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This Issue

This paper investigates the association between goodwill impairment losses and proxies of economic impairment, earnings management incentives and corporate governance mechanisms. The results demonstrate significant associations between proxies of economic impairment and goodwill impairment losses, suggesting that impairment losses in goodwill to some extent reflect economic impairment. Some evidence, however, suggests that impairment losses are associated with earnings management incentives. Corporate governance mechanisms are not found to play a significant role in accounting for impairment losses in goodwill. The empirical results are based on observations from the 288 largest firms listed at the London Stock Exchange over the fiscal years 2005 to 2009.

Prior studies document high persistence of earnings is a desirable earnings' attribute and associated with high value relevance of earnings. Nevertheless, other studies indicate negative earnings components depress persistence of earnings. Depreciation expense constitutes a major negative earnings component for most firms. Larger depreciation could represent higher cost of utilizing resources; however, it could also represent a higher level of capital improvements and conservative accounting choice. We find firms reporting higher depreciation and amortization expense (High DP) outperform other firms (Low DP) in terms of future operating cash flows. Though the persistence of earnings is lower for High DP firms, the stock markets actually place higher valuation weight of their earnings. Our study contributes to research on earnings attributes and the role of accounting information in the stock markets. We identify potential biases of overly reliance on the persistence of earnings to evaluate a firm's performance and to predict the stock market reactions.

This study investigates the practices of earnings management in Jordanian Industrial Corporations (JIC) after the mandatory adoption of the Improvements of the International Accounting Standards (IASs) on 1st January, 2005. The Modified Jones model was used to measure earnings management. The binomial test and Pearson correlation test were used to test the hypotheses. It was discovered that JIC practiced earnings management for the period, 2005-2013, by 50%. It was also discovered that earnings management decreased in the 2008-2010 Financial Crisis that occurred, in JIC. Overall, the results suggest that the improvements to the IASs did not prevent earnings management in these corporations.

This paper analyses the implications of adoption of International Financial Reporting Standards (IFRS) for accounting information quality and tax avoidance. It employs a sample of 119 firms after the implementation of IFRS to test for two related hypotheses. First, IFRS reduces the incidence of tax avoidance as the level of earnings quality increases when firms use internal funding to increase their profitability levels. Building on these results, the second test suggests that the relatively high quality earnings and low incidence of tax avoidance among firms in Ghana is attributed to the adoption of IFRS and the interaction of firm size to equity capital and the strategy of firms in Ghana to finance their operations with debt.

This study investigates and analyzes if auditor performance toward fraud risk assessment can be an indicator for the effectiveness of some of the ISA 220 quality control elements, mainly engagement team experience and direction and supervision. An experiment was conducted with a number of auditors working in audit firms with international affiliations in Egypt. Results suggest that proper auditor experience rather than direction and supervision inside audit firms could have a significant impact on auditor fraud risk assessment. The findings have implications for regulators and the accounting profession concerned with monitoring and promoting audit quality, especially in the Egyptian environment.

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Goodwill Impairment Losses, Economic Impairment, Earnings Management and Corporate Governance

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This paper investigates the association between goodwill impairment losses and proxies of economic impairment, earnings management incentives and corporate governance mechanisms. The results demonstrate significant associations between proxies of economic impairment and goodwill impairment losses, suggesting that impairment losses in goodwill to some extent reflect economic impairment. Some evidence, however, suggests that impairment losses are associated with earnings management incentives. Corporate governance mechanisms are not found to play a significant role in accounting for impairment losses in goodwill. The empirical results are based on observations from the 288 largest firms listed at the London Stock Exchange over the fiscal years 2005 to 2009.

INTRODUCTION

Accounting for Goodwill

Accounting for goodwill is one of the most controversial topics in financial accounting. Generations of accounting academics and standard setters have struggled with the challenge of developing a theoretically consistent accounting method for goodwill (Hudges 1982). In the quest to develop high-quality accounting standards that provide relevant and faithful information for decision making, the US standard setter, FASB (Financial Accounting Standards Board), and the international standard setter, IASB (International Accounting Standards Board), implemented a substantial change in the reporting policy of goodwill some years ago. Amortization of goodwill is no longer permitted. Instead, goodwill shall be tested annually for impairment losses (FASB: ASC 350, IASB: IAS 36).

Impairment losses in goodwill are believed to suffer from significant measurement uncertainty, lack of verifiability and the risk of being opportunistically reported (Elliot and Shaw 1988, Francis, Hanna and Vincent 1996, Alcatore, Dee, Easton and Spear 1998, Riedl 2004, Kvaal 2005, Beatty and Weber 2006, Lapointe-Antunes, Cormier and Magnan 2008, Ramanna 2008, Zang 2008, Ramanna and Watts 2009, Kothari, Ramanna and Skinner 2010). Although significant effort is made to tighten the test procedure for goodwill, the discretionary freedom is still significant. Francis et al. (1996) demonstrate evidence, using pre-SFAS 121 data (Statement of Financial Accounting Standards 121), which supports the notion that impairment losses are associated with proxies of earnings management incentives. They report evidence suggesting that such incentives play a minor role when reporting impairment losses in inventory and property, plant and equipment, but play an important role when reporting other, more discretionary

impairment losses, such as impairment losses in goodwill. More recent evidence reported by Beatty and Weber (2006), Zang (2008) and Ramanna and Watts (2009) suggests that even SFAS 142-impairment losses in goodwill are associated with earnings management. These results question the statement made by the standard setters that the impairment-only method improves the decision usefulness of goodwill compared to the previous amortization method. Rather, these results are in line with arguments made by several commentators that the impairment testing requires significant discretion (Lewis, Lippitt and Mastracchio 2001, Massoud and Raiborn 2003, Watts 2003, Ramanna 2008, Ramanna and Watts 2009).

Purpose and Contribution

The purpose of this study is to investigate the determinants of goodwill impairment losses. The study investigates the associations between impairment losses and proxies of economic impairment, earnings management incentives and corporate governance mechanisms. These impairment losses are faithfully reported if they reflect economic impairment (Francis et al. 1996, Riedl 2004, Ramanna and Watts 2009). The true economic impairment in goodwill is, however, unobservable which makes it necessary to use proxies to investigate whether or not goodwill impairment losses reflect economic impairment. However, as demonstrated in prior studies, these losses are not always faithfully reported (e.g. Francis et al. 1996, Riedl 2004, Ramanna 2008, Zang 2008, Ramanna and Watts 2009). They are found to be associated with proxies of earnings management incentives, which suggest that they are reflecting earnings management rather than economic impairment. Corporate governance mechanisms are believed to be constraining factors of earnings management. These are found to reduce the risk of earnings management even in the presence of earnings management incentives (e.g. Warfield, Wild and Wild 1995, Dechow, Sloan and Sweeney 1996, Xie, Davidson and DaDalt 2003, Ebrahim 2007).

The paper adds to the existing literature in several ways. First, prior studies have to a limited extent investigated the role of corporate governance in accounting for impairment losses. This paper, however, investigates the associations between a broad set of corporate governance proxies, among these board and audit committee characteristics, and goodwill impairment losses. Second, prior studies have generally limited the investigation of remuneration and management change variables to CEO cash-bonus payments and CEO changes. The power to make accounting decisions and the interests in making such decisions may vary among the top management positions. This paper investigates the extent to which COB, CEO and CFO changes and COB, CEO and CFO cash-bonus payments are associated with goodwill impairment losses.

The empirical results of this paper are based on observations from 288 firms listed at the London Stock Exchange. The data are collected over the fiscal years 2005 to 2009. The empirical results suggest that goodwill impairment losses under current IFRS to a large extent are associated with proxies of economic impairment. Firms within industries with negative changes in average return on assets (ROA), firms with lower stock returns and with higher pre-impairment book to market ratios report more and larger impairment losses. Some evidence, however, is found that these losses are associated with proxies of earnings management incentives. Firms with CFOs receiving cash-bonus payments report less and smaller impairment losses in goodwill. This is the case even after controlling for proxies of economic impairment. Firms supposed to have strong smoothing or bathing incentives report more and larger impairment losses. Inconsistent with predictions, however, COB changes are found to be associated with less and smaller impairment losses, not more and larger impairment losses.

Proxies of corporate governance mechanisms are generally insignificantly associated with reported impairment losses. There are some exceptions. Firms with stronger concentration of top management power (COB-CEO duality) report less and smaller impairment losses. There are also indications that firms with more audit committee meetings report more and larger impairment losses, and firms being cross-listed at the New York Stock Exchange or the Nasdaq Stock Exchange report larger impairment losses.

Structure

The paper is structured as follows: The following two sections present prior literature, outlines the hypotheses and present methodological choices. The last two sections discuss empirical results and provide concluding comments.

LITERATURE REVIEW AND HYPOTHESES

Goodwill impairment losses are reported faithfully if they reflect economic impairment. If the reporting of these losses is influenced by earnings management incentives, however, they will be unfaithfully reported. This is the case as long as there are no efficient corporate governance mechanisms that reduce the risk of earnings management. Thus, the degree of faithfulness in reported impairment losses is influenced by (1) the presence of earnings management incentives and (2) the presence of corporate governance mechanisms constraining the earnings management.

Economic Impairment

Goodwill has no separate market value. It is also impossible to separately estimate the current value of goodwill. The true economic impairment in goodwill is, therefore, unobservable. One possible way to uncover economic impairment in goodwill is to employ a set of proxies that are highly positively associated with the true, but unobservable economic impairment. If these economic proxies hold high validity, they will be useful to discriminate faithfully reported impairment losses from unfaithfully reported impairment losses.

The paper makes use of economic proxies at three aggregation levels: the macroeconomic level, the industry level and the firm level. Impairment losses are predicted to be associated with variables of macroeconomic recession, industry performance, firm performance and firm-asset values. A major increase in the unemployment rates is indicative of economic recession. A recession will have a negative impact on the economic performance of most firms within the economy and will probably trigger the reporting of impairment losses in goodwill. Impaired industry performance will affect the economic performance of firms within that particular industry, which increases the probability of impairment losses (Francis et al. 1996, Segal 2003, Riedl 2004). Industry return on assets is employed as measure of industry performance, and measures such as stock returns, changes in total sales, changes in pre-impairment return on assets, changes in operating cash flows and pre-impairment book to market ratios are employed to reflect firm performance and firm asset values (e.g. Francis et al. 1996, Segal 2003, Sellhorn 2004, Riedl 2004, Kvaal 2005).

The probability of more and relatively larger impairment losses is found to increase in the series of previous years' impairment losses (Francis et al. 1996, Riedl 2004). There are at least two explanations of a positive serial correlation between successive impairment losses. If firms experience financial distress for several years, it is likely that they will report successive impairment losses. As new information arrives, prior beliefs and assumptions need to be adjusted which may lead to the recognition of additional impairment losses. An alternative explanation is that impairment losses are systematically understated. It is, therefore, reasonable to expect a positive association between last year's impairment losses and current year's impairment losses. In contrast to the economic proxies discussed above, this proxy may reflect economic fundamentals or earnings management incentives.

Based on the above discussion, the following hypotheses are suggested on associations between proxies of economic impairment and impairment decisions and impairment loss amounts:

TABLE 1
HYPOTHESES – PROXIES OF ECONOMIC IMPAIRMENT

Impairment decision	*Impairment loss amount*
H1a: Changes in unemployment rates are positively associated with impairment decisions (reported impairment amounts).	H1b: Changes in unemployment rates are positively associated with size of impairment losses.
H1c: Changes in industry return on assets are negatively associated with impairment decision.	H1d: Changes in industry return on assets are negatively associated with size of impairment losses.
H1e: Stock returns are negatively associated with impairment decisions.	H1f: Stock returns are negatively associated with size of impairment losses.
H1g: Changes in total sales are negatively associated with impairment decisions.	H1h: Changes in total sales are negatively associated with size of impairment losses.
H1i: Changes in pre-impairment return on assets are negatively associated with impairment decisions.	H1j: Changes in pre-impairment return on assets are negatively associated with size of impairment losses.
H1k: Changes in operating cash flows are negatively associated with impairment decisions.	H1l: Changes in operating cash flows are negatively associated with size of impairment losses.
H1m: Pre-impairment book to market ratios are positively associated with impairment decisions.	H1n: Pre-impairment book to market ratios are positively associated with size of impairment losses.
H1o: Last year's impairment losses in goodwill are positively associated with current year's impairment decisions.	H1p: Last year's impairment losses in goodwill are positively associated with current year's size of impairment losses.

Earnings Management Incentives

Earnings management might become a rational reporting strategy under some specific conditions: (1) the managers have some information advantage compared to the stakeholders, (2) the interests of the managers are not fully in line with the interests of the stakeholders and (3) the managers have some freedom to make accounting choices (Field, Lys and Vincent 2001). Given these conditions, the managers may receive some net benefits from engaging in earnings management.

Contracting is supposed to align the interests of the managers with those of the stakeholders. If the contracts are inefficient due to high information and contracting costs, a paradoxical result may occur. The contracts may not reduce opportunism and agency costs as intended. Rather, they provide incentives to act opportunistically (e.g. Watts and Zimmerman 1978, 1986, 1990, Healy and Wahlen 1999, Dechow and Skinner 2000, Field et al. 2001). If these inefficient contracts are written in terms of accounting numbers, for instance net earnings, there is a risk that these numbers will be manipulated to affect the outcomes of these contracts. Conventional examples are earnings-based compensation contracts and debt covenant contracts where managers engage in earnings management in order to affect the outcomes of these contracts (e.g. Watts and Zimmerman 1978, 1986, 1990).

Managers' Compensation Contracts

Healy (1985), Gaver et al. (1995) and Holthausen et al. (1995) find evidence consistent with managers manipulating earnings towards upper and lower thresholds of cash-bonus payments. Most research on bonus plans is based on a simplified assumption that there exists a linear relationship between earnings and cash-bonus payments. Beatty and Weber (2006), Lapointe-Antunes et al. (2008) and Ramanna and Watts (2009) make use of this assumption when investigating the association between cash-bonus payments and reported impairment losses in goodwill. The results, however, are mixed. Lapointe-Antunes et al. (2008) and Ramanna and Watts (2009) document an insignificant association, while Beatty and Weber (2006) find a significantly negative association.

Previous studies have generally limited the investigation to CEO cash-bonus payments. This paper investigates COB, CEO and CFO cash-bonus payments as explanatory variables of reported goodwill impairment losses. It is reasonable to expect that earnings-based compensation plans provide managers

with incentives to understate impairment losses, which suggests a negative association between cash-bonus payments and reported impairment losses in goodwill.

Income Smoothing and Big Bath Accounting

There are at least two reporting strategies that are associated with accounting for impairment losses: income smoothing and big bath accounting. If pre-impairment earnings are unexpectedly high or low, this may lead to income smoothing or big bath accounting (Zucca and Campbell 1992, Francis et al. 1996, Rees et al. 1996, Massoud and Raiborn 2003, Riedl 2004, Van de Poel, Maijoor and Vanstrealen 2009). Zucca and Campbell (1992) argue that big bath impairment losses are reported in periods in which pre-impairment earnings are already below expected earnings. Managers may undertake a big bath in such periods to improve future earnings and signal that bad times are behind them and better times will follow (Zucca and Campbell 1992, Alciatore et al. 1998).

Income smoothing, however, may occur in periods where pre-impairment earnings are higher than expected. By reporting impairment losses, earnings will be closer to the expected level. Kirshenheiter and Melumad (2002) present a model in which big bath and income smoothing can be seen as part of an equilibrium reporting strategy. A larger earnings surprise reduces the inferred precision of the earnings number and thereby reduces the effect on firm value. This creates a natural incentive for managers to take a bath as a greater negative surprise has a reduced overall effect on the firm value. Moreover, it also provides a rationale for managers to smooth earnings as the reduction in positive earnings surprises leads to greater inferred precision of the reported earnings. In both cases, the reporting behavior maximizes the value of the firm.

Management Changes

The literature has demonstrated that changes in top management are positively associated with impairment losses (Strong and Meyer 1987, Francis et al. 1996, Riedl 2004, Kvaal 2005, Zang 2008). The evidence suggests that the incoming manager has an incentive to take a bath in the year of the change as low earnings may be blamed on the preceding manager. Moreover, the big bath will reduce net earnings and net asset values, which in turn will increase the probability of reporting higher net earnings and improved firm performance in the following years. An alternative argument suggests that the positive association between impairment losses and changes in management reflects economic fundamentals rather than managerial opportunism. The new management may exercise greater scrutiny over existing assets or change the firm's strategic position, trigging the recognition of impairment losses (Wilson 1996, Francis et al. 1996, Riedl 2004).

A final argument suggests that the preceding manager is removed due to poor firm performance. Given the control for proxies of economic impairment, a significant association between management changes and impairment losses may capture the new manager's incentives to take potential charges and attribute them to the preceding manager. Prior research generally investigates the change of CEO only (e.g. Strong and Meyer 1987, Elliot and Shaw 1988, Francis et al. 1996, Cotter et al. 1998, Riedl 2004, Beatty and Weber 1996, Lapointe-Antunes et al. 2008, Zang 2008). This paper, however, investigates changes in the three top management positions: COB, CEO and CFO. For all three positions, there are predicted positive associations between management changes and reported goodwill impairment losses.

Debt Covenant Incentives

The contracting literature considers debt contracts as a potential source of earnings management incentives. As for earnings-based and equity-based compensation contracts, debt contracts will only trigger earnings management if they are inefficient in aligning the interests of managers and shareholders with those of the debt holders. Debt covenant considerations are believed to represent incentives leading to a reporting strategy that seeks to increase earnings and net asset values (Watts and Zimmerman 1978, 1986, 1990, Beneish and Press 1993, Sweeney 1994, DeFond and Jiambalvo 1994, Dichev and Skinner 2002). This suggests that firms that are close to violating debt covenants will have incentives to avoid impairment losses (Kvaal 2005, Zang 2008). In particular, firms with high debt to asset ratios are believed

to be close to violating debt covenants. These firms are predicted to avoid accounting decisions that increase debt to asset ratios, which suggests a negative association between these ratios and reported goodwill impairment losses (Beneish and Press 1993, Sweeney 1994, DeFond and Jimbalvo 1994, Dichev and Skinner 2002, Riedl 2004).

Political Costs and Firm Size

Political cost considerations are another potential candidate triggering earnings management. These incentives stem from the fact that accounting numbers may influence the degree to which firms are subject to regulations that impose political costs on them. This is particularly prominent if the firm is large, has significantly high net earnings, large fluctuations in net earnings or a significant market share, which suggests more political visibility (Watts and Zimmerman 1978, 1986, 1990, Moses 1987, Gupta 1995). These firms are, therefore, predicted to report impairment losses to depress net earnings or reduce large positive changes in net earnings. Proxies based on high levels of net earnings or high fluctuations in net earnings will probably be associated with income smoothing incentives as much as political cost considerations. Moreover, the firm's market share is not readily observable. In this study, firm size is employed as a proxy for political cost considerations. Still, firm size is a crude measure which may proxy for other variables. Any association between firm size and impairment losses must, therefore, be interpreted with caution.

Based on the above discussion, the following hypotheses are suggested on associations between proxies of earnings management incentives and impairment decisions and impairment loss amounts:

TABLE 2
HYPOTHESES – PROXIES OF EARNINGS MANAGEMENT INCENTIVES

Impairment decision	*Impairment loss amount*
H1q: Cash-bonus payments to COB, CEO and CFO are negatively associated with impairment decisions.	H1r: Cash-bonus payments to COB, CEO and CFO are negatively associated with size of impairment losses.
H1s: Big bath accounting incentives (large negative changes in pre-impairment earnings) are negatively associated with impairment decisions.	H1t: Big bath accounting incentives (large negative changes in pre-impairment earnings) are negatively associated with size of impairment losses.
H1u: Income-smoothing incentives (large positive changes in pre-impairment earnings) are positively associated with impairment decisions.	H1v: Income-smoothing incentives (large positive changes in pre-impairment earnings) are positively associated with size of impairment losses.
H1x: Changes in COB, CEO and CFO are positively associated with impairment decisions.	H1y: Changes in COB, CEO and CFO are positively associated with size of impairment losses.
H1z: Debt covenant incentives (debt to asset ratio) are negatively associated with impairment decisions.	H1aa: Debt covenant incentives (debt to asset ratio) are negatively associated with size of impairment losses.
H1ab: Firm size is positively associated with impairment decisions.	H1ac: Firm size is positively associated with size of impairment losses.

Corporate Governance Mechanisms

Impairment accounting choices will probably be affected by corporate governance mechanisms. These mechanisms are instruments that are supposed to reduce the risk of opportunism in principal-agent relationships (Shleifer and Visney 1997). Prior evidence has demonstrated that firms with more efficient corporate governance have higher firm value, higher firm performance and suffer from lower agency costs (Weisbach 1988, Huson, Parrino and Starks 2001, Perry and Shivdasani 2005). A complementary line of literature has demonstrated a negative association between corporate governance mechanisms and earnings management (Warfield et al. 1995, Dechow et al. 1996, Beasley 1996, Chtourou et al. 2001, Klein 2002, Koh 2003, Xie et al. 2003, Peasnell, Pope and Young 2005, Davidson, Goodwin-Stewart and Kent 2005, Mulgrew and Forker 2006, Ebrahim 2007, Koh, LaPlante and Tong 2007). Given efficient corporate governance mechanisms, managers will be more inclined to report accounting numbers

consistent with the firm's economic fundamentals. On the other hand, given incentives to manipulate and inefficient corporate governance mechanisms, managers are more inclined to exploit the reporting discretion and report accounting numbers that misrepresent economic fundamentals.

The literature provides lots of evidence that more and stronger corporate governance mechanisms are associated with less earnings management, less financial fraud and higher earnings and accrual quality (Warfield et al. 1995, Dechow et al. 1996, Beasley 1996, Chtourou et al. 2001, Klein 2002, Koh 2003, Xie et al. 2003, Peasnell et al. 2005, Davidson et al. 2005, Mulgrew and Forker 2006, Ebrahim 2007, Koh et al. 2007). The literature has demonstrated that a number of board characteristics and audit committee characteristics are associated with earnings management. For instance, more board activity and more board independence are found to be associated with less earnings management and higher accrual quality (Lipton and Lorsch 1992, Yermack 1996, Jensen 2000, Chtourou et al. 2001, Xie et al. 2003, Farber 2005, Vafeas 2005, Peasnell et al. 2005, Davidson et al. 2005, Ebrahim 2007, Koh et al. 2007).

In the same vein as for the full board, audit committee activity, independence and expertise are found to be associated with less earnings management and higher accrual quality (e.g. McMullan and Raghunandan 1996, Abbott et al. 2000, Xie et al. 2003, Bedard et al. 2004). Moreover, the size and number of outside blockholders as well as cross-listing on a US stock market are found to affect the risk of earnings management (Dechow et al. 1996, Xie et al. 2003, Lang et al. 2003, Bailey et al. 2006). This suggests that corporate governance mechanisms as reflected by board and audit committee characteristics as well as outside blockholders and cross-listing will play a role when managers make impairment accounting choices. As no estimate of misrepresentation of goodwill impairment losses is employed, there is not stated any formal hypotheses on the associations between corporate governance mechanisms and goodwill impairment losses. Still, investigating the associations between corporate governance proxies and reported impairment losses may indicate whether or not these corporate governance mechanisms play a role in accounting for impairment losses.

RESEARCH DESIGN

Regression Models

There are stated two sets of hypotheses. The first set concerns the decision to report impairment losses, and the second set concerns the size of reported impairment losses. The first set of hypotheses is tested by a logit regression since the dependent variable, the choice to report an impairment loss, is binary. The second set of hypotheses is tested by a tobit regression. This regression is preferable since the dependent variable, the reported impairment loss, is censored at zero while the explanatory variables are unlimited (Maddala 1991).

There might be problems of self-selection. Self-selection bias occurs when observations self-select into discrete groups, for instance a group of impairers and non-impairers. A control for self-selection bias might be performed by employing a two-step Heckman-selection model (Heckman 1979). The first step runs the selection regression with impairment decision as the dependent variable. This regression includes those variables which are predicted to explain the impairment decision. The next step runs a regression with reported impairment losses as dependent variable. This regression includes those variables that are predicted to explain the size of impairment losses.

Recent studies have employed this approach when investigating explanatory variables of impairment losses (e.g. Beatty and Weber 2006, Lys, Vincent and Yehuda 2011). Francis, Lennox and Wang (2010) examined the implementation of the selection models in 58 articles in financial accounting. They found that the selection models were implemented in a rather mechanic way with limited arguments for the choice of variables explaining the selection process. The selection-regression model needs at least one unique variable to explain the selection, that is, the impairment decision.

Strong arguments must be given for why the chosen variables are important determinants of the selection process. When it comes to the impairment decision, no such strong arguments can be found. Rather, it is likely that most, if not all, of the proxies of economic impairment, earnings management incentives and corporate governance are potential candidates explaining the impairment decision and the

size of reported impairment losses. Besides, the choice of which proxies to include and exclude from either of these two regressions, will strongly affect the results (Francis et al. 2010). Based on these arguments, the regressions are run separately. To test the stated hypotheses, the following logit and the tobit regressions are run:

TABLE 3
REGRESSION MODELS

$$\begin{aligned}IMP\_DECISION_{i,t} = {} & \alpha_0 + \alpha_1 \Delta UNEMPLOY_{t,t-1} + \alpha_2 \Delta INDROA_{i,t,t-1} + \alpha_3 RET_{i,t} + \alpha_4 \Delta SALES_{i,t,t-1} + \\ & \alpha_5 \Delta ROA_{i,t,t-1} + \alpha_6 \Delta OCF_{i,t,t-1} + \alpha_7 BM_{i,t} + \alpha_8 HIST_{i,t} + \alpha_9 COB\_BON_{i,t} + \alpha_{10} CEO\_BON_{i,t} + \\ & \alpha_{11} CFO\_BON_{i,t} + \alpha_{12} BATH_{i,t} + \alpha_{13} SMOOTH_{i,t} + \alpha_{14} \Delta COB_{i,t} + \alpha_{15} \Delta CEO_{i,t} + \alpha_{16} \Delta CFO_{i,t} + \alpha_{17} DEBT_{i,t} + \\ & \alpha_{18} \ln SIZE\_MV_{i,t} + \alpha_{19} \ln BOARD\_SIZE_{i,t} + \alpha_{20} \ln BOARD\_MEET_{i,t} + \alpha_{21} NONEXE_{i,t} + \alpha_{22} COB\_CEO_{i,t} + \\ & \alpha_{23} \ln AUDIT\_SIZE_{i,t} + \alpha_{24} \ln AUDIT\_MEET_{i,t} + \alpha_{25} \ln BLOCK\_NUM_{i,t} + \alpha_{26} CROSS_{i,t} + \varepsilon_{1i,t}\end{aligned}$$

$$\begin{aligned}IMP\_AMOUNT_{i,t} = {} & \beta_0 + \beta_1 \Delta UNEMPLOY_{t,t-1} + \beta_2 \Delta INDROA_{i,t,t-1} + \beta_3 RET_{i,t} + \beta_4 \Delta SALES_{i,t,t-1} + \\ & \beta_5 \Delta ROA_{i,t,t-1} + \beta_6 \Delta OCF_{i,t,t-1} + \beta_7 BM_{i,t} + \beta_8 HIST_{i,t} + \beta_9 COB\_BON_{i,t} + \beta_{10} CEO\_BON_{i,t} + \\ & \beta_{11} CFO\_BON_{i,t} + \beta_{12} BATH_{i,t} + \beta_{13} SMOOTH_{i,t} + \beta_{14} \Delta COB_{i,t} + \beta_{15} \Delta CEO_{i,t} + \beta_{16} \Delta CFO_{i,t} + \beta_{17} DEBT_{i,t} + \\ & \beta_{18} \ln SIZE\_MV_{i,t} + \beta_{19} \ln BOARD\_SIZE_{i,t} + \beta_{20} \ln BOARD\_MEET_{i,t} + \alpha_{21} NONEXE_{i,t} + \beta_{22} COB\_CEO_{i,t} + \\ & \beta_{23} \ln AUDIT\_SIZE_{i,t} + \beta_{24} \ln AUDIT\_MEET_{i,t} + \beta_{25} \ln BLOCK\_NUM_{i,t} + \beta_{26} CROSS_{i,t} + \varepsilon_{2i,t}\end{aligned}$$

$IMP\_DECISION_{i,t}$	=	Variable equals 1 if firm *i* reports goodwill impairment losses for period *t*; otherwise 0.
$IMP\_AMOUNT_{i,t}$	=	Reported goodwill impairment losses (positive amounts) of firm *i*, period *t*, scaled by total assets at time *t-1*.
$\Delta UNEMPLOY_{t,t-1}$	=	Percentage average-monthly changes in unemployment rates of UK, from period *t-1* to *t*.
$\Delta INDROA_{i,t,t-1}$	=	Median changes in industry-sector pre-impairment return on assets from period *t-1* to *t* where industry sector is defined according to FTSE codes to which firm *i* belongs.
$RET_{i,t}$	=	Stock returns of firm *i*, period *t*.
$\Delta SALES_{i,t,t-1}$	=	Percentage changes in total sales of firm *i*, from period *t-1* to *t*.
$\Delta ROA_{i,t,t-1}$	=	Changes in pre-impairment return on assets of firm *i*, from period *t-1* to *t*.
$\Delta OCF_{i,t,t-1}$	=	Percentage changes in operating cash flows of firm *i*, from period *t-1* to *t*.
$BM_{i,t}$	=	Pre-impairment book-to-market ratio of firm *i*, time *t*.
$HIST_{i,t}$	=	Variable equals 1 if goodwill impairment losses are reported for firm *i*, period *t-1*; otherwise 0.
$COB\_BON_{i,t}$	=	Cash-bonus payment to COB of firm *i* period *t*, scaled by total cash compensation to COB period *t*.
$CEO\_BON_{i,t}$	=	Cash-bonus payment to CEO of firm *i* period *t*, scaled by total cash compensation to CEO period *t*.
$CFO\_BON_{i,t}$	=	Cash-bonus payment to CFO of firm *i* period *t*, scaled by total cash compensation to CFO period *t*.

$BATH_{i,t}$	=	Changes in pre-impairment earnings of firm *i* from period *t-1* to *t*, scaled by total assets at time *t-1*, when below the median of nonzero negative values of this variable; otherwise 0.
$SMOOTH_{i,t}$	=	Changes in pre-impairment earnings of firm *i* from period *t-1* to *t*, scaled by total assets at time *t-1*, when above the median of nonzero positive values of this variable; otherwise 0.
$\Delta COB_{i,t}$	=	Variable equals 1 if firm *i* changes COB in period *t*; otherwise 0.
$\Delta CEO_{i,t}$	=	Variable equals 1 if firm *i* changes CEO in period *t*; otherwise 0.
$\Delta CFO_{i,t}$	=	Variable equals 1 if firm *i* changes CFO in period *t*; otherwise 0.
$DEBT_{i,t}$	=	Pre-impairment debt to asset ratio of firm *i*, time *t*.
$\ln SIZE\_MV_{i,t}$	=	Natural logarithm of the equity-market value of firm *i*, time *t*.
$\ln BOARD\_SIZE_{i,t}$	=	Natural logarithm of number of board members of firm *i* time *t*.
$\ln BOARD\_MEET_{i,t}$	=	Natural logarithm of number of board meetings of firm *i* time *t*.
$NONEXE_{i,t}$	=	Number of independent non-executive directors, scaled by total number of board members of firm *i* time *t*.
$COB\_CEO_{i,t}$	=	Variable equals 1 if the positions as COB and CEO are hold by the same individual; otherwise 0.
$\ln AUDIT\_SIZE_{i,t}$	=	Natural logarithm of number of audit-committee members of firm *i* time *t*.
$\ln AUDIT\_MEET_{i,t}$	=	Natural logarithm of number of audit-committee meetings of firm *i* time *t*.
$\ln BLOCK\_NUM_{i,t}$	=	Natural logarithm of number of blockholders owning at least 5% of outstanding common stocks of firm *i* time *t*.
$CROSS_{i,t}$	=	Variable equals to 1 if firm *i* is cross-listed on the New York Stock Exchange or the NASDAQ Stock Exchange time *t*; otherwise 0.
$\varepsilon_{m,i,t}$	=	Residual of firm *i*, time *t* in regression *m* where $m \in [1,2]$.

A positive (negative) coefficient from the logit regression suggests that higher values of the explanatory variable will increase (decrease) the probability of goodwill impairment losses. The size of the coefficients is more complicated to interpret as the effect one explanatory variable has on the binary dependent variable is conditional on the values at which the other explanatory variables are held constant. To investigate the impact one explanatory variable has on the binary dependent variable, marginal effects must be calculated, holding the other explanatory variables at fixed, relevant values (Wooldridge 2009). The regression coefficients from the tobit regression, however, can to a large extent be interpreted as ordinary least-square coefficients (Gujarati 2003).

Sample Selection

The sample frame of this study is listed firms on the FTSE-350 index on the London Stock Exchange. Firm-year observations are collected over the fiscal years 2004 to 2009. The chosen time period includes one year of non-IFRS observations (2004) and five years of IFRS observations (2005-2009). The latter period represents the core investigation period.

Three data sources are employed to collect firm-year observations. The basic data source is Thomson Datastream. This database provides data necessary for the sample selection such as data on firm name, calendar year, industry classification, applied accounting principles and whether or not the firm has book goodwill on the balance sheet. The database also provides stock-market data. The second data source is annual reports. All accounting data, remuneration data and data on management changes are hand-

collected from the firms' annual reports. The reports are either downloaded from Northcote annual report service (http://www.northcote.co.uk/) or from the firms' investor information websites. Missing annual reports are requested via e-mail. Accounting data are hand-collected from financial statements, and remuneration data are hand-collected from two distinctive supplementary reports: the director's report and the remuneration report. The third and last data source is the UK National Statistics (http://www.statistics.gov.uk/hub/economy/index.html), which provides data on the macroeconomic variable: changes in unemployment rates.

In order to reach to the final sample of firm-year observations, some additional selection criteria are employed. The first selection criterion concerns book goodwill. Firm-year observations with no book goodwill in any of the years 2004 to 2009 are excluded from the final sample. The second criterion concerns firms classified as banks or insurance companies. These firms have operations that differ substantially from most other firms. Their peculiar nature combined with industry-specific regulations make annual reports of these firms less comparable to annual reports of other firms. This justifies their exclusion from the final sample.

The third criterion concerns the choice of accounting principles. Firms preparing annual reports under different GAAP than IFRS for years other than 2004 are excluded. The fourth criterion concerns firms adopting IFRS prior to the fiscal year 2005. These are classified as early IFRS adopters and will probably have stronger motivation for IFRS implementation than firms forced to adopt IFRS, which suggests that they should be excluded. The fifth criterion concerns access to annual reports. Firms included in the final sample must have available annual reports or at least available financial statements for one of the years 2004 to 2009.

Firms reporting in foreign currency (currency other than British Pounds) are included in the sample. 158 out of a total of 1293 firm years have accounting numbers in different currencies than British Pounds. These numbers are converted to British Pounds at the end of the fiscal years (http://www.oanda.com/currency/converter/). Firms with fiscal years other than calendar years are quite common. Close to half of the sample firms prepare financial statements over periods which differ from the calendar year (49.65%).

The results of the sample-selection process are given in table 4. Panel A reports the effect of the sample-selection process on firm-year observations, whereas panel B reports the effect of this process on the number of unique sample firms. A firm-year observation is excluded if the observation fails to meet one of the above criteria. If the firm-year observation fails to meet several criteria, the excluded firm-year is only counted once. Not meeting several criteria, however, is quite common. 233 firm-year observations (26.91%) failed on one criterion, 482 firm-years (55.66%) on two criteria, 124 firm-years (14.32%) on three criteria, and finally, 27 firm-years (3.12%) failed on four criteria.

A total of 2159 FTSE-350 firm-year observations are available on Thomson Datastream for the period 2004 to 2009. 463 firm-year observations have no book goodwill on the balance sheet and for additional 76 firm-year observations no information is available on book goodwill. These firm-year observations are all excluded. Firms are also excluded if they are classified as banks or insurance companies. This criterion reduces the sample with additional 81 firm-years. The next two criteria concerns firms reporting under different GAAP than IFRS in the years 2005 to 2009 and early voluntary-IFRS adopters. 13 firm-year observations are excluded due to these two additional criteria.

And finally, firms that do not have available annual reports or financial statements reduce the sample with additional 233 firm-year observations. This leaves the final sample at 1293 firm-year observations. The IFRS-period, 2005 to 2009, has 1122 firm-year observations. The number of unique firms has fallen from an initial sample frame of 522 firms for the period 2004 to 2009 to 288 firms in the final sample.

TABLE 4
SAMPLE SELECTION

Panel A – Firm-year observations								
	2004	**2005**	**2006**	**2007**	**2008**	**2009**	**2004-2009**	
	N	**N**	**N**	**N**	**N**	**N**	**N**	**%**
Firm-years for FTSE-350 firms available on Thomson Datastream	359	356	357	361	369	357	2159	100.00
Book goodwill								
Firm years with no book goodwill	86	81	74	67	76	79	463	21.45
Firm years with no available information on book goodwill	10	9	7	11	20	19	76	3.53
Excluded firm-years with no goodwill or no available information	96	90	81	78	96	98	539	24.97
Banks and insurance companies								
Firm years for banks	8	8	8	0	0	0	24	1.11
Firm years for insurance companies	12	13	13	8	6	5	57	2.64
Excluded firm years for firms classified as banks and insurance companies	20	21	21	8	6	5	81	3.75
Different accounting regimes than IFRS								
Firm years with different accounting regimes than IFRS (2005 – 2009)	0	0	1	3	4	3	11	0.51
Excluded firm years for firms following different accounting regimes	0	0	1	3	4	3	11	0.51
Early voluntary-IFRS adopters								
Excluded firm years for firms that have voluntarily adopted IFRS early	2	0	0	0	0	0	2	0.09
Annual reports missing								
Excluded firm years due to missing annual reports or financial statements	70	47	32	33	21	30	233	10.79
Total firm years excluded							866	40.11
Sample of firm year observations	171	198	222	239	242	221	1293	59.89
Panel B – Unique firms								
Firms on FTSE-350 firms available on Thomson Datastream							522	100
Excluded firms							234	4483
Total sample of firms							288	55.17

EMPIRICAL ANALYSIS

Determinants of Goodwill Impairment Losses

Table 5 below presents the results from the logit and tobit regressions run on observations for the fiscal years 2005 to 2009.

TABLE 5
THE DETERMINANTS OF GOODWILL IMPAIRMENT LOSSES

		Impairment decision		Impairment loss amount			
Test variables		EM	Economic and EM	Economic, EM and CG	EM	Economic and EM	Economic, EM and CG
Intercept		-6.402***	-6.902***	-5.0905**	-0.098***	-0.1036***	0.535
		(-4.88)	(-4.22)	(-2.14)	(-3.74)	(-3.68)	(0.95)
$\Delta UNEMPLOY_{i,t,t-1}$	+		6.811	6.437		0.427	-0.107
			(0.20)	(0.19)		(0.79)	(-1.08)
$\Delta INDROA_{i,t,t-1}$	-		-15.83**	-16.45***		-0.114	-0.0031
			(-2.54)	(-2.63)		(-1.17)	(-0.32)
$RET_{i,t}$	-		-1.108***	-1.055***		-0.0217***	-0.0206***
			(-4.04)	(-3.61)		(-3.86)	(-3.57)
$\Delta SALES_{i,t,t-1}$			-0.211	-0.211		-0.0032	0.0685
			(-0.50)	(-0.49)		(-0.34)	(1.24)
$\Delta ROA_{i,t,t-1}$	-		2.813	4.738*		0.0525	0.0685
			(1.00)	(1.66)		(1.01)	(1.24)
$\Delta OCF_{i,t,t-1}$	-		-0.0300	0.0027		-0.0005	1.9910^{-4}
			(-0.38)	(0.03)		(- 0.33)	(0.13)
$BM_{i,t}$	+		0.526***	0.432**		0.0103***	0.0082**
			(2.77)	(2.17)		(2.79)	(2.22)
$HIST_{i,t}$	+		2.077***	2.033***		0.0303***	0.0295***
			(10.08)	(9.15)		(8.37)	(7.99)
$COB\_BON_{i,t}$	-	1.926**	2.483	3.852***	0.0314*	0.0352*	0.0634***
		(1.98)	(1.38)	(2.94)	(1.71)	(1.89)	(3.03)
$CEO\_BON_{i,t}$	-	1.136	1.574	1.188	0.0273	0.0346	0.0372
		(0.87)	(1.02)	(0.75)	(0.99)	(1.24)	(1.29)
$CFO\_BON_{i,t}$	-	-3.464**	-2.714*	-3.460**	-0.0900***	-0.0703**	-0.0826***
		(-2.56)	(-1.66)	(-2.02)	(-3.04)	(-2.36)	(-2.67)
$BATH_{i,t}$	-	-3.263**	-5.350	-6.434*	-0.0601*	-0.1000*	-0.111*
		(-2.27)	(-1.62)	(-1.93)	(-1.94)	(-1.69)	(-1.79)
$SMOOTH_{i,t}$	+	0.243	-0.115	-3.139	0.0263	0.0199	-0.0117
		(0.14)	(-0.04)	(-0.97)	(0.69)	(0.42)	(-0.22)
$\Delta COB_{i,t}$	+	-0.375	-0.653**	-0.788***	-0.0074	-0.0103**	-0.0153***
		(-1.49)	(-2.22)	(-2.58)	(-1.55)	(-2.26)	(-3.20)
$\Delta CEO_{i,t}$	+	0.220	0.140	0.169	0.0056	0.0060	0.0064
		(0.97)	(0.51)	(0.56)	(1.25)	(1.43)	(1.42)
$\Delta CFO_{i,t}$	+	0.181	0.197	0.307	0.0028	0.0020	0.0028
		(0.80)	(0.77)	(1.11)	(0.66)	(0.51)	(0.70)
$DEBT_{i,t}$	-	0.460	0.466	0.422	-0.0001	0.0006	-0.0018
		(1.25)	(1.06)	(0.94)	(-0.02)	(0.08)	(-0.22)
$lnSIZE\_MV_{i,t}$	+	0.250***	0.230***	0.125	0.0038***	0.0032***	0.0010
		(4.04)	(3.26)	(1.09)	(3.08)	(2.83)	(0.53)
$lnBOARD\_SIZE_{i,t}$				0.445			0.0012
				(0.87)			(0.15)
$lnBOARD\_MEET_{i,ti,t}$				-0.280			0.0021
				(-0.88)			(0.38)
$NONEXE_{,ti,t}$				0.0920			0.0106
				(0.10)			(0.63)
$COB\_CEO_{,ti,t}$				-2.192*			-0.0315*
				(-1.67)			(-1.83)
$lnAUDIT\_SIZE_{i,t}$				-0.549			-0.0045
				(-1.17)			(-0.65)
$lnAUDIT\_MEET_{i,t}$				0.844**			0.0154**
				(2.21)			(2.50)
$lnBLOCK\_NUM_{,t}$				-0.133			0.0007
				(-0.68)			(0.20)
$CROSS_{,t}$				0.145			0.0103
				(0.40)			(1.60)
N		1038	1019	924	1038	1019	924
Log-likelihood		-516.3	-431.2	-380.2	156.9	226.4	210.3
Wald Chi2-test		52.19***	175.7***	167.0			
F-value					3.275***	5.075***	4.10***
Pseudo R^2		0.0530	0.195	0.223	-0.306	-0.847	

$IMP\_DECISION_{i,t}$ equals 1 if firm i reports goodwill impairment losses for period t; otherwise 0; $IMP\_AMOUNT_{i,t}$ is reported goodwill impairment losses (a positive amount) of firm i, period t, scaled by total assets at time t-1; COB_BONi,t is cash-bonus payment to COB of firm i period t, scaled by total cash compensation to COB period t; CEO_BONi,t is cash-bonus payment to CEO of firm i period t, scaled by total cash compensation to CEO period t; CFO_BONi,t is cash-bonus payment to CFO of firm i period t, scaled by total cash compensation to CFO period t; BATHi,t is changes in pre-impairment earnings of firm i from period t-1 to t, scaled by total assets at time t-1, when below the median of nonzero negative values of this variable; otherwise 0; SMOOTHi,t is changes in pre-impairment earnings of firm i from period t-1 to t, scaled by total assets at time t-1, when above the median of nonzero positive values of this variable; otherwise 0; ΔCOBi,t equals 1 if firm i changes COB in period t; otherwise 0; ΔCEOi,t equals 1 if firm i changes CEO in period t; otherwise 0; ΔCFOi,t equals 1 if firm i changes CFO in period t; otherwise 0; DEBTi,t is pre-impairment debt to asset ratio of firm i, period t; lnSIZE_MVi,t is natural logarithm of equity-market value of firm i time t; $lnBOARD\_SIZE_{i,t}$ is natural logarithm of number of board members of firm i time t; $lnBOARD\_MEET_{i,t}$ is natural logarithm of number of board meetings of firm i time t; $NONEXE_{i,t}$ is number of independent non-executive directors in firm i time t, scaled by total number of board members of firm i time t; COB_CEO equals 1 if the COB and CEO positions are hold by the same person in firm i, period t; otherwise 0; $lnAUDIT\_SIZE_{i,t}$ is natural logarithm of number of audit-committee members of firm i time t; $lnAUDIT\_MEET_{i,t}$ is natural logarithm of number of audit-committee meetings of firm i time t; $lnBLOCK\_NUM_{i,t}$ is natural logarithm of number of blockholders owning at least 5% of outstanding stocks of firm i time t; $CROSS_{i,t}$ equals 1 if firm i is cross-listed on the New York Stock Exchange or the NASDAQ Stock Exchange time t; otherwise 0. ***, **, * denotes significance at < .01, < .05, and < .10 levels, respectively, for two-tailed tests of regression coefficients. The above regressions are run with continuous variables winsorized at 1^{th} and/or 99^{th} percentile. All standard errors are clustered at firm-year to reduce the impact of heteroscedasticity and time-dependency. The regressions are also run with year-dummies in order to control for systematic differences between years. The coefficients and t-statistics of these year-dummies are not reported.

The above regressions test associations between impairment decisions or impairment amounts and proxies of economic impairment, earnings management incentives and corporate governance mechanisms. Hypotheses are stated for associations between impairment losses (impairment decisions or impairment amounts) and proxies of economic impairment and proxies of earnings management incentives. No explicit hypotheses, however, are stated for associations between impairment losses and proxies of corporate governance mechanisms.

Proxies of Economic Impairment

Economic proxies are included at three aggregation levels: the macroeconomic level, the industry level and the firm level. Only one proxy is included at the macroeconomic level: relative changes in unemployment rates *(*Δ*UNEMPLOY)*. The associations between changes in unemployment rates and impairment losses are insignificant. These results reject hypotheses 1a and 1b that changes in unemployment rates are positively associated with impairment decisions and size of reported impairment losses.

One proxy is also included at the industry level: changes in industry return on assets *(*Δ*INDROA)*. A significantly negative association is found between this proxy and impairment decisions *(IMP_DECISION)*. The associations between this variable and the size of reported impairment losses are, however, insignificant. These results suggest that changes in industry return on assets are negatively associated with impairment decisions, which is consistent with hypothesis 1c, but insignificantly associated with the size of reported impairment losses, which is inconsistent with hypothesis 1d.

Some firm-level proxies are found to be associated with impairment decisions *(IMP_DECISION)* and size of impairment losses *(IMP_AMOUNT)*, others are not. Impairment losses are more likely and generally larger in firms with impaired stock returns *(RET)*. The associations are significantly negative in all regressions. Hypotheses 1e and 1f are, therefore, supported. This suggests that firms with lower stock returns report more and larger impairment losses. Changes in total sales *(*Δ*SALES)* and changes in return

on assets *(ΔROA)* are not found to be significantly associated with impairment losses as predicted in the hypotheses. Hypotheses 1g to 1j should, therefore, be rejected.

Pre-impairment book to market ratios *(BM)* are found to be significantly positively associated with impairment decisions *(IMP_DECISION)* and size of impairment losses *(IMP_AMOUNT)*. This suggests that firms with higher pre-impairment book to market ratios report more and larger impairment losses. Hypotheses 1m and 1n are, therefore, supported. Strong evidence is also found for a positive association between previous year's impairment losses *(HIST)* and the decision to report impairment losses *(IMP_DECISION)* and the size of these impairment losses *(IMP_AMOUNT)*. This suggests that not only the probability of reporting an impairment loss increases when impairment losses are reported the previous year, but also the probability of reporting relatively larger impairment losses. These findings support hypotheses 1o and 1p. All in all, the results in table 5 suggest that reported goodwill impairment losses, at least to some extent, are associated with proxies of economic impairment. These impairment losses are, therefore, not void of information about economic impairment.

Proxies of Earnings Management Incentives

The associations between proxies of earnings management incentives and impairment losses are in some cases insignificant, in others not. The tested incentive proxies can be categorized as remuneration proxies (cash-bonus payments), reporting-strategy proxies (big bath accounting and income smoothing), management change proxies and proxies reflecting debt covenant incentives and political cost considerations.

Proxies for Managers' Compensation Contracts

Table 5 demonstrates some predicted and some unpredicted associations between remuneration proxies and impairment losses. Cash-bonus payments to COB, CEO and CFO *(BON_COB, BON_CEO, BON_CFO)* are predicted to be negatively associated with impairment decisions and size of impairment losses. Consistent with these predictions, CFO cash-bonus payments *(CFO_BON)* are negatively associated with impairment decisions *(IMP_DECISION)* and size of impairment losses *(IMP_AMOUNT)*. The results for COB cash-bonus payments *(COB_BON)*, however, are surprising. These cash-bonus payments are positively associated with impairment decisions and size of impairment losses. The higher the COB cash-bonus payments, the more likely are impairment losses and relatively larger impairment losses. These unpredicted results need more careful examination. COB cash-bonus payments are rather rare. These payments are only found in 105 of 1117 firm-years (9.40%) with available cash-bonus data. In general COBs receive board fees and benefits rather than bonus payments.

This makes it interesting to investigate if there is something peculiar about these cash-bonus payments. A regression is run with COB cash-bonus payments *(COB_BON)* as dependent variable on two explanatory variables on COB characteristics. Since the dependent variable, COB cash-bonus payments *(COB_BON)*, is continuous and censored at zero, a tobit regression is run. COB characteristics are measured by an indicator variable for COB-CEO duality and a variable for COB tenure, which equals the natural logarithm of the number of years the COB has held his current position. Both COB-CEO duality (t-value: 4.27) and COB tenure (t-value: 4.91) are positively associated with COB cash-bonus payments (Not tabulated). This suggests that cash-bonus payments are generally given to COBs that simultaneously hold the position as CEO and to COBs that have held their position as COB for a long period of time.

Cash-bonus payments are expected to be positively associated with conventional performance measures. Stock returns and earnings per share are included as additional variables in the above tobit regression to investigate whether COB cash-bonus payments are explained by these performance measures. The inclusion of these variables have no substantial effect on the positive association between COB cash-bonus payments *(COB_BON)*, COB-CEO duality (t-value: 2.22) and COB tenure (t-value: 2.58) (Not tabulated). Even more striking, these performance measures have no significant positive association with COB cash-bonus payments. The coefficients on stock returns (t-value: 1.21) and pre-impairment earnings per share (t-value: 1.53) are insignificant (Not tabulated). Thus, COB cash-bonus payments cannot be explained by conventional performance measures. Rather, the above results suggest

that these bonus payments are explained by the significant concentration of power on the hands of some COBs. Taken together, hypotheses 1q and 1r are, therefore, supported for CFO cash-bonus payments, but not COB and CEO-cash bonus payments.

Proxies of Income Smoothing and Big Bath Accounting

The associations between reporting-strategy variables *(BATH, SMOOTH)* and impairment losses in goodwill are to a large extent consistent with the predicted associations. Big bath incentives for reporting impairment losses are supposed to be associated with large negative changes in pre-impairment earnings. Consistent with this notion, the big bath proxy is measured as changes in pre-impairment earnings when these changes are below the median of nonzero negative values of that variable and otherwise zero.

Significant negative associations are found between the big bath proxy, impairment decisions and size of reported impairment losses, which is consistent with hypotheses 1s and 1t. This suggests that impairment losses are more likely and generally larger if there are large negative changes in pre-impairment earnings. The associations for the smoothing proxy are, however, insignificant. These last results reject hypotheses 1u and 1v.

Management Changes

Management changes are predicted to be associated with more and larger impairment losses. The results in table 5, however, mainly show evidence inconsistent with these predictions. Prior literature has generally investigated CEO changes rather than changes in other top management positions. CEO changes are predicted to be associated with more and larger impairment losses. No significant results consistent with this prediction are found here. Still, there are some weak indications that CEO changes are associated with larger impairment losses, but the association is not significant at conventional levels. CFO changes are not found to have any association with the reporting of impairment losses. Some surprising evidence, however, is found for COB changes. These changes are found to be associated with less and smaller impairment losses signified by a significant negative association between COB changes and impairment decisions and size of reported impairment losses. Taken together, this suggests that COB, CEO and CFO changes are not positively associated with impairment decisions and size of reported impairment losses which is inconsistent with hypotheses 1x and 1y. Rather, COB changes seem to occur in years with relatively less and smaller impairment losses.

Proxies of Debt Covenants and Political Cost Incentives

Debt covenant incentives measured by pre-impairment debt to asset ratios *(DEBT)* are not found to have any significant association with impairment decisions and size of reported impairment losses. Hypotheses 1z and 1aa are, therefore, rejected. Firm size *(lnSIZE_MV)* has a significantly positive association with impairment decisions and size of reported impairment losses in regressions with proxies of economic impairment and in regressions with proxies of economic impairment along with earnings management incentives. The associations turn insignificant, however, if proxies of corporate governance mechanisms are included. This suggests some weak support that firm size is positively associated with impairment losses which is consistent with hypotheses 1ab and 1ac.

Proxies of Corporate Governance Mechanisms

Corporate governance mechanism are supposed to constrain opportunism (e.g. Warfield et al. 1995, Dechow et al. 1996, Beasley 1996, Chtourou et al. 2001, Klein 2002, Koh 2003, Xie et al. 2003, Peasnell et al. 2005, Mulgrew and Forker 2006, Ebrahim 2007). Efficient corporate governance mechanisms are, therefore, supposed to be associated with less misrepresentation of impairment losses. Most of the proxies of corporate governance have no significant association with impairment decisions and size of impairment losses. This is the case for most of the board characteristics *(lnBOARD_SIZE, lnBOARD_MEET, NONEXE)* and for the blockholder *(lnBLOCK_NUM)* and the cross-listing variables *(CROSS).* There are, however, some significant associations suggesting that corporate governance may play a role in accounting for goodwill impairment losses.

Significant negative associations are found between COB-CEO duality *(COB_CEO)* and goodwill impairment losses. COB-CEO duality represents a considerable concentration of power in the hands of the CEO which may hinder corporate governance mechanisms from constraining opportunism and earnings management. A negative association suggests that firms with COB-CEO duality report less and smaller impairment losses. Significant positive associations are found between audit committee meetings *(lnAUDIT_MEET)* and impairment decisions and size of reported impairment losses. A positive association suggests that firms with more audit committee meetings report more and larger impairment losses.

Limitations and Extensions

A common problem in studies investigating earnings management and corporate governance is endogeneity (e.g. Field et al. 2001, Armstrong et al. 2010). A classic example is whether variables such as management changes reflect earnings management incentives or economic fundamentals. The association between management changes and impairment losses might be driven by the fact that firms that suffer from financial distress make changes in the top management team and report impairment losses. Thus, the positive association between management changes and impairment losses could possibly be explained by economic fundamentals rather than earnings management incentives (Murphy and Zimmerman 1993, Fields et al. 2001). Still, the inclusion of proxies of economic impairment is supposed to provide some control for such endogeneity (Francis et al. 1996, Riedl 2004).

Similar examples of endogeneity problems can be found for corporate governance mechanisms. Firms with strong corporate governance are found to have less earnings management (e.g. Warfield et al. 1995, Dechow et al. 1996, Beasley 1996, Chtourou et al. 2001, Klein 2002, Koh 2003, Xie et al. 2003, Peasnell, et al. 2005, Davidson, Goodwin-Stewart and Kent 2005, Mulgrew and Forker 2006, Ebrahim 2007, Koh, LaPlante and Tong 2007). This might be the result of endogeneity. Firms engaging in less earnings management might choose stronger corporate governance because they have less to conceal (Brickley and Zimmerman 2010). If this is the case, corporate governance structures are not the reason why these firms have less earnings management. One way to mitigate endogeneity problems is to investigate earnings management and corporate governance in more controlled settings, where for instance, incentives for earnings management are supposed to be particularly strong. A related problem is measurement errors in proxies of economic impairment, earnings management incentives and corporate governance mechanisms. Most of the employed proxies are rather crude, which suggests that they may suffer from significant measurement errors (Field et al. 2001).

This paper does not employ any estimates of understated or overstated impairment losses (degree of misrepresentation). A possible extension of this study would be to employ such estimates to investigate the extent to which understated and overstated impairment losses are associated with proxies of earnings management incentives and corporate governance mechanisms.

SUMMARY AND CONCLUSION

This paper investigates the extent to which goodwill impairment losses reported under IFRS are associated with proxies of economic impairment, earnings management incentives and corporate governance. Impairment losses are found to be associated with economic proxies at the industry level and the firm level. Impairment losses are more likely and generally larger in firms operating in industries with negative changes in industry return on assets, in firms with lower stock returns and in firms with higher pre-impairment book to market ratios. There is also a significantly positive association between previous year's impairment losses and current year's impairment losses. Taken together, these findings suggest that goodwill impairment losses, at least to some extent, reflect economic impairment.

The evidence of associations between proxies for earnings management incentives and impairment losses are somewhat weaker. Still, there are associations consistent with predictions between CFO cash-bonus payments and big bath proxies and impairment losses. Firms paying CFO cash-bonus payments are more likely to report less and smaller impairment losses. Firms with large negative changes in pre-

impairment earnings are generally reporting more and larger impairment losses, which is consistent with big bath accounting.

Corporate governance mechanisms are not found to play a significant role in the accounting for impairment losses in goodwill. Still, there are some significant associations between some proxies of corporate governance and reported impairment losses. In firms where the COB and CEO positions are held by the same individual there are generally fewer and smaller impairment losses. There are also some indications that firms with more audit committee meetings report more and larger impairment losses.

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The Unique Effect of Depreciation on Earnings Properties: Persistence and Value Relevance of Earnings

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Prior studies document high persistence of earnings is a desirable earnings' attribute and associated with high value relevance of earnings. Nevertheless, other studies indicate negative earnings components depress persistence of earnings. Depreciation expense constitutes a major negative earnings component for most firms. Larger depreciation could represent higher cost of utilizing resources; however, it could also represent a higher level of capital improvements and conservative accounting choice. We find firms reporting higher depreciation and amortization expense (High DP) outperform other firms (Low DP) in terms of future operating cash flows. Though the persistence of earnings is lower for High DP firms, the stock markets actually place higher valuation weight of their earnings. Our study contributes to research on earnings attributes and the role of accounting information in the stock markets. We identify potential biases of overly reliance on the persistence of earnings to evaluate a firm's performance and to predict the stock market reactions.

INTRODUCTION

The high persistence of earnings has long been viewed as a desirable property of earnings (Lev, 1983; Kormendi and Lipe, 1987; Penman and Zhang, 2002; Francis et al. 2004). Sustainable earnings are generally achieved by effectively lowering the volatility of firms' operations – that is, steady sales growth and effective cost control (Anctil and Chamberlian, 2005). The high persistence also suggests managers' high level of efforts in running firms (Demski, 1998; Tucker and Zarowin, 2006). Sustainable earnings win much favor from financial analysts and investors as they invoke benchmarks to forecast future lifetime earnings or assess permanent earnings. Studies provide evidence that the persistence of earnings positively influences the perceived "quality of earnings" and therefore, the value relevance of earnings (Lev, 1983; Kormendi and Lipe, 1987; Lipe, 1986; Penman and Zhang, 2002; Francis et al. 2004).

Under the premise that the high persistence is a favorable attribute of earnings, researchers contrast the persistence of earnings attributable to cash flows versus to accruals. Sloan (1996) is among the first to document earnings persistence attributable to accruals is lower than that attributable to cash flows. If the market takes the aggregate earnings number as a whole without "seeing" through the lower earnings persistence attributable to accruals, then the market would have over-priced the accruals. Sloan and numerous followers report findings that are consistent with over-pricing of the accruals (termed the accruals anomaly). Many recent papers still debate on the existence and the reasons for the accruals

anomaly (Xie, 2001; Thomas and Zhang, 2002; Fairfield et al., 2003a; Desai et al., 2004; Richardson et al., 2006; Cheng and Thomas, 2006; Dechow and Ge, 2006; Kraft et al., 2006).

Relying on the framework supporting the relation between the persistence and value-relevance of earnings, the accruals 'anomaly' suggests that the market deviates from the framework (a strong claim of this deviation is market inefficiency). The deviation can be viewed from two prospects. First, lower correlation between current period's accruals and future earnings will depress the persistence of earnings. Second, the market places a weight on earnings regardless whether the earnings possess a lower persistence attributable to accruals. Alternatively speaking, the market may have placed a higher weight on earnings with lower earnings persistence. The Mishkin test (1983) employed by Slaon (1996) is consistent with these two prospects. That is, if these two prospects co-exist, the Mishkin test will reject the null of market efficiency. The portfolio test (i.e. relating future return with current accruals portfolio, also employed by Sloan)[1] does not rely on these two prospects. That is, the market can place a valuation weight that is consistent or inconsistent with the earnings persistence attributable to accruals, still, the portfolio test can either reject or fail to reject the null of market efficiency.[2]

Enough has been said about the accruals anomaly, our goal is not to investigate if the market misprices the *depreciation*[3] accruals. Instead, our goal is to evaluate the fundamental issue that serves as the backbone of the 'anomaly' argument of accruals mispricing. That is, the expected effect of earnings persistence on value-relevance of earnings. We ask the following questions: should we expect a lower earnings persistence to depreciation accruals is a good feature from the perspective of firm's underlying performance? Does the market weigh the earnings according to the underlying good feature or the lower earnings persistence? These questions will help us understand if earnings persistence is an 'unconditional' measure of earnings quality, and the potential cause for the market to deviate from the traditional framework of the persistence and value-relevance of earnings. As discussed above, such a deviation may or may not imply market mispricing of accruals (based on the portfolio test), we leave the exploration of mispricing of depreciation to future research.

We focus our investigation on depreciation and amortization (DP) for several reasons. First, it is the single largest item included in accruals (Sloan, 1996; Guay, 2006; Keating and Zimmerman, 2000); second, it behaves distinctly different from the working-capital accruals (we will discuss this in the next section), hence separate consideration of working-capital accruals from depreciation is necessary when studying accruals (earnings) attributes; third, it is related to long-term capital investment that is crucial for firm's lasting survival; fourth, it is affected by managers' accounting choices which may reflect managers' expectation of the payoffs from their investment (Feltham and Ohlson, 1996; Chamber et al., 1999; Keating and Zimmerman, 2000; Bagnoli and Watts, 2005;)

We start our investigation by first identifying firms that have reported relatively high depreciation and amortization (DP) over five-year periods. High DP is related to a high level of investment, a continuing high DP may reflect that firms have been successful in identifying positive NPV (net present value) projects. Depreciation schedule is initially determined when long-term operating assets (LTOA) are put in place. Managers have to estimate the depreciation expense prior to the realization of cash flows generated by the LTOA. Ideally, depreciation should be matched with the economic benefits provided by the LTOA. Hence, high DP may also reflect managers' expectation of high future cash flows generated by the LTOA. Moreover, high DP may come from manager's conservative accounting choice which will depress current earnings but generate expense reserve for the future, or alternatively speaking, will bias current earnings downward but future earnings upward. All of these aspects should have a positive impact on firm value.[4] However, high DP may also represent higher costs of doing business, which will then decrease firm value. If the positive aspects dominate the negative aspect, then we should observe, on average, firms that have been reporting high DP perform better in the market.

We start our investigation by first assessing characteristics for the firms that have been continuously reporting high DP. In evaluating if the High DP firms outperform the Low DP firms, we first compare multiple characteristics between these two types of firms. We find the High DP firms are larger, report higher operating cash flows and higher growth in those operating cash flows as well. The High DP firms have invested more in PPE and continue to invest and they enjoy higher market returns. Accordingly, we

conclude a continuous reporting of high DP is a positive, instead a negative, feature from the perspective of the underlying firm performance.

For each type of firms, we also conduct a univariate analysis of the effect of DP on other accounting measures. We find the depreciation accruals (i.e. negative DP expressed as –DP in our tables) are reliably negatively correlated with current and future three periods' operating cash flows for the High DP firms but not for the Low DP firms. In our multiple regression analysis, we find this negative relationship continues to exist, especially for the High DP firms. This finding suggests that higher depreciation leads to higher future cash flows. Since depreciation is inherently negative, this positive aspect will depress the persistence of earnings more for the High DP firms than for the Low DP firms. Furthermore, we find depreciation accruals have a coefficient close to 1.1 in predicting next period total accruals for the High DP firms; however, this coefficient is much higher for the Low DP firms. Again, the lower persistence of depreciation in predicting future accruals for the High DP firms leads to a lower persistence of earnings for the High DP firms than for the Low DP firms.

To sum, we find relatively high DP has a potential to identify outperformers in the market. High DP firms possess lower earnings persistence; however, the market places a higher valuation weight on their earnings. We conclude that lower earnings persistence attributed to depreciation accruals is not a bad feature from the valuation perspective.

Our paper contributes to the literature from several perspectives. First, we find that lower earnings persistence implies higher earnings quality if the lower persistence is induced by excessively large depreciation. A few studies have already suggested that higher earnings persistence does not necessarily lead to higher earnings quality (Bao and Bao, 2004; Anctil and Chamberlain, 2005; Ghosh, Gu and Jain, 2005), our paper extends this avenue of research by focusing on depreciation.

Second, we find the market sees through (at least partially) the downward bias induced by high depreciation expense. One argument against historical cost accounting in favor of fair value accounting may be that the historical cost accounting provides biased earnings numbers. If the market can see through some of the bias, the claimed adverse economic effect from the historical cost accounting may not be that severe. In contrasting historical cost and fair value methods, the accounting standard setters should consider this 'seeing through' effect under the historical cost accounting of long-term operating accruals.

Third, we find the empirical relation between cash flows and depreciation accrual is distinctly different between the High DP firms and the Low DP firms. In estimating expected accruals, researchers often use cash flows as the benchmark (e.g. Dechow and Dichive, 2002). Assuming the same relation between cash flows and accruals in estimating expected accruals may lead to a biased measure of expected, hence, unexpected (or discretionary) accruals. Ball and Shivakumar (2006) have added controls for timely gain and loss in their discretionary model, our finding may be extended to this school of research.

Lastly and more directly, our finding shows the usefulness of depreciation. While Chamber et al. (1999) show depreciation is more useful than capital expenditure in explaining market return, we go one step further to show several aspects that depreciation can contribute to financial statement analysis.

This paper is structured as follows. Section 2 discusses the background and related literature. Section 3 discusses the sample and variable definitions. Section 4 presents empirical tests and results, and Section 5 concludes the paper.

BACKGROUND & RELATED LITERATURE

Long-Term versus Working-Capital Accruals

In identifying accrual components, working-capital accruals and non-working-capital (or long-term) accruals constitute two major categories. Accrual accounting improves earnings as a performance measure through these accruals. Working capital accruals (WAC) are considered useful by ameliorating transitory changes in operating cash flow (Dechow, 1994). Long-term accruals, such as depreciation and amortization (DP)[5], ameliorate transitory variation in free cash flow, "which occurs because firms'

investment opportunities vary in time or managers manipulate investment timing" (Ball and Shivakumar, 2006, p. 208). While both are useful for reporting earnings, they are distinct from several perspectives.

WAC relates to short-term assets and liabilities; it will revert to operating cash flows within one period. Hence, higher WAC will lead to higher next-period cash flows; accordingly, increasing earnings persistence. DP relates to long-term operating assets that have been or will be in place for a long time, its relation to operating cash flows is not as straightforward as WCA[6]. Higher DP will lead to higher future cash flows only if DP is associated with higher future productivity. Under this scenario, the relation between depreciation accruals (i.e. - DP) and future cash flows will be negative[7] which will depress earnings persistence.

As suggested in Dechow et al.(1998) and Barth et al. (2001), WAC is sales-driven, higher sales will lead to higher accruals. On the other hand, DP is investment-driven; higher investment will lead to lower accruals. If firms grow their investment in long-term operating assets (LTOA), one should expect higher depreciation expense, i.e. lower accruals (-DP)[8]. If the investment has a positive net present value (NPV), one should expect an increase in operating cash flows and sales, accordingly, an increase in working-capital accruals (WAC). Combining –DP and WAC together will lead to the level of accruals that cannot reflect the favorable economic benefits from the investment. Guy (2006) [9] and Guay and Sidhu (2001) advocate that long-term accruals should be evaluated separately from the working-capital accruals. Dechow and Ge (2006) suggest that both signs and magnitudes are important to evaluate accruals, our study echoes their suggestions and aims to provide a better understanding of the effect of inherently negative long-term accruals – depreciation and amortization – on earnings properties (i.e, persistence and value relevance of earnings).

Information Embedded in Depreciation

A number of studies have documented the value-relevance of depreciation. Ball and Brown (1968) and Beaver and Dukes (1972) found that investment portfolios based on earnings after depreciation perform better than portfolios based on earnings before depreciation. Their findings imply that depreciation is relevant in measuring profitability. Many studies on value-relevance of earnings components also show that depreciation is value-relevant (Lipe, 1986; Rayburn, 1986; Ohlson and Penman, 1992; Jennings et al., 1996). These studies do not explain why depreciation should be value-relevant; moreover, they do not investigate the association between depreciation and the future cash flows. Different from these studies, we examine the association between depreciation and multiple performance measures.

Feltham and Ohlson (1996) and Ohlson and Aier (2007) indicate that discretion embedded in depreciation makes it a better indicator than other factors relating to firms investment status. Chamber et al. (1999) provide empirical evidence that if capital expenditure is expensed rather than depreciated, earnings are less value relevant. Their findings imply that the allocation procedure employed in recognizing depreciation, even though not perfect,[10] improves earnings measurement. Chamber et al. (1999) discuss their view of the role of discretion in informativeness of depreciation: "…while many believe that managers use their discretion to choose useful lives and salvage values in a way that reduce the usefulness of earnings, it is also possible that this discretion is used to convey superior information, thus enhancing the usefulness of earnings." (p.172)

Most of these studies focus on the average role of depreciation and do not distinguish firms that report higher depreciation from firms that report lower depreciation. Keating and Zimmerman (2000) find that higher recognized depreciation in current period is associated with an increase in investment opportunity; their finding hints that firms which report high depreciation may outperform firms that report low depreciation. The focus of their paper is to investigate the context that changes in deprecation incur; different from them, we focus on examining directly the valuation role of depreciation. Our analysis starts by contrasting characteristics between firms that report high depreciation (High DP) and firms that report low depreciation (Low DP). Several studies prior to Keating and Zimmerman (2000) also report that level of depreciation, change in depreciation and choice of depreciation method are associated with firm size, leverage, risk, investment opportunity set and bonus plans (Hagerman and Zmijewski, 1979; Skinner,

1993, Bowen et al. 1995). Part of our analysis supplements their findings. We find that High DP and Low DP firms are different from each other in many firm characteristics and that the High DP firms in general possess higher performance measures.

Earnings Persistence and Earnings Quality

Many studies tie earnings persistence with earnings quality and with the value-relevance of earnings (Lev, 1983; Kormendi and Lipe, 1987; Lipe, 1986 ; Cheng, Liu and Schaefer, 1996; Penman and Zhang, 2002; Francis et al. 2004; Tucker and Zarowin, 2006). Only a few studies suggest that earnings persistence is not always a desired feature. Anctil and Chamberlain (2005) suggest that higher persistence does not necessarily imply good earnings quality because the accounting method can induce an excess persistence of earnings. They suggest that depreciation will contribute to this excessive persistence, hence, reducing the quality of earnings. Using market price to surrogate for permanent earnings (as in Shroff, 1999), they find that earnings persistence increases if firms invest in fixed assets after controlling permanent earnings. Ryan (1991) also thinks that depreciation on average will smooth earnings, but Ryan (1991) does not incorporate the dynamics of growth in investment on earnings sustainability. Different from them, we suggest that when depreciation is exceptionally high (might resulting from a high level of investment), earnings persistence will be reduced; however, this reduction will not affect the market to evaluate the company's future performance.

Bao and Bao (2004) also suggest that earnings quality should not be unconditionally related to earnings persistence. They point out that earnings persistence may come from managers' manipulation; in this case, earnings quality is not good. They use the ratio of operation cash flows to accruals to measure earnings quality. They find the market places different weights on earnings that have the same earnings persistence but different quality. Their results suggest that the market evaluates the persistence of earnings conditionally on other information such as earnings quality. Ghosh, Gu and Jain (2005) suggest that when using earnings persistence to measure earnings quality, one should consider the source of earnings persistence. If the source is a positive aspect, such as a continuous increase in sales instead of recognition of lower expenses, then the link between earnings persistence to earnings quality is stronger. They use earnings response coefficient (ERC) to reflect earnings quality.

Our paper uses different research methods and is structured with a focus on depreciation. One major difference is that we do not rely on any single earnings quality measurement but rely on multiple characteristics to reflect the quality of depreciation reported by High DP firms. While we do not intend to investigate if depreciation is mispriced by the market; we would like to mention two mispricing studies that may have some relation to our study. First, Fairfield et al. (2003) suggests that growth in operating assets coupled with adopting conservative accounting reporting – especially at the early stage of assets committed – reduces earnings persistence attributable to accruals. They use change in net operating assets adjusted for cash flows and working-capital accruals to derive their long-term accruals. Their long-term accruals include a net of capital expenditure and depreciation accrual. They find that earnings persistence attributable to long-term accruals is low and suggest that growth is a driving factor for accruals anomaly. Using similar total accrual measures, Richardson et al. (2006) show that growth in long-term operating assets can only explain a portion of accruals mispricing. Our results cannot be compared with these studies because of different accruals measures used in ours and others. We focus on depreciation; which represents a periodic allocation of investment in LTOA. According to Chamber et al. (1999), depreciation better communicates profitability information than capital expenditure does. One way to extend their studies is to explore the effect of depreciation on earnings properties and its implications for a firm's valuation.

DATA & SAMPLE

Financial data is collected from the 2005 Compustat annual database; while stock return data is obtained from the CRSP daily stock returns files. The resulting sample covers all firms-years with available data on Compustat and CRSP for the period 1988-2005. The empirical analyses are restricted to

observations after the release of SFAS 95 in order to derive accruals from the statement of cash flows.11 Earnings are defined as net income before extraordinary items (IB, Compustat #18) and are composed of the following: [12]

CFO (cash flows from operating activities less the accrual portion of extraordinary items and discontinued operations): #308 – #124
WAC (working capital accruals reported from the cash flow statement, i.e. the sum of change in accounts receivable, accounts payable, inventory and tax payable)): – (#302 + #303 +#304 +#305)
– DP (depreciation & amortization): – #14
NSI (negative special items): #17 if #17 is less than 0, otherwise, 0
OAC (other accruals): (IB– CFO) – WAC + DP – NSI

We replace the missing values of NSI with zero. Total accruals are equal to the difference between IB and CFO. Since total asset is affected by conservative reporting and may potentially induce a spurious relationship among the variables under the investigation, all of the accounting variables used in our regression analyses are scaled by current sales.[13] The sample excludes financial services firms (SIC codes between 6000-6999) and also requires sales to be greater than 10 million.[14] Observations in the extreme upper and lower 1 percent of their respective distributions are also removed from the sample. The total number of observations for our basic sample is 32,021.

For our value-relevance test, we use both cumulative annual return and cumulative annual abnormal return as the dependent variables in our regression analysis. Abnormal return is current monthly return subtracts expected monthly return where expected monthly return is derived based on coefficients estimated from a market model regressing 30- to 60-month firm return on market return prior to the fourth month of a fiscal year. Cumulative annual (abnormal) return is monthly (abnormal) return accumulated over the fourth month of a fiscal year to the third month after the end of the fiscal year. For return analysis, our sample reduces to 25,820 for our full model and for abnormal-return analysis, our sample reduces to 19,286 for our full model. We first use flexible samples for our analysis, however, we also conduct robustness check for the most restricted sample.

To identify firms that report excessively high depreciation, we focus on firms that have been reporting high depreciation and amortization (DP) for a continuing five years. Since depreciation is related to long-term investment and the economic benefits from long-term investment may not be reflected in firm performance immediately (or shortly) after the investment, a continuing high DP may reflect firms that have been successful in achieving profits with respect to long-term investment. To identify our high DP sample, we first rank the DP-to-Total-Assets ratio into ten groups for each year and each SIC two-digit industry. We then standardized each rank by dividing it by 9 to get a value of 0 to 1. We then sum up the standardized deciles rankings of DP over a 5-year period (year -4 to 0). We term this measure as the Cumulative Relative DP-to-Total-Assets (CRDPTA) ratio. We assign a value of 1 (0) to a dummy variable termed HDP when this CRDPTA ratio is higher (lower) then its SIC two digits industry median.

EMPIRICAL RESULTS

High DP versus Low DP Firms

To evaluate what type of firms[15] that the HDP identifies, Table A contrasts various variables between the High DP (i.e. HDP=1) and the Low DP (i.e. HDP=0) samples. In our regression analysis, we use sales instead of total assets as our scalar since large DP will decrease total assets significantly and our results may then be driven by the denominator effect. That being said, we still provide some popular ratios that are total assets based. Panel A reports key variables that are used in our regression analysis. The High DP sample has an average of -2% IB (i.e. income before extraordinary items) relative to sales while the Low DP sample has an average of -3% IB relative to sales. The 1% difference can be decomposed to a 3.2%

higher CFO and a 2.2% lower total accruals (TAC) for the High DP sample than the Low DP sample. The lower 2.2% TAC can be further decomposed into a lower 1% WAC, a lower 2.4% –DP (i.e. higher DP) and a higher 1.1% OAC. These statistics show that even though the High DP sample reports higher DP expenses (2.4% higher), the higher operating cash flow (3.2%) prevails over this effect.[16] Both return and abnormal return are significantly higher for the High DP firms than for the Low DP firms. This is not surprising since High DP firms report higher profitability (especially higher operating cash flows). In other words, it seems that the High DP sample represents observations with better firm performance.

Panel B Table 1 further investigates the differences in firm characteristics between High and Low DP samples. The High DP sample has an average of 1.6 billion market value while the Low DP sample has a smaller average of about 1.3 billion. The differences are significant. Similarly, the High DP sample has a larger mean of total assets. Untabulated results also show that the High DP sample has larger sales and a larger turnover ratio (i.e. sales divided by total assets). We contrast market beta and debt-equity ratio. The High DP sample reports higher risk based on these two measures. These results are consistent with the concept that higher risk leads to higher return. Untabulated results also show that the return volatility is higher (but not significantly different) for the High DP firms.

We also report two popular performance measures, one is book-to-market ratio and another one is return on assets (ROA). The High DP sample reports a lower book-to-market ratio. Many aspects affect book to market ratio; lower ratio reflects conservatism (Feltham and Ohlson, 1995), high growth (Fama and French, 1992, 1996), high investment opportunities (Lakonishok et al., 1994; Beaver and Ryan, 2000, 2005; Ahmed et al. 2000; Easton and Pae, 2004) and higher profitability (Lakonishok et al., 1994; LaPorta et al. 1997). The main reason driving the lower book-to-market ratio for the High DP sample is out of the scope of this paper. However, we believe the lower book value affected by higher DP is certainly an important (if not the main) reason. Different from Panel A where we use sales as the scalar, Panel B reports the High DP sample has a lower ROA for which we use beginning total assets as the scalar. Note that the High DP sample contains large firms, it is conceivable that the rate of return will decrease when firms grow larger. A closer examination of the ratio of IB to sales from untabulated results, the High DP sample actually has a lower median. However, the High DP sample still has a higher median for the ratio of CFO to sales. This implies that even though investment will increase cash flows, excessively high DP will depress earnings downward to a point that a higher operating cash flow cannot overcome.

PPEG over total assets (PPEG/TA) is a popular ratio that can be used to indicate the investment level (Keating and Zimmerman, 2000; Luo, 2005; Anctil and Chamberlian, 2005). The High DP sample reports a higher PPEG/TA ratio (0.654 versus 0.359). The High DP sample also reports a younger asset age (PPEAge measured as the gross PPE over accumulated depreciation). The lower PPEAge ratio implies that even though High DP firms are larger; they continue to invest. This observation can also be reflected by a higher ratio of capital expenditure over total assets: The High DP sample reports a 7.2% ratio while the Low DP sample reports only a 5.4% ratio.

In the last few rows of Panel B, we provide growth statistics. It is interesting to see that the growth rates for sales, total assets, gross PPE and capital expenditure are all positive but the High DP sample reports smaller growth rates than the Low DP sample. Recalling that the High DP sample is larger, when the base is larger, the growth rate tends to not sustain. But this does not necessarily mean that the performance of the High DP sample will be lower than the Low DP sample. This can be seen that when we evaluate the growth of IB and CFO, the High DP sample has higher growth rates. On the other hand, DP has a lower growth rate. The lower growth rate in DP may reflect the fact that the High DP sample has recognized an excessive DP in current period that will not persist into the future.

To sum, descriptive statistics in Table 1 depict a picture for the High DP versus the Low DP samples. High DP firms are larger, invest more in long-term assets in the past and continue to invest, generating higher cash flows and higher earnings, and they also perform better in the market than the Low DP firms.

Relation Between DP and Financial Measures – Univariate Analysis

Table 2 reports the correlation for the accounting variables we use including IB and CFO for current period (t) through future three periods (t+1 to t+3), working capital accruals (WAC_t), depreciation accruals ($-DP_t$), negative special items (NSI_t) and other accruals (OAC_t). All correlation coefficients are averaged across years and all accounting variables are scaled by current sales. Panel A reports results for the High DP sample and Panel B reports results for the Low DP sample. Since our goal is evaluating the effect of DP, we will focus our discussion on the relation between -DP and other variables. The upper right corner reports the Pearson correlation, we use **bold** to highlight the correlation coefficients of –DP and other variables. The lower left corner reports the Spearman correlation; we use *italic* to highlight the correlation coefficients of –DP and other variables. We use underline to highlight the inconsistence between the signs of the Pearson and the Spearman coefficients. We take the position that if the signs of the Pearson and Spearman differ, the quality of the raw measure is low.

We will first analyze the correlation coefficients for the High DP sample and then compare the results between samples. Refer to Panel A. Since –DP is a component of IB, it is not surprising to see that the correlation between –DP and IB_t is positive. However, it is interesting to see that the Spearman coefficient is not significant (even though positive). As for the correlation between -DP and future IB (t+1 to t+3), the Spearman coefficients are all negative and tend to increase in magnitude while the Pearson coefficients are all positive and tend to decrease in magnitude from period t+1 to t+3. As to the correlation between -DP and CFO, the Spearman and Pearson coefficients are all significantly negative for all periods. The negative relationship implies higher DP leads to more CFO. As to the relation between -DP and other accruals, both Pearson and Spearman coefficients report a positive relation.

Refer to Panel B, which reports correlation coefficients for the Low DP firms. A few differences between Panel B and Panel A are noticeable. First, we find –DP and CFO is positively correlated based on the Pearson coefficients, this implies more DP will lead to less CFO, a finding that is not consistent with the suggestion that higher investment will generate higher cash flows. However, the Spearman coefficient for the correlation between –DP and CFO_t is still significantly negative. This implies that the DP measure does not have a stable relationship to CFO and is of low quality. Another interesting finding is that the Pearson correlation coefficients between –DP and future CFO's are negative but only the correlation between –DP and CFO_{t+3} are significant. On the other hand, the Spearman coefficients are all significantly negative. One more interesting point is that the coefficients between –DP and IB's are smaller in magnitude while the coefficients between –DP and CFO's are larger in magnitude for the High DP group than for the Low DP group. This contrast implies the importance of DP in predicting future cash flows when firms report relatively high DP. The correlation analysis does not control for impact from other variables, our next section focuses on multiple regression analysis.

Regression Analysis

Total Accruals versus Accruals Components

Table 3 contrasts the effects of total accruals versus accruals components on future cash flows, future total accruals and future earnings. All regression controls the fixed effects from year and SIC two-digits industries. Total number of observations used in the regression is 32,011. In predicting next period cash flows, CFO_t has a coefficient of 0.807 and TAC_t has a coefficient of 0.201. When TAC_t is separated into its components including working capital accruals (WAC_t), depreciation accruals ($-DP_t$), negative special items (NSI_t) and other accruals (OAC_t), both the coefficient on CFO_t and the adjusted R^2 increased. More importantly, we observe a larger coefficient on WAC_t and negative coefficients on $–DP_t$ and NSI_t. This finding is consistent with Barth et al. (2001), Luo (2005) and Dechow and Ge (2006).

In predicting future accruals, CFO_t has a coefficient of 0.086 and TAC_t has a coefficient of 0.310. When TAC_t is separated into its components, the adjusted R^2 increased from 21.8% to 27.8%. However, the coefficient on CFO_t decreases from 0.086 to 0.052. Moreover, the coefficient that has the highest persistence is the one on -DP. Combining the relation between our independent variables to future CFO and future TAC will lead to the relation to future IB. The last column shows that the persistence of IB_t attributed to CFO_t is 0.893 and attributed to TAC_t is only 0.511. This result is consistent with the findings

from Sloan (1996) that accruals persist less than cash flows. When TAC_t is separated into components, the persistence of earnings attributable to CFO_t increased to 0.932 and the persistence of earnings attributable to the components are very different among them. The persistence of earnings attributable to WAC_t is 0.760, to $–DP_t$ is 1.016, to NSI_t is -0.176 and to OAC_t is 0.405.[17] The coefficient for $–DP_t$ is close to 1. This is comforting since most of firms use the straight-line method and if there is no growth, a '1' is the expected coefficient. A coefficient higher than 1 may reflect growth. This average may not apply to all samples, especially, firms reporting High DP are distinctly different from firms reporting Low DP as we have seen in our univariate analysis. To understand how the behavior of depreciation accruals differ between High DP and Low DP firms, we analyze the relation between current DP and four periods (t to t+3) of CFO, TAC and IB in the next section.

Effect of High Depreciation on Cash Flows, Accruals and Earnings

Depreciation represents managers' estimation of cost of consumption of long-term operating assets (LTOA). Ideally, depreciation should be matched perfectly with the economic benefits (e.g. cash flows) that the LTOA provides. Since the long-term depreciation schedule is normally determined when the LTOA is put in place initially, the matching can never be perfect due to uncertainty. The first column of Panel A in Table 4 reports the relation between current accruals components and current cash flows. If DP were successful in matching with CFO,[18] we should observe a negative relationship between –DP and CFO (i.e. higher depreciation leads to higher CFO).[19] However, the opposite is true. Specifically, coefficients on WAC, -DP, NSI and OAC are -0.620, 0.570, 0.710 and -0.067 respectively. Since our focus is on the behavior of depreciation accruals, we add an interaction variable of HDP and -DP in Panel B to assess the effect of high DP-to-Total-Assets on the informativeness of –DP.[20] We find the coefficient of –DP increases to 1.183 and the coefficient on HDP*-DP is significantly negative (-0.860). However, the sum of the coefficients on –DP and HDP*-DP (0.323) is still positive. This result implies that higher depreciation and amortization is associated with lower CFO, not a good matching; however, the mis-matching is smaller in magnitude for the High DP sample, hence, more effective in matching DP with CFO for the High DP sample.[21]

The second, third and fourth columns in Table 4 report results for predicting future CFO's. Since DP is related to current and past investment in LTOA, its impact on CFO can be long term, hence, we provide the relation between accruals to the future three year's CFO. The adjusted R^2 is around 60% in predicting period t+1's CFO, it reduces to around 40% in predicting period t+2's CFO and further reduce to around 27% in predicting period t+3's CFO. The prediction coefficient on CFO_t starts with a value of around 0.88 in predicting $CFO_{t+1,}$ reduces to around 0.78 in predicting CFO_{t+2} and further reduces to around 0.73 in predicting CFO_{t+3}. The signs of the prediction coefficients on all accruals components change from the first column and their magnitudes in general decrease from predicting t+1's COF to t+3's CFO except –DP.[22]

Panel A reports the coefficients on –DP are all significantly negative in predicting future CFO's and the magnitude increases from 0.175 in predicting CFO_{t+2} to 0.343 in predicting CFO_{t+2} and further increases to 0.487 in predicting CFO_{t+3}. Panel B reports negative coefficients on HDP*DP for period 1 and 2 but a positive (not significant) coefficient for period 3. Specifically, the effects of one dollar of DP on future three periods' cash flows for the Low DP sample are 0.130, 0.290 and 0.511 respectively; they are 0.192, 0.362 and 0.478 for the High DP sample respectively. These results suggest that HDP distinguish effects of DP on future cash flows only for two periods (t+1 and t+2). It is likely that the Low DP firms increase their investment and by the third year (t+3), the High DP and Low DP firms converge.

Table 5 extends Table 4 to predicting the total accruals (TAC). The first column focuses on the relation between $–DP_t$ and TAC_t. Panel A reports the coefficient on –DP is 1.484. Since $–DP_t$ is a component of TAC_t, the expected coefficient is 1; a larger than 1 coefficient implies that $–DP_t$ is positively associated with other accrual components.[23] Panel B adds the interaction variable of HDP*-DP_t, we observe that the coefficient on $–DP_t$ in relating to TAC_t becomes 1.782, much larger than 1, and the sum of coefficients on $–DP_t$ and HDP*-DP_t, i.e. for the High DP sample, is 1.363. In predicting future TAC's, the coefficients on $–DP_t$ continue to be high, they are 1.492, 1.821 and 1.481 for predicting period

t+1, t+2 and t+3's TAC respectively. However, the summed coefficients (i.e. effect of –DP for the High DP sample) are stable with a value of 1.079, 1.123 and 1.096 respectively.

To maintain a steady cash flow, DP is expected to persist at 1. Growth in investment will grow DP; on the other hand, higher recognition of DP in current year years will decrease recognition of DP in latter years, hence, decreases the persistence. Table 1 reports that the High DP sample has higher growth in PPEG/TA than the Low DP sample, this implies that DP shall grow more for the High DP sample. However, Table 1 also reports that the growth in DP is smaller for the High DP sample, which may be due to the reason that higher DP base tends to lead to a smaller growth ratio or the reason that higher recognized DP saves recognition of DP in the future.[24] Since we use sales to scale current and future DP in the regression analysis, the finding that the coefficient on -DP is milder for the High DP sample than for the Low DP sample may be mainly due to the reason that higher (lower) recognized DP saves (boost) recognition of DP in the future at least for period t+1 since High DP sample experience no lower growth in capital expenditure in current period.[25]

Table 6 reports results for predicting IB (i.e. earnings = CFO+TAC). Again, the first column reports the association between $–DP_t$ with current IB and the remaining columns report results for predicting the future three periods' IB. Panel A reports the coefficient on $–DP_t$ in predicting IB_t is 2.091. You will recall that Table 5 reports a relation between $–DP_t$ and TAC_t of 1.484, the difference of 0.607 comes from the relation between $–DP_t$ and CFO_t. The first column in Panel B reports that the coefficient on $–DP_t$ is 2.987 (for the Low DP sample) and the summed coefficient is 1.7 (for the High DP sample). Compare this with Table 5 which reveals that for the Low (High) DP sample, out of 2.987(1.7), 1.762(1.363) comes from the relation between $–DP_t$ and TAC_t and 1.225(0.337) comes from the relation between $–DP_t$ and CFO_t. Regardless relating $–DP_t$ to CFO_t or IB_t , these results imply that higher DP leads to lower profitability for the Low DP firm but less lower profitability for the High DP firms.

Similar to Table 4 and Table 5, the adjusted R^2 for predicting period t+1, t+2 and t+3 in Table 6 has a decreasing trend. For predicting CFO (Table 4), the adjusted R^2 reduces about 50% from period t+1 to t+2 and about 40% from period t+2 to t+3. For predicting TAC (Table 5), the adjusted R^2 reduces about 50% from period t+1 to t+2 and about 25% from period t+2 to t+3. Table 6 reports a decrease of about 50% from period t+1 to t+2 and about one third from period t+2 to t+3. This decreasing trend is expected since usefulness of current accounting information decreases through time. The decreasing trend should also be expected for the coefficients. We find in Panel A, all the accruals components have the decreasing trend except NSI. In Panel B, we find $–DP_t$ does not have a straightforward decreasing trend, the coefficient on $–DP_t$ actually increases from predicting period t+1's IB to predicting period t+2's IB (from 1.362 to 1.531) but reduces a great deal for predicting period t+3's IB (from 1.531 to 0.970). However, the summed coefficient (i.e. coefficients on $–DP_t$ and HDP*-DP_t) has a smooth decreasing trend (from 0.888 to 0.761 to 0.617). We do not know why the coefficient on $–DP_t$ increases for predicting period t+2's IB; however, the smooth behavior of $–DP_t$ for the High DP sample gives us comfort of the quality of –DP in predicting future profitability for the High DP sample.

The detailed analysis of the High DP versus the Low DP sample and the association of -DP and other accounting measures lead us to conclude that High DP firms (i.e. firms that have reported relatively high depreciation and amortization to total assets ratio in their industries) have the benefit of higher operating cash flow and higher growth in profitability; yet, their bottom-line earnings may not be high due to excessively high DP. However, they enjoy higher market return. Our next section continues to explore the effect of HDP and $–DP_t$ on market return using various models.

Effect of High Depreciation on Return

Various models and measures have been used to relate earnings and return. Table 7 continues to include year and industry dummies and reports the association between IB_t, IB_t's components: CFO_t and TAC_t, and TAC_t's components. Studies have shown that both the level and change in earnings should be included in evaluating return-earnings relation (e.g. Cheng, Liu and Schaefer, 1996); studies also show that conclusions are similar using either raw or abnormal return (Easton et al., 1992) in evaluating return-earnings relation. Since we focus on DP, which is related to long-term investment that in turn has effects

on risk, we report results for both return and abnormal return.[26] Since the models with level and change variables are more complete, our main results are based on models with both level and change variables included.[27] Table 7 reports the summed coefficients on the level and the change variables.

The dependent variable for the first major column is current raw return and for the second major column is current abnormal return. We report results for three models. The first model has IB_t only, the second model has CFO_t and TAC_t and the third model has CFO_t and the accruals components. As expected, the adjusted R^2 increases when earnings are more disaggregated. Refer to Panel A, all the dependent variables have significant positive coefficients. It is interesting to note that TAC has a higher coefficient than CFO (0.383 versus 0.212 or 0.449 versus 0.420). Recall that Table 3 reports that the persistence of earnings attributed to CFO_t is 0.893 (refer to the fifth column) and to TAC_t is only 0.511. Following Sloan (1996), the higher relation between TAC_t and return is consistent with the market over-pricing the accruals. However, when we evaluate the accruals components, we find the NSI has the highest coefficient in Table 7 (0.933 and 1.140 in Panel A for return and abnormal return respectively) but the earnings persistence attributed to NSI is negative (-0.176, as reported in the last column of Table 3). This is consistent with Dechow and Ge's (2006) finding that the market may have mis-priced special items. On the other hand, -DP has the highest prediction coefficient for IB_{t+1} (1.016), the coefficient on the relation between $-DP_t$ and abnormal return is 0.922, a much closer value. It is interesting to note that the coefficient on $-DP_t$ differs a great deal between regressions using return and abnormal return as the dependent variable (0.278 versus 0.922). The coefficients on CFO also differ (0.278 and 0.479), coefficients on other accruals components do not possess such a difference. These results imply that DP and CFO have a close relation to risk.

Panel B adds an interaction variable of HDP*-DP to every model. For raw return, this variable is only significant for the third model (the model with TAC components). However, it is significant for all models when abnormal return is used as the dependent variable. For the abnormal return, we can see that the market places a weight of 0.607 on $-DP_t$ while $-DP_t$ reports a higher coefficient in predicting IB_{t+1} (1.362 in Panel B Table 6); however, for the High DP firms, the market places a weight of 1.302 while $-DP_t$ reports a lower prediction coefficient (0.888, second column in Panel B Table 6). This can be explained that the market under-value depreciation accruals for the Low DP sample and over-valued depreciation accruals for the High DP sample. However, these results can also be viewed that lower persistence caused by $-DP_t$ is not a bad feature if it is due to excessive high recognition of DP.[28] The main goal of our paper is to show that High DP is useful to identify firms that are of superior performance and that due to higher DP, such firms will experience lower earnings persistence. Accordingly, the lower earnings persistence attributed to DP is not a bad characteristic. To confirm this argument, we predict that the High DP sample should enjoy a higher value-relevance of earnings. Higher value-relevance of earnings does not preclude mis-pricing, however, mis-pricing is out of the scope of our paper.[29]

Our detailed analysis of the High DP and Low DP sample characteristics and the relation between $-DP_t$ and other variables lead us to conclude that the HDP is a good firm aspect regardless of its potential effect on lower earnings and lower persistence of depreciation accruals. Our next section evaluates how the HDP affects the persistence and value-relevance of earnings.

Effect of High Depreciation on the Persistence and Value-Relevance of Earnings

Our results so far show that earnings persistence attributed to $-DP_t$ is less for the High DP sample; this will depress earnings persistence for the High DP sample. On the other hand, we have also shown that the High DP firms perform better in many aspects than the Low DP firms. We predict that the market shall place a higher valuation weight on earnings for the High DP firms. This prediction can be viewed from at least one perspective. Since the High DP firms reports higher DP that may bias earnings downward; accordingly, the market shall place a higher valuation weight on the biased-downward earnings even if the future profitability is similar between the High DP and the Low DP samples. Table 8 documents the effect of HDP on the persistence of earnings and the value-relevance of earnings.

Panel A reports the effect of HDP on IB in predicting next period IB (i.e. earnings persistence), current period return and abnormal return (i.e. value-relevance of earnings). The second column reports

that earnings persistence is -0.164 (the coefficient on HDP*IB) lower for the High DP firms. However, the value relevance of IB, as reflected by the sum of the coefficients on HDP*IB and HDP*ΔIB, is higher (0.163 and 0.189 when return and abnormal return are used as dependent variables respectively). Since High DP has different firm characteristics from Low DP firms, we also add various controls to check if the effect of High DP can be driven away by these characteristics. Panel B reports the results. For simplicity, we only report results for raw return; our results using abnormal return as the dependent variable are similar. The last column in Panel B shows that HDP has a positive effect on the relation between earnings and return even after the control of high sales growth, capital expenditure, beta, size and age of PPE.[30]

Robustness Tests and Additional Analysis

Fama-MacBeth Statistics

Cross-sectional correlation can inflate the t-statistics in pooled regression. Hence, we also conduct annual regression analysis and assess the significance of the Fama-MacBeth t-statistics (Fama and Macbeth, 1973). Panel A Table 9 reports results for the effect of HDP on the persistence and value-relevance of earnings. Comparing with Table 8, Table 9 reports lower adjusted R^2 when the dependent variable is IB_{t+1} and $Return_t$; however, the adjusted R^2 increases from 6.61% to 7.9% when the dependent variable is abnormal return. The magnitude of the coefficients tends to be larger. Most importantly, we continue find that High DP firms report a lower persistence of IB; however, the market places a higher valuation weight upon them.

Ignore Industry Dummies

Studies often ignore control for industry dummies. For comparison reasons, we provide results without industry dummies. Panel B reports results. Comparing Panel B and Panel A, the magnitudes of the coefficients are very similar. However, Panel B reports lower adjusted R^2, especially for the valuation models. The adjusted R^2 when IB_{t+1} is the dependent variable reduced from 50.2% to 48.7% (about 3% reduction). However, when return or abnormal return are used as the dependent variable, the adjusted R^2 is reduced about 50% (from about 8% to about 4%). These results reflect that average return is very different across industries. However, our fundamental conclusion is not affected by including or excluding the industry control.

Using Different Scalars

For our main regression analysis, we use sales as the scalar since its value (in principle) will not be affected by accounting methods. We also use per share basis in our cash flows and earnings prediction regression, we find the signs are similar to our main analysis but the t-statistics are often low due to large standard deviations of the independent variables. We also use beginning price as the scalar. Price may not be a good scalar since it may be affected by the degree of market efficiency. Panel C provides partial results. We still find that the High DP firms experience a lower persistence of IB (-0.093); however, the market places a higher valuation weight on them (0.063, significant only at 10% level one-tailed test). Earnings persistence attributable to –DP is less for the High DP firms (-0.155); however, the market places a higher valuation weight on –DP (0.861). When we use Fama-MacBeth statistics, results are similar for the earnings prediction equation but the value-relevance equations do not report significant coefficients. Since many factors may affect market behavior, the insignificance may be due to the instability across time.

Other Tests

We control for the scalar effect by adding a one over the scalar; our results do not change. We also run regression analysis for the High DP sample and Low DP sample separately. Our main conclusions remain.

CONCLUDING REMARKS

In assessing the behavior of accruals, literature focuses on either working capital accruals or total accruals and often assumes the behavior of working capital accruals applies to long-term accruals. Depreciation (and amortization) constitutes a major item of accruals for many firms. Its economic source is distinctly different from working capital accruals and should be evaluated separately from the working capital accruals. When firms grow investment, the sales will also grow. Accordingly, the long-term accrual will be smaller (due to large depreciation) but the working capital accruals shall be higher (due to increase in sales). In predicting future cash flows and earnings, these two types of accruals shall have different impacts if firms grow their investment. Especially, we expect that larger depreciation will depress earnings and earnings persistence; however, if the larger depreciation reflects superior underlying performance, value-relevance on earnings should be higher.

We design our study by first identifying two groups of firms, one group reports relatively high depreciation for five years (the High DP sample) and the other group reports the opposite (the Low DP sample). We contrast multiple performance measures and firm characteristics and find that the High DP firms are outperformers. We then assess if depreciation is related with higher future cash flows for the High DP firms. This positive aspect actually depresses earnings persistence. We further assess if depreciation persists lower in predicting future accruals for the High DP sample, we find this is the case. Again, the lower persistence depresses earnings persistence. Even though the High DP firms experience significantly lower earnings persistence, the market actually assigns a higher valuation weight on the earnings.

This paper identifies a case that lower earnings persistence or lower earnings persistence attributable to accruals is not necessarily a bad feature. Our methodology and findings may have implications for other accruals components. Assessing accruals quality has been a very important topic in recent research; an understanding of accruals properties will advance our research on this area.

ENDNOTES

1. The portfolio test has gained its popularity in recent mis-pricing literature (Desai et al.2004; Cheng and Thomas, 2006; Dechow and Ge, 2006)
2. In evaluating different models for measuring discretionary accruals, Xie (2001) report the Mishkin test and the portfolio tests are not always consistent.
3. We focus on depreciation and amortization (DP); we use depreciation as a general term.
4. Conservatism has been a desired feature for efficient contracting (Watts 2003a,b; Gigler and Hemmer, 2001; Chen, Hemmer and Zhang, 2007; Antle and Lambert, 1988; Kwon, Newman and Suh, 2001;Demski and Sappinton, 1990). Contracting theory implies that value of firms adopting conservative accounting reporting should be higher because conservatism enhances liquidation value and mitigates agency problems. Even if firm value is not affected by conservative accounting choice, one dollar of earnings should be valued more at the stage when earnings are biased downward.
5. There are other long-term accruals such as write-downs and deferred tax accruals; we focus our discussion on depreciation and amortization. In our empirical analysis, we will add other long-term accruals as control variables.
6. Dechow, Kothari and Watt (1998) provide a sales-driven working capital accrual process and illustrate how working capital accruals should relate to future cash flows. Barth, Cram and Nelson (2001) and Luo (2005) empirically document working capital accruals and long-term accruals (i.e., DP) possess differential weights in predicting future cash flows, but they are most silent on why such as relationship exist. From a theoretical point of view, DP as accounting cost allocation procedure should not relate to future cash flows, there should be no causal relationship between DP and future cash flows. On the other hand, if DP reflects future investment level or asset base, then it is reasonable to assume such a relationship can be observed. Several studies provide evidence that DP contain information regarding firms' investment prospects (Feltham and Ohlson, 1996; Ohlson and Aier, 2007; Chamber, Jennings and Thompson, 1999; Keating and Zimmerman, 2000).

7. Barth, Cram and Nelson (2001) find that depreciation (as expense) is positively correlated with future cash flows. In other words, depreciation accrual is negatively correlated with future cash flows.
8. Depreciation and amortization expenses reduce earnings, or alternatively speaking, it decreases accruals. In our paper, we use DP to represent the expenses and –DP to represent the accruals.
9. Guay (2006) mention "…the modeling of working capital accruals has received the most attention in the literature and, as a result, working capital accruals are better understood than long-term accruals. More accurate models of long-term accruals will likely improve the overall modeling of the accrual process…" (p.254).
10. Dutta and Reichelstein, 2002 term this perfect matching as "relative benefit depreciation" and report "A necessary condition for the relative benefit depreciation rule to coincide with straight line depreciation is that the project cash flows are declining over time…" (p.279). Even this condition is satisfied; it is very difficult to achieve the perfect matching in reality if not impossible.
11. Hribar and Collins (2002) suggest that cash flows and accruals generated from the statement of cash flows are more accurate. In contrast, cash flows and accruals derived from balance sheet are subject to errors during the process of divesture, merger & acquisition or foreign currency exchange.
12. We express depreciation and amortization (-DP) as negative accruals in this study, contrasting to Barth et al. (2001) who display DepAmort as positive expense. Hence, we need to put an opposite sign on the coefficients from regression when comparing our results with Barth et al.
13. We also use per share measure for some of our regressions, the results are more unstable; however, in general they agree with our key conclusions.
14. This is similar to Barth et al. (2001).
15. We group our firm year observations into High DP and Low DP samples. When we say High DP firms, we mean firms that have reported high DP for the previous five years at a specific year. The same firm can be categorized into Low DP firms in a different year.
16. Especially interesting is the significantly higher WAC and highly negative OAC for the Low DP sample. Higher WAC may be due to higher sales growth for the Low DP sample (as reported in Panel B). However, we cannot explain why the Low DP sample has highly negative OAC. This may deserve future research.
17. If we use the persistence coefficient to assess the quality of accruals, we will conclude that, on average, –DP has the highest quality and NSI has the lowest quality. The focus of our paper is not to contrast the quality of accruals components; however, our results may shed light on this issue.
18. CFO is supposed to be cash flows from operating, however, the current US GAAP is rather broad in defining 'operating activities'. For example, interest revenues/expenses are included in CFO. This may also obscure the matching relationship between DP and CFO.
19. Recall that the univariate analysis reported in Table 2, the relation between –DP and CFO is significantly negative for High DP sample but not for the Low DP sample.
20. We can add an interaction variable of HDP to all accounting variables, however, for simplicity, we only add the interaction variable for –DP. In the robustness check, we have conducted regression analysis for High DP and Low DP samples separately and our conclusions on -DP remain.
21. Note that the regression analysis controls for industry and year effects, the coefficient on –DP cannot be strictly used to assess effectiveness of matching, however, we can use the interaction variable (i.e. HDP*-DP) to assess matching effectiveness for the High DP sample relative to the Low DP sample.
22. It is interesting to see that the coefficient on WAC increases a bit in period t+2 but decreases a great deal in period t+3.
23. Table 2 reports that all accruals components are positively correlated.
24. Untabulated results report that High DP sample contains more firm observations that use accelerated accounting methods.
25. Recall that the High DP sample reports a higher mean of Capital Expenditure/TA, however, when we use Capital Expenditure/SA, the High DP sample experience a lower mean but a higher median.
26. Our abnormal return is market-model adjusted return. We also use market and size-adjusted return, results are similar but the coefficients on $-DP_t$ using these measures as the dependent variable are less different from the coefficient on $-DP_t$ using raw return as the dependent variable. These results may imply that using market return or size portfolio return as the expected return is not as precise as using the market-model coefficients to measure the expected return, especially if DP is highly related to risk.
27. We also use level only or change only variables, our main conclusion remains.

28. As discussed before that DP represents costs of using the LTOA, higher DP means higher costs (expenses) and less profit. In this regard, higher DP is not a good feature. However, if higher DP is higher than the real cost (which is hard to measure) of using LTOA, this excessiveness decreases current earnings but will increase future earnings. In this regard, higher DP is not a bad feature.
29. A crude analysis show that the market may have mis-priced the depreciation accruals, however, the degree of mispricing seems to be less for the High DP sample. We leave this to future research.
30. To be consistent with the HDP measure, we also use 0 and 1 to measure relatively low and high characteristics for each observation.

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TABLE 1
DESCRIPTIVE STATISTICS

	High DP Sample		Low DP Sample		Differences	
	Mean	Std	Mean	Std	Mean	
Panel A: Distribution of Key Variables Used in Regression						
IB_t/SA	-0.020	0.259	-0.030	0.378	0.010	***
CFO_t/SA	0.062	0.218	0.030	0.300	0.032	***
TAC_t/SA	-0.082	0.180	-0.060	0.243	-0.022	***
WAC_t/SA	0.011	0.084	0.021	0.134	-0.010	***
$-DP_t/SA$	-0.070	0.078	-0.046	0.065	-0.024	***
$-WDown_t/SA$	-0.018	0.057	-0.019	0.068	0.001	***
OAC_t/SA	-0.005	0.121	-0.016	0.172	0.011	***
Return	0.169	0.587	0.152	0.633	0.017	**
Abnormal Return	0.030	0.637	-0.013	0.615	0.043	***
Panel B: Distribution of Firm Characteristics and Growth Variables						
Market Value (in billions)	1.618	16.706	1.296	8.995	0.322	***
Total Assets (in billions)	1.386	6.693	1.083	4.159	0.303	*
Market Beta	1.070	0.781	1.038	0.770	0.032	***
Debt/Equity	0.532	0.276	0.484	0.264	0.048	***
Book-to-Market	0.623	0.824	0.653	0.774	-0.030	**
ROA ($=IB_t/TA_{t-1}$)	0.007	0.205	0.020	0.250	-0.013	***
PPEG/TA	0.654	0.376	0.395	0.324	0.259	***
PPEAge (=PPEG/Accumulated Dep)	2.426	1.514	3.396	2.878	-0.970	***
Capital Expenditure/TA	0.072	0.062	0.054	0.059	0.018	***
Growth in Sales	0.093	0.247	0.140	0.359	-0.047	***
Growth in Total Assets	0.068	0.322	0.133	0.435	-0.064	***
Growth in PPEG	0.077	0.296	0.167	0.466	-0.090	***
Growth in Capital Exp	0.258	1.168	0.432	1.531	-0.174	***
Growth in IB_{t+1}	0.045	3.543	-0.001	3.535	0.046	***
Growth in CFO_{t+1}	0.489	3.555	0.419	4.152	0.071	*
Growth in DP_{t+1}	0.076	0.393	0.223	0.625	-0.147	***

High DP (Low DP samples) contain firm year observations that have reported a relative large (small) depreciation and amortization in its SIC2 industry continuously for five years (include current year). For our basic sample (accounting information only), the High (Low) DP sample has a sample size of 16277 (15744). For return-restricted sample, the sample size is reduced to 15239 (14587). For abnormal return-restricted sample, the sample size is further reduced to 13125 (9362). PPEG is gross PPE.

TABLE 2
CORRELATION ANALYSIS

Panel A: High DP Sample

	IBt	IB_{t+1}	IB_{t+2}	IB_{t+3}	CFO_t	CFO_{t+1}	CFO_{t+2}	CFO_{t+3}	WAC_t	$-DP_t$	NSI_t	OAC_t
IB_t/SA_t		0.626	0.362	0.358	0.672	0.554	0.335	0.312	0.131	**0.244**	0.423	0.310
IB_{t+1}/SA_t	0.668		0.535	0.371	0.550	0.652	0.441	0.372	0.020#	**0.170**	0.134	0.080#
IB_{t+2}/SA_t	0.521	0.677		0.376	0.337	0.430	0.604	0.431	0.039	**0.094**	0.075	-0.005#
IB_{t+3}/SA_t	0.465	0.533	0.675		0.286	0.333	0.325	0.486	0.043	**0.105**	0.073	0.058#
CFO_t/SA_t	0.619	0.528	0.436	0.388		0.718	0.511	0.464	-0.252	**-0.191**	0.166	-0.131
CFO_{t+1}/SA_t	0.532	0.653	0.543	0.457	0.660		0.639	0.538	-0.009#	**-0.239**	0.094	-0.026#
CFO_{t+2}/SA_t	0.490	0.564	0.662	0.551	0.603	0.687		0.654	0.020#	**-0.269**	0.066	-0.106
CFO_{t+3}/SA_t	0.473	0.527	0.583	0.666	0.573	0.640	0.711		0.004#	**-0.264**	0.037	-0.045#
WAC_t/SA_t	0.178	0.067	0.034	0.026	-0.292	0.018#	0.009#	0.012#		**0.038**	0.103	-0.095
$-DP_t/SA_t$	*0.032#*	*-0.017#*	*-0.053*	*-0.063*	*-0.338*	*-0.331*	*-0.334*	*-0.321*	*0.046*		**0.129**	**0.076**
NSI_t/SA_t	0.367	0.153	0.111	0.108	0.137	0.091	0.089	0.082	0.108	*0.107*		-0.095
OAC_t/SA_t	-0.039	-0.030	-0.031	-0.025	-0.167	-0.115	-0.114	-0.100	-0.139	*0.091*	-0.213	

High DP sample contains firm year observations that have reported a relative large depreciation and amortization in its two-digit SIC industry continuously for five years (include current year).
All coefficients are significant at 5% level, except # indicates not significant.
Left lower corner of Panel B reports average Spearman correlation coefficients, upper right corner reports average Pearson correlation coefficients. Underline indicates inconsistent sign between Spearman and Pearson coefficients.
CFO_T (where T=t,t+1 ...t+3) is cash flows from operation ((#308 - #124) for period T. IB_T (where T=t,t+1 ...t+3) is income before extraordinary item (#18) for period T. WAC_t is working capital accruals: – (#302 + #303 + #304 + #305). $-DP_t$ is negative depreciation and amortization (#14).
NSI_t is negative special items (#17), it equals zero when special item is positive. OAC_t is other accruals = (IB-CFO)-WAC+DP-NSI .
Note that all accounting variables are scaled by current sales (SA_t)

TABLE 2
CORRELATION ANALYSIS (CONT.)

Panel B: Low DP Sample

	IBt	IB_{t+1}	IB_{t+2}	IB_{t+3}	CFO_t	CFO_{t+1}	CFO_{t+2}	CFO_{t+3}	WAC_t	$-DP_t$	NSI_t	OAC_t
IB_t/SA_t		0.703	0.484	0.385	0.691	0.612	0.485	0.396	0.155	**0.335**	0.387	0.370
IB_{t+1}/SA_t	0.700		0.666	0.494	0.597	0.735	0.624	0.531	0.068	**0.292**	0.156	0.172
IB_{t+2}/SA_t	0.539	0.697		0.625	0.422	0.532	0.606	0.511	0.024#	**0.228**	0.103	0.112
IB_{t+3}/SA_t	0.461	0.545	0.692		0.343	0.416	0.497	0.596	0.006#	**0.157**	0.094	0.072
CFO_t/SA_t	0.601	0.531	0.441	0.392		0.718	0.573	0.504	-0.294	**0.027**#	0.161	-0.057#
CFO_{t+1}/SA_t	0.529	0.630	0.543	0.461	0.632		0.749	0.627	0.006#	**-0.007**#	0.106	-0.002#
CFO_{t+2}/SA_t	0.486	0.552	0.629	0.548	0.558	0.641		0.753	0.029#	**-0.059**#	0.070	0.005#
CFO_{t+3}/SA_t	0.451	0.512	0.553	0.631	0.514	0.567	0.638		-0.010#	**-0.109**	0.054	-0.014#
WAC_t/SA_t	0.164	0.049	0.001#	0.004#	-0.380	-0.049	-0.027!	-0.027!		**0.081**	0.085	-0.120
$-DP_t/SA_t$	*0.040*#	*0.013*#	*-0.019*#	*-0.053*	*-0.228*	*-0.233*	*-0.251*	*-0.260*	*0.068*		**0.167**	**0.105**
NSI_t/SA_t	0.312	0.145	0.103	0.083	0.089	0.052	0.044	0.052	0.090	*0.135*		-0.076
OAC_t/SA_t	0.010#	0.008#	0.026#	0.012#	-0.140	-0.094	-0.075	-0.074	-0.129	*0.114*	-0.193	

Low DP sample contains firm year observations that have reported a relatively small depreciation and amortization in its 2-digit SIC industry continuously for five years (include current year).

All coefficients are significant at 5% level, except # indicates not significant, ! Indicates significant at 10% level.

Left lower corner of Panel B reports average Spearman correlation coefficients, upper right corner reports average Pearson correlation coefficients. Underline indicates inconsistent sign between Spearman and Pearson coefficients.

CFO_T (where T=t,t+1 ...t+3) is cash flows from operation ((#308 - #124) for period T. IB_T (where T=t,t+1 ...t+3) is income before extraordinary item (#18) for period T. WAC_t is working capital accruals: – (#302 + #303 + #304 + #305). $-DP_t$ is negative depreciation and amortization (#14).

NSI_t is negative special items (#17), it equals zero when special item is positive. OAC_t is other accruals = (IB-CFO)-WAC+DP-NSI .

Note that all accounting variables are scaled by current sales (SA_t)

TABLE 3
RELATION TO FUTURE CASH FLOWS, ACCRUALS AND EARNINGS – AGGREGATE VERSUS ACCRUAL COMPONENTS

Panel A: Pooled Analysis with Industry and Year Dummies

	Predicting CFO_{t+1}		Predicting TAC_{t+1}		Predicting $Earnings_{t+1}$	
Adjusted R^2	57.5%	60.5%	21.8%	27.8%	55.53%	58.08%
CFO_t	0.807 ***	0.880 ***	0.086 ***	0.052 ***	0.893 ***	0.932 ***
TAC_t	0.201 ***		0.310 ***		0.511 ***	
WAC_t		0.595 ***		0.154 ***		0.750 ***
$-DP_t$		-0.175 ***		1.191 ***		1.016 ***
NSI_t		-0.197 ***		0.021		-0.176 ***
OAC_t		0.167 ***		0.238 ***		0.405 ***

An intercept and 65 industry intercept dummies added into the regression, however we do not report them. ***1% significance two tails; **5% significance two tails; *10% significance two tails; !10% significance one-tail.

TABLE 4
RELATION TO CASH FLOWS – CURRENT AND FUTURE THREE PERIODS

Panel A: Without Control for High DP Observations								
	CFO_t		CFO_{t+1}		CFO_{t+2}		CFO_{t+3}	
N	32.011		32.011		28.003		24.435	
Adjusted R^2	19.4%		60.5%		40.2%		27.1%	
CFO_t			0.880	***	0.779	***	0.727	***
WAC_t	-0.620	***	0.595	***	0.609	***	0.411	***
$-DP_t$	0.570	***	-0.175	***	-0.343	***	-0.487	***
NSI_t	0.710	***	-0.197	***	-0.173	***	-0.154	***
OAC_t	-0.067	***	0.167	***	0.104	***	0.152	***
Panel B: With Control for High DP Observations								
Adjusted R^2	21.5%		60.6%		40.2%		27.1%	
CFO_t			0.878	***	0.777	***	0.728	***
WAC_t	-0.624	***	0.594	***	0.608	***	0.412	***
$-DP_t$	**1.183**	***	**-0.130**	***	**-0.290**	***	**-0.511**	***
NSI_t	0.662	***	-0.199	***	-0.175	***	-0.153	***
OAC_t	-0.091	***	0.166	***	0.102	***	0.153	***
$HDP*-DP_t$	-0.860	***	-0.062	***	-0.072	**	0.032	
$-DP_t+HDP*-DP_t$	**0.323**	***	**-0.192**	***	**-0.362**	***	**-0.478**	***

An intercept and 65 industry intercept dummies added into the regression, however we do not report them. ***1% significance two tails; **5% significance two tails; *10% significance two tails; !10% significance one-tail.

TABLE 5
RELATION TO TOTAL ACCRUALS – CURRENT AND FUTURE THREE PERIODS

Panel A: Without Control for High DP Observations								
	TAC_t		TAC_{t+1}		TAC_{t+2}		TAC_{t+3}	
N	32.011		32.011		28.003		24.435	
Adjusted R^2	26.3%		27.8%		13.4%		10.3%	
CFO_t			0.052	***	0.112	***	0.010	
WAC_t			0.154	***	0.139	***	0.103	***
$-DP_t$	1.484	***	1.191	***	1.309	***	1.197	***
NSI_t			0.021		-0.124	***	0.106	***
OAC_t			0.238	***	0.204	***	-0.003	
Panel B: With Control for High DP Observations								
Adjusted R^2	27.0%		28.5%		14.2%		10.5%	
CFO_t			0.039	***	0.092	***	0.000	
WAC_t			0.145	***	0.123	***	0.095	***
$-DP_t$	**1.762**	***	**1.492**	***	**1.821**	***	**1.481**	***
NSI_t			0.007		-0.149	***	0.088	**
OAC_t			0.225	***	0.182	***	-0.015	
$HDP*-DP_t$	-0.399	***	-0.413	***	-0.698	***	-0.385	***
$-DP_t+HDP*-DP_t$	**1.363**	***	**1.079**	***	**1.123**	***	**1.096**	***

An intercept and 65 industry intercept dummies added into the regression, however we do not report them. ***1% significance two tails; **5% significance two tails; *10% significance two tails; !10% significance one-tail.

TABLE 6
RELATION TO EARNINGS –CURRENT AND FUTURE THREE PERIODS

Panel A: Without Control for High DP Observations								
	IB_t		IB_{t+1}		IB_{t+2}		IB_{t+3}	
N	32.011		32.011		28.003		24.435	
Adjusted R^2	19.7%		58.1%		28.8%		19.7%	
CFO_t			0.932	***	0.891	***	0.738	***
WAC_t			0.750	***	0.748	***	0.514	***
$-DP_t$	2.091	***	1.016	***	0.967	***	0.710	***
NSI_t			-0.176	***	-0.297	***	-0.048	
OAC_t			0.405	***	0.308	***	0.149	***
Panel B: With Control for High DP Observations								
Adjusted R^2	22.8%		58.4%		29.4%		19.8%	
CFO_t			0.917	***	0.868	***	0.728	***
WAC_t			0.739	***	0.731	***	0.507	***
$-DP_t$	**2.987**	*******	**1.362**	*******	**1.531**	*******	**0.970**	*******
NSI_t			-0.193	***	-0.324	***	-0.064	!
OAC_t			0.391	***	0.284	***	0.138	***
$HDP*-DP_t$	-1.286	***	-0.474	***	-0.770	***	-0.353	***
$-DP_t+HDP*-DP_t$	**1.700**	*******	**0.888**	*******	**0.761**	*******	**0.617**	*******

An intercept and 65 industry intercept dummies added into the regression, however we do not report them. ***1% significance two tails; **5% significance two tails; *10% significance two tails; !10% significance one-tail.

TABLE 7
RELATION TO CURRENT RETURN

	Return$_t$			Abnormal Return$_t$		
Panel A: Without Control for High DP Observations						
N	29.440	28.202	25.280	22.446	21.514	19.286
Adjusted R^2	8.8%	9.0%	10.1%	6.4%	7.06%	8.45%
IB_t	0.302 ***			0.345 ***		
CFO_t		0.212 ***	0.278 ***		0.420 ***	0.479 ***
TAC_t		0.383 ***			0.449 ***	
WAC_t			0.550 ***			0.585 ***
$-DP_t$			0.278 ***			0.922 ***
NSI_t			0.933 ***			1.140 ***
OAC_t			0.274 ***			0.300 ***
Panel B: With Control for High DP Observations						
Adjusted R^2	9.0%	9.3%	10.1%	6.8%	7.27%	8.68%
IB_t	0.329 ***			0.366 ***		
CFO_t		0.263 ***	0.281 ***		0.424 ***	0.484 ***
TAC_t		0.407 ***			0.455 ***	
WAC_t			0.554 ***			0.592 ***
$-DP_t$			**0.165 !**			**0.607 *** **
NSI_t			0.933 ***			1.125 ***
OAC_t			0.274 ***			0.294 ***
HDP^*-DP_t	0.040	-0.022	0.286 **	0.554 ***	0.523 ***	0.695 ***
$-DP_t+HDP^*-DP_t$			**0.451 *** **			**1.302 *** **

An intercept and 65 industry intercept dummies added into the regression, however we do not report them. ***1% significance two tails; **5% significance two tails; *10% significance two tails; !10% significance one tail.

TABLE 8
EARNINGS PERSISTENCE AND VALUE-RELEVANCE OF EARNINGS – EFFECT OF HDP

Panel A: The Persistence and Value-Relevance of Earnings - Without Control for Other Effects

	IB_{t+1}				$Return_t$				Abnormal $Return_t$			
N	32.011		32.011		29.440		29.440		22.446		22.446	
Adjusted R^2	52.3%		52.8%		8.8%		8.9%		6.43%		6.61%	
ΔIB_t+IB_t	0.744	***	0.797	***	0.302	***	0.247	***	0.345	***	0.269	***
$HDP*(\Delta IB_t+IB_t)$			-0.164	***			0.163	***			0.189	***

Panel B: Value-Relevance of Earnings - With Control for Other Effects

	$Return_t$											
N	29.103		29.030		22.401		29.440		29.145		21.814	
Adjusted R^2	9.2%		9.0%		10.8%		9.2%		8.94%		11.46%	
ΔIB_t+IB_t	0.245	***	0.216	***	0.386	***	0.212	***	0.315	***	0.463	***
$HDP*(\Delta IB_t+IB_t)$	**0.134**	***	**0.148**	***	**0.210**	***	**0.145**	***	**0.150**	***	**0.139**	***
$HSG*(\Delta IB_t+IB_t)$	0.105	***									0.072	**
$HCapExp*(\Delta IB_t+IB_t)$			0.094	***							0.070	**
$HBeta*(\Delta IB_t+IB_t)$					-0.155	***					-0.229	***
$HSize*(\Delta IB_t+IB_t)$							0.425	***			0.565	***
$HPPEAge*(\Delta IB_t+IB_t)$									-0.101	***	-0.217	***

An intercept and 65 industry intercept dummies added into the regression, however we do not report them. ***1% significance two tails; **5% significance two tails; *10% significance two tails; !10% significance one-tai

TABLE 9
ROBUSTNESS TESTS AND ADDITIONAL ANALYSIS

Panel A: Fama-MacBeth Cross-sectional Regressions (average of 17 years)

	With Industry Dummies		
	IB_{t+1}	$Return_t$	Abn. $Return_t$
Adjusted R^2	50.2%	8.0%	7.9%
Intercept	0.003	0.100 !	0.055
ΔIB_t+IB_t	0.784 ***	0.390 ***	0.427 ***
$HDP*(\Delta IB_t+IB_t)$	-0.172 ***	0.226 **	0.311 ***

Panel B: Fama-MacBeth Cross-sectional Regressions (average of 17 years)

	Without Industry Dummies		
	IB_{t+1}	$Return_t$	Abn. $Return_t$
Adjusted R^2	48.7%	4.1%	4.1%
Intercept	0.003	0.163 ***	0.008
ΔIB_t+IB_t	0.791 ***	0.400 ***	0.440 ***
$HDP*(\Delta IB_t+IB_t)$	-0.174 ***	0.223 **	0.332 ***

Panel C: Use Beginning Price as the Scalar

	IB_{t+1}		Abnormal $Return_t$	
N	29.250	29.030	22.347	19.064
Adjusted R^2	0.196	0.249	0.112	0.183
ΔIB_t+IB_t	0.457 ***		0.629 ***	
$HDP*(\Delta IB_t+IB_t)$	-0.093 ***		0.063 !	
CFO_t		0.591 ***		1.403 ***
WAC_t		0.490 ***		1.328 ***
$-DP_t$		0.850 ***		-0.011
NSI_t		0.048 ***		0.268 ***
OAC_t		0.339 ***		0.610 ***
$HDP*-DP_t$		-0.155 ***		0.861 ***

An intercept and 65 industry intercept dummies added into the regression, however we do not report them.
***1% significance two tails; **5% significance two tails; *10% significance two tails; !10% significance one-tail.

Impact of Improvements to the International Accounting Standards on Earnings Management in the Jordanian Industrial Corporations

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This study investigates the practices of earnings management in Jordanian Industrial Corporations (JIC) after the mandatory adoption of the Improvements of the International Accounting Standards (IASs) on 1st January, 2005. The Modified Jones model was used to measure earnings management. The binomial test and Pearson correlation test were used to test the hypotheses. It was discovered that JIC practiced earnings management for the period, 2005-2013,by 50%. It was also discovered that earnings management decreased in the 2008-2010 Financial Crisis that occurred, in JIC. Overall, the results suggest that the improvements to the IASs did not prevent earnings management in these corporations.

INTRODUCTION

Accounting information are used by interested parties to assess the performance of managers, and to make economic decisions Vladu et al. (2014).It is believed that the adoption of IAS/IFRS enhances the comparability of financial statements, improves corporate transparency, and increases the quality of financial reporting (EC Regulation No. 1606/2002). International Accounting Standards (IASs) were criticized in the past for allowing alternative accounting treatments, for ambiguities of wordings, and for failing to take account of particular issues IASCF (2002).Therefore, these IASs are continuously subjected to changes, modifications, and improvements with time. Among these changes, the international committee of the International Accounting Standards Board (IASB) conducted in late 2003, made some improvements on the international standards, where some accounting alternatives were cancelled, in order to achieve transparency in accounting information and to improve the comparability of financial reporting across countries.

Most times, managers manipulate the accounting data for many and different reasons. This manipulation is referred to as earnings management, which is viewed as a purposeful and deliberate intervention of the external financial reporting Yingying (2011).Such practice reduces the reliability of the reported earnings, which does not reflect the actual performance of the company. Burgstahler and Dichev(1997), mentioned that a large number of companies are using earnings management either to maintain steady earnings growth, or to avoid reporting red ink. Earnings management produces misleading accounting data, which leads to distortions in the financial statements. Consequently, economic decisions are affected by the quality of the financial statements Kirschenheiter and Melumad (2004), especially investment decisions, where the managers use the accounting methods to give the

investors a more optimistic image. For instance, Lenardand Yu (2012), found that discretionary accruals as a measure of earnings management, are significant indicators of over-investment. In cases of reduction in earnings, earnings management was used to dismiss earnings achieved in the event of the first Gulf crisis that took place in the year 1995, when the petrol corporations used earnings management to decrease it Jackson and Pitman (2001). Earnings management, which is largely viewed as targeting parties external to the firm, can also influence internal decisions Mcnichols and Stubben (2008).

From the other side, it has been indicated that greater transparency in reporting requirements, facilitates the detection of earnings management Hunton et al. (2006). Moreover, less information asymmetry and earnings manipulation would lead to the disclosure of informative, and higher quality accounting information, and would therefore, assist investors in making informed and unbiased judgments Iatridis (2010). Consequently, earnings quality increases mandatory IFRS adoption (Houqe et al. (2010).

Like many developing countries, Jordan has adopted the International Financial Reporting Standards (IFRS), which is expected to increase reporting transparency and improve the quality of financial reporting. Therefore, the improvements in IASs are expected to facilitate the reduction in earnings management. Therefore, this study aims to provide evidence of the ability of the standards after improvements, to reduce the distortions in financial statements, and to increase the quality of the accounting data. Since the mandatory date to adopt the improvements started on January 1st,2005, this study aims to investigate whether Jordanian Industrial Corporations (JIC)have been practicing earnings management after this date or not. In addition, the study also aims to compare earnings management in JIC, for the periods before, during, and after the financial crises in the year 2008.

RELATED LITERATURE

This study investigates the impact of the Improvements of the International Accounting Standards, on the use of earnings management. The relationship between the adoption of IAS/IFRS and earnings management has frequently been investigated.

In this regard, most studies have documented a positive effect of the adoption of IAS/IFRS on earnings management. Yu (2014) investigated the relationship between accounting standards and earnings management around the world. He found evidence which shows that, firms are managing reported earnings around the world. Hunton et al. (2006) suggested that more transparent reporting requirements would reduce earnings management in the area of increased transparency, or change the focus of earnings management to less visible methods. Houqe et al. (2010), highlighted the importance of investor protection in financial reporting quality, and the need for regulators to design mechanisms that limit managers' earnings management practices. Goncharov and Zimmermann (2007), reported that a different amount of accounting choices embedded in different accounting standards influences the level of earnings management. Horton et al. (2013),suggested that mandatory IFRS adoption has improved the quality of information intermediation in capital markets, and as a result, the firms' information environment, by increasing both information quality and accounting comparability.

The study conducted by Ismail et al. (2013), shows that IFRS adoption is associated with a higher quality of reported earnings. It was also discovered that earnings reported during the period after the adoption of IFRS, was associated with the lower earnings management and higher value relevance. Sellami and Fakhfakh (2013), deduced that earnings quality improved in the post-IFRS period, in the French context. Zhou et al (2009), suggested some improvements in the quality of accounting information associated with the adoption of IFRS. They also suggested providing managers more opportunities for earnings manipulation under IFRS might neutralize its otherwise positive effect on earnings quality. Lippens (2008) mentioned that, despite the strict character of IFRS compared to the national Generally Accepted Accounting Principles (GAAP), accruals-based earnings management has strictly increased, as a consequence of the adoption of IFRS. Morais and Curto (2008) discovered that firms, during the period when they adopted IASB standards, reported less smooth earnings than those firms which adopted

national accounting standards in the same period, which seems to suggest an improvement in earnings quality.

However, they also found that, the value relevance of accounting information, decreased with the adoption of IASB standards. Mechelli and Cimini (2013), found a positive relationship between the reduction in earnings management and the extent to which IAS/IFRS regulates issues not covered by domestic standards. The study conducted by Iatridis (2010), indicates that the implementation of IFRSs, generally reinforces accounting quality. The findings show that the implementation of IFRSs reduces the scope for earnings management, is related to more timely loss recognition, and leads to more value relevant accounting measures. Navarro-Garcia and Madrid-Guijarro (2014), indicated that the improvement of accounting standards quality, significantly reduced the level of reported negative discretionary accruals of the German listed firms during the period of analysis, once the incentive variables were controlled. Bouchareb et al. (2014), discovered that the implementation of good governance mechanisms has really narrowed the level of earnings management, after the adoption of the new IASs, from January 2005. Barth et al. (2008), found a decrease in earnings management (smoothing) following the firms' early voluntary adoption of IAS/IFRS over the 1994-2003 period. Cai et al. (2008), also discovered that earnings management in IFRS adoption countries has decreased in recent years.

They also showed that countries with stronger enforcement generally have less earnings management. Zhou et al. (2014), suggested some improvement in the quality of accounting information associated with the adoption of IFRS. Their results also suggested that providing managers more opportunities for earnings manipulation under IFRS, might neutralize its otherwise positive effect on earnings quality.

On the other hand, some prior studies achieved inconclusive results regarding the adoption of IASs. For instance, the results of the study conducted by Gossner and Berndt (2013), does not support the IASB's claim that International Accounting Standards are superior to German-GAAP, and have a significantly positive impact on earnings' predictive power. Jaweher and Mounira (2014) and Daas (2014), introduced an evidence from the pre-IFRS and post-IFRS periods. The results of their studies were unable to support the systematic evidence that IFRS results enhance earnings attributes quality for mandatory adopters.

Jeanjean and Stolowy (2008), conducted a study on three IFRS first-time adopter countries; Australia, France, and the United Kingdom. They found that the pervasiveness of earnings management did not decline after the introduction of IFRS, and in fact, increased in France. In the reporting periods following the adoption of IFRS, Capkun et al. (2011), discovered that firms that reported positive (negative) reconciliations were more likely to show a decrease (an increase) in earnings. In addition, they found strong evidence in support of the CEOs managing earnings reconciliations, in order to increase their compensation. The study conducted by Capkun, et al. (2012),shows how the IAS-IFRS adoption, given its flexibility, enables earning management; smoothing in particular. Li et al. (2014) suggested that the increased financial reporting flexibility under IFRS provided more earnings management opportunities, which was accompanied by a decrease in earnings informativeness. Ahmed et al. (2013), found that IFRS firms exhibit significant increases in income smoothing and the aggressive reporting of accruals, and a significant decrease in the timeliness of loss recognition.

Relating to the financial crisis, Arthur et al. (2015),suggested that reduced investor confidence and market liquidity engendered by the financial crisis, motivated management to strategically enhance earnings quality in an attempt to increase investor confidence and reduce the negative impact of the economic recession. Filip and Raffournier (2014), found that earnings management significantly decreased in the 2008-2009 Financial Crisis in the European-listed firms. The results of the studies conducted by (Iatridis and Dimitras (2013); Beuren and Klann (2015) and Persakis and Iatridis (2015), show that the Global Financial Crisis of 2008, contradictorily affected the earnings quality and earnings management, where these variables increased in some countries, decreased in other countries, or to some extent, were conflicting in other countries.

Improvements of the International Accounting Standards (2001-2003)

The IASB invited public comment on an Exposure Draft (ED) proposing to revise 12 of the 34 International Accounting Standards that were in force before May 15, 2002. The deadline for comments on the ED was September 16, 2002. This project covered a variety of issues related to identifying the problems associated with implementing the existing International Accounting Standards issued by the International Accounting Standards Committee (IASC). The issues addressed were those that had been identified by various sources as narrow issues of substance, whose resolution could improve the quality of the IASC standard, and/or increase the convergence of national and international standards. Therefore, the objectives of the improvements project were to reduce or eliminate alternatives, redundancies, and conflicts within the existing standards and to make other improvements on them. It was also decided to deal with some convergence issues and to merge any related consensus of the Standing Interpretations Committee (SIC) into the standard, whenever the revision of a standard presented a suitable opportunity (IASCF, 2002).

The topics for improvements were broadly of six types: elimination of choices (explicit or implicit), elimination of conceptual inconsistencies between IASs, additional guidance, additional disclosure, drafting improvements, and improvements in the structure.

This project has been completed. The IASB published 13 revised IASs. These standards are: (IAS 1) Presentation of financial statements, (IAS 2) Inventory, (IAS 8) Accounting policies, changes in accounting estimates and errors, (IAS 10) Events after the reporting period, (IAS 16) Property, plant and equipment, (IAS 23) Borrowing costs, (IAS 24) related party disclosures, (IAS 27) Consolidated and separate financial statements, IAS (28) Investments in associates, and (IAS 33) Earnings per share.

Earnings Management

Till date, there is no agreed definition on earnings management Beneish (2001), Yanqiong (2011). Schipper (1989) defined earnings management as "a purposeful intervention in the external financial reporting process, with the intent of obtaining some private gain (as opposed to say, merely facilitating the neutral operation of the process)". According to Healy and Wahlen (1999), "Earnings management occurs when managers use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company, or to influence contractual outcomes that depend on reported accounting practices".

There are many motivations for earnings management. Parfet (2000) contends that corporate preparers operate from a sense of obligation to produce continuous improvement in operating performance, steadily and reliably increasing financial returns, and long-term growth in the shareholder value. Beneish (2001) discussed four sources of incentives for income increasing earnings management, which are: debt contracts, compensation agreements, equity offerings, and insider trading. Healy and Wahlen (1999), stated that managers mainly engaged in earnings management for four kinds of incentives, namely, external contract incentives, management compensation contract incentives, regulatory motivations, and capital market motivations. According to Watts and Zimmerman (1990), most accounting choice studies use combinations of three sets of variables that represent the manager's incentives to choose accounting methods which are bonus plans, debt contracts, and the political processes. The choice of income-increasing or decreasing discretionary accruals, is influenced by the severity of financial distress Jaggi and Lee (2002). In this case, managers use income-increasing discretionary accruals if they are able to obtain waivers for debt covenant violations (Sweeney, 1994; Jaggi and Lee, 2002; Jha, 2013).

There are different ways through which management can manipulate the earnings. Gowthorpe and Amat (2005) stated that the preparers of financial statements are in a position to manipulate the view of the economic reality presented in those statements, to interested parties. Therefore, they examined two principal categories of manipulative behavior: The term macro-manipulation, which is used to describe the lobbying of regulators, in order to persuade them to produce regulation that is more favorable to the interests of preparers, and micro-manipulation, which describes the management of accounting figures to produce a biased view at the entity level. In this regard, Roychowdhury (2006) and Gunny (2010)

discussed two means. The first one is accrual manipulation, where the earnings could be managed by the manipulation of accruals, with no direct cash flow consequences. The second means is the real activities manipulation, where the management can manipulate the real activities during the year, to meet certain targets of earnings. Francis (2001) and Bruns Jr and Merchant (2005), categorized the main tools in which earnings can be potentially manipulated into four areas, namely, discretionary accruals and estimation of liabilities, income recognition, excessive reserves and provisions, and breaches of requirements in financial reporting. Adkins (2009) talked about two general approaches to manipulating financial statements. The first approach is to inflate the current period earnings in the income statement by artificially inflating revenue and gains, or by deflating current period expenses. This approach makes the financial condition of the company look better than it actually is, in order to meet established expectations. The second approach requires the exact opposite tactic, which is to deflate current period earnings in the income statement, by deflating revenue or by inflating current period expenses.

HYPOTHESES

The improvements on IASs (2001-2003) were effective for annual periods beginning on or after 1 January 2005. These improvements posited, were supposed to lead to an increased disclosure and transparency in the measurement of income, and a decrease in the errors of earnings forecast. Therefore, the distortions in financial statements after these improvements, was supposed to reduce. In this circumstance, it was expected that the corporations would not practice earnings management. Consequently, the first hypothesis investigates whether the Jordanian Industrial Corporations practiced earnings management after January 2005 or not:

> *$H_0$1: There were no earnings management practices in Jordanian industrial corporations during the periods 2005-2013.*

Prior studies found that earnings management was used in periods of the economic crisis, such as decreasing the earnings achieved during the Gulf Crisis Jackson and Pitman (2001), and income-increasing earnings management in Malaysian Initial Public Offers (IPOs) during a period of severe economic stress; the East Asian crisis Ahmad-Zaluki (2011). A new global financial crisis began in September 2008. Most of the economies around the world have been affected by this crisis, including developing countries such as Jordan. Similar to other crises, it is expected that the corporations would practice earnings management. This study aimed to make a comparison of practices of earnings management in Jordanian industrial corporations (JIC), before, during, and after the last global crisis. Therefore, we have developed the following hypotheses:

> *$H_0$2: There were no earnings management practices in JIC during the global crisis (2008-2010).*
>
> *$H_0$3:There were no earnings management practices in JIC before the global crisis (2005-2008).*
>
> *$H_0$4:There were no earnings management practices in JIC after the global crisis (2011-2013).*

Industry type and the size of the corporation, in general, are factors that affect many variables relating to the firms. In this study, it was assumed that these two variables had relationships with the earnings management in Jordanian industrial corporations. Therefore, the following hypotheses have stated that:

$H_0$5: There is no relationship between the type of corporation and the practice of earnings management in JIC during the periods 2005-2013; 2005-2007; 2008-2010; and 2011-2013.

$H_0$6: There is no relationship between the size of the corporation and the practice of earnings management in JIC during the periods 2005-2013; 2005-2007; 2008-2010; and 2011-2013.

RESEARCH DESIGN

This study focused on accruals-based earnings management. Total accruals consists of non-discretionary accruals, which are normally related to economic activity, and discretionary accruals, which results from the manipulative actions by management. Only total accruals can be observed, which means that discretionary accruals have to be estimated Lippens (2008). The modified Jones model Dechow et al. (1995),is considered the best model in detecting discretionary accruals, compared to the other models (Dechow et al., 1995; Dechow and Skinner, 2000; Be'drad et al., 2004; Louis and White, 2007; and Gong et al., 2008;Tianran, 2011; Sharifahet al., 2012; Ugbede et al., 2013). Therefore, the modified Jones model was used in this study.

The Modified Jones Model

The discretionary accruals can be measured using the Modified Jones Model, as follows:

1. Measuring total accruals using the following equation:

$$TACC_{i,t} = ONI_{i,t} - OCF_{i,t} \quad (1)$$

Where, $TACC_{i,t}$ is the total accruals for corporation (i) in year (t); $ONI_{i,t}$ is the operating net income for corporation (i) in year (t), and $OCF_{i,t}$ is the operating cash flow for corporation (i) in year (t).

2. The following regression equation is used to obtain the firm-specific parameters. To estimate Non-Discretionary Accruals (NDA), we use the following equation;

$$TACC_{i,t}/A_{i,t-1} = a_1(1/A_{i,t})+a_2(\Delta REV_{i,t}-\Delta REC_{i,t})/A_{i,t-1}+a_3(PPE_{i,t}/A_{i,t-1})+E_{i,t} \quad (2)$$

Where, $\Delta REV_{i,t}$ is the change in the corporation's revenue (i) in year (t), $\Delta REC_{i,t}$ is the change in accounts receivable for corporation (i) in the year (t), $PPE_{i,t}$ is the property, plants and equipment for corporation (i) in year (t), $A_{i,t-1}$ is the total assets for corporation (i) in year (t-1), and $E_{i,t}$ is the random errors.

3. Determination of non-discretionary accruals based on the estimated regression coefficients from equation (2).

$$NDACC_{i,t} = a_1(1/A_{i,t-1}) + a_2(\Delta REV_{i,t} - \Delta REC_{i,t}) + a_3(PPE_{i,t}) \quad (3)$$

4. Finally, normal accruals ($DACC_{i,t}$) can be Calculated as follows:

$$DACC_{i,t} = TACC_{i,t} - NDACC_{i,t} \quad (4)$$

After measuring all accruals for all companies in the sample for the period of 2005 to 2013, we analyzed the data in two stages, in order to classify the corporations into practice or non-practice of earning management. In the first stage, we computed the average discretionary accruals for all these periods. If the discretionary accruals for the corporation (i) in the year (t) exceed the average, then the

corporation is classified as practicing earning management and coded (1), otherwise (0). In the second stage, we reclassified the corporations based on the times they practiced earning management, over 9 times. If the corporation practiced earning management for 5 times or more, it is considered practiced and coded (1), otherwise (0).These procedures were repeated for the purposes of analyzing the data before, during, and after the financial crisis period of 2008-2010.

Sample Selection and Data Sources

The study population consists of all Jordanian Industrial corporations registered in the Amman Stock Exchange (ASE).The number of corporations listed in ASE was always changing during the period, from the year 2005-2013. In general, the average was about 70 corporations. The study sample was selected in accordance with two predetermined criteria, which are: (1) the corporation should be registered in the ASE since the beginning of 2005; (2) the corporation's financial reports should be available on the website and cover all the period from 2005-2013. Under these two criteria, the final sample consisted of 42 corporations, which represents almost 60% (42/70)of the whole population. Data were collected from the published annual financial reports that covered periods from 2005 to 2013.The methods of analysis employed in the study were descriptive statistics, Pearson correlations, and binomial test.

CHARACTERISTICS OF SAMPLE

Table1 summarizes the characteristics of the sample of the corporations. These characteristics contain industry type, as it exists in the guide of corporations in ASE, and the number and percentage of corporations in each type. The size of the corporations in each type was classified into the following

TABLE 1
CHARACTERISTICS OF SAMPLE OF CORPORATIONS

Industry type	No. of Cor.	Percentage %	Corporation Size	No. of Size
Chemical	6	14.29%	S	4
			M	2
			L	2
Electrical	4	9.6%	M	1
			L	3
Engineering & Construction	8	19.2%	S	2
			M	2
			L	1
Food & Beverages	9	21.3%	S	2
			M	4
			L	3
Glass &Ceramic	1	2.4%	S	1
Mining & Extraction	4	9.6%	S	2
			M	2
Paper & Cardboard	3	7.2%	S	1
			M	2
Pharmaceutical & Medical	3	7.2%	S	1
			M	1
			L	1
Printing & Packaging	1	2.4%	S	1
Textiles, Leathers & Clothing	2	4.8%	L	2
Tobacco & cigarettes	1	2.4%	L	2
Total	**42**	**100%**		**42**

categories: Small corporations (S); where their capital is equivalent to 5000000 Jordanian Dinars (JD), Medium corporations (M); where their capital is from 5000000 to 10000000 JD, and Large corporations (L); where their capital is more than 10000000 JD. In Table1, we can see diverse characteristics of the sample, whether in Industry type, Corporation size, or the number of corporations. Consequently, we believe that the sample represents the whole population (60%).

RESULTS

Testing Hypotheses

In this study, the binomial test was used to test hypotheses $H_0$1-$H_0$4, which measured the practice of earnings management, while Pearson Correlation was used to test hypotheses $H_0$5-$H_0$6, in order to determine the relationship between both the type and size of corporations, and earnings management.

$H_0$1: There were no earnings management practices in Jordanian industrial corporations during the periods, 2005-2013.

A binomial test, as shown in Table 2, indicated that the proportion of the corporations not practicing earnings management which was .50, was equal to the proportion of the corporations that practiced earnings management, .50, p = 1.000 Exact Sig. (2-tailed). This result suggests that, the improvements of the IASs did not prevent earnings management in the Jordanian industrial corporations. Therefore, the null hypothesis was rejected. Jordanian industrial corporations practiced earnings management during the period, 2005-2013.

TABLE 2
THE RESULTS OF BINOMIAL TEST FOR EARNINGS MANAGEMENT PRACTICES IN JIC DURING THE PERIOD, 2005-2013

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
All periods	Group 1	NP	21	.50	.50	1.000
	Group 2	P	21	.50		
	Total		42	1.00		

P= *Practice*, NP= *Not practice*

$H_0$2: There were no earnings management practices in JIC before the global crisis (2005-2008).

A binomial test, as shown in Table 3, indicated that the proportion of corporations that practiced earnings management was .52,while the proportion of corporations that did not practice earnings management, was .48, p =.878 Exact Sig. (2-tailed). This result suggests that, the improvements of the IASs did not prevent earnings management in the Jordanian industrial corporations. Therefore, the null hypothesis was rejected. Jordanian industrial corporations practiced earnings management before the global crisis (2005-2008).

TABLE 3
THE RESULTS OF BINOMIAL TEST FOR EARNINGS MANAGEMENT PRACTICES IN JIC BEFORE THE CRISIS (PERIODS 2005-2007)

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
Before crisis	Group 1	P	22	.52	.50	.878
	Group 2	NP	20	.48		
	Total		42	1.00		

P= *Practice*, NP= *Not practice*

$H_0$3: There were no earnings management practices in JIC during the global crisis (2008-2010).

A binomial test, as shown in Table 4, indicated that the proportion of corporations that practiced earnings management was .45, while the proportion of corporations that did not practice earnings management was .55, p =.644 Exact Sig. (2-tailed). This result suggests that, the improvements of the IASs did not prevent earnings management in the Jordanian industrial corporations. Therefore, the null hypothesis was rejected. Jordanian industrial corporations practiced earnings management during the global crisis (2008-2010).

TABLE 4
THE RESULTS OF BINOMIAL TEST FOR EARNINGS MANAGEMENT PRACTICES IN JIC DURING THE CRISIS (PERIODS 2008-2010)

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
During the crisis	Group 1	P	19	.45	.50	.644
	Group 2	NP	23	.55		
	Total		42	1.00		

P= *Practice*, NP= *Not practice*

$H_0$4: There were no earnings management practices in JIC after the global crisis (2011-2013).

A binomial test, as shown in Table 5, indicated that the proportion of corporations that practiced earnings management was .64, while the proportion of corporations that did not practice earnings management was .36, p =.088 Exact Sig. (2-tailed). This result suggests that, the improvements of the IASs did not prevent earnings management in the Jordanian industrial corporations. Therefore, the null hypothesis was rejected. Jordanian industrial corporations practiced earnings management after the global crisis (2011-2013).

TABLE 5
THE RESULTS OF BINOMIAL TEST FOR EARNINGS MANAGEMENT PRACTICES IN JIC AFTER THE CRISIS (PERIODS 2011-2013)

		Category	N	Observed Prop.	Test Prop.	Exact Sig. (2-tailed)
During the crisis	Group 1	P	27	.64	.50	.088
	Group 2	NP	15	.36		
	Total		42	1.00		

P= *Practice*, NP= *Not practice*

$H_0$5: There is no relationship between the corporation's type and the practice of earnings management in JIC during the periods 2005-2013; 2005-2007; 2008-2010; and 2011-2013.

A Pearson correlation coefficient was computed, in order to assess the relationship between the corporation's type and the practice of earning management for the periods 2005-2013; 2005-2007; 2008-2010; and 2011-2013. As shown in Table 6, there were negative correlations between the two variables for the period 2005-2013, r = -0.009, p = 0.957; for the period 2005-2007, r = -0.346, p = 0.025; and for the period 2008-2010, r = -0.021, p = 0.895. Relating to the period 2011-2013, there was a positive correlation between the two variables, r = 0.119, p = 0.453.Except for the period before the crisis 2005-2007, there were insignificant correlations between the type of corporation and the practice of earnings management. Overall, there were very weak correlations between the type of corporation and the practice of earnings management, for all periods. Consequently, the null hypothesis was accepted.

TABLE 6
RELATIONSHIP BETWEEN THE TYPE OF CORPORATION AND THE PRACTICE OF EARNINGS MANAGEMENT IN JIC DURING THE PERIODS, 005-2013; 2005-2007; 2008-2010; 2011-2013

		Correlations			
		All periods	Before Crisis	During Crisis	After Crisis
Cor. type	Correlations	-.009-	-.346-*	-.021-	.119
	Sig. (2-tailed)	.957	.025	.895	.453

*. Correlation is significant at the 0.05 level (2-tailed).

$H_0$6: There is no relationship between the size of the corporation and the practice of earnings management in JIC during the periods 2005-2013; 2005-2007; 2008-2010; and 2011-2013.

A Pearson correlation coefficient was computed, in order to assess the relationship between the size of the corporation and the practice of earnings management for the periods 2005-2013; 2005-2007; 2008-2010; and 2011-2013. As shown in Table 7, there were negative correlations between the two variables for the period 2005-2013, r = -0.155, p = 0.327; for the period 2011-2013, r = -0.199, p = 0.207. On the other side, there were positive correlations between the two variables for the period 2005-2007, r = 0.098, p = 0.539; for the period 2008-2010, r = -0.085, p = 0.595. For all periods, there were insignificant correlations between the size of the corporation and the practice of earnings management. Consequently, the null hypothesis was accepted.

TABLE 7
RELATIONSHIPS BETWEEN THE SIZE OF THE CORPORATION AND THE PRACTICE OF EARNINGS MANAGEMENT IN JIC DURING THE PERIODS 2005-2013; 2005-2007; 2008-2010; 2011-2013.

		All periods	Before Crisis	During Crisis	After Crisis
Cor.size	Correlation	-.155-	.098	.085	-.199-
	Sig. (2-tailed)	.327	.539	.595	.207

CONCLUSION

The adoption of International Financial Reporting Standards (IFRS), is expected to increase reporting transparency, and improve the quality of financial reporting. Therefore, the improvements in IASs are expected to facilitate the reduction of earnings management. Therefore, this study aimed to investigate this issue. Prior studies have shown contradictory results on the effect of mandatory IFRS adoption on earnings management. In this study, it was discovered that Jordanian industrial corporations practiced earnings management after mandatory IFRS adoption, by 50%. This result is inconsistent with some prior studies such as(Horton et al., 2013; Ismail et al., 2013; Sellami and Fakhfakh, 2013).

This study also aimed to make a comparison between the practices of earnings management in Jordanian industrial corporations (JIC) before, during, and after the global crisis of 2008-2010. It was also discovered that Jordanian industrial corporations practiced earnings management by different ratios during these periods; 52%, 45%, and 64% respectively. Consistent with Filip and Raffournier (2014), it appears that earnings management decreased in the 2008-2010 Financial Crisis that occurred, in Jordanian industrial corporations. Overall, the results suggest that the improvements of the IASs did not prevent earnings management in these corporations. Regarding the variables, the type of corporation and the size of the corporation, no relationships were found between these two variables and earnings management. Finally, this study recommends Jordanian industrial corporations to adopt IASs carefully, in order to facilitate the reduction of earnings management.

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Critical Evaluation of Capital Structure Policy on Nepalese Manufacturing Firms

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This paper evaluates the Capital structure policy of Nepalese companies by assessing the impact of both firm-specific and non-firm specific factors on the policy Respondents from profitable companies use less debt in general and long-term debt in particular which is consistent with pecking order theory. Small firms use relatively high level of debt to mitigate the consequences of asymmetrical information in the issue of equity. Target debt ratio in Nepalese context is found to be as high as 59% of total capital employed. The tax policy has positive impact on debt financing while liberalization on equity financing.

INTRODUCTION

The industrial sector in Nepal is functioning below the expectation level. "Almost all industries are either losing money or operating at a breakeven position" (The Himalayan Times, 2014/9/11). Starting in the 1930s, about 62 public enterprises were established with an objective of accelerating industrial and manufacturing estate. Later on, in 1997, most of the enterprises were sold to private sector under the privatization policy of the government. That privatization policy also did not bring any improvements and average performance of Nepalese industrial sector was similar to those found in other developing countries. However, the main problem of economic stagnant lies in Industrial sector in general and manufacturing sector in particular. The overall efficiency of manufacturing firms is below than international standards except few firms which have access to technology transfer, and which have been established under foreign licensing agreement. Though the industry sector is found not running at a satisfactory level, yet the non-farming economic activities of households have increased during the period of 15 years (1995/96 and 2003/04). The Nepal Standard Living Survey (2011) reports that the proportion of manufacturing activities has covered 37% of overall non-farming economic activities. Whatever the case may be now, growth of manufacturing is inevitable because, when it exports goods, it brings back wealth and prosperity to the nation from all around the world.

The overall economy growth is 5.2% recorded for the fiscal year 2013/2014. A slight increase in growth rate is observed from 3.2% in the fiscal year 2004/2005. At the same period, the growth rate industrial sector declined from 3% to 2.7%. To the worse, a negative growth of industrial sector was recorded as -0.6% in 2008/2009 (CBS, 2014). The bad shape of industrial sector is attributed partly to the performance of manufacturing sector specially and partly to poor designing of capital structure policy of industrial sector as a whole.

The increasing trend of inflation increased the dependency of Nepal on other countries owing to fluctuations in exchange rates, hike in gold prices and petroleum products, and undeclared devaluation in the US dollar. The current inflation rate is 9.8 (IMF, 2014). The increasing trend of inflation decreases the

saving of the people which, in turn, results in a decrease in capital mobilization rate. The capital mobilization through primary market in 2008/2009 was Rs.1682.82 ten millions which decreased to Rs.1068.52 ten millions in 2012/2013 (SEBON, 2014). A proper designing of capital structure policy can fight with the effects of faltering economy of Nepal.

This survey attempts to answer two main questions. The first question is "whether the capital structure policy affect value of the firm or not?" That is related to the test for relevancy of capital structure policy and the policy will be relevant if it is associated with the value of firm. The second question is "what are the determining factors of capital structure policy?" This is related to the identification of capital structure determinants. Past studies have been conducted to answer the questions. But the studies differ both in magnitude and direction of control variables of capital structure policy. The studies made by Afza and Hussain (2011), Gropp and Heider (2010), Gill et al. (2009) Cheng and Shiu (2007) show negative relationship of capital structure with profit while Jensen (1986), Zhang (2010) and Chen and Yu (2011) reported positive relationship between the two. Theoretical predictions are also not in agreement with the impact of profitability on capital structure. Pecking order assumes negative relationship and trade-off theory is positive relationship between the profitability and debt. In tune with profitability, growth shows both positive and negative relationship with debt-levels. The findings on positive relationship of growth have been reflected in Titman and Wessels (1988), Rajan and Zingales (1995) and Yang et. al.,(2010) in consistent with pecking order theory. The inverse relationship between the growth and capital structure can be found in Jensen and Meckling (1986), Rajan and Zingales (1995), and Shah and Khan (2007) on the contrary, Fama and French (2002), and Bevan and Danbolt (2002) show the positive relationship with capital structure assuming with trade-off theory financing. The analysis on impact of non-firm specific variables together firm specific variables are found in some of empirical studies. Cross-sectional factors rather than firm specific factors cause more than 60% of leverage variations (Lemmon et al., 2008). Stressing the importance of cross-industry factor, MacKay and Phillips (2005) pointed that within-industry leverage variation is much higher between-industry variations. On the contrary, Rajan and Zingles (1995) finds that cross-country factor is less important among G7 countries. Country's legal and tax system and the level of corruption exert substantial impact on capital structure of company (Fan et al., 2010). Fan et al. reported that countries with relatively high degree of corruption prefer short-term debt to long-term debt, and debt to equity in overall financing decisions, and the companies running under the proper legal system preferred to have more equity than debt, and more long-term debt than short-term debt.

In developing countries, economic conditions affect the capital structure of small and unlisted companies only because the large and listed firms have easy access to domestic and international market (Madoglu and Phylaktis, 2009).

Past studies on capital structure policy differ from each other in respect of identification of factors and their measurement of impact on how CFOs design the capital structure policy. The underlying survey is assumed to be one of the milestones to the study of capital structure policy.

It can be easily conjectured that firms in countries that are viewed as more corrupt tend to use less equity and more debt, especially short-term debt, while firms operating within legal systems that provide better protection for financial claimants tend to have capital structures with more equity, and relatively more long-term debt. In addition, the existence of an explicit bankruptcy code and/or deposit insurance is associated with higher leverage and more long-term debt. However, it is generally accepted that wrong formulation of capital structure policy may lead to financially distressed position and finally to a bankrupt situation of the firms.

OBJECTIVES

The basic objective of the survey is to investigate views of CFOs on capital structure policy in Nepalese context. The other subsequent and complimentary to the basic objective are listed as follows.

- To find whether capital structure is relevant or not,
- To see how far established capital structure theories explain the observed policy,

- To sort out firm specific factor of capital structure,
- To measure the impact of non-firm specific of capital structure policy.

DATA AND METHODOLOGY

This survey analyzes the opinions of financial experts' views on the capital structure of Nepalese firms. The study covers listed and non-listed as well as private and government owned company. Altogether 275 questions were distributed out of which only 162 questionnaires were returned with fully answered. The response rate is about 59%, which is higher than those of 9% in Graham and Harvey(2001), 20.3% in Santos and Marques (2003), 12% in Bancel and Mittoo (2004), 23%, Beattie et al., (2006) and 37.9% in Kingston and Laziridis (2010).

Great care is taken that questions are fully and seriously answered. For the purpose, a number of test questions on theoretical knowledge of finance were included tacitly in the questionnaires. More than 87% of these test questions were answered correctly which assures us that the questionnaire distributed ultimately reached to the hands of experts possessing both theoretical and practical knowledge of finance. The mode of analysis is carried out with the statistical tools like Kendall coefficient of concordance(W), Binomial test, Wilcoxon Signed Ranks Test, ANOVA test, chi-square test, correlation and regression analysis**.** Kendall coefficient (W) measures the agreement among more than two judges (respondents in the study) for ranking data. Wilcoxon Signed Ranks Test computes the differences between two scaled series and coverts the scaled series into ordinal scale. After converting in ordinal scale it measures the association between the differences of two sets of data. Binomial and chi-square test are the kinds of nominal test. Binomial is useful when the frequencies are dichotomous .and chi-square is used to measure the difference between observed and theoretical frequencies of more than two groups of data. The ANOVA test is powerful ratio statistical test that shows whether there is significant difference among the three or more than three mean values of the series. Correlation shows total correlation between two attributes whereas the regression analysis estimates the equation to show the relationship between the dependent and independent variable(s).While analyzing the data, the statistical tools have been used to derive the findings of the study.

MODE OF ANALYSIS

The study examined the relationship of debt and equity variables and also expressed the Kendall concordance, large sample (Z) test and Wilcoxon and chi-square test. The model to be used specified as under:

$$r_{xy}=\text{cov}(x,y)/(\text{var}(x).\ \text{var}(y)) \quad (1)$$

$$W(Kendall\ concordance) = \frac{S}{\frac{1}{12}k^2(n^3-n)} \quad (2)$$

$$\text{Z(binomial)} = \frac{(x_0 \pm 0.5) - np}{\sqrt{npq}} \quad (3)$$

$$Z_w\text{(Wilcoxon)} = \frac{T - \frac{n(n+1)}{4}}{\sqrt{\frac{n(n+1)(2n+1)}{24}}} \quad (4)$$

$$F = \frac{\frac{Sum\ of\ squares\ between\ samples}{k-1}}{\frac{Sum\ of\ squares\ due\ to\ error}{n-k}} \quad (5)$$

$$(\chi^2) = \frac{\sum(O_i - E_i)^2}{E_i} \quad (6)$$

In the above equation S represents the sum of squares of the deviations ranks (R_i) from their respective means (mean of the ranks). The value of 'W' ranges from 0 to 1. If it is zero, no agreement is found. If it is one, complete agreement is said to occur. The value greater than zero and less than one 'W', can be interpreted accordingly on the basis of Chi-square value. The observed chi-square value happens equal to k(n-1)W for degrees freedom equal to n-1. The notation 'n' refers to number of rankings available to respondents to a particular question. In the formula of binomial distribution n denotes number of items, p represents probability of success, q shows 1-p and 0.5 is added to x_0 if it is less than np and 0.5 Is subtracted from to x_0 if it is greater than np.

The Wilscons test considers both magnitude and direction of differences between the two related series (x_i and y_i). On the basis the differences, ranks are assigned on basis of magnitude and direction of differences i.e., $d_i=(x_i-y_i)$. In this way scale variables measured in differences are converted in ordinal scale in terms of ranks. The mechanism represents the Wilcoxon sign test, where n shows sample size and T denotes sum of ranks with less frequent sign (+d or -d).

The mechanism is to find the F-ratio of mean sum of squares between samples to sum of errors. As the ANOVA test measures the mean differences among the three or more than three samples mean. Where n stands for total sample size (sample size of all samples), and k shows number of samples. The calculated F-value is compared with the tabulated F-value for given level of significance and pair of degrees of freedom.

The calculated value of chi-square is compared with tabulated value of chi-square for a given level of significance and degrees of freedom and decision is taken accordingly.

CAPITAL STRUCTURE POLICY AND ITS IMPLICATIONS

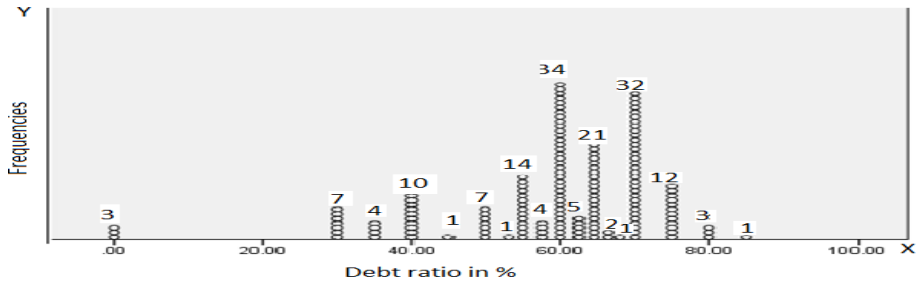
The following sections explain the analytical description of capital structure determinants and its impact on capital structure policy.

Nature and Pattern of Capital Structure

Out of 162 respondents, approximately 48% belong to listed firms and majority (about 52%) of the respondents to unlisted firms. The other breakdowns are made on the basis of type of ownership and legal status of the company. More than 64% of responses came from privately owned companies and about 36% from public companies. Similarly, 54 (about 33%) sample companies were registered as sole trading or partnership and rest 108 (about 67%) as corporation (both government and non-government). Responses from both large and small companies have been collected and analyzed. For example, questionnaires form 33 small 54 medium and 75 large companies were returned with fully answered. .

Dot plots of all 162 observed debt ratios are presented in figure 1. The stacked of dots for given X-axis actually represents the frequency of observed debt ratios represented by Y-axis.

FIGURE 1
DEBT RATIO



The dot plots not only display the graphical view of the debt ratios but also provide the frequency associated with each of debt ratios. For example two cases of o% debt-ratio (case of unlevered firm) and 10 cases of 40% debt -ratio have been depicted in Figure-1. Corollary to this graph display, statistical summary and interpretations of the data displayed in figure 1 are presented below in Table 1.

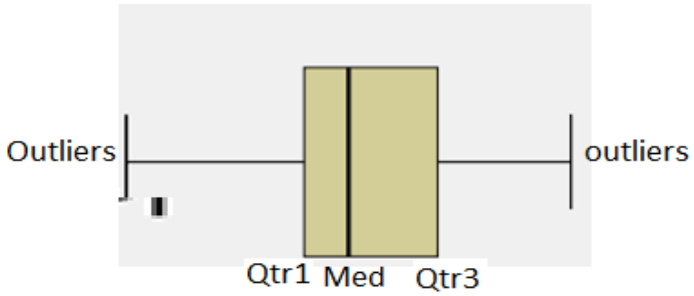
TABLE 1
PATTERN OF DEBT RATIO

S.N	Parameters	Results
1	No of Responses	162
2	Mean	59.15
3	Median	60.00
4	Std. deviation	14.37
5	Skewness	-1.677
6	Minimum	0
7	Maximum	85

Source: Field survey , 2014

The median is less than mean which manifests that most of the sample firms have employed the leverage ratio less than mean ratios. This makes the distribution left skewed with negative value of skewness. The left skewed is also observed in box plot graph in figure 2

FIGURE 2
SKEWNESS OF DEBT RATIO



The box plot provides the distribution of debt ratios more vividly. The thicker line in box, which represents median, is nearer to first quartile than third quartile of distribution. Large number of values is outside the line of first quarter.

Capital Structure Objective

According to the respondents, the first and the second objective of the formulation of capital structure policy are the maximization of the value of the firm (or maximization of share price) and minimization of cost of capital. Table 2 presents the hierarchy of objectives based on the ranks assigned by respondents.

TABLE 2
DESCRIPTIVE STATISTICS OF CAPITAL STRUCTURE OBJECTIVES

Objectives of capital structure			Descriptive statistics				
Option	Mean rank	Relative importance	Kendall's coefficient	Chi-Square	d.f	Significance level	N
Maximization of share	1.83	1	.224	145.320	4	0.000	162
Minimization cost of capital	2.71	2					
Long term survivability	3.3	3					
Liquidity	3.47	4					
Financial independency	3.69	5					

Source: Field survey, 2014

The first and second preferential choice of objective makes the capital structure policy relevant in reducing the overall cost of capital. The cost of capital can be reduced if cheaper source of financing is raised whenever there is a need for additional financing. Obviously, internal source is always cheaper than those of external sources. Among the external sources, debt is considered cheaper according to both of static trade-off theory and pecking order theory. Pecking order behavior is based on hierarchy of financing and always prefers debt to equity in order to mitigate the problem of asymmetrical information. On the other hand, static trade also favors debt as long as the tax-shield income exceeds the bankruptcy and agency costs. The debt-related benefits exceed the cost of capital until and unless the capital structure has not attained its target debt ratio. On the contrary to pecking and static trade-off theory, market timing theory does not make any pre-assumption of debt financing as cheaper source of financing. The type of external source depends on the timing of market i.e. equity is issued if market conditions are favorable to equity-issue and debt is issued if market conditions are favorable to debt-issue. No matter which theory governs the financing issue, the objective is to minimize the cost of capital and to maximize the value of the firm. The third ranked objective (opted by respondents) is long-term survivability. Business houses formulate and implement both tactical and strategic plans. In order to ensure long-term survivability, capital structure policy must support long-term strategy. Firms, in order to lengthen survivability of firms, forgo highly lucrative investment for less risky projects and less profitable projects. Liquidity and independent are last two objectives of a good capital structure policy. Liquidity maintains higher value of current assets compared to the value of current liabilities. When the firms are at matured stage liquidity becomes the main concern of capital structure policy. For growing firms, liquidity is not a serious threat to a firm enjoying cow position of BCG matrix. Independency occurs if there is flexibility of designing and redesigning of capital structure policy. Flexibility implies substitution of debt for equity or equity for debt without affecting the value of the firm. Market timing theory gives the emphasis on flexibility of policy formulation.

Table 2 reveals that preference of objectives is found highly correlated among the opinions of respondent, which is measured by Kendall coefficient of Concordance (0.224). The chi-square value (145) is high enough to make statistically significant.

Size and Debt Policy

Large firms, being in the position of size-advantage, can raise debt at a cheaper rate of interest. This supports the positive relationship between the size and debt. On the other hand it is argued large firms have higher portion of collateral assets that scatter way the problems of asymmetrical information and makes the firm less levered. This controversy does not lie only in theoretical predictions but it also lies in empirical findings. Sharif et al. (2012) reported positive relationship but Mishra and Tannous (2010) negative relationship between size and debt.

The survey displays the Table 3 showing the relationship between size and debt 20% responses came from small sized firms, 33% from medium sized and rest from large size. The table shows that the leverage and size are negatively related and consistent with pecking order. But the relationship is significant at 0.016 as revealed ANOVA.

TABLE 3
DESCRIPTIVE STATISTICS OF DEBT RATIO

Nature of firm	No of firms	Mean debt ratio	Std. Deviation	Minimum	Maximum	F-Value
Small size	33	63.6667	8.79867	40.00	80.00	
Medium size	54	61.0185	11.37772	30.00	80.00	4.26*
Large size	75	55.8267	17.33250	.00	85.00	
Total	162	59.1543	14.37284	.00	85.00	

Source: Field survey, 2014
*significant at .05**significant at .01

The overall comparison of means shows that size has negative impact on debt policy of Nepalese firms but it does not make the comparison of between means of each variable. Table 4 displays the pair wise comparison between small and medium, small and large, and medium and large sample size.

TABLE 4
COMPARISON OF FIRM SIZE IN TERMS OF PAIR

Difference	Medium (61.02)	Large (55.83)
Small Size (63.67)	2.65	7.84**
Medium size(61.02)		5.19*

*significant at .05, **significant at .01

The above table (Table 4) clarifies that significant difference in average debt ratio lies between small and large, and medium and large but not between small and medium. This concludes that large sized firm houses in Nepal are less levered than small and medium size firm.

Capital Structure and Age of the Firms

Older firms are exposed to the market and they have less information to hide from outsiders. This openness mitigates the problem of asymmetry of information by virtue of which elders and more experienced firms can raise debt at relatively lower costs. Esperança, et.al., (2003) assumed a negative relationship between debt level and age of the firms. This study computes the correlation coefficient between debt ratios and age of the firms as viewed by respondents. The correlation coefficient between the two variables is found to be -0.19 (significant at 0.015) in appendix 1. The negative coefficient supports the inverse relationship between capital structure and age of the firms which is consistent with Saarani and Shahadan (2013) implying that the old and experienced Nepalese firms employ relatively low level of debt.

Leverage and Value of the Firm

A question regarding the importance of capital structure policy was asked like 'Does debt policy matter'. Different views coexist, some conflicting and others complementary. For example, MM (1958) and MM (1963) provide two extreme views on the impact of capital structure on the value of firms and assume no target capital structure. But the supporters of the static trade-off theory assume target debt ratio

that maximizes the value of firm which in turn minimizes the cost of capital. The responses in this regard are divided as shown in Table 5.

TABLE 5
DEBT POLICY MATTERS AFFECT THE VALUE OF FIRM

Question	Options	Response	Percentage	z-value
Does debt policy matter?	Yes	145	90	8.41**
	No	17	10	
	Total	162	100	

Source: Field survey , 2014
**significant at less than 0.001

Nepalese CFOs consider debt policy to be important for maximizing the value of the firm. As high as 90% of total responses agreed that proper debt policy affect the value of firms, and this is significantly high even less than 1% level of significance. Recent studies (Akoto & Vitor, 2014) also reported in favor of debt policy. A similar question related to the relevancy of debt policy was asked to rank the factors responsible for the policy. Weighted means have been computed, weights being the ranks assigned by respondents. On the basis of mean ranks, determining factors are enlisted in Table 6 in preferential order.

TABLE 6
RESPONSIBLE FACTORS FOR DEBT POLICY

S.N	Option	Mean Rank	Relative Importance	Kendall coefficient	Chi - Square	d.f	N
1	Flexibility	3.23	1	.16	163.19	7	162
2	Corporate tax	3.35	2				
3	Earning variation	4.12	3				
4	Transaction Costs	4.26	4				
5	Cash flow	4.80	5				
6	Competitor debt policy	4.95	6				
7	Sales growth and stability	5.55	7				
8	Personal tax	5.73	8				

Source: Survey reports , 2014

The first four factors, ranked by respondents, are flexibility, corporate tax advantage, variability of earnings and transaction costs. Out of them, the second, third and the fourth factor provide either costs or benefits for the use of debt capital. Static trade-off theory evaluates cost and benefit of debt capital and thereafter determines the optimum level of debt. In this context, it can be generalized that ranking pattern support the static trade-off theory among Nepalese practitioners. The Kendall coefficient of concordance (W) is found to be 0.16 and the observed chi-square to be 163.19 for 7 degrees of freedom, which is significant at 5% level of significance. This implies that a strong agreement in ranking scales is found among 162 respondents which is reflected in statistical measures like Kendall coefficient of concordance and simple chi-square test.

Long-Term vs. Short-Term Debt

Countries' economic conditions as well as political conditions affect the capital structure policy of the enterprises. The legal system and tax system and level of corruption explain why there are significant variations in leverage ratios across countries. Countries where corruption level is higher use less equity

and relatively high level of short-term debt (Fan, Titman and Twite, 2010). Nepal is no exception to this rule as it ranks 116th position out of 177 in corruption perception index 2013. (Britain-based Transparency International (TI) and Global post American news site 2013). Fan, Titman and Twite (2010) further reported that firms operating in a country, where legal system and law enforcement is strictly followed, use more equity and relatively more long-term debt rather than short-term debt.

Fifty-six percent preferred short term where as remaining forty-four percent opted for long term debt. Though the difference is not wide and it is statistically significant only at 13% level of significance. The first reason of making choices between long-term and short-term is the interest rate. Approximately51% of respondents preferring short-term to long-term debt and 61% of respondents preferring long-term to short-tem, hold the opinion that the interest rate is the first and primary reason of preferring one-type of debt to another. The value of chi-square (6.47) and contingency coefficient (0.06) for 2 degrees of freedom statistically proves that there is unanimity among the respondents on the impact of interest rate on making choices between long-term and short-term debt. Because of benefits of low interest rate, financially distressed companies have been found employing current liabilities which carry little or no interest. After interest rate, 'volume of borrowing' is the second important factor that determines which kind of debt (long-term or short-term) should be raised to meet the requirements of additional funding. The chi-square coefficient (0.02) and the contingency coefficient (.09) together show that the respondents are of unanimous in rating 'volume of trading' number two factors for deciding between the types of debt financing. Table 7 gives the order list of factors and degree of association based the cross tabulation and coefficient of concordance techniques.

TABLE 7
INTEREST RATE DETERMINANTS FOR DECIDING BETWEEN DEBT FINANCING

Factors	Chi- Square	Contingency coefficient	Degree of freedom
Interest rate	6.47	0.06	2
Volume of Borrowing	02	0.09	2
Maturity of debt	1.82	0.22	2

Source: Field survey, 2014

The chi-square and contingency coefficient show that the respondents, whether they prefer short-term debt or long-term debt, are in highly agreement in ranking the factors.

Impact on Taxation in Capital Structure Policy

MM (1963) argue that value of a levered firm increases with an increase in debt level. The assumption behind their argument is that interest on debt is tax-deductible expense which is a kind of indirect income accruing to a levered firm. Miller (1977) with the help of an equation proved that personal tax completely wipes out the benefits of corporate tax and reiterated the irrelevance theory of MM (1958). The study seeks the respondent's opinion on the impact of tax rate on capital structure policy if tax rate is increased by 35%. The respondents' answer is as follows.

TABLE 8
EFFECT OF TAX RATE WHEN THE RATE IS INCREASED BY 35%

Level of debt	Responses	Percentage of response
Increase	125	77.2
Decrease	21	13.0
No change	16	9.0
Total	162	100

Source: Field survey, 2014

Ninety percent of (77+13) respondents agreed that they will change their debt policy if tax rate increases. Alone 77% stated that they would increase the ratio of debt capital. This is consistent with the theoretical predictions that dictate the positive relationship between tax shield income and capital structure. The explanation is that whenever tax rate raises the tax-shield income also rises even for status quo position of debt level. The amount and proportion of tax-shield increase even more if the level of debt increases. The observed responses support traditional prediction on the relationship between tax-shield income and capital structure as explained by static trade-off theory. But increase in personal tax-rate builds up indirect pressure to the company to pay additional salary other infringes benefits (agency costs) to its employees and management, thus reducing retained earnings. Reduced retained earnings necessitate using external sources. Debt is preferred external source of fund according to pecking order theory. The relationship between tax-rate and debt can be explained by the theory of both statistic trade-off and pecking order theory. The responses in this issue are distributed in the following table headings.

TABLE 9
IMPACT OF TAX RATE ON SALARY AND INFRINGE BENEFITS

Matter	Salary and fringe benefits	Retained earning		
Result	Yes	No	Yes	No
Response	132	30	95	67
percentage	81	19	59	49
Reason	It affects administrative expenses and retained earnings	it does not affect		
Binomial Test	6.25**			

Source: Field survey, 2014
** Significance level 1%

The binomial test (6.25) makes the difference statistically significant suggesting the pecking order behavior of Nepalese firms. A supplementary question on the impact of tax rate exclusively on retained earnings was asked and their answers were found as shown in Table 9

Most of the opinions opted for 'Yes' and the difference is statistically significant at .01 level of significance. This shows that pecking order theory explains the relationship behavior between tax rate and capital structure of the company.

Pecking Order vs. Static Trade Off

There are two most influential theories of capital structure which are known as trade off and pecking order theories. The first, the trade-off theory assumes that optimal capital structure can be obtained by trading off the cost and benefits of debt and equity. The main benefit is the tax-deductibility of interest which made Modigliani and Miller (1963) assume that the value of levered firm is greater than that of unlevered firm. The costs associated with capital structure are bankruptcy costs (Kim, 1978) and agency cost (Jensen and Meckling, 1976).

Pecking order theory assumes that asymmetric information is directly related to cost of financing. To minimize the cost of asymmetric information companies prioritize their source of financing, first preferring internal financing, and then debt financing if internal financing is insufficient, and lastly equity financing as a "last resort" of financing. The concept of pecking order is initially suggested by Donaldson (1961) and the concept modeled into theory by Myers and Majluf (1984).

The trade-off theory and pecking order theory have some conflicting prediction. For example, the positive relationship between profitability and debt is assumed under trade-off theory but the pecking order assumes the negative relationship of profitability with debt. Trade-off theory assumes positive relationship between size and leverage while the pecking order assumes the negative relationship between these two ratios. Tangibility affects leverage in positive directions under trade-off theory and same is

assumed to have negative direction under pecking order theory. However, there is mixed findings in studies made in the past. Shyam-Sunder and Myers (1999) find support for pecking order theory during the study period ranging from 1971 to1989. The findings suggested by Fama and French (2005) neither supported pecking order nor trade-off theory. An empirical study made by Abubakar Sayeed (2007) showed that pecking order theory is applicable to listed non-financial Pakistani firms. Bufernaetal (2008) reported the support for trade-off theory in the study of capital structure of Libyan firms.

A question was asked to know the most preferred sources of financing when additional funding is required. The responses have been presented in Table 10.

TABLE 10
SOURCES OF FINANCING

Financing sources	Mean Rank	Relative importance
Own Funds (Equity)	2.54	3
Reserve and surplus	1.22	1
Debt	2.23	2

Source: Field survey, 2014

The most preferred source of financing is 'Reserve and surplus' (retained earnings). More than 80% of respondents assigned first rank to the 'Reserve and surplus'. The use of retained earnings is quite understandable as it neither carries transaction costs nor sends any signaling effect in the market. The selection of this source is consistent with both static trade-off theory and pecking order theory. The option 'C' i.e., debt is the second preferred source of financing where more than 60% respondents gave second ranks and third source as observed is found to be the 'equity' where more than 66% assigned the third ranks. Wilcoxon Signed Ranks Test has been applied to the options between 'equity financing' and 'debt financing'. The test statistic table (Table 11) shows the results of 'Wilcoxon.'

TABLE 11
WILCOXON TEST OF DEBT AND EQUITY FINANCING

Wilcoxon Signed Ranks Test	Debt and Equity	Test
Z -Value	-2.997**	
Significance level	.003	Two tailed
N	162	

**significance level 1%

The Z-value is significant below 1% level of significance. It can be said that there exists significant difference between two mean ranks (debt and equity). It can further be said that respondents prefer debt to equity whenever they need external financing. This behavior of financing supports pecking order theory in Nepalese CFOs. The debt financing is opted in static trade-off theory only when equilibrium is attained and the firm is under-levered. Another but similar question to the preference of sources of financing was asked to the respondents. The only difference in this question is that debt has been broken into two parts, short-term and long-term. Their answers were presented in Table 12.

TABLE 12
SHORT-TERM AND LONG-TERM DEBT

Particulars	Number of responses	Mean Ranks	Std. Deviation	Ranking position
Equity	162	1.61	.526	3
Retained earning	162	1.51	.514	2
Long term debt	162	1.79	.408	4
Short term debt	162	1.33	.473	1

Source: Field survey, 2014

The mean rank shows that short-term debt is preferred most followed by retained earnings. The third and fourth preferences come to equity financing and long-term debt financing. The difference in first preference and second preference is not significant as shown in Table 13 (Wilcoxon Signed Rank Table)

TABLE 13
WILCOXON TEST FOR SOURCE OF FINANCING

Sources	Retained earning	Long term debt	Short term debt
Equity	-1.586[a] (0.112)[b]	-3.183 [a] (0.002) [b]	-5.128 [a] (.000) [b]
Retained earning		-4.904 [a] (000) [b]	-2.6 [a] (000) [b]
Long term debt			-6.812 [a] (000) [b]

Source: Field survey, 2014
a=Z-value, b=Significance level

The Z-value between equity financing and retained earnings is -1.586 at 11% level of significance. This shows that respondents have given almost similar weightage these two sources of financing. Short term financing is selected in a distinguished way as most preferred source of financing. All the paired z-values associated with short-term debt financing are significant at very low value of probability. This contradicts with general assumption that 'retained earning' is the most secured and the best profitable source of financing. But, sometimes, this situation may occur when a firm is regularly in a loss position and there is no any scope of generating retained earnings. CFO in this firm may opt for short debt which encompasses large volume of trade credits and contingent liabilities which are virtually free of interest. In other words short-term debt is preferred as the first preference of financing in a financially distressed company. In this question of preference, respondents considered long-term debt financing as least preferred source of financing. This selection is also made in financially stress companies in order to avoid the burden of interest. The responses to the questions give little support for pecking order theory.

Situation Analysis of Interest Rate

Interest rate is cost of debt and changes in interest affect the overall cost of capital. Changes in the cost of capital cause target ratio shift away from its original point. Opinions regarding the interest rate are sought by asking two questions: one about what it is and another about what it should be.

TABLE 14
SITUATION ANALYSIS OF CURRENT INTEREST RATE

Interest rate	Response Frequency	Percent	Valid Percent	Cumulative Percent
Low	13	8.0	8.0	8.0
High	109	67.3	67.3	75.3
Reasonable	40	24.7	24.7	100.0
Total	162	100.0	100.0	

Source: Field survey, 2014

Seventy five percent (122 respondents) consider that interest rate is not reasonable. Majority of them complain that the underlying rate is high. So, further opinion is sought from these 122 respondents about what they think on reasonable rate.

TABLE 15
ANALYSIS FOR DETERMINING WHETHER THE INTEREST RATE IS REASONABLE OR NOT

Respondent criteria of interest rates	Response result	Mean	Std. Deviation
Low	13	8.64	.953
High	109	9.63	1.201
Total	122	9.52	1.213

Source: Field survey, 2014

The interest rates suggested by both groups are almost identical which is also justified in ANOVA table. Respondents who are with low interest rate suggest increasing up to 9% and respondents with higher rate suggest decreasing to 9%. In this way the same convergent interest rate comes from both ways.

TABLE 16
DIFFERENCE OF OPINION BETWEEN LOW AND HIGH INTEREST RATE GROUPS

Gap analysis	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.489	1	11.489	8.275	.005
Within Groups	166.606	120	1.388		
Total	178.096	121			

Source: Field survey , 2014

The F-value which measures the difference between mean values is significant less than 1%.
This implies that there is no meaningful difference in the reasonable rate suggested by either of the groups.

CONCLUSIONS

The capital structure policy is guided more by pecking order and less by static trade-off theory. The preference of internal financing and maintenance of target debt ratio (59%) support both theories

partially. The formulation of policy is found less affected by non-firm specific factors rather than firm specific factor. The main objectives of designing a proper policy of capital structure are to minimize the cost of capital, maximization of share value and assurance of long-term survivability. The opinion survey shows that Nepalese firms rely heavily on short-term debt rather than long-term debt. The importance of short-term debt is found very high to financially distressed companies. The choice between long-term debt and short-term debt, as pointed by respondents, depends mainly on the rate of interest and volume of borrowing.

The liberalization policy of government is found enhancing equity market but tax policy is found to have little positive impact on debt. Most of companies were running into losses and no tax-advantage accrued to these companies. To the more, personal tax had no impact in the capital structure policy and it was less effective than corporate tax.

Finally, it can be said that firm specific factors were more responsible than non-firm specific factors in determining effective capital structure policy of Nepalese firms on the basis of information provided by respondents.

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Lack of Integrity among Ghanaian Accounting Academics: Upshot on Employers' Operational Costs

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This paper studied how lack of integrity by accounting academics impacts increased-cost-of-operations of universities in Ghana offering accounting degree programmes. Using cross-sectional survey, data collected were analysed via Cronbach's alpha, tests of differences-between-proportions, and one-way ANOVA. Students would not recommend their universities for academics' lack of integrity. Universities' operational costs are increased by reduction-in-enrolment (REN), reduction-in-grants-aids-and-donations (RGD), payment of phony-faculty-claims (PPC), and rapid-impairment-of-assets (RIA). The accounting profession, business schools and other accountancy training institutions and stakeholder organizations must provide activities, policies, practices, programmes and punitive measures that are capable of averting incidents of non-adherence to integrity among academics.

INTRODUCTION

The fundamental principles of the *Code of Ethics for Professional Accountants* are integrity, objectivity, professional competence and due care, confidentiality, and professional behaviour (IFAC, 2010). Integrity as a basic requirement directs the accounting profession (ACCA, 2003; Ebbah, 2003; IFAC, 2005, 2010; AGA, 2003). To have *integrity* is to be straightforward and honest in all professional and business relationships (IFAC, 2010). This fundamental principle requires a professional accountant to not be complicated but truthful in doing his work. Integrity is so crucial in the life of both the accountant and the profession that its absence will undo their very existence. The introduction to the CIMA Code reads: "CIMA expects its members and students to uphold the highest standards of ethical behaviour. These contribute to promoting the integrity of the CIMA qualification and supporting CIMA's purpose – to enhance the employability of CIMA members" (CIMA, 2007).

A quantitative analysis of academics' responses by Kleiner and Maury (1997) looked at a long list of ideals and principles that they hoped business school staff could agree upon in this respect. Through to these, the list was narrowed down to ten key relevant ideals: respect for the human person; integrity; fairness; concern; total quality; professionalism; allegiance; confidentiality; service to the institution; and responsible citizenship (Brinkmann & Peattie, 2005). Interestingly, integrity and these ideals and

principles are in one way or the other captured in the fundamental principles of the *Code of Ethics for Professional Accountants*. *The Global Code of Ethics for Accounting Educators* issued by The International Association for Accounting Education and Research (IAAER) is another commendable attempt to promote these ideals.

The pertinence of integrity is underscored by the fact that nearly all professions and institutions require it in no small measure from its employees. As a case in point, University of Michigan, like other universities, requires all faculty and staff members to act with honesty, integrity, and in the best interest of the University when performing their duties, and to abide by the highest standards of research, educational, professional and fiscal conduct (University of Michigan, n. d.). The reason is not far-fetched. Compliance by the accountant on professional ethics of integrity among others will improve the quality of financial reports and the performance of any organization (Ogbonna & Ebinobowei, 2011). Indeed, the cornerstone of sound accounting and reporting practices is the integrity of an accountant (Kamat & Kamat, 2012), and "any perception of a lack of integrity is a competitive disadvantage" (aat-ethics.org.uk, 2013).

Unfortunately, "integrity is almost a disappeared concept in the world" (A. Nahkola, personal communication, June 17, 2015) and the world has witnessed more than enough ugly consequences as a result. Overlooking integrity, for example, makes accounting academics, at the expense of their employers, misreport expenses on travels, hotels, meals, etc. (Smith, 2013), misrepresent professional/ academic qualifications, misappropriate institutional funds (Wile, 2013), and engage in academic dishonesty (Joy, 2013). Other resulting undesirable behaviours are: falsifying research data, falsifying documentation for research grants, falsification of activity reports that are used in evaluations of faculty, giving lower grades to students who strongly oppose their views, failure to acknowledge significant student participation in research or publication, relaxing rules (for example, late papers, attendance) so students will like them, etc. which have the potential to reduce enrolment and grants or aids or donations that may have come to the university. Payment of phony faculty claims and rapid impairment of university assets could also result from lack of integrity. Again, it is alleged that some accounting academics do not care about the enforcement of ethical behaviour amongst students and/or ignore unethical behaviours of students entirely (Amlie, 2010). These corroborate the findings of Meyer and McMahon (2004), Robie and Kidwell (2003), Tabachnick, Keith-Spiegel and Pope (1991), and Engel and Smith (1990).

Accounting academics' poor treatment of unethical behaviours of students has an impact on the ethical development of students. For instance, it is contended that lack of punishment for students' unethical actions encourages students to slip back to "stage 1" moral development; or, if we assume instead that the stages of ethical development are cumulative, then the lack of penalty stalls stage 1 moral reasoning, thereby making any successive growth not easy. Indeed, how academics handle academic dishonesty, for example, in the lecture room, is a sure way in which a very unambiguous and an explicit message can be transmitted to students on the subject of "right and wrong" (Amlie, 2010). Research has shown that how accounting academics respond to ethical violations by their students also affects their products' ethical behaviour with far-reaching ramifications.

From a sample of 224 CPAs, Swindle, Phelps and Broussard (1987) found out from accounting professionals that present day CPAs seem to have personally-oriented values and ethics rather than socially-oriented values thereby lacking the utmost ethics and integrity of a professional accountant. Appropriately, Wakefield (2008) posits that promulgation of ethical standards should sustain a high level of integrity in a profession characterized by idealism. Again, Smith (2003) rightly advises that the accounting profession must restore its most priceless assets: its reputation, honour and integrity. He continues that the future of the accounting profession depends on ethical leadership by accounting professionals and accounting educators. This is crucial because, Smith argues, new laws will not restore confidence but will be restored only by ethical leadership from the accounting profession, business community and government. For tactics to resist corruption, Beenen and Pinto (2008) prescribe that accountants should exercise integrity by reflecting on and remaining true to their own individual ethical standards.

Consequently, this study presumes that if accounting academics are to provide future accounting graduates and professionals with effective integrity culture and mindset, the academics themselves should also be integrity role models. If they fail in this respect, it is obvious that it will most likely come with substantial costs to their students, institutions, themselves, and all other stakeholders. It is against this backdrop that this research was conducted to scientifically study the integrity of accounting academics in their classroom teaching, assessment, research, relationships with certain stakeholders, and in carrying out other co-curricula activities by juxtaposing their lack of integrity in the workplace and the attendant cost consequences to their employing institutions.

The rest of this paper is made up of the theoretical and conceptual discussions and the methodology that underpinned the study, followed by discussion of the results or empirical evidence, and ends with conclusions and discussions of the policy implications.

THEORETICAL AND CONCEPTUAL ISSUES

Although it appears that a cross-section of accountants disregard personal and corporate integrity, studies' results accentuate its relevance. For instance, Fatt (1995) conducted a study into the perceived views of personal qualities of accountants in Singapore among 380 students, accountants and the general public in which it was found that most of the respondents, especially the general public, viewed integrity and ethical qualities imperative to the accounting profession. Such a view supports the emphasis placed on integrity as an essential personality trait of accountants (Fatt, 1995). After surveying 110 characters in 91 firms involving accountants from 1932 to 2000 in popular cinemas, Felton, Dimnik and Bay (2008) found that the ethical behaviour of accountants is positively associated with intrinsic terminal values but negatively related to competency values.

Headlines repeatedly disclose that integrity breakdowns collectively cause increased costs (Chandler, 2005). Whereas high levels of integrity help to save on transaction costs, its increase is usually accompanied by an economic downturn. "Empirical research suggests that societies in which trust and integrity are strong perform much better on a range of economic . . . indicators than societies where they are weak" (Evans, 2012, p. 1). Indeed, everybody who lacks integrity pays for it and so are the organisations they belong to (Bourque, 2014; Waldman, n. d.). The literature further confirms that the costs of lack of integrity are excessively high and are measurable in injuries, compensation claims of workers, in addition to lost man-hours. Integrity is for a reason; it keeps people safe and prevents costly accidents (Waldman, n. d.). Worker integrity helps save money for one's organisation by reducing operating costs (International Finance Corporation, 2014; Waldman, n. d.).

The lack of adequate moral ethics and integrity among accounting professionals is attributed to varying reasons. One of them is the cheating behaviour of accounting undergraduates (Adeyemi & Adelaja, 2011; Bowers, 1964; McCabe & Trevino, 1997). Bowers (1964), cited in McCabe, Treviño and Butterfield (2001), published the first large-scale study of cheating in institutions of higher learning. Covering more than 5,000 students in a sample of 99 U.S. colleges and universities, they found that 75% of the respondents had engaged in one or more incidents of academic dishonesty. Bowers' (1964) study was replicated by McCabe and Trevino (1997) in some of the schools, which formed the sample frame of Bowers' study, and a modest increase was observed in overall cheating while significant increases were found in tests and examination cheatings.

Adeyemi and Adelaja (2011) also surveyed 600 students from universities and polytechnics in Lagos, Nigeria. They found out that many prospective accounting professionals engage in one form of cheating or the other in going through their tertiary education and training. These could be cited as a cause for the wearing down of professional ethics and integrity among accountants and accounting academics because a person who cheats in one environment is likely to cheat in another environment or workplace (Nonis & Swift, 2001).

Labande and Piette (2000) examined ethical attitudes and perceptions of unethical behaviour among academic economists. Like the present study, they examined behaviours in the areas of teaching, personal conduct, publication practices, and use of university resources. Typical of studies of academic integrity

among students (for example, McCabe et al., 2001), they found that the behaviours believed to be most unacceptable were perceived to be the least frequent. And after investigating into the extent to which perceptions of the authenticity of (a faculty) supervisor's personal integrity and character (ASPIRE) moderate the relationship between their love of money (LOM) and propensity to engage in unethical behaviour (PUB), Tang and Liu (2012) found that a high level of ASPIRE perceptions was related to low unethical behaviour intention (PUB) but high love-of-money orientation, and high self-esteem.

A year 2000 KPMG survey conducted on 2,390 employees on organizational integrity revealed that the percentages of employees who observed unethical conduct and/or illegal conduct on the job were very high from various industries. Whereas lack of integrity and/or illegal acts pooled 76 percent for all industries, lack of integrity alone pooled 49 percent. The survey report summed the following noteworthy conclusions; that (1) "Employees are observing a high level of illegal and unethical conduct on the job, (2) Misconduct observed by employees is of a serious nature, (3) Companies are sending the wrong messages to employees on how to meet business goals, (4) Improving organizational integrity requires comprehensive solutions, and (5) Management's commitment to business integrity enhances its ability to attract and retain good employees" (KPMG, 2000, pp. 1, 2).

A similar survey by the same organisation to examine the risk of fraud and misconduct, tagged *KPMG Forensic Integrity Survey*, sampled 4,056 U.S. employees who spanned all levels of job responsibility, 16 job functions, 11 industry sectors, and 4 thresholds of organizational size. It also examined how the presence of conformity programmes within firms affects the levels of misbehaviour. Interestingly, 74% this time reported that they had detected misconduct in the preceding 12-month period, with 50% of respondents revealing that what they had seen could be grounds for ' "a significant loss of public trust if discovered" ' (p. 1). In effect, as rightly concluded by the report, these results remain the same from respondent observations in the year 2000 (KPMG, 2006).

This apart, Tang and Liu (2012) studied the love of money as an influence of ethics. Their study investigated the extent to which perceptions of the authenticity of a supervisor's personal integrity and character moderate the relationship between people's love of money and propensity to engage in unethical behaviour. It was found out that the main effect of one's love of money on one's propensity to engage on ethical behaviour was not significant but the main effect of authenticity of a supervisor's personal integrity and character on propensity to engage in unethical behaviour was significant.

Integrity is a core aspect of ethics that cannot be overlooked. To underpin the essence of integrity in accounting professionals, Audi and Murphy (2006) in a study outlined two main faces of integrity. One is the wide, integrational sense in which integrity is a certain kind of unity in character and the aretaic sense in which integrity is identified either with specific move, virtue or with move virtue in general. Just as he is not expected to injure his employer, the accountant is to see to it that other people in his enterprise are not allowed to indulge in financial and other malpractices (Amponsah, 2011).

An accountant who is ethically conscious will have the courage of his own personal conviction. Principle rules in his decisions and actions rather than expedience. He is very firm and does not yield to the dictates of others. Again, he is not a hypocrite or praise singer. He is praised for consistency (Adams, 2001). The accountant should not be someone who behaves ethically (rightly) just because he wants to shun some punishment and or to obtain some reward. He must be fair, true to his work, and ethical at all levels no matter the circumstances. Competence and integrity should be cornerstones of his accounting decisions and judgements. He must live high above what is in the business code of ethics. He should possess a great deal of intelligence and sincerity.

METHODOLOGY

The study amalgamated a cross-sectional, qualitative and quantitative research designs—descriptive, survey, correlational, and case study research designs—that combined faculty, students and practitioners. The population consisted of 3,675 accountants (estimated 140 accounting academics—4 per institution, 3500 Level 400 accounting students, and 35 university finance officers) in universities and university colleges in Ghana accredited by the National Accreditation Board by December 2012 that ran bachelor

degrees in Accounting. The sample was 1,225 persons (140 academics, 1,050 students, and 35 finance officers). The respective response rates were 57 percent, 74 percent, and 72 percent for faculty, students, and finance officers.

Generally, the questionnaires (3 sets) were built on the unethical behaviours of academics as established by the empirical works of Engle and Smith (1990), Robie and Kidwell, Jr. (2003), and Saat, Jamal and Othman (2004). The behaviours were either retained fully or slightly modified to suit the current study and to enhance better understanding considering the culture and backgrounds of the respondents. The cost consequence variables used in the questionnaire were gleaned from various sources as in the literature (Smith, 2013; Addai, 2013; Dalhat & Barnabas, 2003; Jennings, 1995; Li, 2008).

The questionnaires were validated by test-retest and their reliability was verified by Cronbach's alpha reliability coefficient (0.8447) using a sample of 270 of the questionnaire completed by selected accounting academics and some Level 400 students in a pilot test. In order to test the hypothesis and achieve the objective, tests of differences-between-proportions were used to analyse both faculty and students' responses. One-way ANOVA was still employed for confirmation.

The fourth phase of this study's analysis related the percentage of respondents who responded in particular ways to the total respondents and total enrolment figures collected to come out with the proportion of cost consequences that could be suffered by the employing institutions of the accounting academics studied.

The hypothesis for this study was stated as follows:

> *H_0: Increased-cost-of-operations is not significantly impacted by lack of integrity of accounting academics.*

The variables were operationalised as below:

$$Y = f(X) \tag{1}$$

$$Y = CC = y_1 \tag{2}$$

$$X = x_1 \tag{3}$$

where
CC = Cost consequences
x_1 = LOI = Lack of Integrity, and
y_1 = REN, RGD, PPC, and RIA

where
REN = Reduced enrolment
RGD = Reduction in grants, aids, and donations
RIA = Rapid impairment of assets
PPC = Payment of phony faculty claims

$$CC = f(LOI), \text{ and} \tag{4}$$

$$LOI = f(REN, RGD, PPC, RIA) \tag{5}$$

Equation (5) is the principal function that characterises the modelled effects of accounting academics' lack of integrity on the cost consequence variables.

RESULTS AND DISCUSSION

The substantive objective of the study was to determine how lack of integrity by accounting academics impacts "increased cost of operations" of their employing institutions. In other words, the aim was to find which of the elements of increased-cost-of-operations can be caused most by the lack of integrity variables. We should recall that increased-cost-of-operations—the dependent variable—is made up of reduced enrolment (REN), reduction in grants, aids and donations (RGD), payment of phony faculty claims (PPC), and rapid impairment of assets (RIA). Data on lack of integrity are presented in Table 1 (A & B) of Appendix I (NOTE: The accompanying percentage table for Table 1 is Table 2, also in Appendix I). Table 1 summarises the responses of both faculty and students on the consequences for lack of integrity by accounting academics. Data collected on each of the sub-variables examined under lack of integrity (the independent variable) are analysed, interpreted and discussed below.

The first factor examined was falsifying of research data. In Table 2, 45 percent of faculty respondents indicated that falsifying of research data can result in reduced enrolment (REN) while 20 percent had the view that it could lead to reduction in grants, aids and donations (RGD). The difference (0.25) in views for these two cost consequences was significant at the 5 percent alpha level as shown by the p-value of .001 in Table 1A. Similarly, the difference in views regarding RGD and payment of phony faculty claims (PPC) was significant (difference = 0.15, *p*-value = .000). The same can be said about RGD-RIA and PPC-RIA. However, the other two differences were not statistically significant. Generally, the faculty responses were tilted towards REN (45%) and then PPC (35%). By way of contrast, in Table 2, 42.7 percent of student respondents said that they will maintain school (MS) if their teachers falsify research data but only 8.9 percent said they will rather shift school (SS) for the same reason. The difference (0.33) between these two consequences was significant (*p*-value = .001) as displayed in Table 1B. Likewise, all the other differences were significant. By and large, the students' responses were tilted towards MS (42.7%) and then I will not recommend school (NR) (30.1%). Obviously, the consequence of REN as a result of falsifying research by faculty is in dissonance with MS but in agreement with NR by students.

Falsifying research data implies being dishonest and inaccurate in conveying expert conclusions, opinions, and research findings, in addition to acknowledging the latent limitations (BPS, 2009). Some of the cost consequences to the employing universities for this behaviour include the institution's reputational damage (Cabral-Cardoso, 2004; WSU, n. d.) which likely affects current and future students' enrolment, payment of huge fines (Solberg, 2012; WSU, n. d.) and potential reduction in government funding (WSU, n. d.) which amounts could have been used to expand infrastructure to increase enrolment. The students' stance on this issue could probably be attributed to their fear of not gaining admission into other almost non-existent institutions with its concomitant inconveniences. Thus, student respondents disapprove falsifying research data by their faculty but since they cannot easily shift school, they will stay in but will reasonably not recommend to others to enrol.

The second factor examined was falsifying of documentation for research grants. In Table 2, 38.3 percent of faculty respondents designated that this behaviour can result in payment of phony faculty claims (PPC) while 19.8 percent indicated that it could lead to reduced enrolment (REN). The difference (-0.18) in views for these two cost consequences, as revealed in Table 1A was significant (*p*-value = .009). Besides the difference in views regarding RGD and PPC (*d* = 0.04, *p*-value = .600), all the others were statistically significant. Generally, the faculty responses were more of PPC (38.3%) and then RGD (34.6%). On the other hand, in Table 2, 40.6 percent of students stated that they will maintain school (MS) if their teachers falsify documentation for research grants but 10.4 percent said they will rather shift school (SS) for the same reason. The difference between these two consequences was significant (*d* = 0.30, *p*-value = .001) as in Table 1B. All the other differences were also significant. On the whole, the students' responses were basically MS (40.6%) and then I will not recommend school (NR) (29.6%).

The two predominant faculty responses (PPC and REN) for falsifying of documentation for research grants presuppose that the employing universities will suffer more funds outflows and little inflows in sync. If found of indulging in this behaviour, some of the costs could arise from increased supervision and

remuneration for stand-in human resource to do what would otherwise have been done by the culprit as well as repayment of research grants received (Solberg, 2012) with interest. The eventual effect could be increase in students' fees. Students therefore seemed rational by indicating that though they will not change schools, they will not recommend schools where behaviour of faculty might lead to increase in fees.

Misreporting of expenses—to claim from university was the third factor examined. With respect to Table 2, 70 percent of faculty subscribed that this unethical behaviour can result in payment of phony faculty claims (PPC) while only 3.8 percent indicated that it could lead to reduced enrolment (REN). With respect to Table 1A, the difference (-0.66) in views for these two cost consequences was significant (*p*-value = .001). Apart from the difference in views regarding REN and RIA (*d* = 0.01, *p*-value = .638), all the others were statistically significant. Generally, the faculty responses were more of PPC (70%) and then RGD (23.8%). Conversely, in Table 2, 41.9 percent of students said that they will maintain school (MS) if their teachers misreport expenses but 9.1 percent said they will shift school (SS) for this. The difference between these two consequences was significant (*d* = 0.32, *p*-value = .001). All the other differences were significant with *p*-values of .000. In general, the students' responses were mostly MS (41.9%) and then I will not recommend school (NR) (29.1%).

It follows that the universities pay phony faculty claims on padded faculty expenses (Lewellyn, 1996; Rezaee et al., 2001) unless they are detected on time. The cost consequences to the institutions could be far-reaching and myriad as testified by the very high percentage by participant faculty in the present study. It is usual to expect that grants, aids and donations might be curtailed if providers of such funds find out that universities pay phony claims to faculty for misreported expenses. Again, students would continue to stay in such universities but would not want to advise others to join them.

The fourth factor examined was falsification of activity reports that are used in evaluations of faculty. In Table 2, 41.5 percent of faculty respondents indicated that this unethical behaviour can result in PPC while 25.6 percent had the view that it could lead to REN. The difference (-0.15) in views for these two cost consequences, as in Table 1A, was not significant at the 5 percent alpha level as shown by the p-value of .033. Similarly, the differences in views regarding all the other proportions were not significant: REN-RGD (*d* = -0.49, *p*-value = .490) and RGD-PPC (*d* = -0.11, *p*-value = .140). Generally, the faculty responses were tilted towards PPC (41.5%) and then RGD (30.5%). By way of contrast, in Table 2, 39.8 percent of student respondents said that they will maintain school (MS) if their teachers falsify activity reports that are used in faculty evaluations but 11.4 percent said they will rather shift school (SS) for the same reason. Table 1B shows that the difference (0.28) between these two consequences was significant (*p*-value = .000). Likewise, all the other differences were significant. By and large, the students' responses were tilted towards MS (39.8%) and then NR (29.8%).

It appears plausible to think that when faculty falsify reports to get promoted their universities would expend more funds on them and that could bring about reduction in grants, aids and donations should the providers find out the means by which they were promoted. Yet again, students take the previous stance possibly for the same reasons.

Giving of lower grades to students who strongly oppose the academic's views was the fifth behaviour examined. The results in Table 2 reveal that 65 percent of faculty responded that this unethical behaviour can result in REN while 20 percent had the view that it could lead to RGD. The difference in views for these two cost consequences was significant at the 5 percent alpha level as shown in Table 1A (d = 0.45, *p*-value = .000). Similarly, the difference in views regarding all the other proportions were significant except RGD-PPC (*d* = 0.10, *p*-value = .077) and PPC-RIA (*d* = 0.05, *p*-value =.230). By and large, the faculty responses were mostly REN (65%) and then RGD (20%). On the other hand, 33 percent of students said they will maintain school (MS) but 33.4 percent stated that they will not recommend school (NR) if their teachers give lower grades to students who strongly oppose their (academics') views. The difference between these two consequences was not statistically significant (*d* = 0.00 approx., *p*-value = .868). SS-RS was also not significant (*d* = 0.00, *p*-value = .917) but the others were. On the whole, the students' responses were NR (33.4%) and then MS (33%). Whereas faculty overwhelmingly thought the behaviour in question can reduce enrolment, students were divided mostly between MS and NR, the only

instance where NR surpassed all other responses. Up to this point, giving of lower grades to students who strongly oppose the academic's views has been the only behaviour which would make more students not to recommend school more than any other response or action.

Kaynak and Sert (2012) found in their study that unethical behaviours of service providers and their representatives affect customer satisfaction negatively. Indeed, giving lower grades to students who strongly oppose the academic's views affects students' satisfaction and subsequent enrolment. This is likely the more reason why faculty rated reduced enrolment very high and two-thirds of students would not recommend schools where this unethical behaviour rears its ugly head.

The sixth factor examined was failure to acknowledge significant student participation in research or publication. Here, 57.5 percent of faculty indicated that this behaviour can result in REN while 25 percent indicated that it can result in RGD. The difference of 0.32 in views for these two cost consequences was significant with *p*-value of .000 as presented in Table 1. Only the difference in views between PPC and RIA was not significant (d = 0.08, *p*-value = .093); all the others were statistically significant. In the main, the faculty responses were more of REN (57.5%) and then RGD (25%). Alternatively, 39.1 percent of student respondents stated that they will maintain school (MS) if their teachers fail to acknowledge significant student participation in research or publication but 11.6 percent said they will instead shift school (SS). The difference between these two consequences was significant (d = 0.27, *p*-value = .000). All the other differences were also significant. On the whole, the students' responses were basically MS (39.1%) and then NR (31.4%). The closeness of the two seemingly opposite students' responses makes the REN by faculty appear very strong at this point.

Failure to acknowledge significant student participation in research or publication (Engle & Smith, 1990; Kidwell & Kidwell, 2008) casts suspicion over the integrity that parents and students rely on to judge the fitness of faculty in universities where their wards and they themselves school (McRoberts, 2002). Such deliberate neglect of ethical responsibility to human subjects has far-reaching ramifications on enrolment. The 2012 iThenticate report details that this misconduct brings about university brand damage which negatively affects reputation, enrolment and ability to increase overall funding from governmental agencies (Turnitin, 2012, p. 4). The report also stated that "because an individual researcher is an employee and as such a representative of an organization, a very public case of misconduct involving that researcher has the potential to significantly harm the institution's brand," so most of the universities "keep such information private, given the embarrassing and sensitive nature of misconduct" with its most damaging long-term costs (p. 5).

Relaxing rules (for example, late papers, attendance) so students will like the academic was the seventh factor that was considered. The results showed that 58.5 percent of faculty subscribed that this unethical behaviour can result in REN while 23.2 percent indicated that it could lead to RGD. The difference (0.35) in views for these two cost consequences was significant (*p*-value = .001) with respect to Table 1A. Excepting the differences in views regarding RGD-PPC and PPC-RIA (d = 0.10, *p*-value = .099; d = 0.08, *p*-value = .350 respectively), all the others were statistically significant. Generally, the faculty responses were more of REN (58.5%) and then RGD (23.2%). Students (44.1%) said on the other hand that they will maintain school (MS) if their teachers relax rules so students will like them but 9 percent said they will shift school (SS). The difference between these two consequences was significant (d = 0.35, *p*-value = .000). All the other differences were significant. In general, the students' responses were mostly MS (44.1%) and then NR (25.9%). One would have expected a very high response percentage for MS since relaxing rules "benefits" students; an appreciable number of them have registered their disapproval if their teachers desire to achieve cheap favour.

Relaxing rules (for example, late papers, attendance) so students will like the academic (Engel & Smith, 1990; Labande & Piette, 2000; Robie & Kidwell, 2003; McCabe et al., 2001; Tabachnick et al., 1991) was regarded highly by faculty as being capable of causing reduction in enrolment probably as a result of faculty assuming that certain well-bred students would not like to experience such a behaviour. It is likely the reason why a respectable percentage of students would not want to recommend universities where this behaviour thrives. After all, if the rules would be relaxed, why were they made in the first place?

The last lack of integrity factor examined was misrepresentation of academic and/or professional qualifications. The results revealed that 51.2 percent of faculty responded that this unethical behaviour can result in REN while 19.5 percent were of the view that it could lead to RGD. The difference in views for these two cost consequences was significant at the 5 percent alpha level as shown in Table 1A (d = 0.31, p-value = .000). Similarly, two other differences in views were significant: REN-PPC (d = 0.35, p-value = .001) and REN-RIA (d = 0.37, p-value = .001). The others were not significant. By and large, the faculty responses were mostly REN (51.2%) and then RGD (19.5%). On the other hand, 36.7 percent of students held that they will maintain school (MS) but 15 percent assured that they will shift school (SS) if their teachers misrepresent the latter's academic and/or professional qualifications. The difference between these two consequences was statistically significant (d = 0.21 approx., p-value = .000). All the others were significant too. On the whole, the students' responses were MS (36.7%) and then NR (29.1%). Whereas majority of faculty believed that misrepresenting their academic and/or professional qualifications will reduce enrolment, only about a third of students would want to maintain school, implying that both groups appreciate the seriousness of the problem. Obviously, most of the students would not want imposters and the incompetent to teach them.

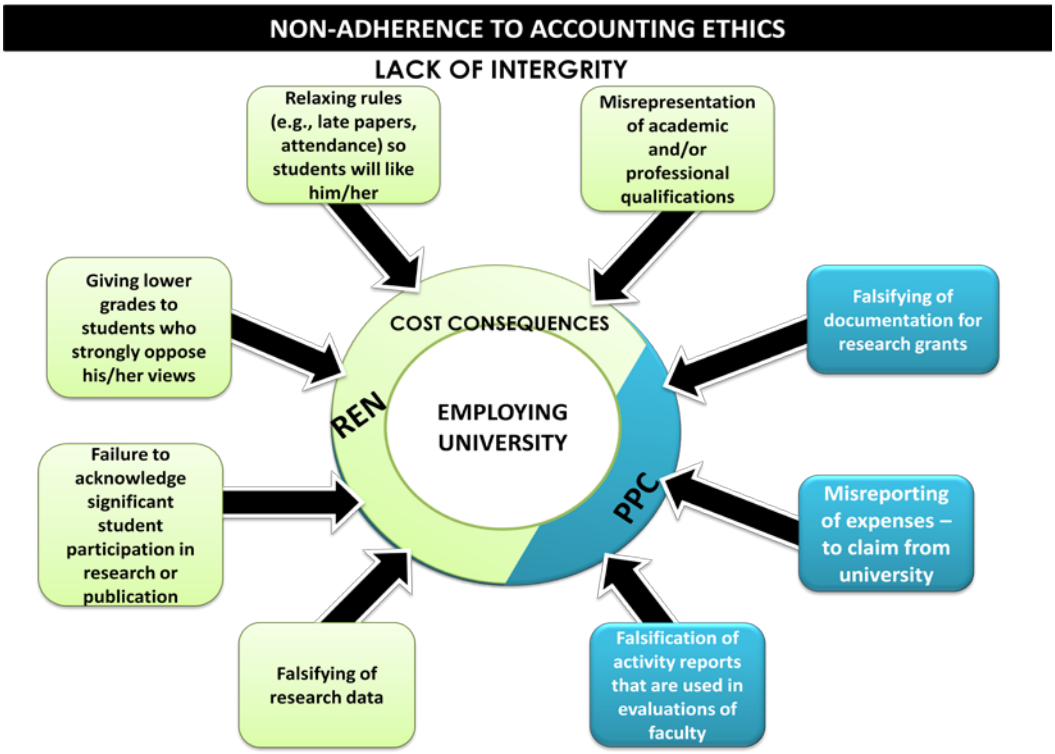
Misrepresentation of academic and/or professional qualifications (Wile, 2013), like unaccredited colleges and universities, "bogus degrees," and résumé fraud, is ubiquitous in recent times (Barr, 2004; Lee, 2006) that it is required that applicant background checks be conducted to help colleges and universities to be more self-assured about the integrity of the persons they hire. Lee contends further that academic institutions function, in various respects, on the foundation of trust; though they cannot guarantee that that trust is earned, verifying an applicant's background information helps ensure that academic and/or professional qualifications are not misrepresented. There is no gainsaying that betrayal of this trust, if disclosed, has serious consequences on the enrolment and financial strengths of a university as affirmed by the present findings.

In the end, the results show that each of the lack of integrity variables, according to the respondents' views, at least causes some level of cost consequences in each of the dependent variables. The most outstanding cost consequences suffered by the universities were reduced enrolment and payment of phony faculty members' claims. Figure 1 depicts the results.

In Figure 1, five lack of integrity variables point to the cost consequence (CC) they can cause to the employing university—reduced enrolment (REN)—in the outer circle which represent CC. On the darker side of the circle are the three that can cause payment of phony claims (PPC).

Results from the difference-between-proportions' tests on faculty responses revealed that, the five lack of integrity variables that can cause the cost consequence of reduced enrolment were: falsifying of research data, giving lower grades to students who strongly oppose his/her views, failure to acknowledge significant student participation in research or publication, relaxing rules (for example, late papers, attendance) so students will like him/her, and misrepresentation of academic and/or professional qualifications. In other words, according to the results, these pretentious behaviours can increase the cost of operations to the universities through reduced enrolment. The three remaining factors—falsifying of documentation for research grants, misreporting of expenses to claim from university, and falsification of activity reports that are used in evaluations of faculty—were regarded as having the potential to impact the universities through payment of phony faculty claims. These spurious reportage behaviours as well as their pretentious counterparts above appeared to have been upheld by student respondents who largely indicated that they will maintain school but will not recommend to others. Probably they would maintain school because of their fear of not getting admission into other universities. Besides, why should they go through the inconveniences of shifting school for lack of integrity of their teachers? So the faculty belief that their own disingenuousness can cause reduced enrolment and payment of phony faculty claims seemed to be in line with the students' views. Therefore, the study's purpose to determine which increased cost of operation elements could impact the employing universities revealed REN and PPC.

FIGURE 1
COST CONSEQUENCES OF LACK OF INTEGRITY



Source: Researchers' model.

TESTING OF SIGNIFICANCE IMPACT OF LACK OF INTEGRITY ON INCREASED-COST-OF-OPERATIONS USING ONE-WAY ANOVA

H_0: Increased-cost-of-operations is not significantly impacted by lack of integrity of accounting academics.

TABLE 5
HYPOTHESIS TESTING ON LACK OF INTEGRITY WITH ANOVA

Increased cost of operations	F	Probability	Significance level: > or .05	Decision
REN	19.654	.171	>	Do not reject
RGD	2.579	.444	>	Do not reject
PPC	160.117	.060	>	Do not reject

Source: Extraction from Appendix II

The critical value of F (df1 = 1; df2 = 6; α = .05) = 5.9874 as in Appendix III. Since the computed values of F in Table 5 above are much greater than the critical value, this means that the impact of lack of integrity on increased cost of operations is not significantly different among the elements of the latter. Indeed, the corresponding probabilities *p*(.171; .444; .060) also confirm the insignificance of the impact among the elements. Therefore, the null hypothesis is retained.

The results in Table 5 showed an acceptance of the null hypothesis which states that increased-cost-of-operations is not significantly impacted by lack of integrity of Accounting academics. That is, the collective impact of the lack of integrity variables examined on the cost consequence variables is not statistically significant. This result appears to somewhat disagree with the literature because the latter seem to generally indicate that the costs of lack of integrity is too high.

In sum, the findings of the hypothesis indicate that there is no serious impact of lack of integrity on increased-cost-of-operations in the universities. This is a confirmation of the difference-between-proportions' results in which the impact of lack of integrity on increased cost of operations in most cases were insignificant. This result implies that although lack of integrity has made certain universities lose a lot of money, the situation is not that serious in the area of study.

COSTS FROM REDUCED ENROLMENT (REN) FOR LACK OF INTEGRITY (LOI)

In this last section, we attempted to determine the potential costs of REN as a consequence of lack of integrity with the help of the cross-tabulation percentages and our assumptions. Although REN is only one out of the four consequence variables, we believe that computations and discussion on it will suffice. The data are presented in Table 6. Columns *a, b* and *c* form a unit and should be interpreted as such. Columns *a, d* and *e* is another unit. Column *a* lists the unethical behaviours that were examined under lack of integrity. In column *b* is shown the percentages of students who indicated that they will leave their universities if they found their accounting teachers indulging in the unethical behaviours in column *a*. The revenues that could be lost on a present enrolment of 757 students (total student respondents) are computed in column *c*. Column *d* displays the percentages of students who will not recommend their school should their teachers be found indulging in the unethical behaviours in column *a*. A future potential revenue loss on assumed 200 students who would not be introduced by the present 757 students for enrolment is also computed in column *e.*

The computations were done as follows: *Column c*: It was assumed that each of the 757 student respondents pays average total fees of $2,000 per semester. That is, 757 x 2000 = $1,514,000. The result was multiplied by the percentages in column *b*. *Column e*: It has been observed that a certain proportion of new students into a university is recommended by continuing students. Based on the 4.51 percent growth rate of Accounting students into the universities in the area of study, it was further assumed that a quarter of new enrolments—200 of the new students who would be enrolled in a session—would come from the recommendations of the 757 continuing students. (One university's admission records indicate that about a fourth of all new enrolments come from continuing students' recommendations of their university to others). So the percentages in column *d* (those who will not recommend their school because of their teachers' unethical behaviours) were multiplied by 200 x $2,000; that is, if the fees ($2,000) remained unchanged.

It is worth noting that, the deciphering of the data in Tables 6 must be done in light of the above assumptions (All percentage figures, from cross tabulations, are found in Table 2). The computed costs, their interpretations, as well as their implications are presented below:

In Table 6, the potential costs of reduced enrolment as a consequence of lack of integrity behaviours among accounting academics have been computed and displayed. In it, the cost of 8.9 percent of the 757 students who will leave the university because their faculty falsify research data will be $134,746. That of falsifying documentation for research grants (10.4%) will be $157,456. It continues in that order till a total of $1,397,422 is attained for all the eight (8) lack of integrity factors. On the other hand, the cost of losing 30.1 percent of new students for lack of recommendation by the 757 continuing students for falsifying research data by accounting faculty would be $120,400. For falsifying documentation for research grants, the university would lose $118,400. The total would be $953,600. These connote that, for falsifying research data alone, the hypothetical university may lose a whopping $255,146 in a semester. Other results in this respect show no better picture.

TABLE 6
POTENTIAL REDUCED ENROLMENT COST AS A RESULT OF LACK OF INTEGRITY

a	*b*	*c*	*d*	*e*
Lack of integrity factors	**Percentage of Students Who Will Shift School**	**Revenue Loss on Present Enrolment of 757 Students $**	**% of Students Who Will Not Recommend School**	**Future Revenue Loss on 200 Students to be enrolled $**
Falsifying of research data	8.9	134,746	30.1	120,400
Falsifying of documentation for research grants	10.4	157,456	29.6	118,400
Misreporting of expenses – to claim from university	9.1	137,774	29.1	116,400
Falsification of activity reports that are used in evaluations of faculty	11.4	172,596	29.8	119,200
Giving lower grades to students who strongly oppose his/her views	16.9	255,866	33.4	133,600
Failure to acknowledge significant student participation in research or publication	11.6	175,624	31.4	125,600
Relaxing rules so students will like him/her	9.0	136,260	25.9	103,600
Misrepresentation of academic and/or professional qualifications	15.0	227,100	29.1	116,400
T O T A L S		**1,397,422**		**953,600**

Source: Researchers' computations.

Usually, every student who is enrolled into a university pays fees. Such payments are revenues to the university. To some universities, students' tuition and other fees are their main sources of revenue. Even in public universities, the size of government grants and other funding are dictated by the enrolment. Consequently, the amount of money paid by each student or provided by the government based on student enrolment is crucial to the running of a university. Therefore, any unit reduction in enrolment (REN) costs the university some revenue.

Besides fees paid by students, many universities receive grants, aids and donations from one source or the other. Such funds undoubtedly go a long way to complement the fees paid by students. Should providers of such funds perceive that faculty members falsify documents to attract research grants, for example, the providers would most likely curtail such funds. That is, if there is reduction in grants, aids and donations (RGD), it would mean that the university shall have to look for funds from elsewhere to make up the lost funds.

Every expense paid by a university is cost to the institution. Any amount paid will no longer be available for the payment of another expense, and each expense paid makes the university worse off. However, payments should bring benefits to the university. But if a university pays faculty claims that have been padded (PPC), such payments will not bring any such benefits to the university. It is money gone down the drain, cost suffered for having employed faculty members who lack integrity.

University assets, like assets of every organization, have life-spans. All things being equal, such assets live up to their estimated useful lives because such estimations are done with experience and expert advice and with the assumption that the assets would be used solely for the organization's purposes. However, if some faculty members use the assets for personal gains, such a practice will likely impair the assets prematurely (RIA). That will mean that the university will incur the cost of replacing the precipitately impaired assets with money that could have been used to do other things.

CONCLUSIONS AND POLICY IMPLICATIONS

It could be gathered from the empirical evidence that few accounting academics in the area of study do not adhere to integrity. In the face of non-exhibition of integrity by some of their faculty, accounting students generally would still maintain their schools but will not recommend them to others. Moreover, while most of the cost consequences of non-adherence to integrity are never suffered by universities, they occasionally do. Reduction in enrolment and payment of phony faculty claims are an outgrowth of lack of integrity among accounting academics. Finally, reduction in enrolment (REN), reduction in grants, aids and donations (RGD), payment of phony faculty claims (PPC), and rapid impairment of assets (RIA) increase the costs of operations of the universities.

Having revealed that accounting academics' lack of integrity produces harsh cost consequences, universities must provide rules and regulations in their faculty handbooks where they are lacking to prevent the occurrence of such unethical behaviours rather than covering up and shielding the culprits. The study results also imply that there is the urgent need for the accounting profession, business schools and other accountancy training institutions and organizations to provide activities, policies, practices and programmes that are capable of averting incidents of non-adherence to integrity.

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APPENDIX I

TABLE 1A
DIFFERENCES BETWEEN PROPORTIONS AMONG COST CONSEQUENCES FOR LACK OF INTEGRITY—FACULTY

	REN-RGD		REN-PPC		REN-RIA		RGD-PPC		RGD-RIA		PPC-RIA	
	d	***p-v***	***d***	***p-v***	***d***	***p-v***	***d***	***p-v***	***d***	***p-v***	***d***	***p-v***
Falsifying of research data	.25	.001	.10	.197	.45	.450	-.15	.000	.02	.000	.35	.000
Falsifying of documentation for research grants	-.14	.035	-.18	.009	.12	.022	-.04	.600	.27	.000	.31	.000
Misreporting of expenses – to claim from university	-.20	.000	-.66	.000	.01	.638	-.45	.000	.21	.000	.68	.000
Falsification of activity reports that are used in evaluations of faculty	-.49	.490	-.15	.033	.23	.000	-.11	.140	.28	.000	.39	.000
Giving lower grades to students who strongly oppose his/her views	.45	.000	.55	.000	.60	.000	.10	.077	.15	004	.05	.230
Failure to acknowledge significant student participation in research or publication	.32	.000	.45	.000	.52	.000	.13	.043	.20	.000	.08	.093
Relaxing rules so students will like him/her	.35	.000	.45	.000	.53	.000	.10	.099	.18	.000	.08	.350
Misrepresentation of academic and / or professional qualifications	.31	.000	.35	.000	.37	.000	.04	.551	.61	.298	.03	.665

d = Difference in percentage *p-v* = *p*-value

REN = Reduced enrolment
PPC = Payment of phony faculty claims
RGD = Reduction in grants, aids and donations
RIA = Rapid impairment of assets

TABLE 1B
DIFFERENCES BETWEEN PROPORTIONS AMONG COST CONSEQUENCES FOR LACK OF INTEGRITY—STUDENTS

	MS-SS		**MS-RS**		**MS-NR**		**SS-RS**		**SS-NR**		**RS-NR**	
	d	***p-v***	***d***	***p-v***	***d***	***p-v***	***d***	***p-v***	***d***	***p-v***	***d***	***p-v***
Falsifying of research data	.33	.000	.24	.000	.12	.000	-.09	.000	-.21	.000	-.11	.000
Falsifying of documentation for research grants	.30	.000	.21	.000	.11	.000	-.09	.000	-.19	.000	-.10	.000
Misreporting of expenses – to claim from university	.32	.000	.22	.000	.12	.000	-.10	.000	-.20	.000	-.09	.000
Falsification of activity reports that are used in evaluations of faculty	.28	.000	.20	.000	.10	.000	-.07	.000	-.18	.000	-.10	.000
Giving lower grades to students who strongly oppose his/her views	.16	.000	.16	.000	.00	.868	.00	.917	-.16	.000	-.16	.000
Failure to acknowledge significant student participation in research or publication	.27	.000	.21	.000	.07	.001	-.06	.000	-.19	.000	-.13	.000
Relaxing rules so students will like him/her	.35	.000	.23	.000	.18	.000	-.12	.000	-.16	.000	-.04	.024
Misrepresentation of academic and/or professional qualifications	.21	.000	.17	.000	.07	.001	-.04	.033	-.14	.000	-.01	.000

d = Difference in percentage *p-v* = *p*-value

MS = I will maintain school SS = I will shift school
RS = I will recommend school NR = I will not recommend school

TABLE 2
ACCOMPANYING PERCENTAGE TABLE FOR TABLE 1 (A & B)
FROM CROSS-TABULATIONS

	REN	RGD	PPC	RIA	MS	SS	RS	NR
Falsifying of research data	45.0	20.0	35.0	0.0	42.7	8.9	18.3	30.1
Falsifying of documentation for research grants	19.8	34.6	38.3	7.4	40.6	10.4	19.4	29.6
Misreporting of expenses – to claim from university	3.8	23.8	70.0	2.5	41.9	9.1	19.9	29.1
Falsification of activity reports that are used in evaluations of faculty	25.6	30.5	41.5	2.4	39.8	11.4	19.0	29.8
Giving lower grades to students who strongly oppose his/her views	65.0	20.0	10.0	5.0	33.0	16.9	16.7	33.4
Failure to acknowledge significant student participation in research or publication	57.5	25.0	12.5	5.0	39.1	11.6	17.8	31.4
Relaxing rules (e.g., late papers, attendance) so students will like him/her	58.5	23.2	13.4	4.9	44.1	9.0	21.0	25.9
Misrepresentation of academic and/or professional qualifications	51.2	19.5	15.9	13.4	36.7	15.0	19.1	29.1

REN to RIA are for faculty; MS to NR for students

APPENDIX II

TABLE 3
ANOVA RESULTS

		Sum of Squares	df	Mean Square	F	Sig.
REN	Between Groups	3316.535	6	552.756	19.654	.171
	Within Groups	28.125	1	28.125		
	Total	3344.660	7			
RGD	Between Groups	193.395	6	32.233	2.579	.444
	Within Groups	12.500	1	12.500		
	Total	205.895	7			
PPC	Between Groups	3002.190	6	500.365	160.117	.060
	Within Groups	3.125	1	3.125		
	Total	3005.315	7			

APPENDIX III

TABLE 4
ANOVA F-DISTRIBUTION TABLE AND HYPOTHESIS RESULTS

F - Distribution ($\alpha = 0.05$ in the Right Tail)

df_2 \ df_1	Numerator Degrees of Freedom								
Denominator Degrees of Freedom	1	2	3	4	5	6	7	8	9
1	161.45	199.50	215.71	224.58	230.16	233.99	236.77	238.88	240.54
2	18.513	19.000	19.164	19.247	19.296	19.330	19.353	19.371	19.385
3	10.128	9.5521	9.2766	9.1172	9.0135	8.9406	8.8867	8.8452	8.8123
4	7.7086	9.9443	6.5914	6.3882	6.2561	6.1631	6.0942	6.0410	6.9988
5	6.6079	5.7861	5.4095	5.1922	5.0503	4.9503	4.8759	4.8183	4.7725
6	5.9874	5.1433	4.7571	4.5337	4.3874	4.2839	4.2067	4.1468	4.0990
7	5.5914	4.7374	4.3468	4.1203	3.9715	3.8660	3.7870	3.7257	3.6767
8	5.3177	4.4590	4.0662	3.8379	3.6875	3.5806	3.5005	3.4381	3.3881
9	5.1174	4.2565	3.8625	3.6331	3.4817	3.3738	3.2927	3.2296	3.1789
10	4.9646	4.1028	3.7083	3.4780	3.3258	3.2172	3.1355	3.0717	3.0204
11	4.8443	3.9823	3.5874	3.3567	3.2039	3.0946	3.0123	2.9480	2.8962
12	4.7472	3.8853	3.4903	3.2592	3.1059	2.9961	2.9134	2.8486	2.7964
13	4.6672	3.8056	3.4105	3.1791	3.0254	2.9153	2.8321	2.7669	2.7144
14	4.6001	3.7389	3.3439	3.1122	2.9582	2.8477	2.7642	2.6987	2.6458
15	4.5431	3.6823	3.2874	3.0556	2.9013	2.7905	2.7066	2.6408	2.5876
16	4.4940	3.6337	3.2389	3.0069	2.8524	2.7413	2.6572	2.5911	2.5377
17	4.4513	3.5915	3.1968	2.9647	2.8100	2.6987	2.6143	2.5480	2.4943
18	4.4139	3.5546	3.1599	2.9277	2.7729	2.6613	2.5767	2.5102	2.4563
19	4.3807	3.5219	3.1274	2.8951	2.7401	2.6283	2.5435	2.4768	2.4227
20	4.3512	3.4928	3.0984	2.8661	2.7109	2.5990	2.5140	2.4471	2.3928
21	4.3248	3.4668	3.0725	2.8401	2.6848	2.5727	2.4876	2.4205	2.3660
22	4.3009	3.4434	3.0491	2.8167	2.6613	2.5491	2.4638	2.3965	2.3419
23	4.2793	3.4221	3.0280	2.7955	2.6400	2.5277	2.4422	2.3748	2.3201
24	4.2597	3.4028	3.0088	2.7763	2.6207	2.5082	2.4226	2.3551	2.3002
25	4.2417	3.3852	2.9912	2.7587	2.6030	2.4904	2.4047	2.3371	2.2821
26	4.2252	3.3690	2.9752	2.7426	2.5868	2.4741	2.3883	2.3205	2.2655
27	4.2100	3.3541	2.9604	2.7278	2.5719	2.4591	2.3732	2.3053	2.2501
28	4.1960	3.3404	2.9467	2.7141	2.5581	2.4453	2.3593	2.2913	2.2360
29	4.1830	3.3277	2.9340	2.7014	2.5454	2.4324	2.3463	2.2783	2.2229
30	4.1709	3.3158	2.9223	2.6896	2.5336	2.4205	2.3343	2.2662	2.2107
40	4.0847	3.2317	2.8387	2.6060	2.4495	2.3359	2.2490	2.1802	2.1240
60	4.0012	3.1504	2.7581	2.5252	2.3683	2.2541	2.1665	2.0970	2.0401
120	3.9201	3.0718	2.6802	2.4472	2.2899	2.1750	2.0868	2.0164	1.9588
∞	3.8415	2.9957	2.6049	2.3719	2.2141	2.0986	2.0096	1.9384	1.8799

Empirical Analysis of Counterparty Risk and Exchange Rate Risk Management on the Performance of Deposit Money Banks in Nigeria (2009-2013)

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The study investigated the effect of counterparty risk and exchange rate risk on the profitability of deposit money banks in Nigeria. Profit before tax was measured as a function of non-performing loans; seven banks were selected on a cross-sectional basis for five years. Secondary data were used and an auto-regression conditional model was used to measure risk. The result revealed that counterparty risk and exchange rate risk have significant effect on bank performance- profitability. Accordingly, stringent but non-static credit policy and prudent exchange rate management to enhance economy were suggested.

INTRODUCTION

In recent years, counterparty risk (CR) and exchange rate risk (ERR) have emerged as the most important factors driving financial markets and contributing to the global credit crisis. The Central Bank of every nation periodically prescribes how much credit deposit money banks operating within its borders should allocate the various sectors of the economy. Allocating these scarce funds according to the prudential guideline of the apex bank and at the same time providing succor for as many prospective borrowers as possible with the objective of increasing net returns is a major challenge for these economic intermediators. Given the constraints, choice must be made among competing users of fund in order to maximize bank profitability, liquidity and solvency.

Prior to the monetary approach emphasis of the 1970s, it was common to emphasize international trade flows as primary determinants of exchange rates. This was due, in part, to the fact that governments maintained tight restrictions on international flows of financial capital. The role of exchange rate changes in eliminating international trade imbalances suggests countries with current trade surpluses are expected to have an appreciating currency, whereas countries with trade deficits should have depreciating currencies. Economists have responded to such real-world events by devising several alternative views of

exchange rate determination. These theories place a much greater emphasis on the role of the exchange rate as one of many prices in the worldwide market for financial assets.

It is a widely held view that exchange rate movements should affect corporate expected cash flows and stock returns, by causing changes in the home currency value of foreign currency denominated revenues (cost) and the terms of competition for multinationals and firms with international activities (importers and exporters). In general, however, if purchasing power parity (PPP) is violated exposure to exchange rate is not limited to firms with direct foreign trade activities. The growing emphasis on exchange risk management, the extensive use of foreign currency derivatives and other hedging instruments by corporations to protect their foreign currency dominated cash flow from unexpected exchange rate movement, implies that the market value of the firm is sensitive to exchange rate uncertainty which is unpredictable and probabilistic in nature, Aremu et al (2010).

In 2009, Nigerian banking industry suffered a historic retrogressive trend in both profitability and capitalization. Just three out of twenty four banks declared profit, eight banks were said to be in grave situation due to capital inadequacy and risk asset depletion; the capital market slumped by seventy percent (70%) and most banks had to recapitalize to meet the CBN regulatory directive of 25 billion ordinary shareholders fund (CBN, 2010). In June 2004, a new accord on capital management was proposed by the Basle committee on bank supervision and its focus was to establish an international standard on banking regulations- about how much capital banks need to reserve in order to cover credit and operation risk (BIS, 2004). Following this guide, in 2005, the central bank of Nigeria (CBN) raised the capital requirement for banks to twenty-five billion naira (25 billion) from 2 billion naira (N2 billion). In addition, a series of amendments was made to prudential guidelines. This new improvement or exercise by the CBN brought about significant decrease in the number of deposit money banks from eighty eight to twenty five consequent upon failure of banks to meet the capital requirement. In 2009, a new governor of CBN was appointed. At inception, Mallam Lamido Sanusi, the new CBN governor, ordered a thorough stress-test for all deposit money banks. At the end, the CBN had to inject N620 billion to rescue eight troubled banks. Five others were given ultimatum to recapitalize (CBN, 2010). The sector became unstable, many employees including the banks' chief executive officers and managers lost their jobs. Investors lost their funds and some of the executive directors and managing directors were arrested and charged to court for giving loans without due process. Also, identified was the exercise of predatory debtor in the banking system whose modus operandi involves the abandonment of their debts obligations in some banks only to contract new debts in other banks (Nawaz et al 2012).

CR involves the risk of a particular bank and the borrower's portfolio risk. CR management determines the effectiveness of a deposit money bank. The range of customers and volume of credit transactions have drastically increased recently. Hence, the need to establish full fledged risk management and management of retail and small business credit risk (Lapteva, 2009). Ozturk (2007) defines risk management as the process by which managers satisfy the risk taking needs by identifying key risk, obtaining consistent, understandable, operational risk measures, choosing which risk to reduce and which to increase and by what means , and establishing procedures to monitor the resulting risk position.

This study appraises the CR management policies on profitability of deposit money banks with a view to finding the causes and consequence of poor credit management, bad debts and risky policies in banks. The significant role played by the foreign exchange market on the exchange rate translation is very critical to banks' performance and to a great extent determines the impact of the risk on bank performance. Below are some related challenges that give rise to poor risk management in deposit money banks: (i) Granting loans to dubious customers who, invariably, do not pay back; (ii) Giving out loans by directors without due process; (iii) Poor currency risk management on banks' performance; (iv) Poor portfolio management; (v) Inadequate attention to government policy and challenging business environment; and (vi) Weak adoption of measures to address the problem of foreign exchange risk.

The broad objective of the study is to evaluate CR and ERR management on profitability and other forms of performance of deposit money banks in Nigeria. This objective is further broken down into the following specific objectives: (i) To examine the effect of non-performing loans on profitability of deposit money banks in Nigeria; (ii) To assess the impact of exchange rate risk on banks' performance in Nigeria;

(iii) to examine the effect on impairment charges on credit losses on profitability of deposit money banks in Nigeria.

Therefore, this study will analyze different lapses that accompany risk management in banks and their effect on profit generation by the latter. and what will be noted by deposit money banks when it comes to counterparty risk management in order to bring about profitability by avoiding the dangers of non-performing loans, impairment losses as well as following due procedure in addressing currency risk by the CBN in granting credit facilities as well as repayment of this credit. The study period under consideration is five years (2009-2013).

LITERATURE REVIEW AND THEORETICAL FRAME WORK

CR is the exposure faced by banks when a borrower (customer) defaults in honouring debt obligations on due date or at maturity. This risk, also referred to as Credit risk (CDR), is capable of putting the bank in distress if not properly managed. CR management maximizes bank's risk adjusted rate of return by maintaining credit risk exposure within acceptable limit in order to provide framework for understanding the impact of CDR management on banks' profitability (Kargi, 2011).

Demirguc-Kunt and Huzinga (1999) suggest a two-fold credit risk management. The main source of CR includes, limited institutional capacity, inappropriate credit policies, volatile interest rates, poor management, inappropriate laws, low capital and liquidity levels, direct lending, massive licensing of banks, poor loan underwriting, laxity in credit assessment, poor lending practices, government interference and inadequate supervision by the central bank (Kithinji, 2010).

According to Mordi (2006), the existence of many parallel markets side by side with the officially recognized institutions, are usually responsible for the rise in exchange rate misalignment, most especially in developing countries. We posit that exchange rate risk can be seen from a relational viewpoint. A foreign branch/subsidiary converts its cash flows from the domicile currency to home currency by translating them at expected future exchange rates. In an era of rapid and discontinuous changes, actual exchange rates might differ significantly from expectations. The difference between the expected cash flows and actual cash flows emanating from exchange rate movements (ERM) is termed exchange rate risk. Even between major currencies substantial exchange rate movements (SERM) may be experienced over relatively short periods of time (Holliwell, 1997). SERM can alter the statement of financial position of a business if its assets or liabilities are domiciled in a currency other than that in which it prepares its accounts ('translation' or 'statement of financial position' risk), and may affect the statement of comprehensive income if the impact is on income or expenditure ('trading' or 'transaction' risk) (Holliwell, 1997: 281). There might also be longer-term strategic ('economic') consequences for the value of the business concern if for example, rates of exchange settle at levels which fundamentally alter the concern's competitiveness in international markets (Holliwell, 1997: 281). According to Akinsulire (2008), exchange rate movement can result in a change in the value of the firm. The extent of this change is a measure of concomitant economic risk. More so, Shapiro (1996) said there are three main types of exchange rate risk: namely transaction risk, translation risk and economic risk. The Transaction risk is basically a form of cash flow risk and it deals with the effect of exchange rate movements on transactional account exposure related to receivables (Export contract), payables (Import contracts) or repatriation of dividends. Jhinghan (2003) states that, the demand for a country's currency is an important determinant of the exchange rate. An increase in bank credit risk gradually leads to liquidity and solvency problems. Credit risk may increase if the bank lends to borrowers it does not have adequate knowledge about.

Theoretical Literature

Commercial banking plays a dominant role in commercial lending (Allen & Gale, 2004). Deposit money banks routinely perform investment banking activities in many countries by providing new debt to their customers (Gande, 2008). The credit creation process works smoothly when funds are transferred from ultimate savers to borrowers (Bernanke, 1993). There are many potential sources of risk, including liquidity risk, credit risk, interest rate risk, market risk, foreign exchange risk and political risks

(Campbell, 2007). However, CR is the biggest risk faced by banks and other financial intermediaries (Gray, Cassidy, & RBA., 1997). The credit risk's indicators include the level of non- performing loans, problem loans or provision for loan losses (Jimenez & Saurina, 2006). In Mordi (2006), the existence of many parallel markets side by side with the officially recognized institutions, are usually responsible for the rise in exchange rate misalignment, most especially in developing countries. Madura (1989) posits that the exchange rate risk relates to the effect of unexpected exchange rate changes on the value of the bank.

Several relevant theories reviewed include Purchasing Power Theory, Credit Risk Theories, Currency Base Theory, Monetary Approach, The Portfolio Balance Model, The Flexible-Price Monetary Theory, and The Asset Approach among others. Succinctly, Currency Base Theory remains the underpinning theory on which this research work stands.

Currency Base Theory-This theory, posited by Aliber in 1971, was described by Sharan (2012: 224).The currency base theory is based on imperfect foreign exchange and capital market. He postulates that internationalization of firm can best be explained in terms of the relative strength of different currencies, such as firms from a strong country and firms from a weak country. In a weak currency country, the income stream is fraught with greater exchange risk and as a result, the income of a strong-currency firm country firm is capitalized at a higher rate, implying that such a firm is to acquire a large segment of income generation in the weak currency country corporate sector.

Empirical Literature

CR is a serious threat to the performance of banks; therefore various researchers have examined the impact of credit risk on banks in varying dimensions.

Kargi (2011) evaluated the impact of counter party risk on the profitability of Nigerian banks. Financial ratios as measures of bank performance and credit risk were collected from the annual reports and accounts of sampled banks from 2004-2008 and analyzed using descriptive, correlation and regression techniques. The findings revealed that credit risk management has a significant impact on the profitability of Nigerian banks. It concluded that banks profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits thereby exposing them to great risk of illiquidity and distress.

Epure and Lafuente (2012) examined bank performance in the presence of risk for Costa-Rican banking industry during 1998-2007. The results showed that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect efficiency and return on assets while the capital adequacy ratio has a positive impact on the net interest margin.

Kithinji (2010) assessed the effect of credit risk management on the profitability of deposit money banks in Kenya. Data on the amount of credit, level of non-performing loans and profits were collected for the period 2004 to 2008. The findings revealed that the bulk of the profits of deposit money banks are not influenced by the amount of credit and non-performing loans, therefore suggesting that other variables other than credit and non-performing loans impact on profits. Chen and Pan (2012) examined the credit risk efficiency of 34 Taiwanese deposit money banks over the period 2005-2008. Their study used financial ratios to assess the credit risk and was analyzed using Data Envelopment Analysis (DEA). The credit risk parameters were credit risk technical efficiency (CR-TE), credit risk allocative efficiency (CR-AE), and credit risk cost efficiency (CR-CE). The results indicated that only one bank is efficient in all types of efficiencies over the evaluated periods. Overall, the DEA results show relatively low average efficiency levels in CR-TE, CR-AE and CR-CE in 2008.

Felix and Claudine (2008) investigated the relationship between bank performance and credit risk management. It could be inferred from their findings that return on equity (ROE) and return on assets (ROA) both measuring profitability were inversely related to the ratio of non-performing loan to total loan of financial institutions thereby leading to a decline in profitability. Ahmad and Ariff (2007) examined the key determinants of credit risk of deposit money banks on emerging economy banking systems compared with the developed economies. The study found that regulation is important for

banking systems that offer multi-products and services; management quality is critical in the cases of loan-dominant banks in emerging economies.

Al-Khouri (2011) assessed the impact of bank's specific risk characteristics, and the overall banking environment on the performance of 43 deposit money banks operating in 6 of the Gulf Cooperation Council (GCC) countries over the period 1998-2008. Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability when measured by return on equity is liquidity risk. Ben-Naceur and Omran (2008) in attempt to examine the influence of bank regulations, concentration, financial and institutional development on deposit money banks' margin and profitability in Middle East and North Africa (MENA) countries from 1989-2005 found that bank capitalization and credit risk have positive and significant impact on banks' net interest margin, cost efficiency and profitability.

Also, many scholars have conducted empirical research in order to examine factors that influence the movement of the exchange rate risk. Hsing (2006) empirically found that short-term real exchange rate has positive effect on exchange rate and broad money supply, while country risk and the expected rate of inflation have negative impact on exchange rate and on the performance of the banks. It follows therefore that the respective national authority would need to avoid fiscal indiscipline in order to prevent the exchange rate from real appreciation since it will significantly influence the country's export from declining. Annofe (2005) investigated the variables that affect exchange rate movement in Sweden, United Kingdom and Japan against the US dollar for the period 1995 to 2004. The result indicated that interest rate differential is statistically significant in explaining changes in exchange rate in the three countries, while, interest rate has negative effect on exchange rate in Sweden and the United Kingdom. However, the influence of money supply, industrial production and inflation differential on exchange rate varies between the countries.

Odedokun (1997) studied a group of macroeconomic policies, such as devaluation on real exchange rate movement. The empirical study revealed that public sector fiscal deficits, growth of domestic credit, domestic consumption, GDP ratio, government consumption, private consumption, improvement in terms of trade income per capital and black market exchange rate premium lead to real exchange rate appreciation. On the contrary, devaluation, investment-GDP ratio, consumer-wholesale price ratio in trade and economic growth in industrialized economies, result in real exchange rate depreciation. Based on studies by Hsieh (1982), Marston (1987), Edison and Wouland (1987), there is an indication that productivity differential leads to exchange rate appreciation.

Imeddrine and Christopher (2003) analyzed the main determinants of the real exchange rate in the Middle East and North African countries. The findings indicated that output per capital, government expenditure, real interest rate differentials, and the degree of openness of the economy influence the real exchange rate. Beatrice (2001) employed a co-integration technique to investigate the long- run determination of the real exchange rate for import and exports and of the internal real exchange rate in Zambia. The result showed that real exchange rate for import is affected by terms of trade and government share. Moreover terms of trade, central bank reserves and trade taxes have long-run impact on the real exchange rate for exports. It was also revealed that terms of trade, investment share and the rate of growth of real GDP have long-run effect on the internal real exchange rate, while foreign aid and openness in dealings (financial/economic liberalization), all have short-run inflation on the real exchange rate indices.

David Faulkner and Konstantin Makrelor (2008) used the single Engle granger techniques to examine the drivers of the manufacturing equilibrium exchange rate over the period of 1995 to 2006 in South Africa. The author's results showed that unit labour cost, productivity, government expenditure and openness are the main drivers of the manufacturing exchange rate. (Chowdhury, 1999) observed that nominal devaluation plays an important role in the real exchange rate determination. Similarly, empirical evidence suggests that net capital flow, foreign aid, trade retraction and macroeconomic policies lead to real exchange rate appreciation in Papua Guinea (Chowdhury, 1999).

Frankel (2007) analyzed that real exchange rate is positively related to terms of trade, real interest differential and lagged real exchange rate. However, capita account liberalization, risk premium and per capital income have effect on real exchange rate. Patel and Srivastata (1997), identified that investment – GDP ratio, overall fiscal deficit and nominal exchange rate have effect on real exchange rate in India. In Angola, (Takaendesa, 2006 cited on p.32 in Onaja, J.E. (20150)) confirms that terms of trade, real interest rate differential, domestic credit, openness and technology progress have long- term impact on real exchange rate. In all, terms of trade, domestic credit and economic systems and financial liberalization all have significant influence on real exchange in the short – run, while terms of trade and the domestic credit have both short – run and long – run effect on real exchange rate according to Takaendesa.

RESEARCH METHODOLOGY

The area of study is on the appraisal of Counter party risk and Exchange rate risk on performance of deposit money banks in Nigeria, using Seven different deposit money banks which are; Zenith Bank Plc, First City Monument Bank Plc (FCMB), Guaranty Trust Bank Plc (GTB), WEMA Bank Plc, First Bank Nigeria Plc, Sterling Bank Plc and United Bank for Africa (UBA) Plc. The simple random sampling technique is used to select seven out of population of twenty four that are quoted on the Nigerian stock exchange market. Only secondary data were used for the purpose of this research and the use of seven Banks Financial Report in Nigeria from year 2009-2013.

The variables for this research are made of independent variables such as the Counterparty risk and market risk with associated factors such as Non-performing loans, impairment loss, exchange rate, inflation rate and credit policy, while the dependent variable is bank performance with its associated factor like bank profitability (profit before tax). Each variable is measured by its associated proxy in order to determine the existing relationship. The Ordinary least-square method and the Durbin –Watson test were used to achieve the set objectives of the research.

Model Specification

Hypothesis One

Ho_1: Non performing loans do not have any effect on bank's performance.

$$\gamma = \beta + \beta 1x + \mu \quad (1)$$

Where Y is the dependent variable, which is Non performing loan and β is the constant, $\beta 1$ is the regression coefficient or multiplier of the independent variable, X is the independent variable, which represented by bank's performance, μ is the error term which represents other factors that may affect the model but are outside the scope of the model.

Hypothesis Two

Ho_2: Exchange rate risk does not have effect on banks profitability

$$\gamma = \beta + \beta 1x + \mu \quad (1)$$

Where Y is the dependent variable, which is the Exchange rate risk, and β Represent the constant of the model, $\beta 1$ Represent the regression coefficient of the independent variables, X is the dependent variable, which represented by banks performance, μ is the error term which represents other factors that may affect the model but are outside the scope of the model.

Hypothesis Three

Ho_3: Impairment on credit loan loss does not have effect on profitability of banks

$$\gamma = \beta + \beta 1x + \mu \quad (1)$$

Where Y is the dependent variable, which is the Impairment charge, and β is the constant of the model, $\beta 1$ is the regression coefficient of the dependent variables, X is the independent variable, which represented by profitability of banks, μ is the error terms which represent other factors that may affect the model but are outside the Scope of the model.

DATA ANALYSIS AND RESULT DISCUSSION

Hypothesis one

Ho_1: Non performing loans do not have any effect on bank profitability.

Dependent Variable: PBT
Method: Least Squares
Date: 06/06/15 Time: 11:13
Sample: 2009 2013
Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.36E+08	25261654	5.379425	0.0126
NON PERFORMING	-0.712873	0.360369	-1.978174	0.1423

R-squared	0.866046	Mean dependent var	95122099
Adjusted R-squared	0.721394	S.D. dependent var	42938803
S.E. of regression	32661888	Akaike info criterion	37.73049
Sum squared resid	3.20E+15	Schwarz criterion	37.57427
Log likelihood	-92.32623	Hannan-Quinn criter.	37.31120
F-statistic	3.913171	Durbin-Watson stat	1.594535
Prob(F-statistic)	0.142310		

Source: Authors' Computation, 2015

Discussion of Result

The Ordinary least square analysis for hypothesis one above shows that there is significant relationship between the Non- performing loans and profitability, this is because the R-squared value is 87% which is higher than 50%, hence according to our decision rule above, the Null hypothesis is rejected. Furthermore the Durbin –Watson test also revealed that there is no problem of autocorrelation with our variables (this refers problem that could arise as result of time lag or possible uncertain future occurrence), because its value is not above 2.

Hypothesis Two

Ho_2. Exchange rate risk does not have effect on bank performance

Dependent Variable: PBT
Method: Least Squares
Date: 06/06/15 Time: 11:14
Sample: 2009 2013
Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.24E+08	16788380	7.364021	0.0052
EXCHANGE RATE	-60.17625	23.68244	-2.540965	0.0846

R-squared	0.882758	Mean dependent var	95122099
Adjusted R-squared	0.777011	S.D. dependent var	42938803
S.E. of regression	27926383	Akaike info criterion	37.41722
Sum squared resid	2.34E+15	Schwarz criterion	37.26099
Log likelihood	-91.54304	Hannan-Quinn criter.	36.99792
F-statistic	6.456501	Durbin-Watson stat	1.584456
Prob(F-statistic)	0.084608		

Source: Authors' Computation, 2015

Discussion of Result

The statistical analysis above reveals that there is significant relationship between exchange rate and performance of quoted banks. This is because the R-squared value is 88.27% which exceeds 50% in the above table, hence according to the decision rule above, the null hypothesis is rejected. Also the Durbin-Watson result, to a large extent, is in agreement with the decision rule. Hence, we can accept that there is no problem of autocorrelation in our variables

Hypothesis Three

$Ho_{3:}$ Impairment charges on credit loss do not have effect on bank profitability

Dependent Variable: Impairment
Method: Least Squares
Date: 06/10/15 Time: 09:20
Sample: 2009 2013
Included observations: 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	71549742	1.22E+08	0.585272	0.5995
PBT	-0.109357	1.191725	-0.091764	0.9327

R-squared	0.572799	Mean dependent var	61147485
Adjusted R-squared	0.429601	S.D. dependent var	88755488
S.E. of regression	1.02E+08	Akaike info criterion	40.01472
Sum squared resid	3.14E+16	Schwarz criterion	39.85850
Log likelihood	-98.03681	Hannan-Quinn criter.	39.59543
F-statistic	0.008421	Durbin-Watson stat	2.783823
Prob(F-statistic)	0.932670		

Source: Authors' Computation, 2015

Discussion of Result

The statistical analysis above shows that the relationship between the impairment charges on credit loss and profitability is significant, this is because the R-squared value computed is 57% which exceeds 50%. Hence according to the decision rule above, the null hypothesis is rejected. Therefore, we can conclude that there is, significant relationship between impairment charges on credit loss and profitability. The Durbin- Watson value still establishes that there is no problem of autocorrelation, because the result is still within the range of 2.

CONCLUSION, RECOMMENDATIONS AND POLICY IMPLICATIONS

Conclusion

Sound credit with exchange rate management requires a clear, well-articulated and accessible policy document which spells out the philosophy of lending and repayment. This will ensure that loan losses are reduced to the barest minimum via a programme which permits constant supervision of the projects being financed, easy identification of delinquent loans and instituting effective corrective measures. In conclusion, the results from hypotheses tested have confirmed that the following should be accepted: nonperforming loans have an inverse and negative relationship with profitability of deposit money banks in Nigeria; exchange rate risk has positive and direct effect on performance of deposit money banks in Nigeria; and impairment on loans has some effect on profitability of deposit money banks in Nigeria.

Recommendations

From the findings of this study, it is obvious that risk management cannot be ignored in bank intermediation processes for it is a major influence on deposit bank performance. Based on this study, the following recommendations are made: (i) appropriate information technology should be used in the achievement of a sound policy in risk management and good trading techniques; (ii) Credit policy should be defined, clearly stated and documented and in possession of staff in the credit department; (iii) a sound exchange rate policy should be formulated by the CBN as an effective measure of managing exchange rate risk; (iv) great care should be exercised when assessing the worthiness of loan customers; and (v) foreign exchange rate fluctuations or instability should be effectively managed, because failure to effectively manage same will result in an adverse effect, such that industrialists, investors, and major players even across national borders will be significantly constrained in their projected plan, revenue and cost as well as profit margin.

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An Improved Methodology to Assess Value-relevance of Earnings and Book Values on Corporate Equity Securities

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This paper advances Minimum Sum (MS) nonlinear iterative regression to model price as a function of earnings and book values per share. The MS methodology improves upon OLS methodology in three ways. First, MS allows for nonlinear estimation of price to eps and bvps. Second, MS allows for modeling Minimum Absolute Percentage Error (MAPE) as the objective function instead of Minimum Sum of Squared Errors. Third, MAPE mutes the negative effects of outlying observations and non-normal data compared to OLS. Better price estimates are provided which will aid participants in the primary and secondary markets, or financial services in general.

INTRODUCTION

Valuation of corporate equity securities has been a subject of extensive theoretical, statistical and analytical research over the years. Early theoretical research focused on discounted earnings or discounted dividend models to value securities. More contemporary research incorporates optionality into valuation models considering equity as options with an infinite life.

Statistical modeling generally assumes a linear relationship between price and earnings and book value, and uses Ordinary Least Squares (OLS) to estimate equity valuation models using fundamental balance sheet data. For example, Eqns. 1 and 2 are a functional specification and linear regression model, respectively, for equity price valuation:

$$P = f(EPS, BVPS) \quad (+, +) \tag{1}$$

$$P = a + beps * EPS + bbvps * BVPS \tag{2}$$

Predicted values generated there-from, are used in the investment banking and investment management businesses in many contexts. Successes in these contexts are contingent upon both accurate price estimates which, unfortunately, OLS does not provide. Following are three limitations confronted by participants in their pursuit of modeling equity share prices. This research resolves all three of these.

Problem 1 Non-Normal Data

Pricing and balance sheet data tend to be highly skewed, usually to the right, often highly leptokurtic and often with very severe outliers. Figs. 1-3, belose, display histograms of price, eps and bvps for constituents of the SP1500 as of 12/31/2014. A few *very* severe outliers are deleted from each histogram. Histograms for all years follow the same distribution.

FIGURE 1
HIST. OF PRICE

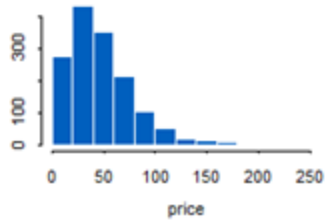


FIGURE 2
HIST. OF EPS

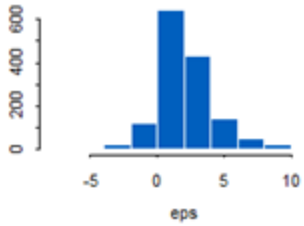
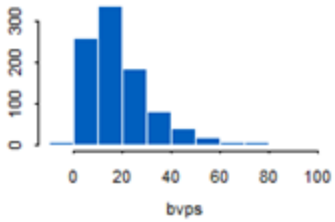


FIGURE 3
HIST. OF BVPS



Parameter estimates and inferences from OLS regression under such skewed and outlying data circumstances are unreliable.

Problem 2 Nonlinearity

Discounted earnings or earnings per share models presume a *linear* relationship between price, and earnings per share and book value per share with no intercept. The true relationship, owing to behavioral factors and/or optionality, might be *nonlinear* with an intercept.

Scatterplots of price with eps and bvps for 12/31/2014 are presented in Figs. 4 and 5, below, with very severe outliers deleted. Notice that, as shown by the curved (solid) regression overlay plots, the relationship of price with eps and bvps are non-linear. Scatterplots for all years generally follow the same configuration.

FIGURE 4
PRICE VS EPS

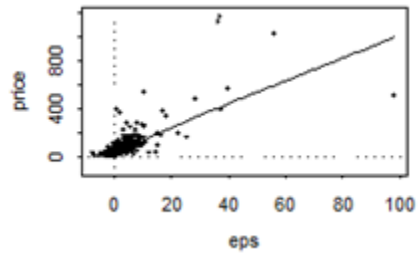
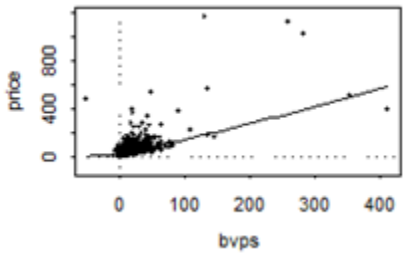


FIGURE 5
PRICE VS BVPS



Use of OLS in the presence of these nonlinear relationships will result in biased predicted values of price generally, and unrealistic, and perhaps negative, predicted values with low or negative eps or bvps values. Logarithmic transformations of price are often used, but are too elementary to model the complexity of the nonlinear relationship.

Problem 3 Price Scale

The OLS objective function is as follows:

$$\text{Min } \Sigma(\text{price-predicted})^2 \qquad (3)$$

Publicly traded equities have prices ranging from very low single digits to high prices in the hundreds of dollars. OLS will give higher priced securities greater "weight" in achieving its objective function. For example, consider 2 companies with the same market values and with actual and OLS generated predicted equity prices, as follows:

Security	MV	Actual Price	OLS Predicted Price	Deviation	Deviation^2	%Error
A	1B	200	190	-10	100	-5%
B	1B	10	20	10	100	100%

Both predicted prices deviate from actual prices by 10 dollars, per the objective function, but have a hugely different %Error. But as *both companies have the same market value*, it is reasonable that the deviations should have the *same percentage* deviation, e.g. 10% or 15%, not the same absolute deviation. This problem is referred to by Ohlson (1995) as a scale problem. In the presence of this scale problem, minimizing squared deviations is not the correct objective function. The ideal objective function is Minimum Absolute Percentage Error (MAPE), as follows:

$$\text{Min } \Sigma(\text{abs}(\ln(\text{price}/\text{predicted}))) \quad (4)$$

This research proposes Minimum Sum Regression (MS) as an alternative to Ordinary Least Squares (OLS) which corrects for the three limitations and better models equity prices as a function of fundamental balance sheet data. Specifically:

1. MS allows for *any functional parametric relationship* between one response variable and one or more independent variables. The relationship could be exponential, logistic, negative binomial, growth, Weibull, Erlang, gamma, beta, Unit Normal Loss Integral (UNLI), or any other. In this research, MS is used to model equity price as a nonlinear UNLI function of earnings per share and book value per share. The UNLI function mimics the nonlinear relationship portrayed in Figs. 3 and 4. Importantly, the model will provide better price estimates in the presence of low (or negative) eps or bvps which OLS is not capable of achieving. UNLI mimics a call option model and eliminates the possibility of negative estimated prices.
2. MAPE minimization as the objective function eliminates the problem of bias due to price scale. Low price equities are directly modeled to be given the same weight in the regression algorithm as high prices, also allowing for more accurate price estimates.
3. Minimizing MAPE, instead of $\Sigma(\text{price-predicted})^2$ mitigates the problem of skewed data or outlying error terms, and reduces to a robust regression methodology allowing for more accurate price estimates.

Better models and algorithms will produce better price estimates which makes for better decision making in investment banking, investment management, and other pursuits.

METHODOLOGY

Cross-section SP1500 constituent data for price, earnings per share and book-value per share for the years 2000-2014 was drawn from FactSet[1]. Thus the dataset is pooled time series and cross section. The functional specification is given in Eqn. 1, below.

$$\text{price} = f(\text{eps}, \text{bvps}) \quad (5)$$

where,

price - equity price per share
eps - earnings per share
bvps - book value per share

Support for the notion of price being a positive function of both earnings and book value per share is given in Ohlson [2]. Collins, et. al. [1] provide theoretical detail noting that book value per share is especially important when earnings per share is low or negative, or contains non-recurring items, transitory components.

Ordinary Least Squares (OLS) and Minimum Sum Regression (MS) will be used to estimate, evaluate and compare cross-section regressions from 2000 to 2014 for all companies included in the SP1500 for which all data was present for that year. The serious deficiencies and biases inherent in OLS and the improvements to the estimating prices due to MS will be highlighted.

Eqns. 6 and 7 display the OLS and MS models to be estimated:

$$\text{OLS:} \quad \text{price} = a + b_{eps}*\text{eps} + b_{bvps}*\text{bvps} \tag{6}$$

$$\text{MS:} \quad \text{price} = a + b_{eps}*\text{UNLI(eps)} + b_{bvps}*\text{UNLI(bvps)} \tag{7}$$

where UNLI in Eqn. 7 is the Unit Normal Loss integral as computed in Eqn. 8, below.

$$\text{UNLI(z)}=\int_z^{\infty}(X-z)\varphi(z)dz \tag{8}$$

A closed form expression for UNLI is given in Eqn. 9, below.

$$\text{UNLI(X)} = .399*\exp(-0.5*z*z)- z*(1-\text{CDF}(-z)) \tag{9}$$

where $z=(X- \mathbf{x_o})/ \mathbf{x_d})$

Substituting z to UNLI we get:

$$\text{UNLI(X)} = .399*\exp(-0.5 *((X-\mathbf{x_o})/\mathbf{x_d})*((X- \mathbf{x_o})/ \mathbf{x_d}))-(-((X- \mathbf{x_o})/ \mathbf{x_d}))*(1-\text{CDF}(-((X- \mathbf{x_o})/ \mathbf{x_d}))) \tag{10}$$

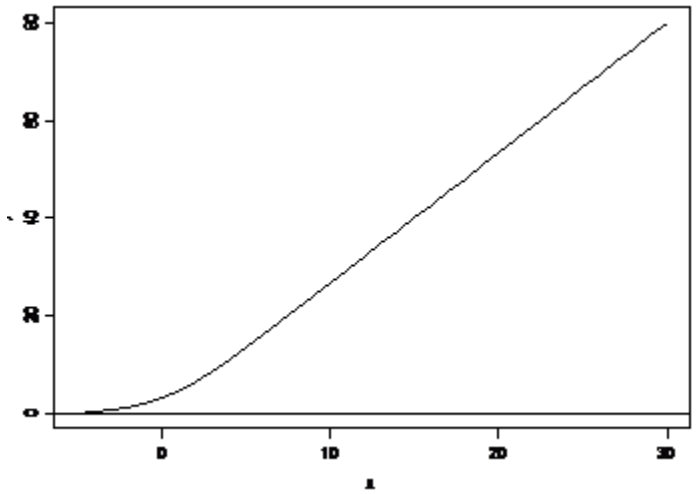
where bold-faced items are parameters to be estimated and CDF is the cumulative normal distribution.

A Digression on UNLI

UNLI models the expected value of a normal variable weighted by its associated gain or loss beyond $\mathbf{x_o}$, where $\mathbf{x_o}$ is a location of the bend in UNLI, i.e. a shift parameter, and $\mathbf{x_d}$ is a dispersion parameter akin to the standard deviation and reduces to a convexity parameter. See Figure 6.

Importantly, UNLI is appropriate to model price as a function of eps and bvps, as it is asymptotic to the x axis for very low values of either, but is positive *and linear* for high values of x. The location of the bend depends upon $\mathbf{x_o}$ and the severity of the bend depends upon $\mathbf{x_d}$. The function effectively mimics the payoff of a call option. Often, nonlinear functions are modeled using exponential or parabolic functions. This is incorrect, as both of these are *nonlinear* for increasing values of each of eps or bvps. UNLI is the correct function, as it is *linear* for high values of eps or bvps.

FIGURE 6
y = f(unli(x))



The reduced form model of combining Eqns. 7 and 10 is given in Eqn. 11, below,

price =
$\mathbf{b_{eps}}$*$\mathbf{eps_d}$ *(.399*exp((-.5* ((eps-$\mathbf{eps_o}$)/ $\mathbf{eps_d}$)*((eps-$\mathbf{eps_o}$)/$\mathbf{eps_d}$))-
(-((eps-$\mathbf{eps_o}$)/$\mathbf{eps_d}$))*(1-CDF (-((eps-$\mathbf{eps_o}$)/ $\mathbf{eps_d}$))))
+ $\mathbf{b_{bvps}}$*$\mathbf{bvps_d}$ *(.399*exp((-.5*((bvps-$\mathbf{bvps_o}$)/$\mathbf{bvps_d}$)*((bvps-$\mathbf{bvps_o}$)/$\mathbf{bvps_d}$))-
(-((bvps-$\mathbf{bvps_o}$)/ $\mathbf{bvps_d}$))*(1-CDF (-((bvps- $\mathbf{bvps_o}$)/ $\mathbf{bvps_d}$))) (11)

where bold-faced terms are parameters to be estimated and CDF is the cumulative normal distribution. Parameters to be estimated are as follows:

$\mathbf{b_{eps}}$, $\mathbf{b_{bvps}}$ change in price for $1 change in eps or bvps for high values of eps and bvps
$\mathbf{eps_o}$, $\mathbf{bvps_o}$ discontinuity point in price to eps or bvps
$\mathbf{eps_d}$, $\mathbf{bvps_d}$ dispersion in eps or bvps

The Minimum Sum model to be executed given in Eqn. 12, below:

min(abs(ln(price / ($\mathbf{b_{eps}}$*$\mathbf{eps_d}$ *(.399*exp((-.5*((eps-$\mathbf{eps_o}$)/ $\mathbf{eps_d}$)*((eps-$\mathbf{eps_o}$)/$\mathbf{eps_d}$))-
(-((eps-$\mathbf{eps_o}$)/$\mathbf{eps_d}$))*(1-CDF (-((eps-$\mathbf{eps_o}$)/ $\mathbf{eps_d}$))))
+ $\mathbf{b_{bvps}}$* $\mathbf{bvps_d}$ *(.399*exp((-.5*((bvps- $\mathbf{bvps_o}$)/$\mathbf{bvps_d}$)*((bvps-$\mathbf{bvps_o}$)/$\mathbf{bvps_d}$))-
(-((bvps-$\mathbf{bvps_o}$)/ $\mathbf{bvps_d}$))*(1-CDF (-((bvps- $\mathbf{bvps_o}$)/ $\mathbf{bvps_d}$)))))) (12)

Notice that Eqn. 12 addresses issues of interest in this research:

1. Use of UNLI models a non-linear function of price to both eps and bvps and will eliminate negative predicted prices for low eps and bvps.
2. Since there will be no negative prices, MAPE *can* be computed and MAPE minimization *is* the objective function. Minimizing MAPE gives equal weight to low and high priced securities.
3. Minimizing absolute percentage values instead of residuals squared give much less weight to outlier observations, and reduces to a robust methodology.

Use of *ln* in the objective function ensures invariant results between using price/predicted vs. predicted/price.

OLS and MS will be used to estimate Eqns. 6 and 12, respectively, for the years 2000-2014. The OLS prediction biases instigated by nonlinearities, negative earnings per share and outlier observations will be identified. MS, which eliminates these biases, will illustrate the superiority of this methodology. Specifically, comparing the MS model to the OLS model for a time series of 15 years of cross-section regressions shows higher explanatory power as measured by r^2, lower sums of absolute residuals, no negative predicted prices, and parameter estimates which are more stable over time. MS is available in almost all advanced-level statistical packages.

RESULTS

Descriptive statistics for 2014 are presented in Table 1, below. The severe skewness and kurtosis detailed in the table confirm the skewness and kurtosis noted in the histograms displayed in Fig. 1, 2 and 3. The skewness and kurtosis parameters will be problematic when using OLS. Descriptive statistics for 2000-2013 largely mimic 2014.

TABLE 1
SP1500 DESCRIPTIVE STATISTICS-2014

	n	Mean	median	st dev	skew	kurt	min	Max
price	495	51.34	40.31	56.95	5.71	42.88	2.34	645.90
eps	495	3.09	2.52	3.25	3.43	20.96	(8.61)	29.75
bvps	495	21.73	16.48	24.04	6.46	71.75	(31.27)	342.76

A correlation matrix between price, eps and bvps is presented in Table 2 for 2014. Correlations of price with eps and bvps are positive, as hypothesized, with eps having the higher linear correlation compared to bvps. The moderate inter-correlation between eps and bvps of .57 suggests that multi-collinearity will not be a problem. Correlation matrices for years 2000 to 2013 are largely the same as for 2014. It should be noted that the correlations are Pearson's linear correlations. Given, as seen in Figs. 4 and 5, that the scatterplots are highly non-linear, heteroscedastistic and with outliers, the magnitudes of the correlations are suspect. In spite of this, they do indicate that price is more highly correlated with eps than with bvps.

TABLE 2
SP1500 CORRELATION MATRIX – 2014

	price	eps	bvps
price	1.000	0.780	0.523
eps	0.780	1.000	0.547
bvps	0.523	0.547	1.000

The OLS regression results for 2014, which are presented in Table 3 are problematic.

TABLE 3
ORDINARY LEAST SQUARES REGRESSION RESULTS - 2014

price = 21.28 + 17.86*eps + 1.16*bvps
t-stat (19.61)* (20.88)*

r2 = .517 adj-r2=.717 F=800.5* p=0 se = 49.66 df=1492

Number of negative price estimates: 25
MAPE: NA

* - Significant at the 1% level of significance.

Explanatory power is moderate, indicating that 51.7% of the variation in price can be explained by or attributed to variation in eps and bvps. The F-statistic for the entire model is significant at the 1% level of significance. Both coefficients have t-statistics significant at the 1% level of significance and indicate the change in price for a $1 increase in eps or bvps.

There are a number of concerns, however. The intercept of $21.28, which indicates the average share price if eps and bvps were equal to zero, is unrealistic and suggestive of a model mis-specification or statistical issue. Furthermore, the 25 negative predicted price estimates negate the applicability or usefulness of MAPE.

Problems are also evident in the OLS residual graphs presented in Figs. 7-10. The histogram of the residuals in Fig. 7 is slightly skewed to the right, indicating that regression coefficients and t-statistics might be biased upward. Fig. 8, which displays a scatterplot of the actual vs. predicted price, is problematic. The graph is not linear, indicating a model specification bias, the residuals are heteroscedastistic, and there are many outliers. The specific variables which are the source biases are identified in the individual plots of residuals vs. eps and bvps. The curvilinear pattern of the residuals indicated by the spline curve indicates that price is non-linear to *both* eps and bvps. Given the nonlinear bias in the model, it should not be surprising that 25 negative price estimates are generated by this OLS model for firms with low or negative eps or bvps. The mis-specification of the model as linear, when the evidence points to a non-linear relationship, will bias all the predicted values.

FIGURE 7
HIST. OF RESIDUALS

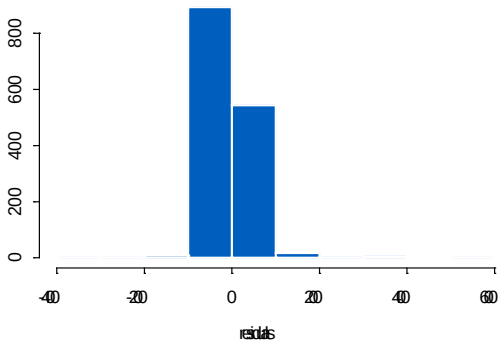


FIGURE 8
PLOT OF ACTUAL VS PREDICTED PRICES

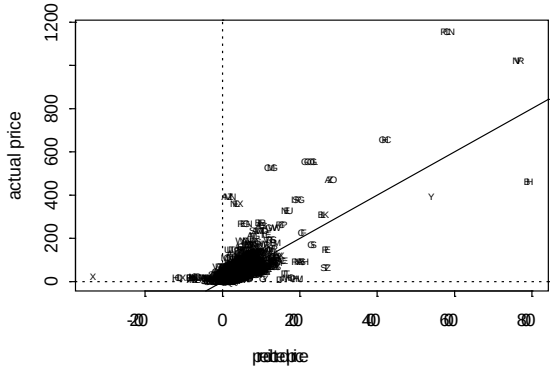


FIGURE 9
PLOT OF RESIDUALS VS EPS

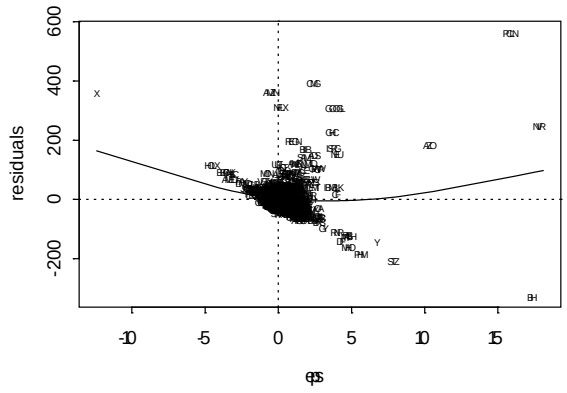


FIGURE 10
PLOT OF RESIDUALS VS BVPS

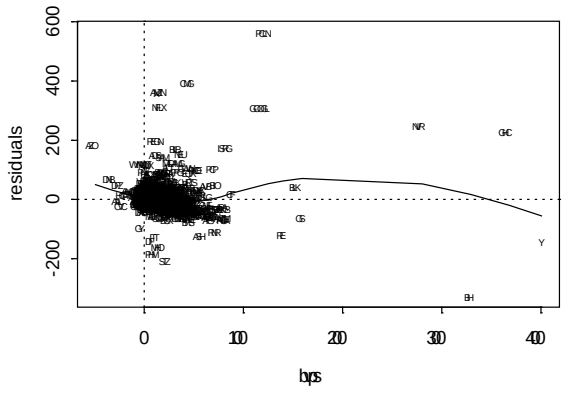


Table 4, displays a time series of OLS SP1500 cross-section regression results are presented for the 2000 to 2014. The results, and problems, are the same for the time series as for the single year.

TABLE 4
ORDINARY LEAST SQUARES REGRESSION RESULTS - 2000-2014

	year	r-sq	mape resid	sum abs resid	n	#neg	intcpt	beps	bbvps	t-int	t-eps	t-bvps
1	2000	0.59	NA	18,208	1109	97	-4.21	7.22	2.96	-2.73	8.82	38.85
2	2001	0.8	NA	14,307	1166	8	8.92	3.11	1.56	8.24	5.85	67.37
3	2002	0.74	NA	12,300	1202	26	0.04	3.78	1.95	0.05	8.5	52.68
4	2003	0.85	NA	20,743	1225	14	2.07	3.35	2.3	3.08	5.3	63.62
5	2004	0.84	NA	14,468	1253	16	5.76	13.2	1.77	7.4	19.33	51.43
6	2005	0.89	NA	15,068	1287	8	7.87	9.24	1.7	13.21	20.95	76.6
7	2006	0.89	NA	17,657	1322	4	11.07	10.79	1.45	18.25	15.74	44.72
8	2007	0.75	NA	20,336	1364	9	16.09	13.23	0.98	20.53	16.53	33.36
9	2008	0.54	NA	14,800	1385	11	9.2	3.43	0.83	15.74	10.14	38.32
10	2009	0.6	NA	17,549	1404	12	10	8.21	1.15	13.89	17.05	38.54
11	2010	0.45	NA	21,581	1417	3	17.44	1.87	1.07	19.19	4.6	30.92
12	2011	0.46	NA	22,238	1441	13	12.33	9.82	1.05	12.35	15.25	27.14
13	2012	0.49	NA	25,103	1461	12	14.32	14.93	0.95	12.84	18.14	22.4
14	2013	0.58	NA	31,597	1472	21	19.35	29.37	0.8	13.94	26.4	14.42
15	2014	0.52	NA	38,588	1496	8	20.81	17.85	1.16	12.58	19.42	20.88

As measured by r^2, the explanatory power of each regression is moderate but not stable with r^2 ranging between 41% and 82%. The F-statistic of each model (not displayed) easily exceeds the critical F-statistic indicating each regression to be significant at the 1% level. All eps and bvps coefficients are positive, highly significant as measured by the t-statistic, and have their conventional interpretations.

Note that the intercept is positive for all years and that the coefficients for eps and bvps are highly volatile. For example, the eps coefficients range from .14 to 12.36 and the bvps coefficients range from .30 to 3.41. *Worst of all, note that the OLS algorithms generate between 4 and 96 negative predicted*

prices for the cross-section regressions. Therefore MAPE is not able to be computed. Graphical residual plots were generated with the same problematic results seen in Figs. 6-9.

Clearly, OLS is an incorrect algorithm to model and assess the effect of eps and bvps on price. The frequently used analyst convention of eliminating low eps or bvps companies or taking logarithms is a low-level solution to the problem.

MS regression results are displayed in Table 5, below, and illustrate the superiority of the MS methodology.

TABLE 5
MINIMUM SUM REGRESSION RESULTS - 2014

beps	epsOpt	epsVar	bbv	bvOpt	bvVar
41.06	-0.24	.17	.60	-.66	6.36

Eqn. 6 price =
+ 41.06 * .17 *(.399*exp((-.5* ((eps- -.24)/.17)*((eps- -.24)/ .17))-
(-((eps- -.24)/.17))*(1-CDF (-((eps- .24)/ .17))))
+ .60 * 6.36 *(.399*exp((-.5*((bvps- -.66)/ 6.36)*((bvps- -.66)/6.36))-
(-((bvps- -.66)/ 6.36))*(1-CDF (-((bvps- -.66)/6.36)))

r^2=0.70 mape=0.43 n=1496
n negative predicted values - 0

Unlike OLS which is based on Gaussian metrics, MS does not produce t-statistics or F-statistics. Parameter and model significance is determined casually by the increase in r-squared or decrease in the sum of absolute (or absolute percent) residuals. Note that r^2 is higher than in OLS.

Residual graphs for MS are presented in Figs. 11-14 and indicate MS to be a much more robust methodology than OLS. The histogram of the percent residuals closely approximates a normal distribution, much more-so than the OLS histogram. The graph of the actual vs. predicted values in Fig. 12 is linear indicating that the UNLI model specification is correct. The heteroskedastiscity has been eliminated and there are no outliers. This compares to the OLS graph which *did* display a non-linear bias *with* heteroskedastistic residuals *and with* many outliers. The plots of percent residuals vs. eps and bvps in Figs. 13 and 14 confirm that nonlinearity has been removed by the UNLI transformation. Thus, it should not be surprising that no negative predicted values were produced by the estimating equation. And, as there are no negative predicted values, MAPE is a relevant measure of fit.

FIGURE 11
HIST. OF RESIDUALS

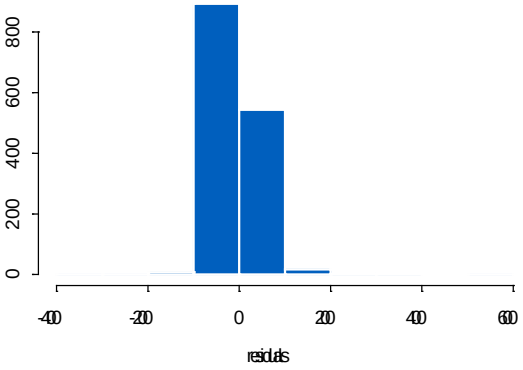


FIGURE 12
PLOT OF ACTUAL VS PREDICTED PRICES

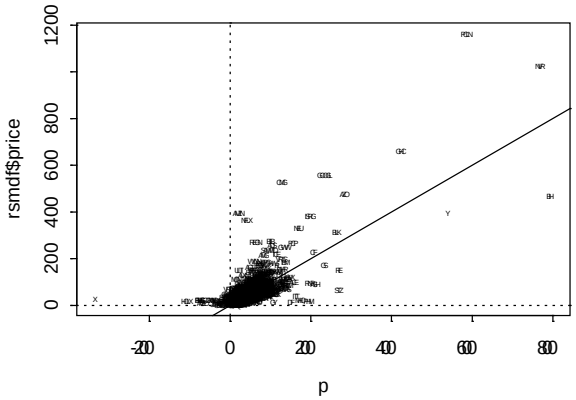


FIGURE 13
PLOT OF RESIDUALS VS EPS

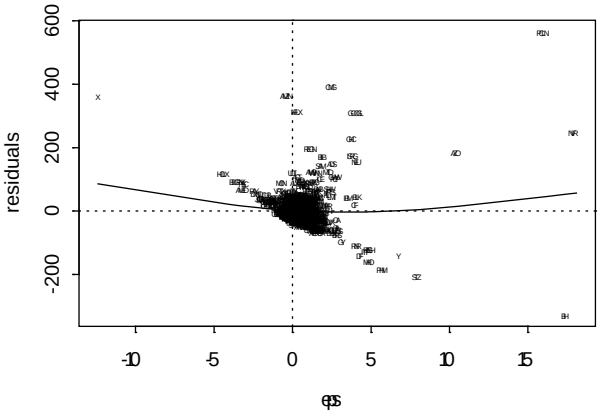
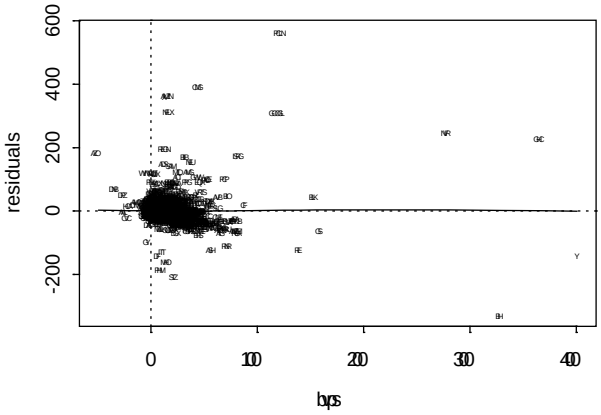


FIGURE 14
PLOT OF RESIDUALS VS BVPS



Comparing 2014 OLS and MS Regression Results

MS SP1500 cross-section regression results for years 2000 to 2014 years are presented in Table 6, below. Note that R^2 is higher and the sum of the residuals lower for each regression.

The MS regression results are superior on every dimension compared to the OLS results. Explanatory power, as measured by a pseudo r^2 is higher and more stable and the sum of the absolute residuals is lower for MS than for OLS for each regression. Also, the eps and bvps coefficients are more stable year to year. *Importantly, there are no negative predicted equity prices for any of the years.* This compares to OLS wherein every year had one or more negative predicted values. In spite of the location parameters for bvps being low for 2011-2013, probably due to outliers the slope, location and dispersion parameters are stable, especially when compared to OLS parameters.

TABLE 6
MINIMUM SUM REGRESSION RESULTS 2000-2014

	year	r-sq	mape	resid	n	#neg	beps	epsOpt	epsVar	bbvps	bvpsOpt	bvpsVar
1	2000	0.68	0.65	14,404	1109	0	21.09	-0.13	0.26	1.21	2	4.97
2	2001	0.8	0.52	12,930	1166	0	3.6	-1.24	1.44	1.36	0.01	6.58
3	2002	0.82	0.47	9,708	1202	0	20.88	-0.11	0.27	1.26	3.24	5.92
4	2003	0.86	0.39	11,442	1225	0	13.59	-0.16	0.09	2.1	7.93	15.16
5	2004	0.84	0.36	13,069	1253	0	20.62	-0.35	0.29	1.36	2.71	6
6	2005	0.89	0.36	13,460	1287	0	16.62	-0.29	0.22	1.2	-1.85	6.15
7	2006	0.9	0.34	16,729	1322	0	2.58	-5.47	1.78	1.55	3.06	5.8
8	2007	0.76	0.42	18,157	1364	0	22.62	-0.5	0.28	0.69	1.77	6.74
9	2008	0.55	0.47	13,859	1385	0	10.71	-0.42	0.2	0.53	-4.8	5.28
10	2009	0.66	0.39	14,952	1404	0	22.45	-0.27	0.42	0.79	1.49	10.12
11	2010	0.46	0.49	19,065	1417	0	19.93	-0.48	0.28	0.77	1.03	5.94
12	2011	0.62	0.41	18,355	1441	0	28.32	0.06	0.04	0.5	-16.74	9.32
13	2012	0.63	0.41	21,978	1461	0	29.32	0	0.12	0.5	-18.52	6.18
14	2013	0.63	0.39	28,385	1472	0	40.95	-0.1	0.25	0.49	-15.63	3.59
15	2014	0.7	0.43	32,827	1496	0	41.06	-0.24	0.17	0.6	-0.66	6.36

Table 7, below, presents a comparison summary of the OLS and MS Regression results.

TABLE 7
COMPARISON OF OLS VS. MS REGRESSION RESULTS

	OLS						Minimum Sum				
	year	r-sq	mape	sum abs resid	N	#neg	r-sq	Mape	sum abs resid	n	#neg
1	2000	0.59	NA	18,208	1109	97	0.68	0.65	14,404	1109	0
2	2001	0.8	NA	14,307	1166	8	0.8	0.52	12,930	1166	0
3	2002	0.74	NA	12,300	1202	26	0.82	0.47	9,708	1202	0
4	2003	0.85	NA	20,743	1225	14	0.86	0.39	11,442	1225	0
5	2004	0.84	NA	14,468	1253	16	0.84	0.36	13,069	1253	0
6	2005	0.89	NA	15,068	1287	8	0.89	0.36	13,460	1287	0
7	2006	0.89	NA	17,657	1322	4	0.9	0.34	16,729	1322	0
8	2007	0.75	NA	20,336	1364	9	0.76	0.42	18,157	1364	0
9	2008	0.54	NA	14,800	1385	11	0.55	0.47	13,859	1385	0
10	2009	0.6	NA	17,549	1404	12	0.66	0.39	14,952	1404	0
11	2010	0.45	NA	21,581	1417	3	0.46	0.49	19,065	1417	0
12	2011	0.46	NA	22,238	1441	13	0.62	0.41	18,355	1441	0
13	2012	0.49	NA	25,103	1461	12	0.63	0.41	21,978	1461	0
14	2013	0.58	NA	31,597	1472	21	0.63	0.39	28,385	1472	0
15	2014	0.52	NA	38,588	1496	8	0.7	0.43	32,827	1496	0

CONCLUSION

This research advanced the use of minimum sum as a superior regression methodology to model equity prices over OLS. The OLS methodology presumes a linear relationship between price and both eps and bvps. Used in the presence of nonlinear relationships between both eps and bvps with price resulted in systematic presence of negative predicted equity prices. OLS parameter estimates are highly biased in presence of non-normal data, outlying observations and non-linear relationships. MS allows for more accurate estimation of complex nonlinear additive or geometric relationships and where there are outliers of varying degrees. Indeed, the nonlinear iterative methodology allows for estimation of equity prices where earnings and/or book value per share negative, clearly an advantage over the OLS algorithm which generated unrealistic negative prices. The explanatory power of the equations using MS is higher with lower standard errors, and the coefficients are more stable.

This research benefits the participants in the primary and the secondary markets. It allows for improved and more efficient estimates of prices in the IPO market and a vehicle to improve the efficiency or pricing in the secondary market. Further research would include other independent variables to better model equity prices to discover investor valuation cognitive precepts. These might include liquidity considerations and debt metrics. Indeed, the methodology hints at the ability to discover implied optimal current and debt ratios as identified by investors in the marketplace.

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The Effects of Financial Reporting Standards on Tax Avoidance and Earnings Quality: A Case of an Emerging Economy

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This paper analyses the implications of adoption of International Financial Reporting Standards (IFRS) for accounting information quality and tax avoidance. It employs a sample of 119 firms after the implementation of IFRS to test for two related hypotheses. First, IFRS reduces the incidence of tax avoidance as the level of earnings quality increases when firms use internal funding to increase their profitability levels. Building on these results, the second test suggests that the relatively high quality earnings and low incidence of tax avoidance among firms in Ghana is attributed to the adoption of IFRS and the interaction of firm size to equity capital and the strategy of firms in Ghana to finance their operations with debt.

INTRODUCTION

In recent times, corporate tax avoidance (CTA) has become a major research concern receiving increasing attention both practically and in academic research. These have drawn public attention to the growth of tax-avoidance mechanisms such as transfer-pricing, re-invoicing, offshore special purpose vehicles, corporate inversions, dubious charitable trusts and other vehicles for tax abuse (Christensen and Murphy, 2004; Desai and Dharmapala , 2005; Caj and Liu, 2009). Tax avoidance has been stated as one of the mechanisms that offer room for opportunistic managers to divert rent from shareholders to themselves to satisfy their individual self- interest. Prior research have linked avoidance with earnings management (EM) by arguing that tax avoidance demands scheming actions that can be bundled with diversionary activities, including earnings manipulation to advance the interests of managers rather than shareholders (Desai and Dharmapala, 2009;2006; Desai et al., 2007; Desai and Dharmapala, 2005; Desai, 2005). Tax avoidance techniques are secretive in nature and require manipulation of transactions to guarantee some tax benefits while shielding it from tax authorities (Desai and Dharmapala, 2009; 2006). This makes it difficult at any point in time for shareholders to ascertain their actual tax obligations and also to monitor managerial actions. This leaves loopholes which can be exploited by managers to pursue self- seeking objectives and manage earnings in ways that provide benefits to them and not necessarily to shareholders. By manipulating earnings to gain some tax benefits and diverting rents, managers affect the

quality of their financial reporting. This implies that for managers to be able to avoid taxes, they would need to manipulate earnings which also afford room to opportunistic managers to divert rent to themselves at the detriment of shareholders. Hence prior researchers agree that avoidance techniques and earnings manipulation techniques are complementary (Desai et al., 2007; Desai and Dharmapala, 2005; Desai, 2005). According to Schipper (1989), tax expense meets the necessary condition for EM. Dhaliwal et al (2004) confirms this by asserting that when managers have an incentive to achieve a particular earnings target, the tax expense account provides a final opportunity for EM.

Davidson III et al. (2004) define EM as the use of flexible accounting principles that allow managers to influence reported earnings, thereby causing reported income to be larger or smaller than it would otherwise be. EM, according to Healy and Wahlen (1999) occurs when management use judgment in financial reporting and in structuring transactions to alter financial reports to either mislead some stakeholders about the underlying economic performance of the company or to influence contractual outcomes that depend on reported accounting results. EM therefore connotes a purposeful intervention in the external financial reporting process, with the intent to either mislead some stakeholders about the underlying economic outcomes or to influence contractual outcomes that depend on reported accounting numbers (Healy and Wahlen, 1999), or to obtain some private gain (Schipper, 1989). This negatively impacts on the accounting reporting quality. To remove allowable accounting alternatives and ensure accounting measurements that better reflect a firm's economic performance (Barth et al., 2006), the International Accounting Standards Board (IASB) set out to develop an internationally acceptable set of high quality international financial reporting standards (IFRS). Hence these standards are therefore expected to improve upon the relevance, reliability, understandability and comparability of financial reporting which were not be achieved by relying on information in applying individual national standards especially in cases where local standards are influenced by national, legal, political and taxation agendas (Ball, 2006).

Following the adoption and adaption of IFRS, lots of research has been conducted to assess the influence of IFRS on financial reporting quality. These studies have empirically tested the relationship with inconclusive results. Whiles some find improvement in the accounting information quality of some countries that adopted International accounting standards (Meeks and Swann 2009; Chen et al., 2010; Chua et al., 2012) others do not see any significant improvement in reporting quality (Kao and Wei, 2014) whiles others argue that information quality deteriorated with the adoption of IFRS (Jeanjean and Stolowy, 2008). Another stream of research find improvement in accounting quality but are quick to mention other factors that could contribute to the improvement besides the adoption of international standards (Barth et al., 2006; Soderstrom and Sun, 2007) Various reasons have been advanced to explain the disparities in the results. Ball (2006) argues that, the quality of accounting depends on the political and institutional environment in which the business operates. Others also attribute it to the firm specific characteristics of sampled firms. Thus IFRS on its own cannot influence reporting quality unless other factors are also taken into consideration.

This paper is based on this on-going debate and expects that where IFRS has a positive impact of financial reporting quality, managers will have less room to manipulate earnings and divert rent to themselves hence EM is expected to reduce. The impact of this is that, managers will not engage in tax avoidance activities since it will not create any private benefit to them. On the other hand, where IFRS has little or no influence on reporting quality, and therefore offers room for opportunistic managers to engage in EM, it is expected that managers will engage more in avoidance activities so they can use the opportunity engage in EM and divert rent for themselves.

This paper seeks to make two main contributions. First, it adds to prior literature by assessing the implications of IFRS on the relationship between EM and tax avoidance. Second, the paper brings to bear the impact of the adoption of IFRS on reporting quality from an emerging economy's perspective and also assess whether the adoption has any influence on the relationship between EM and tax avoidance. This paper is timely for a developing country and for that matter Ghana as adoption of IFRS in 2007, provides policy guideline directions on the effectiveness of IFRS in improving the quality of accounting in the country. This also provides information to international accounting standard setters on how effectively the

standards they set meet the objective of improved reporting quality. Thus the paper contributes to current debate on whether the institution of high quality standards is a sufficient means of improving upon reporting quality.

The rest of the paper is organized as follows: the next section reviews existing literature, section 3 provides detailed methodological approaches to achieving the research objectives. The measures for EM, CTA, and other control variables are ascertained based on prior studies. Section 4 contains empirical results and section 5 concludes the paper.

REVIEW OF PRIOR LITERATURE

This paper is underpinned by the agency theory to explain the relationship between corporate tax avoidance and earnings management where it is inferred from the conflict of interest between shareholders and management that, management will not be willing to engage in avoidance even though it is value enhancing to shareholders unless they can get some private benefit from engaging in avoidance activities. Underlying the agency theory is the assumption that individuals are self-interested characters who act rationally to maximise their own personal economic gain (Jensen, 2005; Donaldson and Davis, 1991; Crutchley and Hansen, 1989). Hence when they are engaged in any cooperative endeavour their interests are bound to conflict over certain issues at a point in time. Given the assumptions of agency theory that agents are motivated by self-interest, are rational actors, and are risk-averse, then in a modern corporation, where shares are widely held and there is separation between stock ownership and control over public firms, managers may have personal goals that compete with those of shareholders (Stroh et al., 1996; Donaldson and Davis, 1991; Crutchley and Hansen, 1989; Eisenhardt, 1989). Thus, if both parties to the relationship are utility maximisers, then given the self-interest of individuals, the agent may or may not behave according to the agency agreement (Eisenhardt, 1989).

Managers are responsible for the running of the business and therefore have complete information on the affairs of the business which is usually lost to shareholder. This usually results in information asymmetry where the managers have information exclusive to them that shareholders do not have knowledge of (Scott, 2003). Information asymmetry increases the ability of insiders to profit from their information advantage resulting in agency problems (Scholtens and Kang, 2013; Prior et al., 2008; Campbell, 2007; Dye, 1988). Several studies document evidence that the existence of information asymmetry between managers and shareholders is a necessary condition for EM (Rusmin, 2010; Desai and Dharmapala, 2009; Desai and Dharmapala, 2005). EM can therefore be seen as agency cost because it is used as a tool by managers to pursue their own interest to the detriment of stakeholders (Scholtens and Kang, 2012; Rusmin, 2010). Some researchers such as Leuz et al (2003) further argue that, managers and controlling owners have incentives to manage reported earnings in order to mask true firm performance and to conceal their private control benefits from outsiders (Leuz et al., 2003; Beatty et al., 2002; Jerzemowska, 2006). According to Healy and Wahlen (1999), intention to manage earnings is driven by some underlying motives such as window dressing of financial reports prior to public offerings, to meet bonus targets in order to increase management compensation, to avoid violating debt contracts, to reduce regulatory cost or increase regulatory benefits. Scott (2003) categorizes these motivations into political motivations, taxation motivations, changes in CEO, other contractual motivations, initial public offerings, and also to communicate information to investors. Similarly, Desai and Dharmapala (2005) argue that EM offers room for opportunistic managers to divert rents to themselves at the detriment of Shareholders. They therefore describe EM as a transfer of value from shareholders to management. According to Hunt et al. (2000), in an efficient market, when management opportunistically adjust earnings to transfer wealth from shareholders to themselves, opportunistic earnings smoothing will not be positively related to equity value. Prior research has revealed the detrimental impact of EM on firm performance (Fernandes and Ferreira, 2007; Friebel and Guriev, 2005). Accordingly Hanlon and Slemrod (2007) submit that, the market will have a negative reaction to stock prices of firms that engage in corporate misdeeds such as earnings manipulations. Managers therefore have incentive to mask their opportunistic behaviour and avoidance techniques afford them the mechanisms to achieve this end. Using

a real-world tax shelter and a stylized example to demonstrate how tax shelter products enable managers to manipulate reported earnings, Desai and Dharmapala (2009) emphasizes that, TA techniques are secretive in nature and require manipulation of transactions to guarantee tax benefits while shielding such actions from tax authorities. This makes it difficult for shareholders to monitor managers and thus makes it easy for managers to use the same techniques to pursue their own personal interest to the detriment of shareholders. Dhaliwal et al (2004) investigated whether income tax expense is regularly used to achieve earnings targets and concluded that tax expense provides a final opportunity to meet earnings targets after the firm has agreed to any pre-tax adjusting entries required by the independent auditors. In their review of tax research, Hanlon and Heitzman (2010) found at least three tax-related items which are thought to be available for earnings management: the valuation allowance, the tax contingency reserve, and the amount of foreign earnings designated as permanently reinvested. Income Taxation, according to Scott (2003) is the most obvious reason for earnings management. It can be deduced therefore that management who engage in EM to pursue private gains are more likely to avoid taxes as avoidance offers them a shield to cover up their misdeeds.

Earnings Management affects reporting quality. Thus following the accounting scandals that hit high profiled companies like Enron, Worldcom, Pamalat, calls have been made for increasing mechanisms that can be used to curb opportunistic behaviours of management (Desai, 2005). According to Levitt (1998), earnings management occurs when management abuse the flexibility accorded them by accounting standards. This implies that earnings management results from the manipulative use of discretionary accruals offered by accounting standards to management in their preparation of the financial reports (Phillips et al., 2004; Hanlon, 2005). Consequently any test for earnings management is a measure of the discretion management has over earnings (McNichols, 2001; Healy and Wahlen, 1999). To remove allowable accounting alternatives and ensure accounting measurements that better reflect a firm's economic performance (Barth et al., 2006), the International Accounting Standards Board (IASB) set out to develop an internationally acceptable set of high quality international financial reporting standards (IFRS). Hence these standards are therefore expected to improve upon the relevance, reliability, understandability and comparability of financial reporting which were not achieved by relying on information applying individual national standards especially in cases where local standards are influenced by national, legal, political and taxation agendas (Ball, 2006). The adoption of IFRS is thus expected to bring an improvement in reporting quality and reduce the incidence of earnings management. Some prior researchers find evidence of a negative relationship between EM and IFRS which confirms the improvement in reporting quality after the adoption/adaption of IFRS (Sellami and Fakhfakh, 2013; Barth et al. 2006) For instance, Barth et al. (2006) find that, firms applying IAS from 21 countries generally evidenced less earnings management, more timely loss recognition, and more value relevance of accounting amounts than that of matched sample of firms applying non-U.S. domestic standards. Houqe et al. (2012) study the effect of mandatory IFRS adoption on earnings quality in countries which exhibit high financial secrecy and found evidence that mandatory IFRS adoption improves earnings quality by decreasing abnormal accruals and earnings conservatism. Other researchers report an indirect positive impact of IFRS on reporting quality. They argue that IFRS improves the mechanisms firms put in place internally to improve reporting quality. Marra et al. (2011) for instance assess the impact of board independence and the existence of an audit committee on earnings management and find results which suggest that IFRS significantly contributes to the effectiveness of the two corporate governance mechanisms which play an important and effective role in reducing earnings management.

On the other hand, other groups of researchers found contrary results. Some researchers (Kao and Wei, 2014) did not find any significant improvement in reporting quality after the adoption of IFRS. For instance, Rodriques, et al., (2012) analyse the effect of the IFRS adoption in the earnings quality reported by the Brazilian and European public firms found evidence which showed that the quality of accounting information has not significantly improved comparing the period before and after the adoption of the IFRS in Brazil or Europe. On the other hand some researchers actually found evidence of decreased quality of reporting and increase in EM after adoption. Jeanjean and Stolowy (2008) find that the pervasiveness of earnings management did not decline after the introduction of IFRS, and in fact

increased in France. Additionally, Capkun et al. (2013) re-examine whether the transition to IAS/IFRS deters or facilitates greater earnings management and find an increase in earnings management from pre-2005 to post-2005 for Early Voluntary Adopters and Late Adopters in countries that allowed early IAS/IFRS adoption, and for Mandatory Adopters in countries that did not allow early IFRS adoption.

Following the inconclusive results on the role played by IFRS in improving reporting quality, this paper extends prior studies by empirically analysing the implications of IFRS on the relationship between CTA and EM. A positive impact of IFRS is expected to improve reporting quality and therefore reduce the EM. When this happens, it is expected that the incidence of tax avoidance will also reduce as managers will have less incentives to manipulate earnings. On the other hand, where IFRS does not result in improve reporting quality, EM is expected to rise. When this happens, managers get more room to abuse the flexibility accorded them by accounting standards and manage earnings to satisfy their self-interest. Managers try to conceal their opportunistic behaviour by agreeing to engage in tax avoidance for shareholders. Hence the incidence of tax avoidance is also expected to increase when EM increases after the adoption of IFRS.

EVALUATING METHODOLOGY

Data Sources

The paper draws its sample from non-financial firms listed on the Ghana Stock Exchange (GSE) as well as non-listed firms from Ghana Revenue Authority (GRA) database. Due to the nature of key variables of the paper (IFRS, Tax Avoidance and Earnings Management), the paper excludes financial institutions due to the peculiar nature of their accruals and their need to meet other reporting requirements. Since the paper focuses on tax avoidance, companies that are part of the Ghana Freezone board are excluded from the sample. Freezone companies in Ghana are legally exempted from paying taxes and as a result we cannot assess tax avoidance of such companies. Hence to achieve uniformity, comparability and understandability of data collected and to reduce data distortion to the barest minimum, this paper focuses on 119 non-financial firms from GSE and GRA. Following Rohaya et al., 2008), loss-making firms are included in the study firms as earnings can be either managed upwards or downwards. This implies that tax avoidance practices may include recording transactions to incur losses. Thus effective tax rate on loss making firm is recorded as zero. The zero is then compared with the statutory rate of the year of loss, the difference is recorded as the tax avoidance figure.

Variable Measurement

The paper focuses on periods after the adoption of IFRS. Hence there is no need to distinguish the periods between pre and post IFRS adoption period. However, a dummy variable is used as a measure of IFRS implementation since some of the firms were not preparing their financial report using IFRS. Hence an attribute of 1 is used to indicate the use of IFRS in financial reporting and 0 if otherwise.

In line with prior studies (Sun & Rath, 2010; Rusmin, 2010; Dechow et al., 1995), the paper adopts the discretionary accruals measure as the proxy for earnings management (earnings quality). Based on the discretionary accrual method, total accrual is estimated as;

$$TAC_{it} = (\Delta CA_{it} - \Delta Cash_{it}) - (\Delta CL_{it} - \Delta LTD_{it} - \Delta ITP_{it}) - DPA_{it} \quad (1)$$

Where TAC_{it} is the total accrual for firm i in time period t; ΔCA_{it} is the change in current assets for firm i in time period t-1 to t; $\Delta Cash_{it}$ is the change in cash balance for firm i in time period t-1 to t; ΔCL_{it} is the change in current liabilities for firm I in time period t-1 to t; ΔLTD_{it} is the change in long-term debt included in current liabilities for firm I in time period t-1 to t; ΔITP_{it} is the change in income tax payable firm i in time period t-1 to t; and DPA_{it} *is* the depreciation and amortisation expense for firm i in time

period t-1 to t. TAC_{it} is then decomposed into normal accruals (NAC_{it}) and discretionary accrual (DAC_{it}) using the modified Jones (1991) model defined as:

$$\frac{TAC_{it}}{TA_{it-1}} = \alpha_1\left[\frac{1}{TA_{it-1}}\right] + \beta_2\left[\frac{\Delta REV_{it} - \Delta REC_{it}}{TA_{it-1}}\right] + \lambda_3\left[\frac{PPE_{it}}{TA_{it-1}}\right] + \varepsilon_{it} \quad (2)$$

Where TAC_{it} is total accrual for firm i in year t; $TA_{i,t-1}$ is total assets for firm i at the end of year t-1; ΔREV_{it} is change net sales for firm i between years t=1 and t; ΔREC_{it} is change in receivables for firm i between years t -1 and t; PPE_{it} is gross property, plant and equipment for firm i in the year t and ε_{it} is the error term. NACit is estimated as the fitted value from the equation (2) above. DACit is the residual of NACit from TACit (TACit minus NACit). Discretionary accruals (DACit) for firm i at year t is the absolute value of the residual from the estimation model.[1]

To ascertain corporate tax avoidance, the difference between the statutory tax rate (STR) and the effective tax rate (ETR) is determined. A positive difference amounts to tax savings (tax avoidance) and a negative difference implies additional tax cost. All things being equal, the wider the gap between the ETR and the STR (i.e. STR> ETR), the higher the tax savings from tax planning. The ETR approach has been adopted by previous researchers including (Gupta and Newberry 1997; and Noor and Fadzillah, 2010). The strength of the ETR approach lies in the fact that the data required can be accessed without direct correspondence with the firm and the tax authorities.

The ETR as defined by Hanlon and Heitzman (2010) is the total income tax expense per the pre-tax accounting income. The ETR measure is considered as a better measure because it does not lend itself to alteration by any tax strategy that defers taxes. It also shows clearly that items that are not tax planning strategies, such as changes in the valuation allowance or changes in the tax contingency reserve could affect accounting earnings. According to Frank et al. (2009) the ETR reflects permanent book-tax differences and other statutory adjustments included in the rate reconciliation schedule of a firm's income tax footnote.

Inger (2013) used a modified version of the ETR, called cash effective tax rate (CETR). By this method, one measures the effective tax rate by using tax expenses paid (tax paid in the statement of cash flow) rather than using the total tax expense incurred for the period. This modification, in my opinion, is suitable for studies that seek to ascertain the effect of the various tax planning components (namely, permanent tax differences, temporary tax differences, net operating losses, and foreign tax (differentials) on firm performance.

This paper uses the ETR information to measure firms' tax avoidance. Noor and Fadzillah, 2010) computes the ETR as the total corporate tax expense divided by net profit before tax. This definition suggests that tax planning only seeks to minimize tax burden. Tax avoidance does not only seek to minimize tax burden but also to postpone payment of tax. To cater for the "deferment" objective of tax planning, it is necessary to modify the numerator as total tax expense less deferred tax expense. Thus, this paper measures ETR as total corporate tax expense minus deferred tax expense and divide the result by Net profit before corporate tax. The comparable applicable statutory tax rate is arrived at after adjusting for all reliefs and rebates. The Internal Revenue Act, 2000 (Act 592) of Ghana contains reliefs and rebates that have the potential of reducing the general statutory rate of twenty five per cent (25%). It is therefore appropriate to adjust for these reliefs and rebates to enhance drawing of meaningful conclusion on the STR-ETR difference.

In order to investigate IFRS influence on EM and CTA across various firms from various industries, there is the need to control for the compounding effects arising from cross-sectional factors (Rusmin, 2010; and Beatty et al, 2002). It has been argued that large firms are subjected to more scrutiny by investors and financial analyst and therefore are less likely to engage in EM (Zhou and Elder, 2002). However Lobo and Zhou (2006) suggest that larger firms may be more inclined to manage their earnings because of the complexity of their operations which makes it difficult for users to detect misstatements.

The paper also controlled for the effect of leverage on CTA and EM. Prior research shows that firms that have a higher likelihood of violating debt agreements are more likely to have an incentive to engage in earnings management and avoid tax to increase earnings (Rusmin, 2010). On the other hand Scott (2003) asserts that management will manage earnings to mask the true firm performance in order to meet debt contract conditions and to avoid debt covenant violations. It can be implied that leverage is positively related to discretionary accruals. Leverage is estimated as long term debts over lag of total assets. Additionally, prior studies agree that firm age affects the relationship between EM and CTA, it also influences the impact IFRS has on EM and CTA. Age measures the number of years the firm has been in existence and is used as a proxy for experience.

Estimating Strategy

In order to achieve the overall objective of this research, a regression approach, which is the framework for testing the relationship among IFRS, tax avoidance and earnings management, is developed. We first analyse the relationship between earnings management and corporate tax avoidance, then examine the relationship between earnings management and International Financial Reporting Standards, and then further estimate the relationship between Corporate Tax Avoidance and IFRS. The overall impact of IFRS on the relationship between EM and CTA is finally estimated as follows:

$$CTA_{it} = \alpha_1 CTA_{it_{-1}} + \alpha_2 IFRS_{it} + \alpha_3 CSR_{it} + \alpha_4 \left(Size_{it} * EM_{it}\right) + \sum_{j=3}^{k} \alpha_j X_{ij} + \varepsilon_{it} \quad (3)$$

$$EM_{it} = \alpha_1 EM_{it_{-1}} + \alpha_2 IFRS_{it} + \alpha_3 CSR_{it} + \alpha_4 \left(Size_{it} * CTA_{it}\right) + \sum_{j=3}^{k} \alpha_j X_{ij} + \varepsilon_{it} \quad (4)$$

$$\varepsilon_{it} = \mu_i + \nu_{it}$$
$$E[\mu_i] = E[\nu_{it}] = E[\mu_i \nu_{it}] = 0$$

Where CTAit, is the level of tax avoidance and earnings management of a firm i in period t, and CTAit-1, is the observation on the same firm i in the previous year. EMit is the earnings management of a firm i in period t, and EMit-1, is the observation on the same firm i in the previous year. $IFRS_{it}$ is the adoption of international financial reporting standards of firm i in period t CSR_{it} is the corporate social responsibility of firm i in period t. $\left(Size_{it} * EM_{it}\right)$ is the interaction between the firm's size and earnings management practices of firm i in period t, $\left(Size_{it} * CTA_{it}\right)$ is the interaction between the firm's size and the tax avoidance of firm i in period t, the variable $X_{i,j}$ are a set of $\{k\}$ variables controlling for firm-specific characteristics. $\alpha's$ are the parameter vectors and ε_{it} is the unobserved time-invariant. Here the disturbance term ε_{it} has two components: the μ_i is an unobserved time-invariant firm-specific effect, and ν_{it} is the disturbance term.

One immediate problem in applying Ordinary Least Squares (OLS) in estimating equation (3) and (4) is that CTAit-1 and EMit-1, are correlated with fixed effects in the error term which gives rise to what is termed 'dynamic panel bias'. Moreover, there is evidence to suggest that OLS produces biases when an attempt is made to control for unobserved heterogeneity and simultaneity. Also, the influences on a firm's tax avoidance and earnings management strategies could cause it to adjust its CSR strategy. Therefore, the estimation strategy used to deal with possible endogeneity issues in equation (3) and (4) are based on the methodology proposed by Blundell and Bond (1998) and Alvarez and Arellano (2003) in estimating

systems of equations in both first difference and levels. As pointed in Roodman (2009), the system GMM estimator combines the standard set equations in first-difference with a suitable lagged level as instruments, and an additional set of equations in levels with suitably lagged first differences as instruments. Generally, linear difference and system GMM estimators have one–and–two step variants. Two-step System GMM, (Windmeijer, 2005) corrects standard error, small-sample adjustments, and orthogonal deviation are employed. The two-step variant uses residuals from the one-step estimates and is asymptotically more efficient than the one-step.

EMPIRICAL RESULTS

Descriptive Statistics

Table 1 depicts the summary statistics of variables of interest to the paper. The table shows that IFRS has a mean of 0.543824 and a standard deviation of 0.49863. IFRS is a dummy variable with values of 1 indicating application and 0 if otherwise. The results indicate that majority of the firms under consideration employ IFRS in their financial reporting. Corporate tax avoidance has an overall mean of -0.04134 with maximum of 7.51770 and a minimum value of -22.37134. The result points to a general involvement in tax avoidance activities by sampled firms. The negative values for the overall mean and minimum values however indicate that although there is an indication of tax avoidance, sampled firms do not aggressively engage in it. EM registered an overall mean of -0.59321 with minimum and maximum values of -144.87550 and 4.93108 respectively. This also denotes an involvement in EM activities within sampled firms. Similar to tax avoidance, however, not every firm aggressively engages in the practice of managing earnings. A high standard deviation of 10.64815 is observed indicating great variations among firms with respect to their EM behaviours. These results therefore suggest that some firm specific characteristics play important role in managerial decisions to engage in earnings manipulative behaviour.

On the control variables, the big 4 auditors' shows an overall mean of 0.33191 with maximum and minimum values of 1.0000 and 0.0000 respectively. This is a dummy variable with values of 1 indicating use of big 4 audit firms and zero if otherwise. The results imply that quite a number of them employ the services of the big 4 audit firms but a majority of them employ the services of auditors other than the big 4. Firm size has an overall mean of 17.03 million cedis with a standard deviation 2.20 million cedis. The maximum and minimum values are 25.57 million cedis and 11.31 million cedis respectively. This indicates that sampled firms were mostly large firms. The paper controls for asset tangibility which registered an overall mean of 0.27024, standard deviation of 0.25271 with 0.0000 and 1.64710 as maximum and minimum values respectively. Additionally, firm age registers an overall mean of 23 years with maximum and minimum values of 67 years and 2 years respectively. The high standard deviation depicts a high disparity of the age distribution of sampled firms. Some firms were as old as 67 years and as new as 2 years. With respect to the sources of firm's financing, the descriptive indicates that on the average, sampled firms employ equity of about GHS 62.8 million to finance their business with the highest amount of equity being GHS 63.7 million and a minimum of -GHS6.11 million. Similar to the leverage, sampled firms are either aggressively using more equity and less leverage or utilising leverage aggressively and little or no equity. Leverage on the other hand has an overall mean of 0.17202 with maximum value of 4.08841 and 0.000 minimum value. Leverage is scaled down by total assets hence the high maximum result indicate that some of the firms are highly geared whiles the low minimum value indicates that some firms on the other hand do not use leverage as a source of capital financing. Where the funding is broken down to short term and long term, the results indicate that sampled firms employ more short term funding than long-term. This is evidenced by the record of an overall mean of 0.53361 and 0. 17262 for short term and long term respectively. CSR on the other hand has an overall mean of 0.47146 and an overall variation of 0.49971. The variable also has an overall maximum value of 1.00000 with no registered minimum values. These results present evidence of the existence of CSR activities among sampled firms over the sampled period. (See Table 1 in Appendix)

Table 2 presents pair-wise correlation coefficient as a preliminary analysis of the relationship between IFRS, tax avoidance and earnings management. The result shows a negative relationship between EM and

tax avoidance. The relationship is however insignificant. The negative relations is contrary to prior findings which indicate a positive and complementary relationship between the two (Desai and Dharmapala, 2009). IFRS also registered a negative insignificant relationship with tax avoidance and a negative insignificant relationship with EM. The negative relationship between IFRS and EM shows that IFRS improves the quality of financial reporting and this is similar to prior findings Houqe et al. (2012) who found evidence that mandatory IFRS adoption improves earnings quality but contrary to (Kao and Wei, 2014) findings who did not find any significant improvement in reporting quality after the adoption of IFRS. The negative relationship between IFRS and CTA can been explained from CTA's relationship with EM. As IFRS pushes managers to improve reporting quality, there is less incentive for them to engage in avoidance activities. Hence IFRS can be associated with reduced CTA activities. (See Table 2 in Appendix)

Evaluation of Firm Tax Avoidance and Earnings Management

This section analyses how IFRS influences the relationship between tax avoidance and earnings management, and the funding strategies of sampled firms in Ghana. Table 3 presents the regression result that has corporate tax avoidance (CTA) and earnings management (EM) as the dependent variables. The different columns relate to different empirical approaches to funding sources (debt and equity) as well as the other explanatory variables. Column 1 and 2 assess the relationship between IFRS and CTA while column 3 and 4 assess the relationship between IFRS and EM. On the relationship between IFRS and CTA, the results indicate that IFRS has a negative relationship with CTA. However the relationship is statistically insignificant. The negative relationship indicates that firms that apply IFRS in the preparation of their financial reports engage less in corporate tax avoidance activities. Similarly, a negative but statistically significant relationship is found between IFRS and EM. This also implies that firms that apply IFRS in their financial reporting engage less in earnings manipulative activities resulting in an overall improvement in reporting quality. This relationship confirms prior studies that find evidence of a negative relationship between EM and IFRS which confirms the improvement in reporting quality after the adoption/adaption of IFRS (Houqe et al., 2012; Sellami and Fakhfakh, 2014; and Barth et al. 2006). The negative relationship between IFRS and EM explains the negative relationship between IFRS and CTA. Prior studies argue that tax avoidance is value enhancing to shareholders but due to conflict of interest the exists between managers and shareholders, as explained by the agency theory, managers will not engage in avoidance unless it will yield them some private gains hence managers responsible for taking avoidance decisions take decisions that reflect their private interest. Tax avoidance is secretive in nature and requires manipulation of transactions to guarantee some tax benefits while shielding it from tax authorities (Desai and Dharmapala, 2009; 2006). This leaves loopholes which can be exploited by managers manage earnings in ways that provide benefits to them and not necessarily to shareholders. Literature have linked avoidance with earnings management (EM) by arguing that tax avoidance demands scheming actions that can be bundled with diversionary activities, including earnings manipulation to advance the interests of managers rather than shareholders (Desai and Dharmapala, 2009;2006; Desai et al., 2007; Desai and Dharmapala, 2005; Desai, 2005). Hence a positive relationship exists between CTA and EM as depicted in the succeeding section (see table 6). This positive relationship confirms that CTA increases manipulative behaviour of managers as CTA which is permitted by shareholders because it is value enhancing to them serves as a shield to self-seeking manipulative managers. With the adoption/adaption of IFRS, managerial incentive to manipulate earnings reduces and therefore improves on the quality of financial reporting. This improvement in reporting provides less motivation for managers to engage in tax avoidance as it affords less or no shield, hence managers engage less in tax avoidance activities explaining the negative relationship between IFRS and CTA.

Leverage is found to have a positive relationship with CTA. This implies that highly geared firms engage more in tax avoidance. This can be explained by the finance theory which indicates that debt financing provides firms with tax savings as interest on debts are tax-deductible. Hence higher debts financing results in greater tax-savings. Similarly, equity has a positive relationship with CTA. This goes to confirm the intuition that shareholders view avoidance as value enhancing and encourage managers to

engage in it. It can also be observed that the negative relationship between IFRS and CTA is maintained when leverage which is a control in the first column is removed and equity variable introduced in the second column. However the insignificance of the negative relationship reduces with the introduction of equity. This may imply that the relationship between IFRS and CTA remains negative irrespective of capital structure thus the capital plays little role when it comes to the relationship between IFRS and CTA. This also suggests that as both equity and debt financing results in more tax avoidance activities, when the adoption of IFRS reduces EM and therefore reduces managerial incentives to engage in CTA, CTA is reduced irrespective of the capital structure. The result also indicates a significant negative relationship between CTA of the previous year and CTA of the current year which implies that when firms are aggressively avoiding taxes in a current year, they are less likely to avoid more taxes in the subsequent year, especially when firms' assets are financed by debt.

The regression output for the relationship between IFRS and EM is displayed in columns 3 and 4 in table 3. The results indicate a significantly negative relationship between IFRS and EM. The negative relationship is significant at 5%. This result implies that adoption/adaption and application of IFRS in financial reporting can be associated with reduced earnings manipulations resulting in improved reporting quality. This relationship can be explained by the agency theory which indicates that management have incentives to pursue self-seeking objectives to the detriment of shareholders. Such opportunistic manager's resort to the abuse of flexibility in accounting principles to influence reported earnings thereby causing reported income to be larger or smaller than it would otherwise be to better reflect their individual incentives. Thus to remove allowable accounting alternatives and ensure accounting measurements that better reflect a firm's economic performance (Barth et al., 2006), the IASB developed IFRS which is believed to be an internationally acceptable set of high quality reporting standards. Thus the adoption/adaption of the standard is expected to improve reporting quality as confirmed by some studies (Houqe et al., 2012; Sellami and Fakhfakh, 2014; Barth et al. 2006). Leverage has an insignificant negative relationship with EM. The relationship implies that highly leveraged firms engage less in EM. This can be interpreted from the perspective of researchers who believe that highly geared firms are subjected to more scrutiny by investors and financial analyst and therefore are less likely to engage in EM (Zhou and Elder, 2002). The insignificance of the relationship may also imply that leverage firms may engage in EM when they have other incentives such a likelihood of violating debt agreements (Rusmin, 2010). From the current paper, the negative relationship can be explained by the presence of IFRS which gives less room for managers to engage in EM activities. Equity on the other hand has a positive relationship with EM which is quite unexpected. The negative relationship between IFRS and EM is also maintained when leverage is replaced with equity as was the case in columns 1 and 2.The relationship however turns significant at 1%. This may imply that the relationship between IFRS and EM remains positive irrespective of capital structure thus the capital plays little role when it comes to the relationship between IFRS and EM. The result also indicate a positive relationship between EM of previous year and EM of the current year. Curiously the relationship turns negative in column 4. This implies that the success of the manipulative activities of previous years have a positive impact on the manipulative behaviour of management in the current period. However, when leverage is replaced with equity, which indicates that in the situation of equity financing, firms are less likely to engage in EM in current and subsequent periods if they engaged in it in the preceding period. Firm size was also found to have a negative relationship with EM and also CTA. This relationship becomes significant in column 4 with equity as a financing source. The negative relationship implies that bigger firms are less likely to engage in EM and therefore CTA. This is consistent with prior findings that large firms are less likely to engage in earnings management due to more scrutiny by investors and financial analyst (Zhou and Elder, 2002) but inconsistent with other findings such as the findings of Lobo and Zhou (2006) which suggest that larger firms may be more inclined to manage their earnings because of the complexity of their operations which makes it difficult for users to detect misstatements. The same negative relationship is found between Asset tangibility and EM and CTA and also between Age and EM and CTA. The explanation flows from the interpretation for size. Firms with large assets as well as older firms have less incentives to engage in EM and therefore find CTA activities to be less attractive. (See Table 3 in Appendix)

Table 4 explores the relationships between IFRS and CTA and IFRS and EM taking into consideration the listing status of the firm. Table 4 is made up of 3 columns. In columns 1 and 2, CTA is the dependent variable while columns 3 have EM as the dependent variable. When the sample was separated into listed and non-listed firms, the result on the relationship between IFRS and CTA remains a negative relationship for non-listed firms but becomes positive for listed firms. Similar result is seen for IFRS and EM as the relationship becomes positive for listed firms. This implies that IFRS has little or no reduction impact on EM for listed firms. Due to complementary relationship between EM and CTA, IFRS similarly does not reduce CTA. This goes to confirm the findings by Capkun et al. (2013) and Jeanjean and Stolowy (2008) whose studies found evidence that the quality of accounting information did not improve with the introduction of IFRS. These studies also employed listed firms as sample. The result may therefore imply that improving accounting information quality goes beyond adoption/adaption of IFRS as suggested by Barth et al. (2006) especially for listed firms. Hence although, IFRS improved reporting quality generally for non-listed sampled firms, same cannot be said for listed firms suggesting that the ability of IFRS to improve on reporting quality depends on the listing status of the firm. Leverage becomes positively related to CTA for both listed and un-listed firms and negatively related to EM for listed firms. Implying that non-listed firms who are more likely to resort to debt financing engage more in avoidance activities, it can however be explained that debt financing gives leverage users some tax savings because interest on debts is tax-deductible. For listed firms, the relationship between leverage and EM remained negative. Equity maintained a positive relationship with CTA for listed firms but was negative for non-listed firms. Equity ratio also registered a negative relationship with EM for listed firms. This goes to indicate that equity holders do not encourage EM and react negatively to managerial opportunistic behaviours. (See Table 4 in Appendix)

Sensitivity of Tax Avoidance and EM to Funding Sources

Table 5 displays the sensitivity analyses of CTA, EM and funding sources. In columns 1 and 2, where tax avoidance serves as the dependent variable, it is found that EM has a positive relationship with CTA. The positive relationship between CTA and EM imply that increased manipulative activities results in more avoidance activities and vice versa. This is consistent with the link between EM and CTA as revealed by prior researchers such as Desai and Dharmapala, (2009; 2007; 2005). They argue that avoidance and manipulative techniques are complementary and are bundled together such that increases in one activity results in increases in another. This relationship can be explained by the agency theory which also asserts that individuals are self-interested people who seek to maximise their interest at any point. This means that managers will seek their self-interest at the expense of shareholders resulting in conflict of interest between managers and shareholders. The conflict of interest can lead managers into taking such corporate tax decisions that reflect their private interests (Scholtens and Kang, 2013; and Prior et al., 2008). However the relationship turns negative when leverage is replaced with equity in column 2. Similar, where EM is dependent variable, CTA has a negative relationship with EM but the relationship turns positive when leverage is replaced with equity. This result suggest that the incentive to manage earnings and use CTA as cover up is higher for highly leveraged firms. This is because leverage affords a means for saving on taxes.

The relationship between CTA and EM remains positive whiles that between IFRS and CTA remains negative with the introduction of the interaction term between firm size and leverage. When interaction between firm size and equity is introduced into column 2 and with equity financing, the relationship between EM and CTA changes from positive to negative whiles the negative relationship with IFRS is maintained. Firm size has a negative relationship with tax avoidance. This implies that bigger firms are less likely to engage in avoidance activities. Since bigger firms engage less in avoidance activities, then it may stand to reason that any attempt to manage earnings will be done through other means other than through engaging in more avoidance activities. The relationship between leverage and CTA however changes to negative. This relationship also indicates that less leverage firms will have little tax savings but do resort to other mechanisms to increase their tax savings. The interaction between leverage and size has a positive relationship with CTA. This can be interpreted that bigger firms that engage in avoidance

activities resort to any means of tax savings other than through debt financing. On the other hand, the interaction between firm size and equity has a negative relationship with CTA. This suggests that bigger firms with equity funding engage less in tax avoidance activities and less sensitive to change in the level of equity.

In columns 3 and 4, it can be observed that the relationship between CTA and EM is negative under column 3 and negative between IFRS and EM. When the interaction between firm size and equity is introduced into column 4 and with equity financing, the relationship between CTA and EM changes from negative to positive whiles the negative relationship with IFRS is maintained but becomes significant. Firm size has a positive relationship with EM. This implies that bigger firms more likely to engage in earnings manipulative activities. However since bigger firms engage less in avoidance activities, then it may stand to reason that any attempt to manage earnings will be done through other means other than through engaging in more avoidance activities. The relationship between leverage and EM is positive. This relationship also indicates that highly leveraged firms engage more in EM. The interaction between leverage and size has a negative relationship with EM. This implies that bigger firms that are highly leveraged engage less in EM. This confirms the findings that argue that large firms are less likely to engage in earnings management due to more scrutiny by investors and financial analyst (Zhou and Elder, 2002). On the other hand, the interaction between firm size and equity has a positive relationship with EM. This suggests that bigger firms with equity funding engage more in earnings manipulative activities. (See Table 5 in Appendix)

Sensitivity of Tax Avoidance and EM to Firm Size

Table 6 explores the overall sensitivity of the relationship between CTA and EM to firm size. The relationship between EM and CTA is positive and remains positive with the introduction of the interaction between EM and firm size. The interaction between EM and size has a negative influence on CTA. This implies bigger firms who engage in earnings manipulations seek to achieve that end without necessarily engaging in tax avoidance mechanisms and they are less sensitive to the level of earnings manipulations. When leverage is removed and equity capital is introduced under column 2, the positive relationship between CTA and EM becomes significant. Also the negative relationship between CTA and IFRS is maintained. This implies that a big firm's decision to engage in avoidance behaviour or otherwise is not influenced much by the capital structure. The relationship between CTA and EM remains positive under columns 3 and 4 even with introduction of the interaction between CTA and firm size. The interaction between CTA and size has a negative influence on EM. This implies bigger firms who engage in tax avoidance mechanisms are not necessarily doing so through earnings manipulation. When leverage is removed and equity capital is introduced under column 4, the positive relationship between CTA and EM is maintained. Also the negative relationship between CTA and IFRS is maintained. This implies that a big firm's decision to EM or otherwise is not influenced much by the capital structure. Also the influence of IFRS on reporting quality remains positive irrespective of capital structure suggesting that capital structure plays minimal role in the ability of IFRS to improve reporting quality. (See Table 6 in Appendix)

CONCLUSION

The paper investigates the implications of adoption of international financial reporting standards (IFRS) for accounting information quality and tax avoidance. The paper draws its sample of 119 from non-financial firms listed on the Ghana Stock Exchange (GSE) as well as non-listed firms from Ghana Revenue Authority (GRA) database. We employ system methods of moments (GMM) to establish whether adoption of IFRS of firms in Ghana reduces the incidence of earnings management and tax avoidance. The results show the existence and growth of earnings management among sampled firms. This indicates that sampled firms use flexibility in financial accounting to influence reported earnings. The existence of tax avoidance among sampled implies that some private benefit exists for managers engaging in such avoidance activities. There is also evidence which suggests that majority of firms in

Ghana employ IFRS in their financial reporting. On the relationship between IFRS and CTA, the results indicate that firms that apply IFRS in the preparation of their financial reports engage less in corporate tax avoidance activities. The result also shows a statistically significant negative relationship between IFRS and EM indicating that, firms that apply IFRS in their financial reporting engage less in earnings manipulative activities. These results suggest that the adoption/adaption of IFRS among sampled firms improves their reporting quality and reduces their individual incentives to engage in avoidance activities. With the adoption/adaption of IFRS, managerial incentive to manipulate earnings reduces and therefore improves on the quality of financial reporting. This improvement in reporting provides less motivation for managers to engage in tax avoidance as it affords less or no shield, hence managers engage less in tax avoidance activities explaining the negative relationship between IFRS and CTA.

The paper also reveals that highly geared firms engage more in tax avoidance and so do firms financed through equity. This implies that both equity and debt financing results in more tax avoidance activities. When the adoption of IFRS reduces EM and therefore reduces managerial incentives to engage in CTA, CTA is reduced irrespective of the capital structure. The result suggests that the financing structure of a firm plays little role in the firm's incentives to engage in avoidance activities among the sampled firms. Firm size was also found to have a negative relationship with EM and also with CTA. The negative relationship implies that bigger firms are less likely to engage in EM and therefore CTA. This may be explained by the fact that bigger firms are more subjected to regulatory/investor scrutiny. When the sample was separated into listed and non-listed firms, the result on the relationship between IFRS and CTA remains a negative relationship for non-listed firms but becomes positive for listed firms. Similar result is seen for IFRS and EM as the relationship becomes positive for listed firms. This implies that IFRS has little or no reduction impact on EM for listed firms but does for non-listed firms. Hence although, IFRS improved reporting quality generally for non-listed sampled firms, same cannot be said for listed firms suggesting that the ability of IFRS to improve on reporting quality depends on the listing status of the firm. Leverage becomes positively related to CTA for both listed and non-listed firms and negatively related to EM for listed firms. This implies that non-listed firms who are more likely to resort to debt financing engage more in avoidance activities. For listed firms, the relationship between leverage and EM remained negative.

The results further suggest that increased manipulative activities will lead to more avoidance activities. Our results also reveal that firm size has a positive relationship with EM. This implies that bigger firms are more likely to engage in earnings manipulative activities. However since bigger firms engage less in avoidance activities, then it may stand to reason that any attempt to manage earnings will be done through other means other than through engaging in more avoidance activities.

These results give rise to two public policy implications: First, it adds to prior literature by assessing the implications of IFRS on the relationship between EM and tax avoidance. Second, the paper brings to bear the impact of the adoption of IFRS on reporting quality from an emerging economy's perspective and also assesses whether the adoption has any influence on the relationship between EM and tax avoidance. This paper is timely for a developing country and for that matter Ghana as the adoption of IFRS in 2007 provides policy guideline directions on the effectiveness of IFRS in improving the quality of accounting in the country. This also provides information to international accounting standard setters on how effectively the standards they set meet the objective of improved reporting quality.

ENDNOTE

1. This is because prior research argue that both negative and positive DAC_{it} can be used to conceal poor performance or save current earnings for future use (Rusmin, 2010; Gul et al., 2003; DeFond and Park, 1997).

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APPENDIX

TABLE 1
SUMMARY STATISTICS ON SELECTED BANK LEVEL VARIABLES

Table 1 presents summary statistics of selected firm specific variables. IFRS connotes the adoption of international financial reporting standards. Effective tax rate (ETR) is employed as the measure of corporate tax avoidance. Discretionary accrual is used as the proxy for earnings management. Big4 Auditors is a dummy variable that takes 1 if the firm is being audited by one of the Big 4 Accounting firms. Leverage is total debt scaled by total assets. Size is a control variable measured as the natural logarithm of total assets. Asset tangibility measures the physical property of the firm. Age measures the number of years the firm has been in existence and is used as a proxy for experience. Short-term fund is short-term debt scaled by total assets. Long-term fund is long-term debt scaled by total assets. Equity capital is used as a proxy to measure the degree of capitalization. CSR represents corporate social responsibility engagement of the firm. The mean values of the selected firms are in percentage terms except for firm size and equity capital, which are in millions of Ghana cedis.

	Obs	Mean	Std. Dev.	Minimum	Maximum
IFRS	471	0.543824	0.49863	0	1
Tax avoidance	404	(0.04134)	1.51411	(22.37134)	7.51770
Earnings mgt	186	(0.59321)	10.64815	(144.87550)	4.93108
Big 4 Auditors	467	0.33191	0.47140	0	1.00000
Leverage	414	0.17202	0.34024	0	4.08841
Size (GH¢')	414	17.03993	2.20223	11.31510	25.57337
Assets tangibility	411	0.27024	0.25271	0.00000	1.64710
Age (years)	284	23.75	14.59	2.00	67.00
Short-term fund	72	0.53361	0.52307	0.01329	4.08841
Long-term fund	190	0.17262	0.21787	0.00013	1.40394
Equity capital (GH¢')	394	62.80	43.90	(6.10)	63.70
CSR	473	0.47146	0.49971	0	1.00000

Source: GSE and GRA and author's own calculation

TABLE 2
PAIR-WISE CORRELATION COEFFICIENT BETWEEN KEY SELECTED VARIABLES

The table 2 presents pair-wise correlation coefficients estimated on sample of firms from Ghana. * implies significant at 5% or more. Effective tax rate (ETR) is employed as the measure of *corporate tax avoidance*. Discretionary accrual is used as the proxy for *earnings management. Big4 Auditors* is a dummy variable that takes 1 if the firm is being audited by one of the Big 4 Accounting firms. *Leverage* is total debt scaled by total assets. *Size* is a control variable measured as the natural logarithm of total assets. *Asset tangibility* measures the physical property of the firm. *Age* measures the number of years the firm has been in existence and is used as a proxy for experience. *Short-term fund* is short-term debt scaled by total assets. *Long-term fund* is long-term debt scaled by total assets. E*quity capital* is used as a proxy to measure the degree of capitalization. CSR represents corporate social responsibility engagement of the firm. IFRS connotes the adoption of international financial reporting standards.

	Tax avoidance	Earnings mgt	Big 4 Auditors	Leverage	Size	Assets tangibility	Age	Short-term funds	Long-term fund	Equity capital	CSR	IFRS
Tax avoidance	1											
Earnings mgt	-0.0007	1										
Big 4 Auditors	-0.068	-0.1085	1									
Leverage	0.0288	-0.1126	0.2394*	1								
Size	-0.0411	-0.0606	0.1964*	0.0384	1							
Assets tangibility	-0.0026	0.0092	0.2535*	0.1539*	0.2484*	1						
Age	0.0629	-0.0008	-0.1321*	-0.0583	0.1044	-0.1247*	1					
Short-term fund	0.0704	-0.0387	-0.2187	0.9787*	-0.3196*	-0.2441*	0.1663	1				
Long-term fund	0.1996*	0.0698	-0.1984*	0.4558*	-0.0295	-0.1069	0.4767*	-0.1837	1			
Equity capital	0.0122	0.0158	-0.0958	-0.0203	0.4827*	0.1460*	0.1515*	-0.3343*	-0.0324	1		
CSR	-0.0651	-0.0826	0.1581*	-0.1446*	0.0449	-0.0272	0.1058	-0.1015	-0.0578	-0.1169*	1	
IFRS	-0.0631	-0.070	0.1817*	0.2183*	0.0503	0.028	-0.16*	0.1014	-0.212*	-0.132*	0.0967*	1

Source: GSE and GRA and authors' own calculation

TABLE 3
DETERMINANTS OF TAX AVOIDANCE AND EARNINGS MANAGEMENT

The dependent variables are tax avoidance and earnings management. *IFRS* connotes the adoption of international financial reporting standards. *CSR* represents corporate social responsibility engagement of the firm. *Big4 Auditors* is a dummy variable that takes 1 if the firm is being audited by one of the Big 4 Accounting firms. *Leverage* is long-term debt scaled by total assets. E*quity capital* is used as a proxy to measure the degree of capitalization. *Size* is a control variable measured as the natural logarithm of total assets. *Asset tangibility* measures the physical property of the firm. *Age* measures the number of years the firm has been in existence and is used as a proxy for experience. All regressions are estimated using dynamic panel-data estimation, Two-step System. Standard errors are reported in parentheses. ***, **, and * indicates statistical significance at the 1% 5% and 10% level respectively. The following diagnostic tests are reported: (1) The Sargent test for over identification restriction which the null hypothesis is that instruments are exogenous (2) The Chi^2 for joint significance of instruments (3) The Arl tests for the presence of auto correlation and (4) Observations

	Tax avoidance		**Earnings management**	
	(1)	(2)	(3)	(4)
Tax avoidance_lag	-0.417***	-0.037		
	(000)	(0.840)		
Earnings management_lag			0.00812	-0.27
			(0.977)	(0.281)
IFRS	-0.317	-0.255	-0.226*	-0.395***
	(0.491)	(0.489)	(0.034)	(000)
CSR	-0.18	-0.19	0.174**	0.161**
	(0.577)	(0.47)	(0.004)	(0.002)
Big 4 Auditors	0.0598	0.0759	-0.188**	-0.221***
	(0.85)	(0.771)	(0.001)	(000)
Leverage	0.113		-0.0689	
	(0.768)		(0.227)	
Equity capital		3.68E-10		3.75e-09***
		(0.224)		(000)
Size	-0.0824	-0.129	-0.0144	-0.0768***
	(0.362)	(0.156)	(0.348)	(000)
Assets tangibility	-0.291	-0.0491	-0.0947	-0.163
	(0.666)	(0.933)	(0.494)	(0.265)
Age	0.00698	0.00582	0.00102	0.00171
	(0.492)	(0.485)	(0.674)	(0.427)
Diagnostic test:				
Sargent test	0.357	1.331	6.516	4.437
P-value	0.986	0.856	0.164	0.35
Chi2	19.35***	4.194	60.89***	80.2***
Arl	-5.691	-2.926	-2.016	-0.293
P-value	1.26E-08	0.00343	0.0438	0.77
No. of observation	175	164	63	57

TABLE 4
DETERMINANTS OF TAX AVOIDANCE AND EARNINGS MANAGEMENT CONTROLLING FIRM STATUS

The dependent variables are tax avoidance and earnings management. IFRS connotes the adoption of international financial reporting standards. CSR represents corporate social responsibility engagement of the firm. Big4 Auditors is a dummy variable that takes 1 if the firm is being audited by one of the Big 4 Accounting firms. Leverage is long-term debt scaled by total assets. Equity capital is used as a proxy to measure the degree of capitalization. Size is a control variable measured as the natural logarithm of total assets Asset tangibility measures the physical property of the firm. Age measures the number of years the firm has been in existence and is used as a proxy for experience. All regressions are estimated using dynamic panel-data estimation, Two-step System. Standard errors are reported in parentheses. ***, **, and * indicates statistical significance at the 1% 5% and 10% level respectively. The following diagnostic tests are reported: (1) The Sargent test for over identification restriction which the null hypothesis is that instruments are exogenous (2) The Chi2 for joint significance of instruments (3) The Arl tests for the presence of auto correlation and (4) Observations

	Tax avoidance		**Earnings management**
	Listed	Unlisted	Listed
Tax avoidance_lag	0.131	-0.0859	
	(0.799)	(0.477)	
Earnings management_lag			-0.192
			(0.391)
IFRS	0.0001	-0.141	1.088*
	(000)	(0.585)	(0.012)
CSR	-1.155	-0.0451	0.12
	(0.053)	(0.816)	(0.188)
Big 4 Auditors	1.573	0.134	-0.12
	(0.079)	(0.56)	(0.476)
Equity capital	2.11e-08***	-4.07E-11	-0.00003
	(000)	(0.843)	(0.347)
Leverage	4.157***	0.27	-0.129
	(000)	(0.704)	(0.546)
Size	-0.338*	0.0127	-0.046
	(0.035)	(0.854)	(0.111)
Assets tangibility	-2.605	-0.019	-0.687*
	(0.059)	(0.966)	(0.029)
Age	-0.0293	0.00112	0.00496
	(0.579)	(0.872)	(0.635)
Diagnostic test			
Sargent test	0.576	10.28	5.982
P-value	0.902	0.036	0.112
Chi2	29.83***	2.179***	67.23***
Arl	-1.17	-4.226	-2.333
P-value	0.242	0.0000238	0.0196
No. of observation	45	119	26

TABLE 5
THE SENSITIVITY OF TAX AVOIDANCE AND EARNINGS MANAGEMENT TO FUNDING SOURCES

The dependent variables are tax avoidance and earnings management. IFRS connotes the adoption of international financial reporting standards. CSR represents corporate social responsibility engagement of the firm. Big4 Auditors is a dummy variable that takes 1 if the firm is being audited by one of the Big 4 Accounting firms. Leverage is long-term debt scaled by total assets. Equity capital is used as a proxy to measure the degree of capitalization. Size is a control variable measured as the natural logarithm of total assets Asset tangibility measures the physical property of the firm. Age measures the number of years the firm has been in existence and is used as a proxy for experience. Firm size is interacted with firm funding source (Leverage and equity). All regressions are estimated using dynamic panel-data estimation, Two-step System. Standard errors are reported in parentheses. ***, **, and * indicates statistical significance at the 1% 5% and 10% level respectively. The following diagnostic tests are reported: (1) The Sargent test for over identification restriction which the null hypothesis is that instruments are exogenous (2) The Chi2 for joint significance of instruments (3) The Arl tests for the presence of auto correlation and (4) Observations

	Tax avoidance		**Earnings management**	
	(1)	(2)	(3)	(4)
	Model 1	Model 2	Model 3	Model 4
Tax avoidance_lag	-0.480***	-0.095		
	(000)	(0.389)		
Earnings management_lag			0.123	-0.3
			(0.683)	(0.235)
Earnings management	0.000833	-0.00507		
	(0.944)	(0.378)		
Tax avoidance			-0.0195	0.136**
			(0.493)	(0.006)
IFRS	-0.565	-0.371	-0.12	-0.415***
	(0.314)	(0.18)	(0.270)	(0001)
CSR	-0.437	-0.541**	0.124	0.163**
	(0.269)	(0.005)	(0.057)	(0.001)
Leverage * size	0.253		-0.135***	
	(0.131)		(000)	
Equity * size		-1.69E-10		1.1E-09
		(0.718)		(0.232)
Big 4 Auditors	0.188	0.126	-0.251***	-0.252***
	(0.611)	(0.502)	(000)	(000)
Leverage	-3.676		1.936***	
	(0.162)		(000)	
Equity capital		4.34E-09		-1.74E-08
		(0.701)		(0.336)
Size	-0.204	-0.181**	0.0485	-0.0859***
	(0.056)	(0.005)	(0.062)	(000)
Assets tangibility	-0.742	-0.503	0.0801	-0.11
	(0.308)	(0.2)	(0.566)	(0.446)
Age	0.016	0.0126*	-0.00353	0.0019
	(0.205)	(0.045)	(0.146)	(0.383)
Sargent test	0.293	9.235	10.73	4.393
P-value	0.99	0.0555	0.0297	0.355
Chi2	31.27***	29.11***	91.13***	88.04***
Arl	-0.0538	-0.152	-1.74	0.0089
P-value	0.957	0.879	0.0818	0.993
No. of observation	109	100	63	57

TABLE 6
THE SENSITIVITY OF TAX AVOIDANCE AND EARNINGS MANAGEMENT TO FIRMS' SIZE

The dependent variables are tax avoidance and earnings management. IFRS connotes the adoption of international financial reporting standards. CSR represents corporate social responsibility engagement of the firm. Big4 Auditors is a dummy variable that takes 1 if the firm is being audited by one of the Big 4 Accounting firms. Leverage is long-term debt scaled by total assets. Equity capital is used as a proxy to measure the degree of capitalization. Size is a control variable measured as the natural logarithm of total assets Asset tangibility measures the physical property of the firm. Age measures the number of years the firm has been in existence and is used as a proxy for experience. All regressions are estimated using dynamic panel-data estimation, Two-step System. Standard errors are reported in parentheses. ***, **, and * indicates statistical significance at the 1% 5% and 10% level respectively. The following diagnostic tests are reported: (1) The Sargent test for over identification restriction which the null hypothesis is that instruments are exogenous (2) The Chi2 for joint significance of instruments (3) The Arl tests for the presence of auto correlation and (4) Observations

	Tax avoidance		**Earnings management**	
	(1)	(2)	(3)	(4)
Tax avoidance_lag	-0.457***	-0.0857		
	(000)	(0.441)		
Earnings management_lag			-0.0412	-0.245
			(0.884)	(0.345)
Earnings management	7.158	6.338**		
	(0.11)	(0.009)		
Tax avoidance			0.327	0.93
			(0.13)	(0.083)
IFRS	-0.245	-0.22	-0.240*	-0.395***
	(0.675)	(0.438)	(0.026)	(0.001)
CSR	-0.577	-0.592**	0.177**	0.172**
	(0.15)	(0.002)	(0.003)	(0.002)
Earnings mgt * size	-0.375	-0.333**		
	(0.11)	(0.009)		
Tax avoidance * size			-0.015	-0.0501
			(0.162)	(0.134)
Big 4 Auditors	0.332	0.247	-0.204***	-0.240***
	(0.391)	(0.201)	(0.001)	(000)
Leverage	0.136		-0.0773	
	(0.735)		(0.174)	
Equity capital		3.38E-10		4.04e-09***
		(0.127)		(000)
Size	-0.0981	-0.140*	-0.0175	-0.0884***
	(0.299)	(0.012)	(0.232)	(000)
Assets tangibility	-0.602	-0.502	-0.0879	-0.118
	(0.419)	(0.191)	(0.52)	(0.431)
Age	0.0131	0.0118	0.00118	0.00106
	(0.303)	(0.063)	(0.63)	(0.627)
Sargent test	0.216	9.09	6.255	4.545
P-value	0.995	0.0589	0.181	0.337
Chi2	29.59***	37.21***	65.93***	79.32***
Arl	-0.343	-0.316	-1.918	-0.243
P-value	0.732	0.752	0.0552	0.808
No. of observation	109	100	63	57

Quality Control Elements and Auditor Fraud Risk Assessment: An Experimental Study

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This study investigates and analyzes if auditor performance toward fraud risk assessment can be an indicator for the effectiveness of some of the ISA 220 quality control elements, mainly engagement team experience and direction and supervision. An experiment was conducted with a number of auditors working in audit firms with international affiliations in Egypt. Results suggest that proper auditor experience rather than direction and supervision inside audit firms could have a significant impact on auditor fraud risk assessment. The findings have implications for regulators and the accounting profession concerned with monitoring and promoting audit quality, especially in the Egyptian environment.

INTRODUCTION

The recent wave of accounting scandals has opened a debate among academics, regulators, and the accounting profession on how to restore public confidence in corporate financial disclosures. The transparency and reliability of financial data play a key role in stabilizing the securities market and the society. The reliability of financial information can be achieved through the performance of high-quality audits. Audit quality is an essential matter for many parties including management, professional organizations and monitoring bodies. Due to audit quality importance, the International Auditing and Assurance Standards Board (IAASB) issued quality control standards; the International Standard on Quality Control (ISQC) NO.1 and the International Standard on Auditing (ISA) No.220. Such standards involve a set of quality control elements to be implemented both at the audit firm level (i.e. ISQC1) and at the engagement level (i.e. ISA 220) including for example leadership responsibilities, assignment of the engagement team, engagement performance (i.e. direction, supervision, and review) and documentation. The importance of the establishment of quality control systems had consequently gained great attention in different countries.

The adoption of IASs, IFRSs and ISAs by the developing countries is not only imperative but also required in order to access the capital markets at the global level. It is an international trend, which is recognized as best practice around the world (Faraj and Akbar, 2010). Richter Quinn (2004) as cited by

Zakari (2012) concluded that accounting and financial information originating from developing countries is still difficult to trust, despite the urgent need for these countries to attract foreign investment and foreign capital.

In Egypt, the ISAs are applied in the absence of Egyptian Auditing standards which is a translated copy of the ISA. Despite that, auditor`s role in Egypt faces significant problems. These problems involves lack of educational quality, little awareness among many practicing auditors of international best practice concerning conflicts of interest and auditor independence, and shortage in compliance with accounting and auditing standards. Moreover, knowledge deficiencies of most practitioners by ISA in practice restrict ensuring sound auditing practice. (Wahdan et al, 2005). Furthermore, among the factors affecting the non-compliance with accounting and auditing standards in Egypt as mentioned by the World Bank (2009) is that the quality of auditing process is influenced by assigning or changing auditors, which may force auditors to comply with the wishes of top management affecting the level of compliance with accounting and auditing standards. Toward enhancing audit quality, the Egyptian Financial Supervisory Authority (EFSA) imitating a small model of PCAOB in U.S. issued its decree no 84 dated 16/7/2008 to establish a unit to assess the quality of auditors' work in accordance with the Egyptian Standards on Auditing (ESA) and Egyptian Code of professional Conduct. Such decree placed more responsibilities on auditors of listed companies. One of its duties is requiring audit firms registered with EFSA since 2009 to provide data regarding the policies and procedures implemented within the firm to ensure the existence of a quality control system and that audit firm performance complies with quality standards and independence requirements. The quality control system required to be established by these firms is what is required by ISQC 1 and ISA 220. These requirements emerged as an effort to limit some of the problems faced within the Egyptian auditing environment (Wahdan et al, 2005).

However, the importance of ensuring audit quality in audit firms should not only focus on the establishment of quality control system inside audit firms. But there should be a basis for making judgment about audit quality for performance of audits through developing valid and reliable measures of audit quality. Statements about the rigorous review by the Public Company Accounting Oversight Board (PCAOB) resulting in improvements in audit quality are not supportable with valid evidence (Oliverio and Newman, 2008). Such measures could help in the provision of audit quality indicators. Audit quality indicators are defined by the PCAOB (2013) as measures of elements of audit quality that provide insight into financial statement audit quality.

Some efforts have been recognized toward the need for developing indicators of such audit quality. The Advisory Committee on the Auditing Profession of the US Department of the Treasury in 2008 (p. VIII-14) in its report recommended that the PCAOB "*determines the feasibility of developing key indicators of audit quality and effectiveness and requiring auditing firms to publicly disclose these indicators.*" If indicators are determined, then the PCAOB is directed to monitor the reported indicators as part of its oversight function. Despite the difficulty of developing such indicators according meeting held by the PCAOB's Standing Advisory Group (SAG) in 2008, in May 2013 the PCAOB proposed a project for developing audit quality indicators for its suggested audit quality framework elements to help inspection selections and target inspection work (PCAOB, 2013). e goals of such a project involves providing audit committees, investors, management, audit firms, other regulators, and the public with audit quality indicators, providing insight into audit quality for their decisions and policymaking. Moreover, the Center of Audit Quality (CAQ) in 2014 proposed a set of quantitative indicators to provide insight about audit firm system of quality control. However, those indicators still subject to pilot testing to determine its appropriateness.

From an academic perspective, there is no agreement among researchers about measurement of audit quality (Reisch, 2000, and Basil Committee, 2008). Despite that, many studies relied on indirect measures of audit quality such as peer review ratings, going concern opinions and discretionary accruals (e.g., Knechel and Vanstraelen, 2007; Chi et al, 2009; Choi et al, 2010; Laitinen, 2015 and Cahan and Sun, 2015) when measuring the impact of different audit quality elements such as audit firm size, audit partner rotation and auditor experience. They relied on indirect approach as they believe that there is inability to

observe audit quality directly due to difficulty in gaining access inside audit firms. Laitinen (2015) believes that the audit process itself is uncertain and unobservable.

However, there is a need to focus more on direct measures, more specifically measures related to auditor performance in audit process, where the auditor could have more influence or control over the level of audit quality (Defond and Zhang, 2013). Moreover, most indirect measures had been criticized regarding their appropriateness. There is a doubt that discretionary accruals are an appropriate earnings quality proxy since they are already heavily examined by auditors (Schelleman and Knechel 2010). Additionally, researches using measures related to the issuance of going concern qualifications did not gain access to audit firms to examine the inputs of the auditor's reporting decision (knechel et al, 2013). Bing et al (2014) argued that the direct approach help people to better and easily evaluate the level of audit quality while the indirect measures could not inform people of the level until they logically figure out the relationship between those proxies and the nature of audit quality.

In order to contribute to this discussion and to extend current literature on audit quality measures the researchers will investigate whether auditor fraud risk assessment can be relied upon as a direct measure or indicator for the effectiveness of some of the quality control elements set by ISA No.220, and increasingly indicated as important elements (e.g. audit team experience and knowledge and manager/partner attention to the audit team)by the auditing literature(e.g. Schroeder et al, 1986; Carcello et al, 1992 , and Kilgore et al, 2011& 2014).

This investigation is important for several reasons. First, while much of the focus in the accounting literature has been on audit quality in the U.S. and other developed countries, a comprehensive study of the audit quality in developing countries is of equal significance given the increasing importance of international investment. It provides useful insights to questions raised by standard setters and regulators toward monitoring and promoting audit quality inside audit firms especially in developing countries. There is a need for developing auditor performance related measures to make valid judgments about quality control systems inside audit firms. Second, detecting fraud is a high priority in the audit profession. Leaders of the profession argue that the future demand for audits will depend largely on auditors' ability to detect and deter fraud (Wilks and Zimbelman 2004; Elliott 2002).Historically, the failure to detect fraud has proven costly to auditfirms (Bonner et al. 1 998). Third, prior limited research studies (e.g. Bernardi 1994, Carpenter 2007, Hunton and Gold, 2010, and Figuroe, 2013) showed mixed evidence regarding the impact of either experience or brainstorming through open discussions among audit team members on fraud risk assessment task, a matter that requires more investigation in such area. The study also takes into consideration the effect of discussion on less experienced auditor performance, a matter that is considered by ISA 220 but did not take considerable attention in prior research. Accordingly, the study can complement judgment and decision making research (JDM) in auditing that focuses mainly on accuracy of auditor judgments in fraud risk tasks. This especially important in the Egyptian auditing environment where access to auditor performance inside audit firms is rare and most JDM researches in auditing are conducted in developed countries.

To achieve research objective, the current study employed a 2x2 experimental study with 50 experienced auditors and 22 less experienced ones working in Egyptian audit firms with international affiliations. The experiment involved two phases, pre and post direction and supervision. "Pre" represents participants' initial judgments and assessments related to a fraud risk task before any discussion or supervision from a number of audit managers. "Post" represents the participants' judgments and assessments of the same task but after clarifications and discussions session between the participants and those professional managers. The data obtained from the experiment has been statistically analyzed. The findings from the analysis support the notion that auditor proper fraud risk assessment could be an indicator that audit firms assigned competent experienced personnel to the audit process rather than an indicator that direction and supervision had taken place inside the firm.

The research paper is organized into five sections. Section 1 presented the introduction of the research problem and objectives. Section 2 provides a discussion of prior literature and develops the research hypotheses. Section 3 involves the research method including the experimental study that is conducted to

test the research hypotheses. Section 4 involves the results of the study. Finally, section 5 contains the conclusions, limitations and recommendations of the research.

BACKGROUND AND HYPOTHESES DEVELOPMENT

Prior Literature

The Nature and Attributes of Audit Quality

Despite the importance of audit quality and the different theories suggesting such importance (agency, lending credibility, inspired confidence, and policeman theories), no single definition of audit quality exists (FRC 2006, p. 16). Academics have traditionally thought of audit quality as: "the *market assessed joint probability that a given auditor will both (a) discover a breach in the client accounting system, (b) report the breach*"(De Angelo, 1981, p.186) as cited by Knechel et al (2013).Using this definition, it seems that audit quality constitutes both auditor competence (in discovering the breach) and his objectivity and independence (in reporting such breach). Kilgore (2007) observes whilst the De Angelo definition of audit quality has been widely quoted, it has also been criticized as not being broad enough and incomplete.

There are also a number of other definitions of audit quality in the literature. There are definitions related to auditor ability to meet legal and professional requirements (e.g. Government Accountability Office, 2003, Francis, 2004 and Broberg, 2007). Other practitioners focus on error detection and the financial statement outcome, suggesting that a high-quality auditor will detect errors in reported earnings and enhance the reliability of the financial statements (e.g. Gul et al, 2002, Behn et al, 2008 and Wedemeyer, 2010). However, it could be argued that the existence or lack of material misstatements could provide only partial insight into audit quality because there may have been no material misstatements to detect (IAASB, 2011b). Furthermore, the existence of material misstatements cannot be an indicator of poor audit quality as auditors provide reasonable rather than absolute assurance that the financial statements do not contain material misstatements

Others argued that the audit quality definition could differ depending on the party perceiving such quality, whether financial statement user, audit firm, auditor, regulators or the society (Knechel et al, 2013). A more comprehensive view of audit quality was provided by the IAASB (2011a). Such view concentrate more on the engagement team attributes as what constitute a reliable audit opinion and high audit quality. Furthermore, one of the most recent definitions of audit quality is the one set by the PCAOB (2013): "*meeting investors' needs for independent and reliable audits and robust audit committee communications on: financial statements, including related disclosures; assurance about internal control; and going concern warnings*". It seems that such definition focus more on results and outcomes rather than the process itself or inputs that most of the other previous definitions have focused on.

It is shown from the previous definitions and the different point of views, that there is no agreement on a single definition of audit quality. Audit quality definition should be a comprehensive one taking into consideration all the aspects that could constitute such quality and the different parties interested in such quality. Thus, such definition represents a significant challenge facing practitioners, academics, and regulators. However from the previous definitions, the researchers can define audit quality as the one performed in accordance with legal and professional requirements in a manner that could improve the reliability of financial reporting taking into consideration the interests of different parties concerned with such quality.

At the same time, many research studies have been conducted to determine the different audit quality elements based on the perceptions of different parties concerned with such quality (Pany and Reckers 1988; Schelluch and Thorpe 1995; The IAASB 2011 b). Schroeder et al (1986), in surveying a number of audit committee chairpersons about audit quality factors, found that audit team factors (e.g. team experience, communication between audit team and management, planning and conduct of the team work, and level of partner/manager attention to the audit) are perceived more important than audit firm factors such as provision of non-audit services. Similar results were found by Chen et al (2001) in his interviews

with auditors in China about the attributes of audit quality and compared with the perceptions of Chinese regulators. Also, Carcello et al (1992) focusing on the perceptions of both users and preparers of audit quality factors found that characteristics related to members of the audit team were generally perceived to be more important to audit quality than characteristics related to the audit firm itself, such as litigation record. In agreement with that is the study of Duff (2004) who found in his survey that reputation and capability are the most important dimensions of audit quality while the provision of non-audit services are among the least important dimension. Moreover, Kilgore et al (2011, 2014) supported those previous studies and found that users of audit service consider audit team attributes to be relatively more important than audit firm attributes.

In addition, Ramussen and Jensen (1998) surveyed a number of auditors, prepares (directors), external users (shareholders and financial journalists) regarding a number of audit quality dimensions. Shareholders and journalists weighted 'auditors' skeptical attitude to the auditee' and 'auditors' openness in the audit report' very high, while directors (as preparers) did not emphasize the first, and public accountants did not emphasize the second. Regarding perceptions of auditors in developing countries, Awadallah and Elbayoumi (2012) reported the perceptions of professional auditors in Egypt concerning how they perceive the quality of the service they provide. It was revealed that the interviewees generally believed that the audit quality is preserved high in the presence of four factors: high ethical standards to guide and regulate the profession, a well-planned and conducted audit, a more knowledgeable audit team, and good relationship with the client management.

To conclude, it seems that most of studies focused on surveying different participants concerned with audit quality, whether auditors, users or preparers of financial statements. Firstly, there was perceived difference in their responses regarding the degree of importance of each audit quality factor due to difference in participants` interests. Moreover, differences in business culture (including the legal and regulatory environment), the political landscape and economic environment in the countries in which auditors operate might have an impact on the perceptions of audit quality (The Institute of Chartered Accountants in England and Wales, 2002). The difference in perceptions could also result from the varying degree of those different parties' direct involvement and access to the audit process (IAASB, 2011b). Secondly, most of the studies (e.g. Schroeder et al, 1986; Carcello et al, 1992, and Kilgore et al, 2011, 2014) agree that audit team attributes, mainly experience, industry expertise and partner/manager attention to audit team are perceived more important than audit firm attributes, such as provision of non-audit services and auditor rotation, in enhancing audit quality. This could be justified by the fact that the audit team and personnel are directly involved in the audit process and thus their attributes are expected to directly impact such process. Thirdly, what constitutes audit quality is subjective and varies depending on the perception and expectation of various parties concerning audit services. Finally, these studies focused only on tracking the perceptions and opinions of different participants regarding the degree of importance of audit quality factors without empirically measuring such importance.

Measuring Audit Quality

Despite the numerous studies about audit quality, there is no agreement among researchers about measurement of audit quality. This view is supported by Reisch (2000) who argues that audit quality is a multi-dimensional potential construct; it is extremely difficult to measure and as a result, the extant literature reflects different measures of audit quality. According to the Basel Committee (2008), there is no tool to measure audit quality, but there are recent efforts that appraised how to measure it. Oliverio and Newman (2008) noted that there is no basis for making any judgment about audit quality for performance of audits of publicly-owned entities that are registered with the PCAOB. Oliverio and Newman (2008, p.19) argued that "*it is time to undertake the measurement of audit quality" "Firms performing audits with unrelenting commitment to quality that can be measured will be a major breakthrough in the world of public accounting"*.

From an academic perspective, previous studies have shown excessive effort toward determining the various elements that could affect such quality and used alternatives to measure it. Hussein and Hanefah (2013) found that in measuring audit quality, researchers have taken one of the following approaches,

which are: (1) direct approach, based on assumption that reporting of contract breaches and the probability of discovery will be reflected in features of the audit such as abuses and errors made by auditors. Despite its directness, they viewed that this approach is difficult to reach and (2) an indirect approach that measures audit quality from an ex-ante perspective either using surrogates of quality or checking the attributes or factors perceived to be associated with audit quality (Kilgore, 2007). Moreover, Chadegani (2011) also classified the audit quality measures that have been used in prior studies as direct (e.g. financial reporting compliance with GAAP, quality control review, bankruptcy, and SEC performance) and indirect (e.g. audit size, auditor tenure, industry expertise, audit fees, economic dependence, reputation and cost of capital).

There are also limited studies that focused mainly on developing multiple measures. Laitinen (2015) investigated multiple measures of audit quality while focusing on individual auditor characteristics such as gender and experience. He focused on developing a set of indirect measures for outcomes of audit believing that the audit process itself is uncertain and unobservable. The measures involve peer review ratings, discretionary accruals, and going concern opinions. However, most indirect measures had been criticized regarding their appropriateness. There is a doubt that discretionary accruals are an appropriate earnings quality proxy since they are already heavily examined by auditors (Schelleman and Knechel 2010). Additionally, researches using measures related to the issuance of going concern qualifications did not gain access to audit firms to examine the inputs of the auditor's reporting decision (knechel et al, 2013).

There is a need to focus more on direct measures, more specifically measures related to auditor performance in audit process. This is due to several reasons. Firstly, is to avoid the limitations of other measures used previously, such as the use of earning management measures (Woodland and Reynolds, 2003). Secondly, the reliance on auditor performance related measures is considered more direct and straightforward measures of the quality of audit service performed by auditors (Defond and Zhang, 2013). Defond and Zhang (2013) viewed that earning quality proxies are less direct measures of audit quality than restatements or going concern opinions, because the auditor`s influence on the quality of reported earnings is likely to be more limited than his or her influence over preventing material misstatements or issuing a correct audit opinion. Third, the IAASB (2014) believed that its proposed audit quality framework, by itself, will not be sufficient for the purpose of evaluating the quality of an individual audit. This is because detailed consideration will need to be given to matters such as the nature and extent of audit evidence obtained in response to the risks of material misstatement in a particular entity, the appropriateness of the relevant audit judgments made, and compliance with relevant standards. Fourth, studies that examine the supply side factors, i.e. auditor`s ability to deliver quality that depends on their competencies as reflected in factors such as training, skills, and expertise, exclusively used output-based proxies such as preventing material misstatements and correct issuance of audit opinion (Defond and Zhang, 2013). Finally and more interestingly, Francis (2011) in developing the audit quality framework emphasized that the quality of audit inputs flow through to the audit process, where audits are of higher quality when the engagement team personnel make good decisions regarding the specific tests to be implemented and appropriately evaluate the evidence from these tests leading to the audit report. Bing et al (2014) argued that the direct approach help people to better and easily evaluate the level of audit quality while the indirect measures could not inform people of the level until they logically figure out the relationship between those proxies and the nature of audit quality.

As a regulatory effort, in May 2013, the PCAOB proposed a project for developing audit quality indicators for its suggested audit quality framework elements to help inspection selections and target inspection work (PCAOB, 2013). One of the project goals is provide audit committees, investors, management, audit firms, other regulators, and the public with AQIs, providing insight into audit quality for their decisions. The project seeks to develop quantitative measures. However, some of the measures, such as the quality of communication with audit committees may be subjective. Moreover, the CAQ in April 2014 has proposed a set of potential audit quality indicators (AQI) that it believes will provide the greatest opportunity to enhance discussions between auditors and audit committees and the most benefit to audit committees in fulfilling their responsibility for oversight. However, it could be argued that those

regulatory efforts are still projects that will work in it in the future years and academic efforts is needed to provide contribution toward their completion.

According to the previous discussion, we argue that there should be more academic efforts that aim at developing direct measures of audit quality. There is a need to develop measures to serve as indicators for the effective application of quality control elements set by ISA 220 and ISQC 1. CAQ (2014) believes that there is a need for indicators that could provide additional perspective on the key elements of firm`s system of quality control as it applies to a particular audit, and could be useful in furthering an audit committee understanding of matters that can contribute to the performance of a quality audit.

Among those different quality control elements, the researchers will focus on experience of engagement team and direction and supervision elements. Prior research studies (e.g. Schroeder, 1986; Carcello et al, 1992 , and Kilgore et al, 2011) suggests that audit team attributes, mainly experience, and partner/manager attention to audit team are perceived more important than audit firm attributes, such as provision of non-audit services and auditor rotation, in enhancing audit quality.

The practitioners stress the importance of individual expertise, experience, skills and values to the quality of audits: *"Audits are performed by people, so audit quality depends on their quality. The quality of a firm's people and their performance depends on their competence and motivation"* (ICAEW, 2002, p. 18). Supporting such importance, the PCAOB (2013, p.13) in its project toward developing audit quality indicators stated that "*human capital is one of an auditing firm's most important assets"*. *Moreover,* direction of engagement team helps informing the members of the engagement team of matters relevant to the audit engagement. Also, the engagement partner shall take responsibility for the engagement team undertaking appropriate consultation on difficult or contentious matters. As stated in ISQC1 (p.61) "*consultation helps to promote quality and improves the application of professional judgment"*.

The researchers will focus on fraud risk assessment as an auditor performance related measure to serve an indicator for the effective application of both assignment of competent personnel and direction and supervision. Such assessment directly affects the audit process quality. It attempts to measure actual audit quality rather than perceived audit quality using an output of the audit process (Defond, and Zhang, 2013). As concluded by Nelson and Tan (2005), many of the audit tasks that could help auditors in arriving to an accurate audit opinion and previously examined in the auditing literature involved risk assessments, including the audit-risk model and related audit planning decision.

Fraud Risk Assessment

Since its emergence as a profession and until the forties of the 20th century, the main responsibility of the audit function was to detect frauds (Dowler et al., 1912 and Walton *et al*., 1916) as cited by Robu et al (2012). Based on that responsibility, the *Policeman Theory* consequently emerged where the auditor is regarded as a policeman, whose role is to check the accuracy of financial statements, for preventing and detecting frauds (Hayes *et al*., 2005). Hammersely et al (2011a) defined fraud risk as "*the risk that the client and its management would intentionally cause the financial statements to be materially misstated*". ISA 240 offers examples of fraud risks, analytical procedures for fraud detection, circumstances which can signal their presence, as well as anti-fraud programs and controls. In parallel, SAS 99 replaces SAS 82 and introduces the *brainstorming* concept, accomplished on audit team level in order to assess and determine whether a customer company may be affected by frauds and determine the adjacent fraud risk (Carpenter, 2007). In the USA, Sarbanes-Oxley Act 2002 (SOX) requires the organization of an audit committee within the audited company, the adoption of an ethical code, the assurance and implementation of an internal functional control system, the organization and institutionalization of the internal audit leading to more effective measures to prevent and detect frauds (Robu et al, 2012). The CEOs of the largest audit firms acknowledge the importance of auditor detection of fraud (DiPiazza et al. 2006), and industry critics question the value of audits lacking a focus on fraud detection (Johnson 2010).Consequently, fraud detection is of great concern to the sustainability of the auditing profession (Advisory Committee on the Auditing Profession 2008).

According to the previous discussion regarding the auditor's role and influence on the prevention and detection of financial frauds, and as long as some of the PCAOB(2013) proposed indicators of audit quality are related to fraud matters, auditor performance toward fraud risk assessment can be viewed as an important direct measure of audit quality. Moroever, increased financial reporting scandals renewed the focus on fraud, resulting in comprehensive legislation and SEC rulemaking concerning corporate governance and internal controls. Due to the importance of fraud risk assessment in an audit, the PCAOB (2013) proposed audit quality indicators related included frequency, nature, and market impact of reported frauds. However, according to a comment made by The Accounting and Auditing Procedures Committee of the Pennsylvania Institute of Certified Public Accountants (PICPA) in 2015 on PCAOB proposed indicators, there difficulty in detecting all frauds by auditor and hence quantifying them. Thus, it is viewed that proper fraud risk assessment through brainstorming or inquires and responsive audit procedures could be a good indicator of quality.

Hammersley et al (2011a) suggest that identifying risk factors focused on the fraud area is critical to the development of high-quality audit plans, and thus to fraud detection. Auditors make a preliminary overall fraud risk assessment during planning based on fraud risk factors identified and fraud hypotheses generated. This risk assessment is updated after completing evidence evaluation based on test results. The preliminary risk assessment guides auditor decisions about whether changes to the audit program are necessary. Thus, this assessment is an important determinant of audit effectiveness. In spite of its importance, fraud tasks are considered both unstructured and occur in impoverished learning environments. (Hammersely, 2011b).

Despite the importance of fraud risk assessment as essential audit task in audit planning decisions, there is little empirical evidence regarding the impact of experience and direction and supervision as quality control elements on such audit task.

Hypotheses Development

Experience and Fraud Risk Assessment

Measurement of audit judgment performance is often difficult because there are no objective performance criteria for many audit tasks. But as long as different audit decision tasks are performed by auditors with differing levels of training and experience, the judgments of experienced auditors have been used as a substitute for other performance measures in determining firm policies and auditing standards (Libby and Frederick, 1990). Thus, to determine the validity of this criterion, more evidence is needed, regarding why experienced auditors can perform tasks that inexperienced auditors cannot. Moore (2009, p.2) stated that *"Knowledgeable, experienced, and objective persons can reach different conclusions in applying professional standards despite similar facts and circumstances"*.

The psychology literature reports that training and experience improve calibration (e.g., Lichtenstein and Fischhoff, 1977) as cited by (Chung and Monroe, 2000). In fact, (Lichtenstein and Fischhoff, 1977) state that the more one knows, the better calibrated one is likely to be.

There are several reasons why audit experience affects the accuracy of an auditor's judgments. Experience develops an auditor's abilities to process information, make mental comparisons of alternative solutions and initiate subsequent actions (Gibbins, 1984). It could be argued that inexperienced auditors cannot develop these abilities in their first years of work. As a result of their auditing experience, auditors develop large and complex memory structures that form the storage of information from which they draw in decision-making (Libby, 1995) as cited by (Chung and Monroe, 2000). In addition, experience influences the selection and weighting of information cues (Bonner, 1990). An experienced auditor's knowledge structure enables him/her to identify the particular information cues that should be selected and appropriately weighted to form his/her judgments (Bonner, 1990). A consequence of this ability is higher judgment accuracy. Moreover, when a novice auditor performs an audit task, s/he may not have developed the relevant memory structures to adequately review and select the information relevant to the task on hand. In addition, s/he may not be able to analyze and integrate the information at a level that is beyond the mere surface features of the task (Scheonfeld and Hermann, 1982) as cited by (Chung and Monroe, 2000). This allows experienced auditors to make more accurate judgments.

According to Libby and Frederick (1990), as auditors gain experience, (1) their knowledge of the set of potential financial statement errors becomes more complete, (2) they learn error occurrence rates, and (3) they organize their knowledge of financial statement errors along different dimensions including their transaction cycle. These differences should (1) increase the probability that more experienced auditors will be able to detect the existence of potential errors because their possible causes are more accessible from memory, (2) increase the efficiency of the search pattern by allowing experienced auditors to examine more likely explanations first, and (3) raise experienced auditors' level of efficiency in evidence evaluation by permitting them to consider clusters of potential errors which have similar evidence profiles.

According to the previous discussion, it could be said that high level of experience can help auditors to perform the audit process effectively and efficiently. They will become for instance more familiar with errors or misstatements that occurs frequently and the incentives behind committing them, have the ability to appropriate assess the significance or materiality of certain risks involved due to continuous deal with them, and determine the adequate audit evidence and how such evidence could be utilized to serve more than one audit objective. They can achieve that for example through recalling information from the complex memory structures that they have developed during their many years of experience. This can reduce much of audit time and cost that less experienced auditors could spend in achieving the required tasks. However, the impact of difference of experience level needs to be investigated and examined in audit setting.

Regarding fraud risk assessment, Hammersley (2011b) viewed that the infrequent experience with fraud provides little opportunity for learning. Thus, as audit experience increases their opportunity to deal with fraud cases also increases and hence assess fraud risk more accurately. According to Hammersely (2011b) model, they expected that experience, ability, and epistemic motivation to influence auditors' knowledge in fraud tasks, just as the first two of these characteristics have been hypothesized to affect knowledge acquisition in the financial statement error identification literature (Bonner, 1991). Supporting such view is Bernardi (1994) who found that managers outperform seniors in a fraud detection case when they are exposed to an initial evaluation of client integrity and competence. On the other hand, Figueroa (2013) study found that experience does not have a significant impact on the assessment of fraud risk for a firm operating in different countries. Thus, there is a mixed evidence regarding the impact of experience on fraud risk assessment which requires more research investigation. Moreover, changes in the audit environment in the last ten to fifteen years may have led to increased opportunities for less experienced auditors to acquire the knowledge to perform different audit tasks. This is strongly supported by the recent research of Yen (2012). It is stated that "*pushing down'' of work is exacerbated by employee turnover and tight client deadlines, which result in more responsibility being assumed by lower-level staff auditors*" (Yen, 2012, p.216). This issue strength the need for more examination of the experience element in such changing audit environment which could yield different results than those found in earlier years. In addition, those prior studies have been conducted in developed countries rather than developing ones. Different environments and cultures could yield different results. The previous discussion could lead to the first hypothesis as follows:

> *H_1: Experience has a significant impact on auditor performance toward fraud risk assessment.*

Direction and Supervision and Fraud Risk Assessment

One of the essential parts of managers and supervisors` job is providing critical feedback to their subordinates. Accordingly, a manager key skill was to be able to judge junior staff and adjust their behavior accordingly. It is important to be close to the team and know how everyone is performing. Supervising auditors devote a significant amount of time to overseeing and providing comments on the work of subordinate auditors to maintain the overall quality of the audit (Kornberger et. al., 2011).

Bonner and Walker (1994) believed that instructions can provide only declarative knowledge (i.e. knowledge of facts and definitions) and that procedural knowledge (i.e. rules or steps needed for

performing skilled tasks) must be acquired by compiling declarative knowledge through practice and feedback.

Additionally, individuals can acquire knowledge by doing tasks and receiving feedback after completing such task. Popular learning theories agree that some practice is necessary for the acquisition of procedural knowledge needed for skilled tasks. These theories also require that practice be followed by accurate, complete, and informative feedback for procedural knowledge to be acquired. Practice without feedback can decrease procedural knowledge for two reasons. First, due to experience cognitive overload, knowledge can be lost from working memory and never committed to long term memory. Unfortunately, the eliminated knowledge may be a relevant one. In addition, without feedback, people simply may infer and maintain in memory inaccurate procedural knowledge (Bonner and Walker, 1994).

Moreover, practice with outcome feedback does not produce procedural knowledge. However, feedback providing an explanation of the properties of the task combined with outcome feedback (explanatory feedback) generally promotes better acquisition of knowledge than outcome feedback alone (Balzer et al, 1989) as cited by (Bonner and Walker, 1994). Such explanation can be provided by supervisors to their subordinates through proper discussion and consultations as required by ISA 220 and ISQC 1quality control standards.

Andiola (2014) views that the feedback provided by managers or supervisors to the audit staff during the audit engagement is considered a mechanism of informal performance feedback. He suggests the importance that feedback plays in the organization for both quality control and employee development. Despite such importance, there is limited audit research in this area. It is important to examine the impact of discussion and feedback provided by audit managers or supervisors on work related outcomes. This is specifically true as the auditing environment is unique in the feedback mechanisms available to the auditor and the operational environment auditors' work where day to day feedback could be provided (Andiola, 2014). Moreover, it is argued that young employees perceive feedback as valuable mechanism toward reducing uncertainty and responding quicker to their new role and environment (Morrison, 2002) as cited by Andiola (2014). Greller and Herold (1975) findings as cited by Andiola (2014) suggests that due to the complexities of the different audit tasks, auditors cannot rely on themselves to learn and improve; rather they could require feedback from supervisors to improve their performance and to develop their technical knowledge and skills.

In addition, ISA 220 emphasized that discussion among members of the engagement team allows less experienced team members to raise questions with more experienced team members so that appropriate communication can occur within the engagement team. Appropriate teamwork assist less experienced members of the engagement team to clearly understand the objectives of the assigned work .Osborn (1957) as cited by Carpenter (2007) suggested that communication among team members can result in performance improvements through simulation and synergy which allow teams that communicate to outperform those who do not communicate. These performance improvements are known as process gains in the psychology literature.

Despite the importance of direction and supervision (i.e. feedback and discussion among more and less experienced auditors), There is little empirical evidence regarding their role toward fraud risk assessment. Carpenter (2007) study showed that audit teams' fraud risk assessments after the brainstorming session are significantly higher than those assessments given by individual auditors on the team prior to the brainstorming session. Thus discussion could have a significant impact on auditor fraud risk assessment. On the other hand, while Carpenter (2007) reported that open discussion brainstorming generated higher quality fraud risk ideas than nominal brainstorming; findings from Hunton and Gold (2010) suggest the opposite. They find that nominal brainstorming is more effective than open discussion brainstorming. The nominal group, where each member sits alone and generates as many ideas as possible to generate collective set of unique ideas, assessed fraud risk and made changes to the nature and timing of substantive tests more effectively than open discussion groups, where interaction among members took place. Supporting such results is the study of Chen et al (2015). Chen et al (2015) compared the performance of nominal team against interacting team with different level of experienced auditors but via electronic brainstorming toward two different degree of complex tasks: fraud risk factors identification

and fraud hypotheses generation. They found that nominal teams generated high quality and larger number of relevant fraud risk factors and fraud hypotheses than interacting teams. The researchers provided evidence that the reason behind that is mainly social loafing, i.e. less experienced auditors make less effort in interacting teams because they know that their inputs are unidentifiable. Thus, there is mixed evidence regarding the role of direction and supervision auditor performance in fraud risk assessment. Moreover, the changing audit environment through the introduction of new technologies, standards, and highly inspection and litigation concerns require a renewal focus of such matter (Andiola, 2014).Direction and supervision could be considered a tool to overcome training and educational problems and less compliance with standards found in the Egyptian environment through extensive direction and supervision from managers and partners who are considered more knowledgeable and more aware of accounting and auditing standards. According to the previous discussion and the expected impact of direction and supervision as quality control element on auditor performance, the second hypothesis will be as follows:

> *H_2: Direction and Supervision inside audit firms have a significant impact on auditor performance toward fraud risk assessment*.

RESEARCH METHOD

To test the research hypothesis, the researchers relied on an experimental method. The experiment employed a 2x2 design. The researchers manipulated two independent variables: one between subject factor and the other is within subject factor. The between subject factor was the audit experience. There were two levels of experience: less experienced auditors who had experience level from one to five years and more experienced who had experience level more than five years and have professional certificates. The outcomes are their performance in the fraud risk assessment task. The within subject factor was the pre versus post direction and supervision. "Pre" represents participants' initial judgments and assessments of the required task before any discussion or supervision from a number of audit managers who are highly experienced and qualified. "Post" represents the participants' judgments and assessments of the same task but after clarifications and discussions session between the participants and those professional managers. The participants' performance in each phase are compared to determine the impact of direction and supervision element.

Participants

The participants were 50 less experienced auditors (with 1-5 years of experience) and 22 experienced auditors that have professional certificates (with an experience level of more than 5 years) working in the big 4 and other audit firms with international affiliations in Egypt. International audit firms specially the Big 4 are predicted to have higher quality audits due to greater in-house experience in administering such audits. Eight audit firms were represented in the sample. The largest number of participants from any single firm was twelve.

Task and Procedures

The experimental task in this study involve reading background information about a company specialized in investment in securities companies and then making judgments related to the suggested auditors' performance measures. Such assessments and judgments were made twice through two phases. In the first phase the participants individually completed the task. They were not allowed to use reference materials or to confer with one another while completing this phase of the experiment. In the second phase, they completed it but after direction and supervision (i.e. discussion and brainstorming). The experiment was conducted in two separate meeting rooms setting in one of the audit firms with international affiliations. The first room included the experienced group while the other room involved the less experienced one. Each participant received a booklet containing an overview of the objective of the experiment, instructions and the experimental materials. Following a brief verbal introduction,

participants began by reading a set of instructions describing the case and the procedures to be followed during the experiment. The instructions included a brief description of one of the companies. The experimental material was developed after consulting an audit partner of one of audit firms with international affiliations as an expert in the field.

The company used in the experiment is one of the publicly listed companies. It is one of big audit firm's clients that have received qualified opinion on their financial statements. It has been established in 2009 according to law no.95 for year 1992 and according to the EFSA's approval. Its total long term assets at Dec 31 2013 is L.E 850 million Egyptian pounds ($120 million approximately) and the net income before tax is 40 million ($5.6 million). The management letter included some of the misstatements included in the company financial statement as at 31 December 2013.

Participants were provided with a list of some of the company financial statement misstatements (12 items) and participants were asked to assess regarding each misstatement the fraud risk using a five point Likert with 5 very high risk, and 1 very low risk. Following these questions, participants answered a post-experimental questionnaire, which asked for demographic information including years of audit experience and qualifications. The time specified for completing this experiment with its two phases is 1 hour and 30 minutes, each phase 45 minutes.

RESULTS AND DISCUSSION

The data of each experiment has been analyzed using different types of tests including descriptive statistics, t- tests, and analysis of variance.

Quality Control Elements and Fraud Risk Assessment

Experience Effect and Fraud Risk Assessment

Analysis of experience effects was done by comparing the experienced auditor-inexperienced auditor performance difference in the assigned task. Moreover, an expert benchmark was used to compare the responses of each group against such benchmark. The researcher analyzed the data related to the two groups (Experienced versus less experienced) in their assessment of the fraud risk for each presented misstatement discovered in the company`s financial statements using both descriptive statistics and T-tests as shown in table 1.

TABLE 1
STATISTICAL ANALYSIS/ EXPERIENCE & FRAUD RISK ASSESSMENT (PRE DIRECTION & SUPERVISION)

Financial Statement misstatement	Experienced Group n=22			Less Experienced Group n=50			Experienced versus less experienced	
	Descriptive statistics		One sample t-test (Experienced group versus expert benchmark)	Descriptive statistics		One sample t-test (Less experienced group versus expert benchmark)	t-test	
	Mean	SD (Standard deviation)	Sig (p)	Mean	SD	P	t	Sig.(p)
1- The company did not physically count its fixed assets on dec.31.	2.91	1.659	.006	4.12	1.118	.452	-3.125	.004
2- The company breach its fixed assets depreciation policy using percentages ranging from 12.5% to 25% instead of 10% to 20%	2.27	1.077	.000	3.32	1.236	.000	-3.438	.001
3- Regarding the investments in subsidiaries the company recorded its share in owner`s equity according to the net profit after tax	4.18	1.140	.463	4.04	1.228	.819	.461	.646
4- Examining investments in associated companies, we discover that the company had an investment in a company as at 31/12/2013 & was recorded in such an	2.00	1.309	.002	3.48	1.147	.005	-4.828	.000

account even though the company had more than 50% of ownership in that company.								
5- While auditing the receivables account, there was an amount expensed for decoration improvements in head office.	2.09	1.269	.740	3.44	1.110	.000	-4.547	.000
6- Examining debtors and other debit accounts we discovered that there are non-moving balances as at 31/12/2013 without management proper accounting action.	3.36	1.177	.019	4.20	1.245	.262	-2.668	.009
7- Examining debtor and other debit accounts we discovered that the company paid an amount related with acquisition of a land and which EFSA objected to the recording of it in the books due to improper legal procedures for acquisition.	3.36	1.255	.189	4.08	1.140	.000	-2.381	.020
8- Examining the debtors and other debt balances, we discovered it contained an account “Expenses for infrastructure” of the company representing expenses and allowances for a trip to India which did not result in a success project.	1.27	.631	.056	2.88	1.380	.000	-6.781	.000
9- The company did not provide the auditor with confirmations on certain	4.36	.902	.073	4.40	.904	.003	-.157	.875

bank account balances whether deposits or current accounts								
10- the company wrote off debts without the board of directors' approval or authorization.	2.73	1.077	.248	4.08	1.243	.000	-4.423	.000
11- The company recorded their activity costs using a basis of 20% of general and administrative expenses without informing auditors about board of directors approvals on such % or the basis for determining it	3.82	1.500	.018	3.76	1.222	.000	.173	.863
12- While auditing the general and administrative expenses, studies and advertising expense account, it was found that the company paid an amount for the restructuring study although the study has not been yet completed till the time the financial statements have been prepared.	2.73	1.077	.248	3.36	1.241	.046	-2.070	.042
All 12 misstatements	2.8182	1.05272		3.7400	.85857		-3.912	0.000

According to table 1, firstly, it is shown that there is a significant difference between the experienced and less experienced group performance regarding their fraud risk assessment as the p value for most misstatements is less than 0.005, except for the third, ninth, and eleventh misstatements. The reason for such exceptions may be due to the fact that these misstatements are considered high material compared to the other misstatements & therefore no significant difference existed between the opinions of both less experienced/ experienced auditors. Regarding such result that in some misstatements (e.g. company recording its shares in owners` equity in investment in subsidiaries according to net profit before tax, obtaining bank confirmations, and recording its activity costs using percentage of general expenses without board of directors approval on such percentage) introduced in the management letter, there is no significant difference between experienced and less experienced auditors in their fraud risk assessment. Thus, it could be indicated those misstatement where experience had no significant impact are highly material and clear misstatements for both groups. More specifically, recording shares in owners' equity (investments account) according to net profit before tax is considered highly material if tax amount is high and this should be clear for auditors, experienced and less experienced. In addition, the investment and cost accounts affecting the net profit are among the significant accounts, known to all levels of auditors, that they could involve high risk (e.g. recording items and include them as costs while actually do not represent costs, a matter which could requires more analysis of the cost account. Moreover, obtaining bank confirmations is so important and well known procedure for all auditors as there could be some accounts for the company in the bank but is not recorded in the financial statements or there are some balances recorded in the financial statements but actually does not exist.

The researchers view that those type of misstatements where experience has no impact in fraud risk assessment could be highly material specially that not obtaining board of directors approval is an indicator of poor control environment of the client company which is a significant element of the internal control system of any company according to COSO framework and could negatively affect the fairness of financial statements. In addition, not taking into consideration the tax amount (where tax rate is high, about 25%) when recording shares in owners' equity from investments in subsidiaries are highly significant misstatements that could be clear to auditors even the less experienced ones. Moreover, obtaining bank confirmation for some balances is essential for the completeness and existence assertions and such matter should be clear to different levels of auditors.

Secondly, it could be noticed from the mean responses of both groups in table 1 that for most misstatements experienced auditors assign lower fraud risk toward most misstatements than the less experienced auditors. This could be due to that the less experienced auditors, due to their little experience, could be more cautious in their risk assessment but on the other hand this could unnecessarily increase audit time and costs as the higher risk assessment, the more audit procedures need to be performed. However, the more experienced auditors take into consideration the materiality levels concept. The less experienced auditors evaluate materiality level at 100%. It may be also not yet clear for less experienced auditors that fraud detection is not the primary objective of auditors. The more experienced auditors are expected to take into consideration the six management assertions, not only one. Accordingly, they view that for example if existence assertion is not satisfied for a certain transaction while the other five assertions (accuracy, completeness, classification, cutoff, rights and obligations) have been satisfied this doesn't necessarily mean that fraud exist. Mala and Chanad (2014) argued that it is better for inexperienced auditors to be more risk averse or conservative in their audit risk judgments for audit effectiveness. This will enable them to root out potentially critical problems that can be reviewed later by more experienced auditors.

Thirdly, as overall, the average responses of the more experienced group for all misstatements is significantly different from the average responses of the less experienced group with p value=0.000. This is supported by the descriptive statistics as it shows for example the mean responses of the fraud risk assessment related to the first misstatement of the experienced group is 2.91, while for the less experienced is 4.21. Thus, the experienced group view that such misstatement(the company did not physically examine its fixed assets on dec.31 2013) has an average risk , while the less experienced one assess it as having a risk between high and very high. For further analysis, the ANOVA (table 4) was

conducted with audit experience as between subject factor. It shows that there is significant difference in both groups performance as p= 0.000, F=41.716. This means that the degree of variance in responses between both groups is not equal. In other words, there is significant difference in the homogeneity between both groups' responses.

On the other side, in comparing the responses of the expert benchmark with each group, it could be noticed that the more experienced outperformed the less experienced auditors. It is shown that there is no significant difference between the expert benchmark and the experienced group for 7 misstatements (misstatement no.3, 5, 7, 8, 9, 10, 12) out of 12. However, there is no significant difference between the expert benchmark and the less experienced group for only three misstatements out of 12. This could indicate the experienced group average responses is much closer to the expert benchmark than the less experienced group.

These results could suggest that fraud risk assessment is among the complex tasks that auditors could face and that more experienced auditors deal with them on regular basis compared to the less experienced ones. Moreover, fraud risk assessment is mainly assigned in the planning phase to managers and partners rather than less experienced auditors. Juniors are still in their first phases of learning and they haven't yet dealt extensively with such matters. Thus, assessing fraud risk needs more experience and frequent fraud situations to deal with it. Moreover, the researchers view that the less experienced auditors are not in a position that allows them to accurately assess fraud risk due to their little experience with fraud cases and its rarity during their entire career. However, the more experienced auditors believe that not every fraud risk will lead to material misstatements in the client financial statements. In addition, the lack of training in relation to proper understanding of the concepts related to fraud risk assessment could yield such result.

This is supported by Hammersley (2011) view that the infrequent experience with fraud provides little opportunity for learning. Thus, as audit experience increases their opportunity to deal with fraud cases also increases and hence assess fraud risk more accurately.

Thus, the results indicated that the experience element has a significant impact on auditors` fraud risk assessment. These results are not consistent with Figueroa (2013) study who found that experience does not have a significant impact on the assessment of fraud risk for a firm operating in different countries. Thus, the first hypothesis could be accepted.

Direction and Supervision Effect and Fraud Risk Assessment

While experience is a significant factor in the individual auditor's effectiveness at assessing the risk of fraud, the interaction with other members of the team in the discussion session provides an opportunity for improvements in auditors' fraud risk assessments (Carpenter, 2007).In analyzing the data of the first experiment (phase 2) relating to whether fraud risk assessment is significantly improved after direction and supervision within both groups (the less experienced and experienced groups) or not, the following results were obtained as shown in table2.

It is shown that there is also no significant difference between the experienced and less experienced groups after the direction and supervision session as the P value (T-test) for most misstatements is less than 0.005. This indicates that the discussion session did not significantly improve the less experienced group performance to make it close to that of the experienced one. Moreover, the paired sample tests that compare each group performance pre and post direction and supervision (table 3) shows that overall there is no significant difference in either experienced or less experienced auditors performance pre versus post direction and supervision regarding the fraud risk assessment task. For further analysis, the ANOVA test (table 4) shows that there is no significant difference pre versus post direction and supervision as the p=0.576, F=0.314. This analysis supports the descriptive analysis and the t-tests. A possible interpretation for such results may be due to time limit allowed for such direction and supervision where in real life there is no limit for time given by seniors to direct their subordinates. This may be one of the limitations of conducting an experimental test for assessing this element needed to improve the quality of audit

These results could indicate that the discussion session may be not enough to affect such performance. The participants may be confident of their prior assessment and the discussion did not provide new issues toward the misstatements presented and hence did not affect their initial assessment.

Moreover, the preliminary knowledge possessed by less experienced auditors in fraud risk and their less involvement in such tasks didn't help them to grasp the elements of supervision provided by partners. Prior research suggests that two important factors that result in process losses for brainstorming teams are production blocking and social loafing. Production blocking occurs because only one member can communicate at a time and because members are talking and listening, while waiting to contribute an idea that may be lost before they take their turn (Diehl and Stroebe 1987) as cited by Carpenter (2007).Free riding or social loafing is the reduction of effort of some of the team's members even when they are qualified to contribute fully (Diehl and Stroebe 1987) as cited by Carpenter (2007).However, the results of the current study are not in line with Carpenter (2007) study that found that audit teams' fraud risk assessments after the brainstorming session are significantly higher than those assessments given by individual auditors on the team prior to the brainstorming session. Moreover, the results did not support Statement on Auditing Standards (SAS) No. 99, *Consideration of Fraud in a Financial Statement Audit, which* contends that brainstorming will help auditors detect fraud, and the standard requires auditors to brainstorm about the possibilities of fraud on all audits (AICPA 2002).

TABLE 2
STATISTICAL ANALYSIS/ DIRECTION AND SUPERVISION& FRAUD RISK ASSESSMENT
(POST DIRECTION & SUPERVISION)

Financial Statement misstatement	Experienced Group n=22			Less Experienced Group n=50			Experienced versus less experienced	
	Descriptive statistics		One sample t-test (Experienced group versus expert benchmark)	Descriptive statistics		One sample t-test (Less experienced group versus expert benchmark)	t-test	
	Mean	SD (Standard deviation)	Sig (p)	Mean	SD	P	t	Sig.(p)
1- The company did not physically examined its fixed assets on dec.31	2.55	1.335	.000	4.08	1.307	.667	-4.521	.000
2- The company breach its fixed assets depreciation policy using percentages ranging from 12.5% to 25% instead of 10% to 20%	1.91	.921	.000	3.20	1.178	.000	-5.013	.000
3- Regarding the investments in subsidiary, the company recorded its share in owner`s equity according to the net profit after tax	4.82	.588	.000	4.20	1.143	.222	3.021	.004
4- Examining investments in associated companies, we discover that the company had an investment in a company as at 31/12/2013 & was recorded in such an	2.18	1.296	.007	3.28	1.386	.159	-3.242	.002

	account even though the company had more than 50% of ownership in that company.							
5-	While auditing the receivables account, there was an amount expensed for decoration improvements in head office.	2.09	1.601	0.793	3.52	1.074	0.000	-3.826	.001
6-	Examining debtors and other debit accounts auditors discovered that there are non-moving balances as at 31/12/2013 without management proper action.	3.55	1.405	.144	4.04	1.261	.823	-1.480	.143
7-	Examining debtor and other debit accounts we discovered that the company paid an amount related with acquisition of a land and which EFSA objected to the recording of it in the books due to improper legal procedures for acquisition	3.45	1.101	.066	4.16	1.167	0.000	-2.403	.019
8-	Examining the debtors and other debt balances, auditors discovered it contained an account “Expenses for infrastructure” as at 31 December 2013 representing expenses and allowances for a trip to India which did not result in a success project.	1.55	1.184	0.042	2.96	1.355	0.000	-4.234	.000
9-	The company did not provide the auditor with confirmations on certain bank	4.09	.921	.648	4.40	.948	.004	-1.300	.201

account balances whether deposits or current accounts								
10- 10- The company wrote off debts without board of directors' approval or authorization.	2.82	1.140	.463	4.12	1.256	0.000	-4.164	.000
11- 11- they recorded their activity costs using a basis of 20% of general and administrative expenses without informing auditors about board of directors approvals on such % or the basis for determining it	3.91	1.540	.012	3.92	1.104	0.000	-.034	.973
12- 12- While auditing the general and administrative expenses, studies and advertising expense account, it was found that the company paid L.E 250,000 for the restructuring study although the study has not been yet completed till the time the financial statements have been prepared.	2.45	1.184	.042	3.64	1.208	0.000	-3.858	.000
All 12 misstatements							-5.152	.000

TABLE 3
PAIRED SAMPLE TESTS (PRE VERSUS POST DIRECTION & SUPERVISION)

	Experienced Group	Less Experienced Group
Financial Statement Misstatements	Sig.(p)	Sig.(p)
1- The company did not physically examine its fixed assets on dec.31	.344	.771
2- The company breach its fixed assets depreciation policy using percentages ranging from 12.5% to 25% instead of 10% to 20%	.073	.420
3- Regarding the investments in subsidiaries, the company recorded its share in owner`s equity according to the net profit after tax	.003	.272
4- Examining investments in associated companies, we discover that the company had an investment in a company as at 31/12/2013 & was recorded in such an account even though the company had more than 50% of ownership in that company.	.257	.192
5- While auditing the receivables account, there was an amount expensed for decoration improvements in head office.	1.000	.584
6- Examining debtors and other debit accounts we discovered that there are non-moving balances as at 31/12/2013 without management proper action.	.383	.364
7- Examining debtor and other debit accounts we discovered that the company paid an amount related with acquisition of a land and which EFSA objected to the recording of it in the books due to improper legal procedures for acquisition	.540	.510
8- Examining the debtors and other debt balances, we discovered it contained an account “Expenses for infrastructure” of the company as at 31 December 2013 representing expenses and allowances for a trip to India which did not result in a success project.	.056	.552
9- The company did not provide the auditor with confirmations on certain bank account balances whether deposits or current accounts	.056	1.000
10- The company wrote off debts without board of directors’ approval or authorization.	.427	.699
11- they recorded their activity costs using a basis of 20% of general and administrative expenses without informing auditors about board of directors approvals on such % or the basis for determining it	.162	.322
12- While auditing the general and administrative expenses, studies and advertising expense account, it was found that the company paid L.E 250,000 for the restructuring study although the study has not been yet completed till the time the financial statements have been prepared.	.056	.029

TABLE 4
ANALYSIS OF VARIANCE - FRAUD RISK ASSESSMENT

	Sum of squares	Mean Square	F	P
Between Subjects Audit Experience	39.773	39.773	41.716	.000
Error	135.386	.953		
Within Subjects Pre versus Post direction &sup	.300	.300	.314	.576
Error	133.913	.957		

To summarize, it is shown that the experiment yield results which indicate that experience element has a significant impact on auditors` fraud risk assessment but the direction and supervision elements have no such impact. Thus, the first hypothesis could be accepted while the second is rejected.

CONCLUSION

This paper investigates if auditor performance toward fraud risk assessment can be relied upon as an indicator for the effective application of some of the quality control elements set by ISA 220, mainly engagement team experience and direction and supervision elements. The analysis relied on an experimental task with different level of auditors working in large CPA firms. The results indicate that proper assignment of experienced auditors has a significant impact on their performance toward fraud risk assessment. This could be attributed to the lack of knowledge possessed by less experienced auditors and training in relation to the proper understanding of concepts related to assessing fraud risk. The study also confirmed that less experienced auditors were more conservative in their fraud risk assessment compared to more experienced auditors who take into consideration the materiality concept. This is due to the less experienced auditors` infrequent experience and little knowledge about fraud cases. Thus, auditor performance toward fraud risk assessment could be relied upon as indicators for the proper assignment of experienced auditors.

The results also reveal that proper direction and supervision inside audit firms have no significant impact on less experienced auditors` performance toward fraud risk assessment. This is due to the fact that their preliminary knowledge and their less involvement in fraud risk assessment did not help them to grasp the elements of supervision provided. Thus, auditor performance toward assessing fraud risk could not be relied upon as an indicator that proper direction and supervision had been undertaken inside audit firms.

Based upon all the above findings, the researchers call for the practical application of the examined auditor performance measure, i.e. fraud risk assessment, to serve a quality control indicator for the proper assignment of engagement team personnel inside audit firms and to help quality control inspection units in performing their monitoring role. Proper training to less experienced auditors should be provided in tasks related to fraud risk assessment. Moreover, more research is needed to study and analyze quantitative measures of audit quality to provide more comprehensive and representative set of measures taking into consideration the other ISA 220 quality control elements. These suggestions support the PCAOB (2013) project concerning the development of audit quality indicators. The study has a number of limitations. First, the culture, economic, and educational environment in Egypt may affect the results of this study. Second, the experimental task is based on management letter of only one company. The results are based on an experiment with a limited number of auditors selected from audit firms with international

affiliation. Finally, the proposed audit quality indicator, i.e. fraud risk assessment, could be more understandable and useful to auditors, audit committee, and quality inspection units as they are more involved and have access to such matters rather than financial statement users.

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