
40.1- 50	7	12.1
>50	3	5.2
Education		
Diploma	1	1.7
Undergraduate	49	84.5
Master	6	10.3
Doctorate	2	3.4
Position		
Manager	8	13.8
Senior	27	46.6
Junior	23	39.7
Tenure (years)		
< 2	15	25.9
2 – 5	21	34.5
5.1 -10	15	25.9
>10	8	13.8

Type A personality is assessed employing structured interview (Friedman and Rosenman,1974) that consists of 21 items from Jenkins Activity Survey. The higher the score, the more individuals' tendency toward type A personality is.

We use multiple regressions to test hypotheses 1 to 6. Hypotheses 1 to 3 are supported if the main effects of role conflict, role ambiguity, and role overload are significant. Hypotheses 4 to 6 are supported if the interaction effects amongst role conflict, role ambiguity, role overload, and burnout are significant. Data are analyzed by means of SPSS package.

RESULTS AND DISCUSSION

We test the quality of data that covers reliability and validity tests. Cronbach's alpha >0.60 indicates that a construct is reliable and significant coefficient of correlation shows it is valid. Table 3 shows Cronbach's alpha for role conflict (0.929), role ambiguity (0.859), role overload (0.813), type A personality (0.929), and burnout (0.908). As shown in table 3 below, all variables are reliable. The table also shows the correlation ranges of role conflict (0.485**-0.909**), role ambiguity (0.774**-0.870), role overload (0.849**-0.857**), type A personality (0.478**-0.824**), and burnout (0.291**-0.810).

Table 3: Validity and Reliability

	Variable	Reliability		Validity	
		Cronbach's Alpha	Result	Correlation range	Result
1.	Role Conflict	0.929	Reliable	0.485** - 0.909**	Valid
2.	Role Ambiguity	0.859	Reliable	0.774** - 0.870**	Valid
3.	Role Overload	0.813	Reliable	0.849** - 0.857**	Valid
4.	Type A Personality	0.929	Reliable	0.478** - 0.824**	Valid
5.	Burnout	0.908	Reliable	0.291** - 0.810**	Valid

*Table 3 show that all variables are reliable.and the correlation ranges of role conflict (0.485**-0.909**), role ambiguity (0.774**-0.870), role overload (0.849**-0.857**), type A personality (0.478**-0.824**), and burnout (0.291**-0.810). **: significant at $\alpha = 0.05$*

Hypotheses 1 to 3 predict that role stressors have positive associations with burnout tendencies among auditors. Specifically, role conflict, role ambiguity, and role overload are hypothesized to be as antecedents of burnout. Results presented in table 4 demonstrate that role conflict and role overload are

significantly and positively related with burnout tendencies experienced by auditors (p value = 0.006 and 0.000, respectively). However, we do not find support for the positive relation of role ambiguity and burnout (p value = 0.117). These results partially support those of Fogarty et al., 2000). In Fogarty et al. (2000), all job stressors are positively and significantly associated with job burnout.

Table 4: Hypotheses Testing Result

Hypothesis	P-value	Results
H1: RC→BO	0.006***	H1 supported
H2: RA→BO	0.117*	H2 not supported
H3: RO→BO	0.000***	H3 supported
H4: RC*TK→BO	0.001***	H4 supported
H5: RA*TK→BO	0.150*	H5 not supported
H6: RO*TK→BO	0.049**	H6 supported

*RC: role conflict, BO: burnout , RA: role ambiguity, TK: type A personality, TK: type A personality , RO: role overload, RC: role conflict, BO: burnout, TK: type A personality, RA: role ambiguity, TK: type A personality, RO: role overload. * significance at 10%, ** significance at 5% and *** significance at 1%*

The proposed main contributions of this study rely on hypotheses 4 to 6. We predict that type A personality will intensify the positive relations amongst role conflict, role ambiguity, and role overload and with burnout tendencies among auditors. Table 4 shows that we find support for hypotheses 4 and 6, in that type A personality intensifies the positive associations among role conflict and role overload and burnout among auditors (p value = 0.001 and 0.049, respectively). However, the results do not support hypothesis 5 that predicts that the type A personality will intensify the positive relation between role ambiguity and job burnout among auditors (0.150).

These results offer significant insights concerning job burnout among auditors in public accounting firms. Moreover, these are the only known burnout research results based on a sample of auditors working in public accounting firms in Indonesia. The results also show that examining the antecedents of job burnout among auditors and, especially, the personality type of auditors contributes to a more focused understanding of the role of burnout in public accounting profession and the relationships with its antecedents. The results provide support for the relevance of personality type in audit profession. Previous research concentrates on various environmental predictors, while this study extends to individuals differences as factors determining the relations between burnout and its antecedents. Specifically, type A personality strengthen the positive associations between two role stressors, role conflict and role overload, and job burnout among auditors. The findings indicate that when auditors have two or more conflicting roles, the roles put the auditors in dilemmas, which lead to burnout situations, such as emotional exhaustion, feelings of reduced personal accomplishment, and depersonalization. The results also imply that in public accounting firms, accountants that work in busy periods experience significantly greater emotional exhaustion from their work, feel more reduced personal accomplishment, and are more depersonalized in their approach to the job. The results also indicate that the auditors with type A personality create more tension around themselves. This means that the more the auditors show impatience, the more they are likely to develop the symptoms of tension and this is attributed to their personality characteristics. Auditors with type A personality who are unable to fulfill the expectations of others around them may experience burnout because of the conflicting demands.

The job of auditors always involve emotionally demanding situations concerning to the nature of work assignment, work pressure, interactions with people posing diverse nature of problems and their expectations are most of the time more demanding. In such type of working conditions the burnout symptoms increase especially the emotional exhaustion component of burnout. Auditors with Type A behavior more often show the personality characteristics such as highly ambitious, energetic, impatient, competitive, hardworking, time urgent and high achiever. In this type of profession the individuals with

type A behavior are more successful but it is also true that due to their personality characteristics they experience burnout in situations which expose them to role conflicts and role overload.

The study fails to provide evidence to the relation between role ambiguity and burnout and the moderating effect of type A personality on such relation. We speculate the public accounting firms in which our respondents work have already provided working environments that do not create ambiguity. All jobs and procedures have already been constructed in and communicated through established standard operating procedures so that auditors are knowledgeable about their roles and what are expected from them.

CONCLUSIONS

This study examines the moderating effect of Type A personality on the relationship between job stressors (role conflict, role ambiguity, and role overload) and burnout. The research finds empirical evidence regarding the effects of role conflict and role overload on burnout among auditors. However, the study does not find evidence on the effect of role ambiguity in burnout. Moreover, we find that type A personality is able to intensify the effects of role conflict and role overload on burnout. There is no evidence, however, on the moderating effect of such personality type on the relation between role ambiguity and burnout.

The results of our study have several important implications. First, individual characteristics of auditor play an important role in determining auditor judgment performance. In the case of role conflict, in which mutually incompatible expectations exist, incongruence between an auditor with her job tasks, resources, rules, or policies cause role conflict. Auditors face a requirement to comply to the law and to conform to the ethical conduct as well as to behave as efficient employees within public accounting firms. Possessing these two roles, which frequently lead to a conflicting position, posts the auditors in dilemmas that create burnout. Public accounting firms may deal with this kind of problem by introducing a series of training or information dissemination to reduce the expectation gap.

Second, accountants in busy periods experience significantly greater burnout. This negative effect of role overload may be managed by improving work schedule and assignments in public accounting firms. Third, accounting profession should provide more attention on the individual differences and apply more scrutiny on employee personality to improve the quality of accounting services.

The study possess a few limitations. First, it does not separate burnout amongst junior, senior, manager levels in public accounting firms. All samples are treated the same as auditors directly report to partners. This research also does not differentiate samples based on audit tenure. Hence, we suggest future research to employ partners as sample to examine whether they experience burnout produced by role conflict, role overload, and role ambiguity.

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BIOGRAPHY

Intiyas Utami received Master of Science on Accounting Departement from Diponegoro University–Indonesia. She is a senior lecturer in the Department of Accounting, Satya Wacana Christian University, Indonesia and PhD Student on Accounting Department at Gadjah Mada University, Yogyakarta, Indonesia. Her research interest is in the area of behavioral accounting in the fields of auditing and managerial accounting. She work at Fakultas Ekonomika dan Bisnis Universitas Kristen Satya Wacana Salatiga, Jl. Diponegoro 52-60 Salatiga, 50733. Indonesia, intiyas@staff.uksw.edu

Ertambang Nahartyo is an assistant professor of accounting at Universitas Gadjah Mada. He has teaching and research interests in managerial accounting and strategy. He can be reached at Fakultas Ekonomika dan Bisnis Universitas Gadjah Mada, Jalan Humaniora, Jogjakarta 55281, Indonesia, ertambang@gmail.com.

AUDITOR INDEPENDENCE, AUDIT FEES LOW-BALLING, AND NON-AUDIT SERVICES: EVIDENCE FROM FIJI

Arvind Patel, The University of the South Pacific
Pranil Prasad, The University of the South Pacific

ABSTRACT

This study empirically examines the supply side of the market for non-audit services. In particular, a model for the supply side of the market for non-audit services is developed. This model is then tested using audit and non-audit fee data from Fijian listed companies from the year 1980 to 2010. We find that audit fee low-balling leads to increased supply of non-audit services. This result is statistically significant. We also find that Big 4 auditors supply less non-audit services compared to non-Big 4 auditors. Finally, we find that the longer the auditor tenure the lower the supply of non-audit services. However, both these results are statistically insignificant. This leads to a conclusion that non-audit services are being supplied for opportunistic reasons as opposed to efficiency reasons. Our results are robust to a number of sensitivity checks.

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KEYWORDS: Auditor Independence, Audit Fees, Non-Audit Fees

INTRODUCTION

The supply of non-audit services by incumbent auditors has attracted significant attention from the regulators, academic community, and the public at large within the last decade. It is also an important issue for the accounting profession and corporate management. The regulators and legislators see the provision of non-audit services by incumbent auditors as a potential threat to independence (United States Congress, 1977, Securities and Exchange Commission, 1994, 2000, Panel on Audit Effectiveness, 2000, Ianniello, 2012, and Causholli et al. 2013). The accounting profession sees non-audit services as a growing source of revenue stream (Hillison and Kennelley, 1988, and Houghton and Ikin, 2001). The accounting profession and the regulators are at cross roads because of these differing views. In certain jurisdictions, regulators have introduced legislation restricting or banning auditors from supplying non-audit services to their audit clients, while in other jurisdictions legislation have been enacted that require corporations to publicly disclose the amount and type of non-audit services procured from the auditors. This study examines the supply side of the market for non-audit services.

The main objective is to investigate the reasons why an auditor supplies non-audit services to its audit clients. It is hypothesized that auditors supply non-audit services for three distinct reasons, first to respond to the needs of its clients. Audit clients may need a wide range of services such as taxation advice, accounting information system design and implementation, internal audit accounting advice in addition to financial statement audit. In many cases, the auditor is the preferred choice for the supply of these additional services as the client has easy access and the quality and efficiency of the supplier is already verified. This also reduces the searching and related costs for the client. Another reason an auditor may supply non-audit services to its audit client is that they have the requisite knowledge and technical capabilities. The auditor may also have a better understanding of the clients business and internal systems, which also helps in the provision of non-audit services. Knowledge spillover is the general term used to describe such knowledge transfers. Finally, it is hypothesized that an auditor may be willing to supply non-audit services to its audit clients to recover low-balled audit fees. Non-audit services are also more

lucrative in terms of profits margins compared to audit services (Hillison and Kennelley, 1988). Prior research provides evidence of audit fee low-balling (Francis and Simon, 1987, Simon and Francis, 1988, Turpen, 1990, and Ettredge and Greenberg, 1990). These studies, however, assume that auditors will only low-ball in their first year and that audit fees will normalize in subsequent periods. In this study, we predict that auditors will continue to low-ball after the initial year to maintain an audit client in subsequent periods and this will be cross subsidized by profits from non-audit work. Apart from low-balling where the auditor sets the fee below cost, we are also interested in all cases where audit fee is cross subsidized by non-audit profits. In fact, audit firms may not set the fee below cost but below normal levels of gross margins given the competitive pressures in the audit market. This practice is as problematic as the case where audit fee is set below cost.

The motivations to investigate the supply side of the market for non-audit services are numerous. Regulators and legislators on one hand have imposed legislation on the supply of non-audit services. In certain jurisdictions such as the U.S., certain types of non-audit services are banned from being supplied by the auditor while in other jurisdictions such as Australia, U.K. and the E.U. member countries public disclosure of non-audit fees are required and prior approvals have to be sought from audit committees for the procurement of non-audit services from the auditor. These regulations have been imposed amidst mixed results from studies conducted on the impact of non-audit services on auditor independence.

The majority of the research on non-audit services has concentrated on the demand side, that is, reasons why clients purchase non-audit services from the auditors. Thus, there is a lacuna in the literature on the supply side of the market for non-audit services. The supply side of the market for non-audit services is equally, if not more, important. The insights from the supply side of the market for non-audit services are potentially informative to regulators and legislators. This rest of this paper is organized as follows. The next section presents a brief review of relevant literature and formulates the empirical hypotheses. This is followed by the methodology section. The results are presented next followed by the conclusions section.

LITERATURE REVIEW

While there are various studies that investigate the demand side of the market for non-audit services, few studies have ventured into the supply side. The supply side of the market for non-audit services is equally important. An audit firm may decide to accept or decline the request to provide non-audit services to its audit client and various factors may affect this decision. In this study, we outline the factors that may affect the supply of non-audit services by auditors and empirically test these factors by developing a model for the supply side of the market for non-audit services. In a service provider-client relationship, it is very important for the supplier of the services to be able to meet the needs of its clients. An audit firm purports to be a supplier of a wide range of services in addition to audit. In an economy that we operate in, clients have an increasing need for consultancy services. The effects of a globalised world and ever-increasing complexity of businesses drive the demand for a wide range of consultancy services. Thus, an auditor may supply non-audit services to its audit client because the client needs the services and prefers to procure these services from the auditor.

In addition to satisfying the client's needs, an audit firm may supply non-audit services to broaden its revenue base and to maintain a steady growth of the practice. This is even more important at a time when the saturation of the audit market means audit services may not contribute significantly to growth of the audit firm. On the same note, audit firms may low-ball audit fee to get their foot into the door. In the case where the audit has been a loss leader, the auditor may supply non-audit services to recover the losses.
The knowledge base that an audit firm possesses together with the technical capabilities may also influence the supply of non-audit services. The knowledge base and capabilities may be client specific, industry specific or general. If an audit firm does not possess the required expertise and the capability to

provide the required non-audit services then it will not be able to supply these services to its audit clients. This is, as a result, an important determinant of non-audit service supply.

We have identified three distinct reasons why an auditor may supply non-audit services to its audit clients. The reason why an auditor supplies non-audit services is important, as it will have implications on the independence of the auditor. If the auditor supplies non-audit services to maintain a steady growth of the firm or to recover low-balled audit fee, this may have negative implications for the independence of the auditor. An audit firm that low-balled audit fee to get its foot into the door may expect to recover the low-balled audit fee from subsequent non-audit service engagements and this may lead the auditor to be more lenient towards the audit client just to maintain the auditor-client relationship. This reason for the supply of non-audit services is also opportunistic, as the auditor sees the provision of non-audit services as an opportunity to recover low-balled audit fees.

On the other hand, if the auditor supplies non-audit services to its audit clients because it possesses the requisite knowledge, capabilities, and technical competence then it is economically efficient. In many cases, an auditor may have better knowledge of the client's needs and business and is able to provide better services at lower costs compared to other suppliers. This may be a result of knowledge spillovers. The size of the auditor may also influence the ability of the auditor to supply non-audit services. For example, a Big 4 auditor has access to more resources, is able to attract personnel that are more capable, and has the advantage of a global presence compared to a small local accounting firm and therefore, should be able to supply more non-audit services.

The regulators and legislators use the economic bonding (and low-balling) and self-review threats as the basis for the restrictions on non-audit services. The profession, on the other hand, argues that non-audit services does not impair their independence but enables them to perform an efficient and effective audit. As outlined in the preceding paragraphs, auditor supply non-audit services for three distinct reasons. The supply of non-audit services to recover low-balled audit fees or to maintain growth of the practice supports the regulators and legislators arguments for legislation. The technical competence, capability and knowledge of the auditor as explanations for the supply of non-audit services support the professions position on the issue of joint audit and non-audit supply. Modeling the supply side of the market for non-audit services provides empirical evidence that will assist both the legislators and the profession understand each other's position, and most certainly bring some closure to the debate. We now explore these factors and issues in detail in the next subsection, which will lead on to the hypotheses.

Supply of Non-Audit Services and Audit Fee Low-Balling

As outlined in the preceding section, auditors who low-ball audit fees are expected to have a higher propensity to supply non-audit services. Anecdotal evidence also suggests that firms lower the audit fee to accept clients to whom they could sell more lucrative non-audit services in the future. This is even more important at a time when the audit market is being saturated. The public accounting firms see non-audit services as an important alternative source of revenue (Hillison and Kennelley, 1988). Audit services are seen as a 'foot in the door', which will lead to lucrative non-audit service contracts. It is also important to note that the magnitude of fee disclosed for non-audit services may not accurately indicate the importance of it to accounting firms. A more authentic but unobservable variable to study is the margins on audit and non-audit services. Prior studies have examined the relation between non-audit services and audit pricing. Simunic's (1980) paper is a seminal work in this area. Simunic (1980) reports that firms purchasing non-audit services from the auditor, reported higher audit fees. They take the positive association between audit and non-audit services to be indicative of knowledge spillovers rather than low-balling. Simon (1985) also reports a positive relation between audit and non-audit fees.

Palmrose (1986) examines the impact of different types of non-audit services on audit pricing. The results show that audit and non-audit fees are positively related. This result is the strongest for accounting related non-audit services but the relation also stands for non-accounting related non-audit services.

In another study, Ezzamel et al. (1996) examine the relation between audit and non-audit services using data from the U.K. They report that income earned by audit firms from non-audit services averaged 90% of the audit fees for the years 1992 and 1993. Their results also show that audit and non-audit fees are positively related. This result is consistent with the results of earlier studies on this issue. Firth (1997) also reports a positive relation between audit and non-audit fees using firms from Norway. Although, the results support earlier studies, Firth (1997) states that there is no plausible reason for the positive relation in the context of Norway. Dunmore and Shao (2006) investigate whether audit fees are subsidized by profits from non-audit services using a sample of firms from New Zealand. They employed non-audit fees as a test variable in their audit fees model and found that cross subsidization was not significant.

On the contrary, Lai and Yim (2002) report that when the Big 4 audit firms supplied more non-audit services they were more likely to charge lower audit fees. This is the only study that provides evidence that non-audit services negatively affect audit pricing. However, they also report that this does not affect auditor independence, as they do not find any relation between non-audit services and audit opinions. In summary, studies examining the effect of non-audit services on audit pricing fail to find evidence that non-audit services lead to audit fee low-balling except Lai and Yim (2002). While these studies examined the effect of non-audit services on audit pricing, this study examines the effect of low-balled audit fees (and other factors) on the supply of non-audit services. We postulate that, in the case where an audit firm has low-balled audit fees, the firms' propensity to supply non-audit services will be higher.

In a competitive market, an auditor bidding for the supply of audit work would factor in profits expected from non-audit work that are tied to the audit work. This is, in the sense that the incumbent auditor will have an advantage over other firms in getting the bid to provide such non-audit work. The advantage that the auditor will have in bidding for the non-audit work is those arising from production economies where the incumbent auditor can slightly undercut its competitor and still capture much of the benefits. Furthermore, many clients simply call in their auditors to provide the non-audit work rather than putting it on tenders. We posit that the incumbent auditors expect that they can capture economic rents from the provision of non-audit services if they can retain the audit engagement. Thus, the lower they bid for the audit work the higher their willingness to supply non-audit work to recover the low-balled audit fees. Given these arguments, we frame our first hypothesis in the alternative form:

H1: Auditors that low-ball audit fees supply higher amounts of non-audit services

<u>Knowledge, Technical Capability and the Supply of Non-Audit Services</u>

This study further argues that an auditor who has better expertise in the provision of non-audit services and is technically more competent will be willing to supply more non-audit services to its clients. We use two measures of knowledge, expertise, and technical competence. These measures include auditor tenure and auditor size. An auditor may gain better understanding of the clients systems and processes over time. Thus, the length of the auditor client relationship is a variable that can proxy for knowledge spillover. This enables the auditor to perform the non-audit services required much more effectively and efficiently. The size of the auditor is another variable that can proxy for knowledge and technical capability of the auditor. Big 4 auditors have access to resources and training that non-Big 4 do not. They also have access to or have the ability to hire the best personnel and retain them compared to the non-Big 4 auditors. The Big 4 also has a global presence and the ability to transfer capability to regions and countries where certain capabilities may be lacking for example KPMG Fiji may be able to get its Australian counterparts to perform a forensic audit for a client in Fiji if they lack expertise in the area.

Several studies provide evidence that the contracting costs decrease and knowledge spillovers increase as the duration of business relationships increase (Ghosh et al. 2006). Studies also show that communication and collaboration between parties to a contract improves as the tenure of their relationship increases (Levinthal and Fichman, 1988, and Asanuma 1989). Various other studies indicate that as the length of a strategic partnership/alliance increase, the contracting costs between the parties decrease, the trust between the party's increases, and disputes become easier to resolve (Gulati and Singh, 1998, Larson, 1992, and Ring and Van de Ven, 1994). Knechel et al. (2012) provide evidence from the New Zealand audit market that the provision of non-audit services does lead to knowledge spillovers to audit services. This is evident as those firms with higher non-audit purchases have lower audit report lags. Angela and Hay (2013) provide further evidence in support of Knechel et al. (2012).

The longer the auditor serves a client the more familiar he/she becomes with the client and the greater the knowledge he/she accumulates regarding the client. Therefore, the auditor becomes more efficient in serving the client as tenure increases. This particular factor works through knowledge spillovers. Knowledge spillover can be described as a situation where knowledge from one task can be transferred to another task. Knowledge spillovers increase as duration of a business relationship increases. Experimental Studies in auditing has found that auditor expertise increases with experience (Libby and Fredrick, 1990, and Ashton, 1991). Furthermore, archival studies (see for example Johnson et al. 2002, Myers et al. 2003, and Ghosh and Moon, 2005) find that audit quality improves with lengthened auditor-client relationship.

Myers et al. (2003) and Ghosh and Moon (2005) attribute this improvement to client specific expertise developed by the incumbent auditor. Such client specific expertise is likely to result in knowledge spillovers for non-audit services. Therefore, we can predict a positive association between auditor tenure and supply of non-audit services. This study argues that the longer the tenure of the auditor the more knowledge he has in regards to the client and therefore the higher the auditor's willingness to supply non-audit services to the client. Gul et al. (2007) in a study using U.S. data find that non-audit services fees affect auditor independence when the auditor tenure is short. They hypothesize that threats to independence is greatest in the initials years of auditors tenure as the recently acquired quasi rents of incumbency makes auditors more vulnerable to client pressure or dismissal in earlier years of auditor client relationship. In addition, a new auditor is also not very familiar with the clients accounting system and firm characteristics (Gul et.al. 2007) which lead to lower quality audits. Myers et al. (2003) also documents lower quality audits when tenure of the auditor is short.

The auditor receives incentives in terms of quasi rents or reputation building from an audit apart from fees. It is hypothesized that a longer serving auditor will be more inclined towards building reputation than earning quasi rents, which are a threat to independence, and reputation. These arguments are in a different direction from what has been advanced by regulators. Regulators have been promoting mandatory auditor rotation as a means of protecting independence. Their arguments have been based on the notions of client familiarity and personal connection between auditor and client firms. Rotational tenure was seen as a mechanism to minimize these threats. The results reported by Gul et al. (2007) indicate that the effect of non-audit services fee on auditors' independence is contingent upon the auditors' tenure. Geiger and Raghunandan (2002) in a response to calls for research on the relationship between audit tenure and audit failure investigate this relationship through an examination of prior audit reports for a sample of U.S. companies. The study posits that there is an association between auditor tenure and audit reporting for bankrupt firms. A multivariate analysis is used to test for this relationship. Results of the study indicate that there were more audit reporting failures in the earlier years of auditor – client relationship than when auditors served the client for longer periods. The results of this study debunk the notion that longer auditor tenure leads to impaired independence. These arguments lead to the development of the second hypothesis (in the alternative form):

H2a: The longer the auditor tenure the higher the amount of non-audit services supplied.

The competence of the auditor to provide non-audit services is another factor that may explain the supply of non-audit services. The Big 4 auditors offer a broader scope of services than do the non-Big 4 audit firms (Aloke et al. 2006). Furthermore, the Big 4 auditors have access to a broader scope of resources and this is available to the auditors of the firm. In addition, the Big 4 auditors have access to many technical workshops that the non-Big 4 may not have access to. The access to more resources, training and workshops would mean that Big 4 auditors are technically more competent in the provision of many accounting services including many of the non-audit services.

The Big 4 auditors also have a global presence and are easily able to transfer expertise on a global scale. The Big 4 also have the ability to hire and retain the best personnel. The global presence means that they are the preferred choice for multinational companies who may want the same firm to provide accounting auditing services over the world. The ability to hire and retain the best personnel also means that the Big 4 would be able to provide better services. In many cases, the Big 4 are also the preferred choice for banks, underwriters, auditor committees and financiers (Arnett and Danos, 1979, and Christodoulou, 2010).
Research studies also indicate that the Big 4 auditors provide higher quality services (Francis, 2004, and Watkins et al. 2004). Simunic and Stein (1987) and Francis and Wilson (1988) argue that the Big 4 have invested heavily in building their brand reputation and as a result, provide higher quality services to protect the reputation. Prior research also indicates that the Big 4 invest heavily in technology compared to the non-Big 4 (Sirois and Simunic, 2010). This investment also enables the Big 4 to provide better services. In summary, the Big 4 accounting firms have access to greater resources, conduct more training for staff, are able to attract and retain qualified personnel, have a global presence, and have invested heavily in technology. The quality of services offered by the big 4 is also superior compared to the non-big 4. These factors indicate that the Big 4 auditors have a greater ability to supply a range of services. Given these arguments, we frame our third hypothesis in the alternative form:

H2b: The Big 4 auditors supply higher amounts of non-audit services.

Clients Demand and Supply of Non-Audit Services

An audit client may demand non-audit services from its incumbent auditor. Therefore, an auditor may supply non-audit services to meet the needs of its audit client. Prior literature outlines that a firm's need for non-audit services is driven by its size, complexity, performance, special situations, high growth, and high business risk. The size of a firm is the most important factor affecting the need for non-audit services. The larger a firm is, the more the need for non-audit services. The complexity of the firm's operations also determines the need for non-audit services. The more complex a firm the more non-audit services it will need. Various variables can be used to proxy for complexity. Prior studies on firm complexity use the number of business segments and the number of subsidiaries to proxy for complexity.
Firms that are performing poorly need more non-audit services to improve their performance (see for example Parkash and Venable, 1993, DeFond et al. 2002, Abbott et al. 2003a, and Whisenant et al. 2003). On another note, firms performing poorly may not be able to afford non-audit services and hence, their demand for non-audit services may be limited.

The need for non-audit services rises if one off special situations arises for a firm. These special situations include the issue of new equity or the issue of new debt instruments, appointment of a new CEO, and so on. Prior studies such as Firth (1997) and Abbott et al. (2003a) provide evidence that special situations like the issue of new equity and debt securities leads to an increase in the need for non-audit services. Business risk facing a firm may also affect the need for non-audit services. The firms that face higher business risk and financial risk need more consulting services to minimize these risks. A number of studies also investigate the influence of agency costs variables on the demand of non-audit services.

These studies employ a number of variables as proxy for the level of agency costs. Quick et al. (2013) provides evidence that agency costs do not influence the demand for non-audit services. Finally, firms facing high growth may need more non-audit services as they may be expanding into new markets, new products, and so on. The need for non-audit services in such a case will be driven by the need to explore such growth opportunities. Given that the need for non-audit services may influence the supply of non-audit services, we include a range of variables that proxy firm size, complexity, special situations, growth, risk, and performance in the non-audit services supply model. These variables are not the focus of this study. The focus of this study is on the opportunistic and efficiency factors in explaining the supply of non-audit services, therefore these variables are included in the model as controls. The next section presents the methodology and the empirical model that will be employed to test the hypotheses.

DATA AND METHODOLOGY

Sample and Data

This study examines data related to firms listed on the South Pacific Stock Exchange (SPSE) in Fiji. Firms from Fiji are examined, as the financial reporting regulatory environment is very different from that of developed countries such as U.S., U.K., and Australia. First, the audit market in Fiji is largely self-regulated. Second and more closely related to this study is the absence of regulations restricting the supply of non-audit services by incumbent auditors. Countries such as the U.S. have from the year 2002 enacted legislation that restrict the amount and type of non-audit services that the incumbent auditor can provide to its audit clients. This gives us a unique setting in which to study the incentives behind the supply of non-audit services by incumbent auditors.

There are 16 firms currently listed on SPSE. All the firms are used in this study. Years 1980 through to 2010 are examined. Annual data for the firms are utilized in this study. Since the data is both cross-sectional and time series, it forms a panel dataset. The panel is unbalanced. There are various advantages of using a panel dataset in this study. Using cross sectional data would not have allowed us to use regression analysis, as the data set would have been too small. Time series data for individual firms would also limit the external validity of the results. While panel datasets offer many benefits over time series or cross-sectional datasets, only minor statistical complications may arise (Wooldridge, 2009). The data for the firms are hand collected from the hard copy of the annual reports. The annual reports of the listed companies had been collected over time from the stock exchange and from the firms. Where necessary the data was transformed into its logarithmic form to remove skewness and kurtosis. A 90% winsorisation is conducted on the dataset so that it is more robust to outliers.

Modeling the Supply of Non-Audit Services

An empirical model on the supply of non-audit services is developed and tested in this study. It is postulated that the lower the audit fee, the higher the amount of non-audit services supplied by an auditor. Thus, the first variable included in the model is audit fee. A negative correlation is expected between audit and non-audit fees. The knowledge, technical expertise and the capabilities of an auditor will also drive the amount of non-audit services supplied. Auditor tenure and auditor type proxy for knowledge, technical expertise and capability in the model. The model also includes a number of variables to control clients need for non-audit services. As argued in the previous section, an auditor may supply non-audit services because the client demands these services. The final model is as follows:

$$LNNASFEE = \beta_0 + \beta_1 LNAF + \beta_2 AUDITOR\_TENURE + \beta_3 AUDITOR\_TYPE + \beta_4 LNTA + \beta_5 DA + \beta_6 LIQ + \beta_7 INVREC + \beta_8 ROA + \beta_9 SQSEG + \beta_{10} SQSUB + \beta_{11} FOROPS + \beta_{12} OPINION + \epsilon \quad (1)$$

The dependent variable in the non-audit supply model is the amount of non-audit service supplied by the incumbent auditor to its audit client. This is measured by the dollar value of the auditor provided non-audit services for a particular financial year (LNNASFEE). Prior studies, for example, Ashbaugh et al. (2003), and Ferguson (2004) have used this measure in the non-audit service demand models. Prior studies have also used other measures of non-audit services. Craswell (1999), Frankel et al. (2002) and Larcker and Richardson (2004) used the ratio of non-audit fees to total fees. Other studies have used non-audit fee to audit fee ratio (e.g. Firth, 1997, and Parkash and Venable, 1993). Studies in the past have also scaled the non-audit fees by total revenue of the auditor (Chung and Kallapur, 2003). The scaled measures of non-audit fees capture the economic importance of a client to the auditor. As a result, scaled measures are widely used in the audit literature. As the interest is only in the magnitude of the non-audit services provided in this study, only the dollar value of the non-audit services is employed in the non-audit service supply model. The use of other measures of non-audit services would distort results. However, additional sensitivity analyses using the various alternative measures for non-audit services are performed.

Independent Variables - Variables of Interest

The audit fee variable (LNAF), tests for the cross subsidization of audit and non-audit fees. The natural logarithm of total audit fees paid to the auditor for external audit services is used in the model. This data is disclosed in the annual reports of companies within the sample. Audit firm tenure (AUDITOR_TENURE) is also examined in this study. There are two common proxies for auditor tenure used in prior studies. The first is a discrete variable to reflect a change in auditor in the current financial year and the second is the actual duration of the current auditor (Hay et al. 2006). The actual duration of the auditor tenure is used in the non-audit service supply model. As part of additional analyses, the alternative measure for auditor tenure is employed in the model and the results reported as part of the sensitivity analyses test results. Auditor type (AUDITOR_TYPE) is a variable used to measure the technical competence of the auditor to provide non-audit services. The proxy for auditor type is the size of the auditor. The auditors are divided into Big 4 international audit firms and non-Big 4 as per prior studies. Auditor type is a categorical variable where one indicates a Big 4 auditor and zero indicates a non-Big 4 auditor. Information on auditor type is obtained from the annual reports of the companies in the sample.

Control Variables

An important control variable in the model is a measure for client size. Client size is measured by the natural logarithm of total assets (LNTA). Prior studies into audit fee models indicate that client size accounts for 70 percent variation in audit fees (Simunic, 1980, and Hay et al 2006). Thus, this variable is included as a control in the non-audit fee model as larger client's demand more non-audit services while small clients demand less. It is expected that client size will have a significant positive impact on non-audit fees. There are other control variables included in the model. The first set of these control variables include debt to equity ratio (DA), quick asset ratio (LIQ), the ratio of inventory and receivables value to total assets value (INVREC), the return on investment (ROA). These variables measure the risks associated with a particular client. The second set of control variables employed in the model include the square root of the number of business segments (SQSEG), the square root of the number of subsidiaries (SQSUB), a discrete variable for foreign operations (FOROPS), and a discrete variable for the type of audit opinion (OPINION). These second set of control variables measure client complexity. A complex business has greater needs for consultancy and advice. Thus, it is expected that these variables will be positively associated with non-audit fees. Ordinary Least Squares (OLS) regression is utilized to test the model developed in this study. The use of OLS regression requires that the dataset satisfy a number of assumptions. Additional tests are conducted on the dataset to ensure that the assumptions of OLS regression are satisfied.

RESULTS AND DISCUSSION

The descriptive statistics in Table 1 relate to the entire sample from 1980 to 2010. The average (median) amount of non-audit services supplied by incumbent auditors to their audit clients is $13,320 ($5,000). The average (median) audit fee is $45,757 ($34,900). On average incumbent auditors who jointly supplied audit and non-audit services to their clients earned non-audit fee equivalent to 29 percent of the audit fee. While for a number of firms in the sample, non-audit services purchased from the incumbent auditor was nil or lower than 29 percent of the audit fee, there are firms in the sample with non-audit fees more than 29 percent of the audit fees. In some cases, for some firms, in some years, the non-audit fees exceeded the audit fees.

Table 1: Descriptive Statistics of Variables

Panel A: Dependent Variable	**Overall Sample, N = 242**		
Variable Description (Names)	Mean	Median	Std. Dev.
Non-Audit Fees (Nasfee) $	13,320	5,000	20,919
Natural Log Of Nasfee (Lnnasfee)	6.06	8.52	4.59
Panel B: Variables Of Interest			
Variable Description (Names)	Mean	Median	Std. Dev.
Audit Fees (Af) $	45,757	34,900	38169
Natural Log Of Af (Lnaf)	10.22	10.46	1.17
Auditor Tenure (Auditor_Tenure) Years	6.76	6.00	5.94
Auditor Type (Auditor_Type)	0.82	1.00	0.38
Panel C: Control And Other Variables			
Variable Description (Names)	Mean	Median	Std. Dev.
Total Assets (Ta) $	72,375,047	25,806,663	105,095,911
Natural Log Of Ta (Lnta)	17.07	17.07	1.48
Debt To Assets (Da)	0.42	0.41	0.28
Liquidity (Liq)	4.60	1.27	41.12
Receivable And Inventory Intensity (Invrec)	0.30	0.27	0.22
Return On Assets (Roa)	0.05	0.05	0.12
Square Root Of Segments (Sqseg)	1.56	1.41	0.80
Square Root Of Subsidiaries (Sqsub)	1.26	1.41	1.09
Foreign Operations (Forops)	0.37	0.00	0.48
Audit Opinion (Opinion)	0.04	0.00	0.19

Dependent Variable:

NASFEE = fees billed ($ actual) for auditor provided non-audit services.
LNNASFEE = the natural of NASFEE.

Variables of Interest:

AF = fees billed ($ actual) for the audit of the annual financial statements.
LNAF = the natural log of AF.
AUDITOR_TENURE = the actual number of years the incumbent auditor served the client.
AUDITOR_TYPE = an indicator variable set to 1 if the auditor is a BIG4, 0 else.

Control and Other Variables:

TA = the total assets of a firm measured in $ thousands.
LNTA = the natural log of TA.
DA = the total debt to TA ratio.
LIQ = the ratio of current assets to current liabilities.
INVREC = the ratio of inventory plus receivables to TA
ROA = return on assets defined as earnings before interest and tax divided by TA
SQSEG = the square root of the number of business segments.
SQSUB = the square root of the number of subsidiaries.
FOROPS = an indicator variable set to 1 if the firm has operations in foreign countries, 0 else.
OPINION = an indicator variable set to 1 if the firm receives a qualified audit report, 0 else.

This table presents the descriptive statistics on the variables utilized in the regression model for the entire sample. Panel A provides descriptive statistics for the dependent variable in the model. Panel B provides descriptive statistics on the independent variables of interest in this study and panel C provides descriptive statistics on the control variables.

The average auditor tenure is 6.76 years for the entire sample. In Fiji, there are no mandatory requirements for auditor rotation; neither are there any regulatory requirements on audit partner rotation.

The mean (median) debt to asset ratio for the entire sample is 0.42 (0.41), that is, on average every dollar of asset is financed 42 cents by debt financing and 58 cents by equity financing. The mean (median) liquidity ratio for the entire sample is 4.60 (1.27). This indicates that for every dollar of current liabilities there is $4.60 of current assets, meaning firms are liquid. Inventory and receivables make up 30 percent of the total assets of the sampled firms on average with a median value of 27 percent. The mean (median) return on assets is 5 percent (5 percent) for all the firms over the entire period from 1980 to 2010.

The mean (median) of the square root of the number of subsidiaries is 1.26 (1.41) and the mean (median) of the square root of the number of business segments is 1.56 (1.41). The mean value for foreign operations is 0.37 and for audit opinion, it is 0.04. This indicates that for 37% of the data points, the firms maintained operations in foreign countries. In relation to audit opinion, for 4% of the data points in the panel, firms had received anything other than an unqualified audit opinion or clean audit opinion. The Pearson correlation coefficients are presents for the variables used in this study in Table 2. Multicollinearity may pose statistical issues if the Pearson correlation coefficient is greater than 0.80 for any two variables (Wooldridge 2009). None of the correlations is greater than 0.80, meaning multicollinearity does not pose problems in our analysis. The other statistic used to test for multicollinearity problems is the Variance-Inflation-Factors (VIFs). The VIFs in all our statistical tests for all variables were less than 10, which is the threshold beyond which multicollinearity problems may arise (Wooldridge 2009). The audit fees and non-audit fees are highly correlated (r = 0.152). As expected the size of a firm measured by total assets is also highly correlated with non-audit fees (r = 0.297). The correlation coefficients also reveal a high correlation between auditor type and non-audit fees, debt to assets ratio and non-audit fees, square root of subsidiaries and non-audit fees and foreign operations and non-audit fees. Auditor tenure, liquidity, proportion of assets held in inventory and receivables, return on assets, square root of segments and audit opinion are all weakly correlated with non-audit fees.

Table 2: Pearson Correlation Coefficients

VARIABLES	LNNAS	LNAF	AUDITOR TYPE	AUDITOR TENURE	LNTA	DA	
LNNAS	1.000						
LNAF	0.152*	1.000					
AUDITOR TYPE	-0.160*	0.099***	1.000				
AUDITOR TENURE	0.042	0.378*	0.197*	1.000			
LNTA	0.297*	0.800*	0.098***	0.271*	1.000		
DA	0.314*	0.246*	-0.044	0.102***	0.211*	1.000	
LIQ	-0.097	-0.182*	0.011	-0.075	-0.104***	-0.118**	
INVREC	0.056	0.162*	-0.157*	0.112**	-0.056	0.129**	
ROA	0.021	0.019	0.007	0.097***	0.025	-0.209*	
SQSEG	0.092	0.433*	0.264*	0.396*	0.267*	0.137**	
SQSUB	0.161*	0.772*	0.315*	0.514*	0.669*	0.214*	
FOROPS	-0.315*	0.422*	0.291*	0.033	0.275*	0.013	
OPINION	-0.007	0.177*	-0.080	0.082	0.290*	0.085***	
VARIABLES	**LIQ**	**INVREC**	**ROA**	**SQSEG**	**SQSUB**	**FOROPS**	**OPINION**
LIQ	1.000						
INVREC	-0.070	1.000					
ROA	-0.039	0.134**	1.000				
SQSEG	-0.048	0.417*	0.035	1.000			
SQSUB	-0.088***	0.109***	-0.017	0.630*	1.000		
FOROPS	-0.052	0.207*	-0.108***	0.244*	0.322*	1.000	
OPINION	-0.017	-0.151**	-0.272*	-0.139**	0.027	0.255*	1.000

1%, 5% and 10% levels respectively. see table 1 for variable definitions. This table presents the Pearson correlation coefficients for the variables used in the regression model. The correlation coefficients are presented for the entire sample.

Regression Results

We conducted a number of analyses before running the regression. First, we conducted analyses of the residuals and they indicate no problems of homoscedasticity and linearity. Tests of skewness and kurtosis indicated some problems about the normality of the residuals and therefore, data was transformed into its natural logarithmic form to get the best fit. The regression results of the non-audit supply model are

presented in Table 3. The regression statistics reveal that our model fits the data well and is highly significant with an F-statistics of 10.761 (p = 0.000). The overall fit of model is good with an r-square of 32.7 percent. This indicates that 32.7 percent of changes in non-audit fees can be explained by the variables employed in the model. This is comparable with prior studies modeling non-audit fees. The regression results indicate that there is a significant negative relationship between LNAF and LNNASFEE. The coefficient for LNAF is negative and significant at the 5 percent level of significance (p = 0.028). The result supports our hypothesis that auditors supply non-audit services because of audit fee low-balling. The regression results also indicate that the coefficient for both AUDITOR_TENURE and AUDITOR_TYPE are negative and not significant (p = 0.326 and p = 0.131, respectively) leading to a rejection of hypothesis 2a and 2b.

Table 3: Regression Results

Variable	Expected Sign	Coefficient	t-value	p-value
Constant		-11.528	-2.63	0.009**
LNAF	-	-0.280	-2.211	0.028**
AUDITOR_TENURE	+	-0.100	-1.516	0.326
AUDITOR_TYPE	+	-0.063	-0.985	0.131
LNTA	+	0.532	4.921	0.000*
DA	+	0.224	3.897	0.000*
LIQ	+	-0.070	-1.294	0.197
INVREC	+	0.147	2.156	0.032**
ROA	+	0.005	0.078	0.938
SQSEG	+	0.058	0.728	0.468
SQSUB	+	0.120	1.063	0.289
FOROPS	+	-0.411	-5.913	0.000*
OPINION	+	0.005	0.077	0.938
Adjusted R^2	0.327			
F-Statistic	10.761			
Probability (F-Statistic)	0.000			

, **, * significant at the 1%, 5% and 10% levels respectively. See table 1 for variable definitions. This table presents the regression results for the equation:* $LNNASFEE = \beta_0 + \beta_1 LNAF + \beta_2 AUDITOR\_TENURE + \beta_3 AUDITOR\_TYPE + \beta_4 LNTA + \beta_5 DA + \beta_6 LIQ + \beta_7 INVREC + \beta_8 ROA + \beta_9 SQSEG + \beta_{10} SQSUB + \beta_{11} FOROPS + \beta_{12} OPINION + \epsilon$. *The results are shown for the entire sample.*

The coefficient for LNTA is positive and significant (p <0.001). This indicates that the size of the client is an important determinant of the amount of NAS supplied by the incumbent auditor to its audit client. The coefficient for DA is also positive and significant (p <0.001). This indicates that the higher the debt to asset ratio the higher the amount of non-audit services supplied to the audit client. The coefficient for INVREC is positive and significant as well (p = 0.032). In addition, the coefficient for FOROPS is negative and significant as well (p < 0.001). The coefficient for LIQ is negative and not significant (p = 0.197). The coefficient for ROA is positive and not significant (p= 0.938). The coefficient for SQSEG is positive but not significant (p = 0.468). The coefficient for SQSUB is also positive but not significant (p = 0.289). The coefficient for OPINION is positive and not significant (p = 0.938).

Discussion of the Results

The regression results support the hypothesis that auditors supply non-audit services to recover low-balled audit fees. This is evident by the negative relationship between audit and non-audit service fees. On the other hand, the hypothesis that non-audit services are supplied because auditors have the knowledge, capability and technical ability to supply such services, is not supported by the results. The coefficient for both the variables measuring an auditor's knowledge, capability and technical ability to supply non-audit services is negative and insignificant. Since the results indicate that auditors supply non-audit services to their audit clients to recover low-balled audit fees, this provides regulators with empirical evidence to support regulations curtailing the supply of auditor provided non-audit services. In this case, the results have established that auditors supply non-audit services to audit clients for opportunistic reasons. This has

the potential of impairing the auditors' independence - both perceived and actual independence. The result of being dependent of the revenue from non-audit services to recover losses from audit work means auditors may be intimidated to compromise their position on the audit of the financial statements. The other major issue with the joint supply of the audit and non-audit services is self-review threat. While certain services are more prone to self-review threat, the limitations in the disclosure of non-audit fees in Fiji prevent us from analyzing the effect of different types of non-audit services.

As stated earlier, the coefficient on AUDITOR_TYPE is negative and insignificant. Auditor type was measured by a Big 4 and non-Big 4 categorical variable. The negative coefficient on this variable indicates that the Big 4 auditors actually supply less non-audit services to their audit clients. However, this relationship is insignificant as well. The hypothesis in this study was that due to their wide-ranging expertise and availability of personnel the Big 4 auditors would have the capacity and ability to supply more non-audit services compared to the non-Big 4 audit firms. One of the reasons for the opposite result that we get in the regression analysis is that the Big 4 operates on an international scale and employ very high risk management controls and standards. Regardless of the fact that in Fiji there are no restrictions on the joint supply of audit and non-audit services, Big 4 auditors may have internal quality control procedures adopted from their international practice that restricts that supply of non-audit services or different types of non-audit services to their audit clients. The Big 4 may also be concerned about their reputational capital and the perceptions that users may have on their independence from client management when they supply non-audit services.

The coefficient on the variable AUDITOR_TENURE is also negative indicating that the longer the tenure the lower the amount of non-audit services supplied. However, this relationship is also insignificant. The hypothesis presented in this study was that the longer the auditor tenure the higher the amount of non-audit services supplied as the auditor gains a better understanding on the firm and has more knowledge in serving the audit clients need for consultancy. This result could be partly explained by the fact that low-balling of audit fee usually occurs in the first few year of an audit, the audit fee is expected to return to normal levels in later years resulting in less need to supply non-audit services to recover low-balled audit fees. This could mean that in early years of an audit, the auditor would be inclined to supply more non-audit services to recover low-balled audit fee. As the tenure gets longer and audit fees, return to normal levels, thus, there is less need to recover any low-balled audit fees and in such cases, auditors employ greater quality control and risk management guidelines. Since, the supply of non-audit services would create the perception of impaired independence the auditors actually lower the amount supplied to the audit client. The other reason for a negative relationship between tenure and non-audit fees could be due to the natural decline in the supply of non-audit services over the years in our data set.

The descriptive statistics reveal that average non-audit fee rose over the period 1980 to 1996 after which it started to decline steadily. The auditor tenure data, which is only available from 1980, is a continuous variable measuring the actual number of years an auditor has served its audit client as auditor. As tenure increases through the years, non-audit fee starts to decline from 1996 onwards, leading to negative relationship between the two variables. The other variable that is statistically significant in the regression is LNTA. LNTA is the natural log of total assets that is employed to measure client size. It is hypothesized that the larger the size of the audit client, the more non-audit services it will demand and therefore the more the amount of non-audit services that will be supplied. As expected, the coefficient for LNTA is positive indicating that larger clients are supplied significantly higher amounts of non-audit services. The debt to asset ratio employed as a control variable in the non-audit supply model returns a statistically significant positive coefficient. This means that, the higher the debt to assets ratio, the higher the supply of non-audit services to that particular audit client. Highly leveraged firms may need more consulting services to manage their position.

The LIQ variable has a negative coefficient, which is not statistically significant. The negative coefficient indicates that the there is an inverse relationship between the level of liquidity and the amount of non-audit services supplied to an audit client. Firms with low levels of liquidity may require more non-audit services in terms of advice on ways of lowering liquidity, thus, a positive relation was expected. However, it is also contentious how firms with low levels of liquidity fund the purchase of more non-audit services. It is more likely that firms with liquidity problems may not be able to purchase high amounts of non-audit services even though they require more of such services. This may be a plausible explanation for the negative relation.

The coefficient for INVREC is positive and significant. INVREC measures the proportion of assets held in the form of inventory and receivables. The positive relation means that firms with higher levels of inventory and receivables demand for and are supplied more non-audit services. Naturally, firms with high receivables may need consultancy advice on debt collection and management. Firms holding high amounts of inventory may also require more non-audit services related to valuation. The regression results indicate that the coefficient for ROA is positive but not significant. The result means that the return on assets do not statistically affect the amount of non-audit services supplied to an audit client by incumbent auditors. The results are same for SQSEG and SQSUB with both having a positive coefficient but are both statistically insignificant. The square root of number of subsidiaries and the square root of the number of segments are expected to be positively correlated with the amount of non-audit services supplied. Firms with more subsidiaries and segments may have greater need for non-audit services. These firms are also considered more complex, which again drives the need for consultancy advice. The variable FOROPS has a negative coefficient and is statistically significant in determining the value of non-audit services supplied. The variable FOROPS is a categorical variable, which is coded one if the firm has operations in foreign countries.

The results mean that the incumbent auditors supply less non-audit services to firms with foreign operations. In our sample, six firms have operations in foreign countries. One of the firms is owned by an entity based in a foreign country. The rest have operations in other South Pacific island countries and in Australia or New Zealand. The final variable in the model is OPINION. The coefficient for OPINION is positive but statistically insignificant. Only one firm in the sample had received an audit opinion, which was not a clean audit opinion for a number of years due to going concern issues. A firm that receives an audit opinion that is not clean or unqualified can be said to be in operational or financial problems and such firms would be higher consumers of non-audit services. They would need advice and consultancy services to turn around their operations. Thus, a positive relation is expected between audit opinion and non-audit services. Our results show a positive relation but this relation is insignificant.

Further Analysis

Prior studies have employed alternative measures of non-audit services. In accordance with these prior studies, we employ non-audit to total fee ratio and non-audit to audit fee ratio as independent variables and find that the results remain qualitatively similar to that reported in our main analysis. This indicates that our results are not sensitive to different measures of the independent variable. We also employ the alternative measure for auditor tenure. In our main analysis, we had included the actual number of years the current auditor served the client. In the additional analysis, we include a categorical variable to measure tenure. Our results in the additional analysis remain qualitatively similar to that reported in our main analysis.

SUMMARY AND CONCLUDING REMARKS

This study provides empirical evidence on the determinants of the supply of non-audit services. The study reveals that auditors supply non-audit services to recover low-balled audit fees. This has implications for

the independence of the auditors in Fiji. If auditors see non-audit services as a means of recovering low-balled audit fee, they will be inclined to maintain the auditor-client relationship. This may also mean that they would go along with the client and the demands of the client in order to maintain the relationship because if the auditor-client relationship breaks up, the ability to earn fees from non-audit work may also be lost, as most clients would engage their auditor to provide many of the non-audit services. This issue is more problematic in a country such as Fiji with a weak financial reporting environment and a weak legal environment. Given these issues, this study calls for a number of regulatory reforms and interventions. It is recommended that the Companies Act in Fiji be revised to include modern guidelines on auditor independence, enforcement of accounting and auditing standards and corporate governance. It is also recommended that legislators in Fiji consider some form of regulation on the supply of non-audit services by incumbent auditors. These reforms would strengthen the financial reporting regulatory environment in Fiji and improve auditor independence. In addition to the contributions to improving the financial reporting and auditing practices in Fiji this study contributes to the literature on non-audit services and auditor independence. It provides evidence that auditors supply non-audit services for opportunistic reasons, which may have an impact on the independence of the auditor. This study is also the first in examining the supply side of the market for non-audit services. While prior research has extensively modeled the demand side of the market for non-audit services, a supply side focus provides a complete model of the market for non-audit services. In future research, both the sides of the market should be examined together to provide better insights into the market for non-audit services.

There are a number of limitations of this study and the results should be interpreted with these taken into consideration. First, the sample used in this study only consists of companies listed on the SPSE. Second, the sample of companies used in the study is very small. The analysis is performed on data relating to 16 entities only. Third, there are a number of discrete variables used in this study. Auditor type, foreign operations, and audit opinion are all measured using a discrete variable. This creates what is termed as the categorical variables problem in statistics. Finally, it is possible that an important determinant of the supply of non-audit services has not been included in the model. This study would not be complete without providing directions for future research. In this study, the model for the supply side of the market was tested using data from a developing country - Fiji. In order to improve its external validity, this model can be tested using data from different jurisdictions. The non-audit supply model can also be enhanced in future studies to expand our understanding of the determinants of the supply of non-audit services. Another important area that future research should address is a survey of the auditors and legislators on the issue of joint supply of audit and non-audit services. While studies such as this provide some insights into the complex issues surrounding the supply of non-audit services, it is believed that better insights can be gained if the views of both legislators and auditors are well documented.

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BIOGRAPHY

Arvind Patel is a Professor of Accounting at the University of the South Pacific. He has published widely in the area of accounting, auditing, corporate governance and information systems. He can be reached at the University of the South Pacific, Laucala Bay Road, Suva, Fiji, patel_a@usp.ac.fj.

Pranil Prasad is an Assistant lecturer at the University of the South Pacific. He can be reached at the University of the South Pacific, Laucala Bay Road, Suva, Fiji, prasad_pn@usp.ac.fj.

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