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LETTER FROM THE EDITOR

Welcome to the *Academy of Accounting and Financial Studies Journal*. The editorial content of this journal is under the control of the Allied Academies, Inc., a non profit association of scholars whose purpose is to encourage and support the advancement and exchange of knowledge, understanding and teaching throughout the world. The mission of the *AAFSJ* is to publish theoretical and empirical research which can advance the literatures of accountancy and finance.

As has been the case with the previous issues of the *AAFSJ*, the articles contained in this volume have been double blind refereed. The acceptance rate for manuscripts in this issue, 25%, conforms to our editorial policies.

The Editor works to foster a supportive, mentoring effort on the part of the referees which will result in encouraging and supporting writers. He will continue to welcome different viewpoints because in differences we find learning; in differences we develop understanding; in differences we gain knowledge and in differences we develop the discipline into a more comprehensive, less esoteric, and dynamic metier.

Information about the Allied Academies, the *AAFSJ*, and our other journals is published on our web site. In addition, we keep the web site updated with the latest activities of the organization. Please visit our site and know that we welcome hearing from you at any time.

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INVESTIGATING PRESENTATIONAL CHANGE IN COMPANY ANNUAL REPORTS: AN EXTENSION

Thomas L. Zeller, Loyola University Chicago Brian B. Stanko, Loyola University Chicago Han Jin, Loyola University Chicago

ABSTRACT

This study extends previous work with a seven year (2004-10) longitudinal investigation of annual report design for Standard & Poor's (S&P) 500 companies. Prior research identifies the normalization of annual report design, with particular attention to voluntary disclosures, such as charts and graphs and other material designed to impress the shareholders and/or potential investors. Our findings show two distinct trends in annual report design. The first trend is to include Securities & Exchange Commission (SEC) Form 10-K, which includes a complete set of financial statements and extensive nonfinancial information in the annual report to the shareholders. The second trend is that companies selectively use voluntary disclosures or have eliminated completely voluntary disclosures to shareholders. Overall, we conclude corporate America has improved the quality and presentation of nonfinancial and financial information in annual reporting, although voluntary disclosures are playing a smaller role. Evidence suggested fewer companies are using the annual report as an impression management vehicle.

Key words: annul report design, presentational change, voluntary disclosure, impression management, normalization

INTRODUCTION

Arguably the company annual report is one of the most accurate sources for information about the financial health and future prospects of a company (Lord, 2002). In addition, the company annual report is one of the most important tools that a company can utilize to impress shareholders and potential investors through voluntary disclosures, e.g. (Lord, 2002; Penrose, 2008) and (V. Beattie, 2008) (Dilla & Janvrin, 2010). In this practice, companies include extensive voluntary disclosures regarding financial and nonfinancial results, well beyond required financial disclosures. Voluntary disclosure includes, for example, carefully designed financial and nonfinancial charts and graphs, impressive pictures of products and leadership, and bold impressive words in print, such as, improved quality and growth.

This study extends previous work done by Beattie, Dhanani and Jones (2008) where the authors call for further longitudinal investigation into the nature of change in annual report

design, specifically in the United States. Our research extends their work with a seven year (2004-10) longitudinal investigation of annual report design for Standard & Poor's (S&P) 500 companies. Our findings show a noticeable change has taken place in annual report design.

Our investigation shows two distinct design trends in annual report design. First, we find companies are providing very specific financial and nonfinancial information to the shareholders. The design trend is to include Securities & Exchange Commission (SEC) Form 10-K, which includes a complete set of financial statements and extensive nonfinancial information in the annual report to the shareholders. Second, the practice of voluntary disclosures appears to be changing. We find that companies selectively use voluntary disclosures or have eliminated completely voluntary disclosures in satisfying SEC reporting requirement to shareholders.

Overall, we conclude corporate America has improved the quality and presentation of nonfinancial and financial information in annual reporting. Including SEC Form 10-K with the annual report to the shareholder provides the user with a complete set of financial statements, plus a wealth of very useful nonfinancial information. Prior to this design trend, a shareholder would have to seek out Form 10-K separately. In addition, we identify a design trend where companies no longer use a wide spectrum of voluntary disclosures to mask the true performance in the annual report to shareholders. The advantage to shareholders is that they no longer have to wade through useless information to complete a quality company analysis. With this trend in design, the informed consumer of the annual report can gain a clear picture of company performance, liquidity and financial position.

LITERATURE REVIEW

Research in annual report design generally follows two tracks. Beattie, Dhanani and Jones (2008) (hereafter, BDJ) investigate specific trends in annual report design. Related research inquiries identify trends in annual report design, with particular attention to voluntary disclosures, such as charts and graphs and other material designed to impress the shareholders and/or potential investors.

DBJ (2008) identify the normalization of annual report design. DBJ (2008) define "normalization." as the movement of, "how financial reporting practices gradually become adopted by the majority of companies over time." DBJ (2008) also note there is a distinct lack of research in the normalization process today, as originally noted by Stanton and Stanton (2002). DBJ (2008) conclude from their work (and over thirty years of related research) that:

- 1. Corporate annual reports of U.K. firms are ever increasing in size, with voluntary disclosure increasing at a faster rate than regulatory material.
- 2. Narrative material increased 375% and pictorial material increased by 100% between 1965 and 2004.

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- *3. Voluntary material appears in the front and financial statements in back of annual reports.*
- 4. Use of prominent corporate logos and external design professionals where engaged to prepare the annual report in the majority of companies by 2004.

Another line of research focuses on the use of voluntary disclosures, including charts and graphs, in annual reports. Stakeholders rely upon the annual report as a creditable source for learning about a company and its related financial position (Stanton, 2002; Penrose, 2008). A reader of the annual report typically reviews nonfinancial and financial information to form an opinion about a company. Previous research shows a distinct normalization process in annual Publicly traded companies typically use voluntary disclosures about reporting practices. nonfinancial and financial issues in the annual report to shape the shareholders' opinion about the company (Penrose, 2008) (V. Beattie, 2008) (Dilla & Janvrin, 2010). As a result, companies have included extensive voluntary disclosures, i.e. exciting and bold-looking pictures, upward sloping charts, smiling faces, suggestive and forward-looking statements, in the front section of the annual report. All of this would precede more substantive information like the management discussion and analysis of financial condition and results of operations (MD&A) segment, firm financial statements and related notes, and audit/management reports. The images, charts, and faces are designed to impress stakeholders' and potential investors' opinion about a company long before interpreting the financial results (e.g. (Neu, 1991) (Dilla & Janvrin, 2010)).

In general, BDJ (p. 218), using a sample of U.K listed companies from 1965 to 2004 find a normalization process at work in annual report design. Normalization in this context means companies tend to follow similar reporting practices.

Specifically, BDJ (p. 217) find companies continue to move in the direction of preparing a design-orientated document in compliance with the annual report. A design-orientated document in this context means financial reports alone do not dominate the annual report. Voluntary disclosures, as discussed above, appear to dominate the annual report (V. Beattie, 2008). The normalization trend appears to be that design and presentational attributes of nonfinancial information is increasing in the annual report. This finding supports previous work by Lee (1994) and McKinstry (1996). BDJ (p. 219) conclude future research should investigate the normalization of annual report design practices in other countries, such as the United States, with longitudinal studies.

SEC'S ANNUAL REPORT FORM 10-K COMPARED TO ANNUAL REPORT TO SHAREHOLDERS

Publicly traded companies in the U.S. must comply with two annual reporting requirements. The U.S. Securities and Exchange Commission requires publicly traded companies provide SEC Form 10-K annually to the Securities and Exchange Commission. The SEC uses

Form 10-K to monitor compliance with very specific financial and nonfinancial reporting standard. In addition the Securities and Exchange Commission requires a company to supply shareholders with an annual report before it holds the annual meeting to elect directors. The title of this report is called the *Annual Report to Shareholders*, often referred to as the *Annual Report*. This report must include a Management Discussion and Analysis section and complete set of audited financial statement and supporting notes. Companies are not restricted on voluntary disclosures in the Annual Report to Shareholders.

Publicly traded companies must comply with very specific SEC Form 10-K annual report reporting requirements. First, the SEC requires all publicly traded companies file annually SEC Form 10-K. This annual report includes careful reviews of the operating environment and business conditions of the company and includes audited financial statements. The SEC uses this information to monitor company performance. A general discussion of SEC Form 10-K can be found at: http://www.sec.gov/answers/form10k.htm.

SEC Form 10-K more carefully requires very specific nonfinancial and financial company reporting. The following site provides instructions for preparing and filing SEC Form 10-K: http://www.sec.gov/about/forms/form10-k.pdf. Noteworthy in these requirements is that voluntary disclosures, such as impressive pictures of products and leaders, and bold print impressive words, such as improved quality and growth and more are not part of SEC Form 10-K. SEC Form 10-K is a pure black and white, reasonably dense document recapping specific financial and nonfinancial company information. SEC Form 10-K required information more than satisfies Annual Report to Shareholders reporting requirements.

A careful study of SEC Form 10-K provides a rich education about a company's strategy, financial performance, risk, competitors, and much more. SEC Form 10-K does not include fancy graphs, bold font words, impressive pictures or other voluntary disclosures designed to impress stakeholders and/or potential investors. Figure 1 lists the SEC Form 10-K major sections, identified as Items. An example of IBM's 2008 SEC Form 10-K can be found at: http://www.ibm.com/investor/pdf/2184453_15801T26_CNB.PDF. We use IBM's SEC Form 10-K to illustrate its rich source of nonfinancial information, yet the less than impressive presentation design.

FIGURE 1

Item 1: Business - general discussion of the company's business environment.

Item 1A: Risk Factors

Item 2: Properties

Item 3: Legal Proceedings

Item 4: Submission of Matters to a Vote of Security Holders

- Item 5: Market for Registrant's Common Equity and Related Stockholder Matters
- Item 6: Selected Financial Data;

Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations

Item 7A: Quantitative and Qualitative Disclosures About Market Risk

Item 8: Financial Statements and Supplementary Data

Item 9: Changes in and Disagreements With Accountants on Accounting and Financial Disclosure

Item 9A: Controls and Procedures

Item 10: Directors and Executive Officers of the Registrant,

Item 11: Executive Compensation,

Item 12: Security Ownership of Certain Beneficial Owners and Management,

Item 13: Certain Relationships and Related Transactions; and (n)

Item 14: Principal Accountant Fees and Services.

Item 1, for example, addresses overall business and strategy issues. Logically, one needs to have a feel for a company's strategy to properly conduct financial analysis. In the following example the reader of Item 1 finds IBM is focused on "emerging geographies, tapping their higher growth," yet clearly understands the challenges faced by its customers.

"Integrated global economies have opened markets of new opportunity and new sources of skills. The Internet has enabled communication and collaboration across the world and brought with it a new computing model premised on continuous global connection. In that landscape, companies can distribute work and technology anywhere in the world. IBM continues to adjust its footprint toward emerging geographies, tapping their higher growth, providing the technology infrastructure they need and taking advantage of the talent pools they provide to better service the company's clients.

At the same time, the current economic crisis increases the pressure on both businesses and governments around the world to adapt. The needs for additional transparency, security and efficiencies are clear."

Item 1A educates the reader that IBM faces risk in its growth strategy with the following:

"Risks from Investing in Growth Opportunities could impact the Company's Business: The Company continues to invest significantly in growth opportunities, including higher-value segments of enterprise computing and dozens of emerging countries, including Brazil, Russia, India and China, to drive revenue growth and market share gains. Client adoption In emerging growth countries, the developing nature presents potential political, social and economic risks from inadequate infrastructure, creditworthiness of customers and business partners, labor disruption and corruption, which could impact the Company's ability to meet its growth objectives and to deliver to its clients around the world."

In summary, SEC Form 10-K serves as a very useful source of nonfinancial and financial information. Form 10-K provides the reader with information about an industry, a company's business model, risk, and much more. The report also includes a complete set of financial

statements. Overall, SEC Form 10-K educates the reader about a wide range of important company issues. Yet, the 10-K is not designed to impress the reader with fancy graphs, pretty pictures, all printed on quality paper or bright colors in an electronic document. The form is designed to educate the reader about important issues, nothing more, nothing less.

The SEC also requires that publicly traded companies provide annual reports to shareholders before it holds an annual meeting to elect directors. This report must include a Management Discussion and Analysis section and a complete set of financial statements. The SEC requires that the annual report to shareholders provide the same set of financial statements as included in SEC Form 10-K. The SEC had to make this a specific requirement because in the early 1960s some companies showed a profit in the financial statements provided to the shareholders and a loss in the financial statements provided to the SEC in Form 10-K. Certainly, the lack of consistency confused stakeholders and potential investors.

Publicly traded companies have taken advantage of the annual report to shareholders to impress shareholders and potential investors with extensive voluntary disclosures, well beyond the financial statements. For example, the letter to the shareholder by the chief executive officer (CEO) is not a required disclosure, yet is typically found just inside the front cover of the annual report. The letter, in most cases, reads like a finely crafted political statement. Positive, forward looking, words and phrases such as "growth," "take advantage of market opportunities," and "we are in excellent position to....." are carefully weaved into the letter. Selective financial highlights are another voluntary disclosure often found in the annual report. Charts and graphs are designed to impress the user (Penrose, 2008) (Dilla & Janvrin, 2010). Additional voluntary disclosures include bold pictures of leadership, happy employees, company support of social initiative, and green movement contributions. Public relations and graphic design firms thrive on crafting the annual report to shareholders to look more like a piece of art, than a document to evaluate company performance. In the vast majority of annual reports, the voluntary information precedes the required disclosures. In general the voluntary disclosures are designed to impress upon the reader of the annual report quality and success of the company, long before she/he critically evaluates the company's financial performance.

How a company complies with the annual report to the shareholders requirement is at the discretion of leadership. Leadership may elect to provide the shareholders with the annual report to the shareholders as discussed immediately above, with voluntary disclosures. Or leadership may simply provide SEC Form 10-K in compliance with the annual report to the shareholders requirement. Leadership may also elect to provide a combination of voluntary disclosures along with SEC Form 10-K to the shareholders. This paper investigates the longitudinal nature of change in how companies comply with the SEC annual report to the shareholders requirement. Our research questions are: Is the annual report design normalization shifting, and if so, what is the change for Standard & Poor's (S&P) 500 companies for the period 2004-2010? In other words, what appears to be the reporting model normalization process by S&P 500 companies?

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S&P 500 DATA ANALYSIS

The authors' sample comes from companies listed on the S&P 500, for the years 2004-2010. The S&P 500 was used because, "it is widely regarded as the best single gauge of the U.S. equities market.... Although the S&P 500 focuses on the large cap segment of the market, with approximately 75% coverage of U.S. equities, it is also an ideal proxy for the total market." (Go to: http://www.standardandpoors.com/indices/main/en/us/ and select S&P for a complete reference). The sample consists of 468 useable company annual reports for the years 2004-2010. A company must provide annual reports to the shareholder for the entire sample period to be included in the study.

The authors' study consists of segmenting company annual report to shareholder reporting practices into six categories. The "full" annual reports (Category A) includes the chair's letter, financial highlights (table or graph form), marketing material and a complete set of financial statements, including the management discussion and analysis (MD&A) section, designed beyond the standard structure found in SEC Form 10-K. Marketing material consists of impressive pictures or words about company product or services, such growth, profitability and more designed to impress the annual report reader. Additional marketing material includes bold looking pictures of leadership and/or any other material in the annual report designed to impress the reader. The financial statements carry an enhanced format, compared with the pure black and white financial statements found in SEC Form 10-K. Although the financial values are the same as that found in the 10-K, the statements' format is typically easier to read and interpret with spacing and font design enhancements. The reader can think of the full annual report to shareholders as a high gloss report, printed on quality paper (or in PDF form appearing as if on high quality paper), stuffed with pretty pictures, chart, graphs and words that exude quality. Typically, the report communicates success long before the reader sees the financial statements.

Categories B – F reflect different reporting practices. Category B includes similar material to Category A except the company includes SEC Form 10-K to satisfy the financial statement reporting requirement. Category C includes the chair's letter, financial highlights and SEC Form 10-K in compliance with the annual report to shareholder requirement. Category D includes the chair's letter, marketing material and SEC Form 10-K. Again, marketing material consists of pictures and suggestive works, such growth, profitability and more designed to impress the annual report reader. Category E includes the chair's letter and SEC Form 10-K. In Category F, a company simply provides SEC Form 10-K in compliance with the annual report to shareholders requirement.

The authors' analysis consists of tracking two levels of change to company financial reporting practices for the period 2004-2010. The first level identifies the overall change to reporting practices. The second level tracks the pattern of change. We exam the specific change in reporting practices for those companies that changed from Categories A - F to some other form of reporting.

Page 8

Figure 2 recaps the first level of data analysis. The findings show a distinct change to how companies comply with the SEC annual report to shareholders requirement. In 2004, 201 Category A companies provided shareholders with a full annual report. By 2010 the number dropped to 98. Between 2004 and 2010 Category A reporting design structure declined by 54% ((201-92)/201).

| Figure 2: Overall Change to Reporting Practices | | | | | | | | |
|---|--|-----------------------------------|------------|------------|------------|------------|------------|------------|
| | Annual Report Structure | Annual Report Reporting Practices | | | | | | |
| | Category | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
| А | Full annual report | 201 | 178 | 166 | 141 | 111 | 98 | 92 |
| В | Chair's letter, financial highlights, marketing material, and Form 10-K | 169 | 179 | 183 | 193 | 195 | 194 | 194 |
| С | Chair's letter, financial highlights, Form 10-K | 25 | 28 | 26 | 33 | 36 | 36 | 29 |
| D | Chair's letter, marketing material, Form 10-K | 25 | 30 | 29 | 29 | 32 | 33 | 34 |
| Е | Chair's letter, Form 10-K | 19 | 19 | 33 | 36 | 39 | 44 | 47 |
| F | Form 10-K only | <u>29</u> | <u>34</u> | <u>31</u> | <u>36</u> | <u>55</u> | <u>63</u> | <u>72</u> |
| | Total | <u>468</u> | <u>468</u> | <u>468</u> | <u>468</u> | <u>468</u> | <u>468</u> | <u>468</u> |

The findings show an increase in Category B reporting practices. In 2004, 169 companies provided shareholders with Category B annual reports. By 2010, the number increased to 194. This reflects a 15% ((194-169)/169) increase. All of the remaining categories show an increase in reporting frequency as well. Category C increases by 16%. Category D increases 36%. Category E increases by 147%. Category F increases by 148%.

The authors conclude from this evidence that there appears to be a shift in the annual report design normalization process. Leadership is moving to provide shareholders with SEC Form 10-K in compliance with SEC's requirement to provide shareholders with an annual report. This means the user is provided careful insight about selective nonfinancial information as well as financial data.

In the authors' opinion this shift represents an improvement to financial reporting. SEC Form 10-K provides an extensive amount of valuable nonfinancial information, helping the user concentrate on a more complete financial analysis. The financial statements, in general, follow the same structure across industries. True SEC Form 10-K has always been available in a separate document to the shareholders. The normalization process identified in this dataset represents managements' effort to make financial and very useful nonfinancial information readily available with the annual report. Our findings also show that shareholders still must work through voluntary material designed to emphasize selective company information. The reader must recognize that this material is designed to impress her/him. Importantly, the reader must recognize that SEC Form 10-K holds a wealth of high quality company insight, well beyond a set of financial statements. Readers no longer must search for SEC Form 10-K separately.

Figure 3 recaps specific company pattern of reporting trends. We discuss this topic by comparing 2004 reporting category (horizontally listed) compared to 2010 reporting category (vertically listed). We find that 51% of the companies have the same reporting category in 2004 compared with 2010 ([(86+103+11+10+16+11)/468] = 51%).

Working through the diagonal we see:

86 companies follow reporting Category A in 2004 and 2010, 103 companies follow reporting Category B in 2004 and 2010, 11 companies follow reporting category C in 2004 and 2010, 10 companies follow reporting category D in 2004 and 2010, 16 companies follow category E in 2004 and 2010, and 11 companies follow reporting category F in 2004 and 2010.

| Figure 3: Specific Reporting Trend | | | | | | | |
|------------------------------------|------------|------------|-----------|-----------|-----------|-----------|------------|
| Categories | 2004 | | | | | | |
| 2010 | А | В | С | D | Е | F | Totals |
| А | 86 | 4 | - | - | 1 | 1 | 92 |
| В | 68 | 103 | 11 | 7 | 3 | 2 | 194 |
| С | 7 | 8 | 11 | 1 | 2 | - | 29 |
| D | 11 | 13 | - | 10 | - | - | 34 |
| Е | 10 | 17 | 2 | 2 | 16 | 6 | 53 |
| F | <u>19</u> | <u>24</u> | <u>1</u> | <u>5</u> | <u>6</u> | <u>11</u> | <u>66</u> |
| Totals | <u>201</u> | <u>169</u> | <u>25</u> | <u>25</u> | <u>28</u> | <u>20</u> | <u>468</u> |

Evaluating the upper right and lower left of the diagonal provides insight regarding the specific pattern in changes to reporting practices. Values in the upper right signal companies are moving to more voluntary disclosures. Values in the lower left signal companies are moving to less voluntary disclosures. Figure 3 shows the number of companies moving into the lower left section of Figure 3 is far greater than the upper right diagonal.

Further analysis consists of reading down each column. Figure 3 shows that 86 companies followed Category A reporting practice in 2004 and 2010. Additional analysis shows that 68 companies changed from Category A in 2004, to Category B in 2010. Nineteen companies changed from Category A in 2004 to Category F in 2010 reporting practice. The interpretation is that companies are moving from Category A to primarily Category B and F.

Evaluating the change in Category B provides further insight. Only 4 companies in our sample followed Category B reporting practice in 2004 and Category A reporting practice in 2010. In comparison, there is a distinct trend in Category B 2004 reporting practices to less voluntary disclosure practices in 2010. That is in moving from Category B to C and below, the

type of voluntary disclosure declined. Categories C – F increase in reporting by 8, 13, 17, and 24 companies, respectively.

The largest change in Category B 2004 is to Category F. In total 24 companies switched from Category B to Category F in 2010. Categories D and E also increased. The interpretation is that companies are moving from Category B to categories that represent less voluntary disclosure practices. In particular Categories E and F reflect substantially less voluntary disclosure. This means voluntary disclosures are playing a smaller role in the companies switching from Category B to E and F. Although preliminary, this change may signal companies no longer intend to use the annual report as an impression management tool.

Figure 3 provides one additional form of insight. Categories C - F show movement among the categories, with one exception. Only two companies followed reporting practice categories C - F in 2004, and moved back to Category A in 2010. One may conclude from Figure 3's recap that firms tend not to switch back to a full annual report, once they move to placing Form 10-K in the annual report to shareholders

WHY WOULD A COMPANY CHANGE?

A company may change its reporting practices for one or a combination of reasons. To reduce cost is a logical consideration. Eliminating the marketing content certainly reduces reporting costs. Pictures of products, fine photography involving the leadership team, and fancy charts are costly to produce and distribute. Thus, to reduce reporting costs is a logical reason why a company would change its annual report to shareholders reporting practice and decrease voluntary disclosures. In addition, much of this type of material may be redundant and readily available on the company website, as well.

Meeting environmental responsibilities may also be a contributing factor to change. Landfills surely hold a countless number of annual reports, along with SEC Form 10-Ks, that no longer serve the shareholder's purpose. Reducing the waste associated with the disposal of annual reports represents a positive response to environmental concerns. Further, a scaled down version of an annual report posted on a company website provides additional savings. Many companies simply provide the annual report in a PDF format on the website.

Users of the annual report to shareholders should recognize the value of SEC Form 10-K. Today's competitive landscape, shifting political issues, and a company's social responsibilities make company analysis a challenging task. Now, more than ever, high quality financial and nonfinancial information is necessary to fully evaluate a company's performance. Without careful knowledge about the competition, company strategy, and risk factors, financial analysis is incomplete. Financial and nonfinancial information is necessary to forecast the future success and challenges facing a company. SEC Form 10-K, Item 1 and other parts, serve as concise and readily available quality sources of nonfinancial information for the professional and nonprofessional user to apply in financial analysis.

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True, SEC Form 10-K has always been available. Including the 10-K in the annual report to shareholders, as in Categories B - F makes the information explicit and readily available, without ones decision being compromised by marketing material.

CONCLUSION AND SUGGESTIONS FOR FUTURE INQUIRY

Our findings point to two design normalizations underway in our sample. First, SEC Form 10-K appears to play a much larger role in the annual report to the shareholders. Second, the pattern of evidence recapped in Figure 3 suggests voluntary disclosures are decreasing.

The reasons for the changes need to be answered. Does, in fact, SEC Form 10-K provide helpful insight? SEC Form 10-K can be difficult to read. Understanding the form requires very careful analysis. What sections of Form 10-K is the user reading and what sections is not being used?

Companies that have not changed to providing SEC Form 10-K to shareholders may want to do so. Information reduces risk for the shareholders. Form 10-K provides information to reduce the shareholders risk and thus potentially increase share value. Regardless of the motivation for the normalization changes identified in this research, one can be confident that SEC Form 10-K in a shareholder annual report provides an improved quality of nonfinancial and financial information and ultimately will provide a greater potential for increased shareholder value.

REFERENCES

Lee, T. (1994). The changing form of the corporate annual report. Accounting Historians Journal, 21(1), 215-232.

- Lord, H. L. (2002). Annual reports: a literabure Review (1989-2001). J. Techinical Writing and communication, 32(4), 367-389.
- McKinstry, S. (1996). Designing the annual reports of Burton plc from 1930 to 1994. *Accounting, Organzations and Society, 21*(1), 89-111.
- Penrose, J. (2008). Annual Report Graphic Use: A Review of the Literature. *Journal of Business Communication*, 42(2), 158-180.
- Stanton, P. S. (2002). PatricCorporate annual reports: Research perspectives used. Accounting, Auditing & Accountability Journal, 15(4), 478-500.
- V. Beattie, A. D. (2008). Investigating Presentational Change In U.K. Annual Reports: A Longitudinal Perspective. Journal Of Business Communications, 45(2), 181-222.

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MARKET REACTIONS TO THE DISCLOSURES ON CURRENCY RISK UNDER IFRS 7

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ABSTRACT

This paper examines whether the sensitivity analysis disclosure on currency risk mandated by IFRS 7 Financial Instruments: Disclosures conveys useful information to investors. Using an Italian sample, we analyse the effect both on stock returns and trading volume. Our results show that, after the adoption of IFRS 7, the market reaction to foreign exchange rate changes is aligned with the quantitative information provided by firms. On the other hand, before IFRS 7, investors did not assess firms' exposures to currency risk properly. We also document that IFRS 7 quantitative disclosure reduces the trading volume sensitivity to foreign exchange rate changes, which proxies for investor uncertainty and diversity of opinion. Taken together, these findings suggest that a backward-looking disclosure is as useful for investors as the forward-looking quantitative disclosures on market risk required by Financial Reporting Release No. 48.

INTRODUCTION¹

In August 2005, the International Accounting Standard Board (IASB) issued IFRS 7 *Financial Instruments: Disclosures*, which replaced IAS 30 and amended IAS 32. The IASB has enhanced the disclosure requirements on financial instruments for all companies, believing that "users of financial statements need information about an entity's exposure to risks and how those risks are managed [...] to make more informed judgements about risk and return" (IFRS 7, § IN2). IFRS 7, *inter alia*, requires entities to disclose backward-looking "sensitivity analysis for each type of market risk to which the entity is exposed at the reporting date, showing how profit or loss and equity would have been affected by changes in the relevant risk variable that were reasonably possible at that date" (IFRS 7, § 40a). For instance, with respect to the currency risk, a firm compliant with IFRS has to disclose how its earnings would have been affected, if the exchange rate of the currency to which it is exposed had been higher and lower than it was at the reporting date.

The quantitative disclosures on market risk mandated by IFRS 7 represent a new requirement for many IFRS-adopters firms², but they are not a novelty *per se*. In 1997, after several U.S. publicly traded companies reported unexpected losses from derivative financial instruments, the Security and Exchange Commission (SEC) issued the Financial Reporting

Release No. 48 (FRR No. 48) on derivative and market risk disclosures. FRR No. 48 requires companies to disclose annually firm-specific quantitative and forward-looking information about market risk exposures inherent in derivative and non-derivative financial instruments. Several papers have investigated the adoption of this new Financial Reporting Release, showing that quantitative disclosures on market risk provided in accordance with FRR No. 48 were useful to investors. However, FRR No. 48 was enacted before the adoption of SFAS 133 *Accounting for derivative instruments and hedging activities*, when U.S. accounting rules for derivatives were fragmentary and incomplete. Thus, it is possible that the lack of comprehensive rules for financial instruments increased the relevance of FRR No. 48 disclosures. On the contrary, IFRS 7 is adopted under IAS 39 regime, which provides high quality accounting rules for all financial instruments and derivatives. Moreover, IFRS 7 differs from FRR No. 48 in some relevant technical issues.

This study aims to add to the literature on market risk disclosures outlining whether the backward-looking quantitative disclosure on currency risk mandated by IFRS 7 is relevant to investors, as expected by the IASB. Specifically, using Italian data, we investigate the informativeness of the currency risk sensitivity analysis from two complementary perspectives. Firstly, we test whether there is a relationship between the sensitivity of stock returns to foreign exchange rate changes and the sensitivity analysis mandated by IFRS 7. In fact, the more precise a new piece of information, the more affected the stock returns (Verrecchia, 2001). Secondly, we investigate how IFRS 7 disclosure affects trading volume sensitivity to exchange rate changes. According to Kim and Verrechia's (1994) framework, in fact, trading volume sensitivity proxies for investor uncertainty and diversity of opinion about firms' exposure to currency risk. Our results provide evidence that the sensitivity analysis mandated by IFRS 7 is useful to investors from both the investigated perspectives.

The remainder of the paper is organized as follows. The next section provides the motivations for the study and illustrates the hypotheses. The sample selection and the research design are presented in the third section. The forth section discusses the empirical results and the last section provides some concluding remarks.

MOTIVATION AND HYPOTHESES

The objective of IFRS 7 is to require companies to provide disclosures that enable users to evaluate not only the significance of financial instruments for the company's financial position and performance, but also "the nature and extent of risks arising from financial instruments to which the entity is exposed during the period and at the end of the reporting period, and how the entity manages those risks" (IFRS 7, §1). In order to fulfil this objective, with respect to currency risk³, IFRS 7 requires firms to disclose how its net income (or net loss) for the period would have been affected, if the exchange rate had been higher and lower than it actually was at the reporting date.⁴ Companies, however, are not required to determine what earnings would have been, if the

exchange rates had been different for the whole of the reporting period. In other words, they do not have to re-determine gains and losses on exchange rates for the reporting period under different and hypothetical circumstances. Instead, companies disclose the effect on earnings and equity assuming that a reasonably possible change in the exchange rate had occurred only at the end of the reporting period, and had been applied only to the risk exposures existing at that date (IFRS 7, § B18a).

Although the objective of IFRS 7 is similar to that of FRR No. 48, the former differs from the latter at least in four relevant technical issues. First, FRR No. 48 allows companies to choose among three different reporting alternatives: tabular presentation, sensitivity analysis, and valueat-risk (VAR). Moreover, companies may use different disclosure alternatives for each type of market risk. According to the SEC regulation, then, the sensitivity analysis is one of the possible alternatives to fulfil the disclosure requirements and not the main disclosure format as in the international accounting standard. Second, FRR No. 48 provides companies with more precise guidelines about the range of reasonably possible changes of the relevant risk variable. Specifically, "Absent economic justification for the selection of a different amount, registrants should use changes that are not less than 10 percent of end of period market rates or prices" (FRR No. 48, § 33). Third, the SEC regulation requires companies to disclose only the potential loss arising from an adverse change in the relevant risk variable, and not also the potential gain resulting from a favourable change. According to IFRS 7, on the other hand, companies have to present both negative and positive economic effects on their earnings and equity at the limits of the range of reasonably possible changes of the relevant risk variable. Fourth, FRR No. 48 states that a "primary objective of the quantitative disclosure requirements is to provide investors with forward looking information about a registrant's potential exposures to market risk" (FRR No. 48, § 24), therefore companies have to present the potential loss in future earnings, fair values, or cash flows of market risk sensitive instruments. On the contrary, IFRS 7 requires companies to disclose the hypothetical losses and gains given their exposures at the reporting date. For the above mentioned differences the quantitative disclosures on market risk mandated by the international accounting standard might be significantly different from the quantitative disclosures mandated by FRR No. 48. Specifically, the forward-looking orientation makes FRR No. 48 disclosures theoretically more timely, but less reliable than the backward-looking disclosures provided under IFRS 7.

Two streams of research provide evidence that quantitative disclosures on market risk are useful to investors. The first includes studies which analyze the effect on stock returns, both before and after the adoption of FRR No. 48. The second stream investigates whether FRR No. 48 disclosures are able to reduce the investor diversity of opinion and uncertainty.

The usefulness of disclosures on currency risk has a *rationale* only in imperfect capital markets. Adler and Dumas (1983) document that currency risk is not completely diversifiable due to market imperfections. Therefore, market prices are affected by currency risk, and information about a firm's currency risk exposure should be taken into account in making investment

decisions. Verrecchia (2001) shows that stock price's reaction to new information is positively related to the precision of the new information. Overall, literature provides sound theoretical reasons why, under information asymmetry, more precise currency risk disclosures should be useful for investors. On the other hand, prior to FRR No. 48, three studies provide evidence of a weak association between stock price sensitivity to exchange rate changes and information on currency risk (Jorion 1990, Bartov and Bodnar 1994, Wong 2000), suggesting that increasing disclosures on firms' exposure to currency risk would be useful for investors.

Several papers analyze the characteristics and the relevance of the quantitative information on market risk exposures mandated by FRR No. 48. Roulstone (1999) outlines that the information about market risk improves remarkably after the first adoption of FRR No. 48, but the disclosures are rarely fully compliant with SEC's requirements.⁵ Focusing on oil and gas producers, Rajgopal (1999) uses proxies to estimate the informativeness of tabular and sensitivity disclosures subsequently mandated by FRR No.48. He finds that the firm's stock return sensitivity to oil and gas price changes is associated with the tabular disclosures on derivatives and with the would-be sensitivity analysis. Moreover, Rajgopal (1999) argues that the two reporting alternatives (i.e. sensitivity analysis and tabular presentation) are not substitutes, because of the incremental information content conveyed by both. In the same industry, Thorton and Welker (2004) investigate whether FRR No. 48 sensitivity analysis or VAR disclosures provide useful information about the sensitivity of a firm's stock returns to oil and gas price changes. They show that the disclosures explain the shifts in the sensitivity of firms' stock returns to oil and gas price movements. Hence, both sensitivity analysis and VAR mandated by FRR No. 48 increase the precision of investors' information about firms' commodity exposures. Finally, Sribunnak and Wong (2006) investigate to what extent the scope of the FRR No. 48 sensitivity analysis disclosure on currency risk may constrain its usefulness for investors. Specifically, they find that mandated sensitivity disclosures on currency risk do not have prediction power for stock return responsiveness to exchange rate changes, when the sensitivity analysis includes mainly the exposures of derivative positions and does not consider the firm's nonfinancial exposures. On the contrary, the sensitivity analysis disclosures based on the company's net exposure help to predict the firm's future stock return sensitivity to foreign exchange rate movements. Overall, literature on the U.S. capital market provides compelling evidence that quantitative disclosures on market risk mandated by FRR No. 48 affect stock returns and are informative for investors.

Considering the technical differences between the two standards, we think that it is worth investigating whether the backward-looking quantitative disclosure on currency risk mandated by IFRS 7 is as informative to investors as that of FRR No. 48. In other words, does IFRS 7's sensitivity analysis disclosure explain the change in sensitivity of a firm's stock returns to foreign exchange rates? We test this question with the following hypothesis:

H1 The adoption of IFRS 7 has determined a shift in the stock return sensitivity to exchange rate changes coherent with the exposure to currency risk disclosed in the annual report.

The second stream of research relevant for this study suggests that it is possible to assess whether the release of a new disclosure about a given firm's financial fundamental is informative to investors. This can be achieved by looking at the degree of investor uncertainty and diversity of opinion about this fundamental before and after the release of the new disclosure (Kim and Verrecchia 1994, Linsmeier et al. 2002). Linsmeier et al. (2002), using the trading volume sensitivity to changes in interest rates, foreign exchange rates and commodity prices, provide evidence that FRR No. 48 disclosures reduce investor uncertainty and diversity of opinion about firms' exposure to market risk. Following the conceptual framework developed by Kim and Verrecchia (1994), a rational investor would bear a cost for processing information, to achieve an informative advantage, only if he or she believed it possible to gain an abnormal return from such an investment. Hence, a marginal increase in the precision of information lowers the expected abnormal return from the costly informational processing. This implies that the higher the precision of public information, the less investors will process information to make investment decisions. The literature argues that investor uncertainty and diversity of opinion affect liquidity measures, such as bid-ask spread or trading volume. In particular, prior research argues that the higher the investor uncertainty and diversity of opinion, the higher the trading volume (Bamber and Cheon 1995, Barron 1995, Kandel and Pearson 1995, Bamber et al. 1997, 1999, Barron and Karpoff 2004). In this perspective, if the disclosure on currency risk mandated by IFRS 7 enhances the precision of public information about firms' currency risk exposures, then we should observe a decrease in the trading volume sensitivity to exchange rate changes after the adoption of IFRS 7. We test this prediction with the following hypothesis:

H2 The adoption of IFRS 7 has determined a negative shift in the trading volume sensitivity to exchange rate changes.

SAMPLE SELECTION AND RESEARCH DESIGN

Table 1 presents the sample selection criteria. Our initial sample consists of all nonfinancial firms continuously listed on the Milan Stock Exchange from 01/01/2006 to 12/31/2008. 177 firms meet these requirements. We then eliminate three firms that are classified as foreigners by the Milan Stock Exchange. Finally, we exclude one firm which is a U.S. GAAP user. For 22 firms we could not retrieve data on either prices, trading volumes or information about exposures to currency risk from annual reports. Such restrictions yield 151 non-financial firms continuously listed on the Milan Stock Exchange which form our initial sample. Within the initial sample, 104 firms disclose exposure to currency risk for 2007, and thus, have to provide a sensitivity analysis according to IFRS 7, while 47 firms disclose that they are not materially exposed to currency risk for 2007. Hence, they do not have to provide any quantitative disclosure on currency risk. Of the 104 exposed firms, 56 fail to provide currency risk disclosures or the disclosures are not fully compliant with IFRS 7 requirements, so we could not calculate our explanatory variable. Finally, two firms present the VAR analysis. Therefore, our analysis focuses on a final sample of 46 firms exposed to currency risk and fully compliant with IFRS 7. Data on stock market returns, exchange rates, turnovers, and other control variables come from DATASTREAM. Data on firms' exposure to currency risk were hand-collected from firms' annual reports.

| Table 1: Sample Selection Procedure | | | | |
|---|------|--|--|--|
| Non-financial firms continuously listed on the Milan Stock Exchange from 12/31/2005 to 09/30/2008 | 177 | | | |
| U.S. GAAP Users | (1) | | | |
| Foreign non-financial firms | (3) | | | |
| Firms with missing data on DATASTREAM | (22) | | | |
| Starting sample | 151 | | | |
| Non exposed firms | (47) | | | |
| Exposed firms | 104 | | | |
| Firms not fully compliant with IFRS 7 requirements | (56) | | | |
| Firms which disclose value-at-risk analysis | (2) | | | |
| Exposed firms compliant with IFRS 7 | 46 | | | |

In the following section, we present the models used to test the two hypotheses discussed. All the models are estimated by a quantile regression, given that it is more robust to large outliers (Li and Hwang, 2002). Following Linsmeier et al. (2002), we do not employ a panel data estimation, but we perform robustness checks in order to cope with the possible presence of a first order auto-regressive process.

Stock return reaction to IFRS 7 sensitivity analysis on currency risk

If sensitivity analysis under IFRS 7 provides useful information to investors about the effect of currency risk on a firm's value, then investors should react to the new information after it is disclosed with the publication of the annual report. Following Thornton and Welker (2004), we argue that the adoption of sensitivity analysis mandated by IFRS 7 causes a shift in stock returns coherent with the information disclosed through the sensitivity analysis, due to a change in investor appraisal of firms' exposure to currency risk. We propose the following equation.

$$R_{it} = \alpha + \beta_1 R_{Mt} + \beta_2 POST_{it} + \beta_3 R_{Mt} POST_{it} + \beta_4 FX _ ESP_{it} + \beta_5 FX _ ESP_{it} POST_{it} + \varepsilon_{it}$$
[1]

where *i* and *t* denote firm and daily time subscripts, respectively. Model [1] is estimated with a pooled regression across firms over a window of 180 trading days. Following prior studies (Linsmeier et al. 2002, Thorton and Welker 2004) on the effect of FRR No. 48 and literature on the information content of the earnings announcement (Landsman et al. 2012), the estimation window is centered on the annual report publication date for each firm in our sample. Thus, for each firm, we have the same number of observations in term of trading days (i.e. 90 trading days before and 90 trading days after the release of a firm i's annual report)⁶, but a different estimation window, which may or may not overlap with that of other firms in our sample.⁷ R_{it} and R_{Mt} are respectively the stock *i* and market returns at day *t*. POST_{it} is a dummy equal to one for the 90 trading days after the release of a firm i's annual report, zero for the 90 trading days before the release of a firm *i*'s annual report. The variable $FX ESP_{it}$ measures the potential gain or loss caused by the change on day t in the foreign exchange rate of the currency to which firm i states it is mostly exposed, and it is calculated as the product between two variables, FX_{it} and ESP_i. FX_{it} is the daily change in the exchange rate of the Euro against the currency to which firm *i* stated it was most exposed on the 2007 reporting date.⁸ ESP_i is the earnings sensitivity of the firm i to a 10% increase in the same exchange rate. Given that each firm can choose a different range in the "reasonably possible change" of the exchange rate and firm size varies significantly in the sample, the outcomes of sensitivity analysis are not immediately comparable across firms. Thus, to obtain the variable ESP_i, the earnings sensitivity disclosed has been standardized for the difference in the range of changes in the foreign exchange rate and scaled to account for differences in firm size. Specifically, the effects on earnings due to the possible exchange rate change have been standardized to a 10% increase in the ratio "foreign currency/EUR", assuming a linear relationship.⁹ Then, the standardized impact on earnings has been divided by firm's equity at the end of the reporting period.

According to the first hypothesis, we expect β_5 , the coefficient of the interaction between ESP_FX_{it} and POST_{it} variables, to be positive and significantly different from zero. In fact, this would imply that, after the publication of the annual report, the stock return sensitivity to exchange rate changes has shifted coherently with the quantitative disclosures mandated by IFRS 7. The ESP_FX_{it} coefficient (i.e. β_4), on the other hand, measures to what extent the stock return sensitivity to exchange rate changes was coherent with a firm's exposure before the adoption of IFRS 7. A positive (negative) coefficient can be interpreted as evidence that investors correctly (incorrectly) assessed firms' exposures to currency risk before IFRS 7 mandated disclosures.

Trading volume reaction to IFRS 7 sensitivity analysis on currency risk

According to Kim and Verrecchia (1994), when investors receive a more precise signal about the implications of changes in a relevant risk variable on a firm's future cash flows, the stock trading volume become less sensitive to the risk factor to which the signal is referred. To test the second hypothesis, we propose the following equation, similar to the regression model used by Linsmeier et al. (2002).

$$\sqrt{Turn_{it}} = \alpha + \beta_1 \cdot \sqrt{Turn_{Mt}} + \beta_2 \cdot Abs(R_{it}) + \beta_3 \cdot Abs(FX_{it}) + \beta_4 \cdot Abs(FX_{it}) \cdot POST_{it} + \varepsilon_{it}$$
[2]

where *i* and *t* denote firm and daily time subscripts, respectively. Model [2] is estimated with a pooled regression across firms over a window of 180 trading days, centered on the publication date of a firm's *i* annual report, like Model [1]. $\sqrt{Turn_{it}}$ is the square root of trading volume of firm *i*, calculated as the value of trades in day *t* over the market value in the same day. $\sqrt{Turn_{Mt}}$ is the square root of market trading volume at day t. Abs(R_{it}) is the absolute value of the daily stock return of firm i; Abs(FX_{it}) is the absolute value of FX_{it} which has been previously defined. Similarly to Model [1], the interaction between Abs(FX_{it}) and POST_{it} captures the shift in the trading volume sensitivity to exchange rate changes from the pre-IFRS 7 period to the post-IFRS 7 period. Following Linsmeier et al. (2002), β_3 is the "volume sensitivity coefficient". It measures the trading volume sensitivity to changes in the exchange rate before the adoption of IFRS 7. We expected β_3 to be positive and statistically significant, given the supposed higher degree of investor uncertainty and diversity of opinion prior to the release of sensitivity analysis disclosure on currency risk. β_4 , on the other hand, proxies for the shift in the "volume sensitivity" coefficient", after the release of the IFRS 7 mandated disclosures. Since we hypothesize that IFRS 7 sensitivity analysis is a more precise signal to investors about the effect of currency risk exposures on firm's future performances, we expect to observe a decrease in the trading volume sensitivity after the release of the disclosure. Thus, if β_4 is negative and statistically significant, according to HP2, we will conclude that the adoption of IFRS 7 has reduced investor uncertainty and diversity of opinion about firms' exposures to currency risk.

RESULTS

Table 2 presents the results of the regression of Model [1]. Our main variable of interest is the interaction between the variable FX_ESP_{*it*}, which measures the potential gain or loss caused by the daily exchange rate change, given the exposure at the reporting date, and the dummy variable POST_{*it*}. As predicted, the coefficient β_5 is positive and significant. Therefore, this result suggests that, after the release of the IFRS 7 mandated disclosure on currency risk, investors revised their expectation on firms' exposures, and the stock returns sensitivity to exchange rate

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changes became consistent with the new information provided. On the other hand, the coefficient FX_ESP_{*it*} is negative, but not statistically significant. Thus, it seems that on average, before the adoption of IFRS 7, investors were not able to assess firms' exposures correctly. Finally, it is worth noting that the market beta of our sample, which is the coefficient of the R_{Mt} variable, is lower than one. This finding would suggest that firms that are fully compliant with IFRS 7 tend to be less risky than non-compliant and not-exposed firms.

| Table 2: Stock Return Reaction to IFRS 7 Sensitivity Analysis on Currency Risk | | | | | |
|--|-------------|---------|--|--|--|
| | Coefficient | p-value | | | |
| Constant | 0.0000 | 0.984 | | | |
| POST _{it} | -0.0011 | 0.000 | | | |
| R _{Mt} | 0.6322 | 0.000 | | | |
| $R_{Mt} \times POST_{it}$ | -0.0342 | 0.000 | | | |
| FX_EXP _{it} | -0.5317 | 0.588 | | | |
| FX_EXP×POST _{it} | 9.4565 | 0.000 | | | |
| | | | | | |
| Observations | 8,280 | | | | |
| R_{it} = daily stock return of a firm <i>i</i> . | | | | | |
| R_{Mt} = daily market returns. | | | | | |
| $POST_{it}$ = dummy equal to one for the 90 trading days after the release of a firm <i>i</i> 's annual report, zero for the | | | | | |
| 90 trading days before the release of a firm <i>i</i> 's annual report. | | | | | |
| FX_ESP_{it} = product between FX_{it} and ESP_{i} , and measures the potential gain or loss caused by the change on | | | | | |
| day t in the foreign exchange rate of the Euro against the currency to which firm i states it is most exposed on | | | | | |
| the 2007 reporting date. | | | | | |

Table 3 presents the results of the regression of Model [2], which analyzes firms' trading volume sensitivity to exchange rate changes before and after the adoption of IFRS 7. As predicted, the Abs(FX_{it}) coefficient, that is the "volume sensitivity coefficient" before the adoption of IFRS 7, is positive and significant, and the interaction between Abs(FX_{it}) and POST_{it} is negative and statistically significant. In other words, according to the second hypothesis, we observe a negative shift in the trading volume sensitivity to exchange rate changes after the release of the sensitivity analysis disclosure on currency risk. Coherently with Kim and Verrecchia's (1994) theoretical framework and with Linsmeirer et al.'s (2002) empirical findings, we interpret those results as evidence that the new disclosures have decreased the uncertainty and the diversity of opinion of investors about the implications of a change in foreign exchange rates on a firm's value. Finally, the coefficients of both the square root of market trading volume and of the absolute value of daily firm *i* stock returns are positive and significant as expected.

| Table 3: Trading Volume Reaction to IFRS 7 Sensitivity Analysis on Currency Risk | | | | | |
|--|-------------|---------|--|--|--|
| | Coefficient | p-value | | | |
| Constant | 0.0000 | 0.000 | | | |
| √Turn _{Mt} | 0.3753 | 0.000 | | | |
| Abs(R _{it}) | 0.7648 | 0.000 | | | |
| Abs(FX _{it}) | 0.0094 | 0.000 | | | |
| $Abs(FX_{it}) \times POST_{it}$ | -0.2095 | 0.000 | | | |
| | | | | | |
| Observations | 8 280 | | | | |

 $\sqrt{\text{Turn}_{it}}$ = square root of the daily trading volume of firm *i* calculated as the value of trades of day *t* over the market value on the same day.

 $\sqrt{\text{Turn}_{\text{Mt}}}$ = square root of market trading volume on day *t*.

 $Abs(R_{it})$ is the absolute value of the daily stock return of firm *i*.

 $Abs(FX_{it})$ = absolute value of the daily exchange rate change to which firm i is most exposed on the 2007 reporting date.

 $POST_{it}$ = dummy equal to one for the 90 trading days after the release of a firm *i*'s annual report, zero for the 90 trading days before the release of a firm *i*'s annual report.

Finally, in order to control for the presence of a first order auto-regressive process, we reestimate model [1] and [2] adding as independent variable the lagged dependent variable (i.e. daily stock returns in model [1] and daily trading volume in model [2]). The results (untabulated) of such robustness tests are qualitatively similar to those presented above, even though the statistical significance of the parameters of Model [2] is slightly lower.

CONCLUSIONS

The objective pursued by the IASB with the adoption of IFRS 7 was to enhance public information about market risk arising from the use of financial instruments. In other words, the international standard setter sought to reduce investor uncertainty about the effects of a change in risk variables on firms' expected cash flows. The main novelty of the new international accounting standard for non-financial IFRS adopters is the requirement to provide a sensitivity analysis for each market risk to which a firm is materially exposed. In the U.S. capital market, similar disclosure requirements are mandated by FRR No. 48, which was enacted in 1997. The two accounting standards share the same objective but differ in some relevant technical issues. In particular, sensitivity analysis under FRR No. 48 is forward-looking, whereas IFRS 7 requires firms to carry out a backward-looking sensitivity analysis based on the exposures at the reporting date. Since such a requirement increases administrative costs for IFRS-adopters and the IASB has imposed different rules from the SEC, it is interesting to investigate whether the enhancement of disclosures on market risk has achieved the expected positive effect.

Analyzing a sample of non-financial firms listed on the Milan Stock Exchange, we show that IFRS 7 sensitivity analysis on currency risk is informative for investors. First, we find that,

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after the release of the new quantitative disclosures, stock prices react coherently with the new information about firms' exposures. Second, the adoption of IFRS 7 has entailed a decline in the trading volume sensitivity to currency risk, which proxies for the degree of uncertainty and diversity of opinion among investors about the effects of a change in the exchange rate on firms' expected cash flows. Third, it seems that, before the first adoption of IFRS 7, investors did not properly assess firms' exposures to currency risk. Overall, as claimed by the IASB, these results suggest that before the adoption of IFRS 7 investors did not have enough information to "make informed judgements about risk and return", but IFRS 7 has effectively lowered investor uncertainty about firms' exposure to currency risk.

Our study contributes to the literature on quantitative disclosures on market risk, so far focused only on the U.S. capital market, by providing preliminary evidence that a backward-looking sensitivity analysis could also be informative for investors. Indeed, it is possible that the greater timeliness of the FRR No. 48 forward-looking disclosure is partially offset by the stronger reliability of the IFRS 7 sensitivity analysis.

ENDNOTES

- 1 The authors would like to thank seminar participants at the 2011 European Accounting Association Annual Congress and the British Accounting and Finance Association 2011 Annual Conference. Marco M. Mattei acknowledges the financial support from PricewaterhouseCoopers S.p.A.- Bologna office
- 2 In our study we focus only on non-financial publicly traded companies. In fact, due to Basel II requirements, financial institutions had to provide quantitative disclosures on market risk before IFRS 7 was enacted.
- 3 The currency risk is "the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in foreign exchange rates" (IFRS 7, Appendix A).
- 4 IFRS 7 allows companies to present, in place of the sensitivity analysis, the results of a different analysis, such as value-at-risk (VAR), that "reflects interdependencies between risk variables" (IFRS 7, § 41), if companies use it to manage financial risks.
- 5 Elmy et al. (1998) document similar results.
- 6 The annual report publication dates were hand-collected from the website of the Milan Stock Exchange (www.borsaitaliana.it). The publication day is excluded from the analysis.
- 7 The publication dates range from February 15th 2008 to May 7th 2008 and 50 percent of firms in our sample released the 2007 annual report between March 28th 2008 and April 9th 2008.
- 8 Several firms in the sample disclose to be materially exposed to more than one currency and provide a *specific sensitivity analysis for each currency*. If this is the case, FX_{it} and ESP_{it} refer to the currency whose impact on earnings is highest. Seven firms state to be exposed to different currencies, but provide only *one sensitivity analysis considering the impact of a simultaneous change in the exchange rate of all the relevant currencies against Euro*. In this latter case, we consider the aggregate impact on earnings, and we construct an equally weighted index with all currencies to which firm *i* states to be exposed in order to calculate FX_{it} and ESP_{it}.
- 9 We perform a linear transformation of the disclosed impacts on earnings using the following equation. Standardized impact = (Disclosed impact*0.1) / Change in foreign exchange rate chosen by firms.

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REFERENCES

- Adler, M., & B. Dumas (1983). International portfolio choice and corporation finance: a synthesis. *Journal of Finance*, 38(3), 925–984.
- Bartov, E., & G. Bodmar (1994). Firm Valuation, Earnings Expectation, and the exchange-rate exposure effect. *Journal of Finance*, 49, 1755-1785.
- Bamber, L., & Y. Cheon (1995). Differential price and Volume reactions to accounting earnings announcement. *The Accounting Review*, 72, 575-597.
- Bamber, L., O. Barron, & T. Stober (1997). Trading volume and different aspects of disagreement coincident with earnings announcements. *The Accounting Review*, 72, 575-597.
- Bamber, L., O. Barron, & T. Stober (1999). Differential interpretations and trading volume. *Journal of Financial and Quantitative Analysis*. 34(3), 369-386.
- Barron, O. (1995). Trading volume and belief revisions that differ among individual analysts. *The Accounting Review*, 71, 421-433.
- Barron, O. & J.M. Karpoff (2004). Information precision, transaction costs, and trading volume. *Journal of Banking and Finance*, 28,
- Elmy, F.J., L.P. LeGuyader & T.J. Linsmeier (1998). A review of initial filings under the SEC's new market risk disclosure rules. *The Journal of Corporate Accounting&Finance*, 9, 33-45.
- Jorion, P., (1990). The Exchange-rate exposure of U.S. multinational, Journal of Business, 63(3), 331-345.
- Kandel, E., & N. D. Pearson (1995). Differential interpretation of public signals and trade in speculative markets. *Journal of Political Economy*, 103, 831-872.
- Kim, O., & R. Verrecchia (1994). Market liquidity and volume around earnings announcements. *Journal of Accounting & Economics*, 17, 41-67.
- Li, Ming-Yuan L., & Hwang R. (2002). Effects of Firm Size, Financial Leverage and R&D Expenditures on Firm Earnings: An Analysis Using Quantile Regression Approach. *ABACUS*, 47(2), 182-204. abac_338 182..204
- Linsmeier, T.J., D.B. Thornton, M. Venkatachalam & M. Welker (2002). The Effect of Mandated Market Risk Disclosures on Trading Volume Sensitivity to Interest Rate, and Commodity Price Movements. *The accounting Review*, 77, 343-377.
- Linsmeier, T.J., & N.D. Pearson (1997). Quantitative Disclosures of Market Risk in the SEC Release. Accounting Horizons, 11, 107-135.
- Rajgopal, S. (1999). Early Evidence on the Informativeness of the SEC's Market Risk Disclosures: the Case of Commodity Price Risk Exposure of Oil and Gas Producers. *The Accounting Review*, 74, 251-280.
- Roulstone, D.T. (1999). Effect of SEC Financial Reporting Release No. 48 on Derivative and Market Risk Disclosures. *Accounting Horizons*, 13, 343-363.
- Sribunnak, V., & M. H. F. Wong (2006). The Impact of Excluding Nonfinancial Exposure on the Usefulness of Foreign Exchange Sensitivity-Analysis Risk Disclosures. *Journal of Accounting, Auditing and Finance*, 21, 1-25.
- Thornton, D., & M. Welker (2004). The Effect of Oil and Gas Producers' FRR No. 48 Disclosures on Investors' Risk Assessment. *Journal of Accounting, Auditing and Finance,* 19, 85-114.
- Wong, M. (2000). The Association between SFAS No. 119 Derivatives Disclosures and the foreign exchange risk exposure of manufacturing firms. *Journal of Accounting Research*, 38(2), 387-418.
- Verrecchia, R. E. (2001). Essays on Disclosure. Journal of Accounting & Economics, 32, 97-180.

EARNINGS MANIPULATION IN ACQUIRING COMPANIES: AN OVERVIEW

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ABSTRACT

This study addresses earnings manipulation actions under certain circumstances. Many studies have shown that bidding companies experience abnormal negative returns after undertaking bids. This anomaly requires an explanation from an accounting perspective, as a linkage between accruals and stock returns would yield insight into such observations. This paper addresses earnings manipulation in general and in the context of takeover bids, describes potential factors related to mergers and acquisitions, and suggests a methodology to provide empirical evidence to explain the decline in bidding companies' performance post takeover that causes abnormal negative returns. This study seeks to extend earnings manipulation studies using a takeover perspective and suggests a link between accounting policies around a takeover and stock return behaviour during the same period.

Keywords: Earnings management, Accounting Policies, Efficient Market Hypothesis, Mergers and Acquisitions.

INTRODUCTION

There is an understanding among many accounting researchers (e.g. Healy 1985, DeAngelo 1986, and Jones 1991) and among users of financial statements that management deliberately manipulates earnings for certain events. (Healy 1985) studies the earnings manipulation assuming that the management compensation plans is the incentive for this action, (DeAngelo 1986) argues that the motivation buyout, and (Jones 1991) assumes that tax relief is the motivation. Earnings manipulation is assumed to be a practice employed by management in pursuit of self-interest either by selecting accounting procedures or by manipulating accruals in order to increase or decrease reported earnings. Certain economic and contractual variables provide an additional incentive for this practice. In addition to afore mentioned studies, (Defond and Jiambalvo 1994) suggest that debt contracts provide management with incentives to manipulate earnings. This approach does not violate the perspective that managers, on average, smooth earnings to enhance their quality. The studies of (Subramanyam 1996) and (Chaney et al 1996), among others, indicate that managers, on average, smooth income to enhance the quality of earnings. (Shubita 2011) reveals mixed results for income smoothing in the Gulf Corporation Council Capital Markets. This study will provide a review of the motivations for earnings

manipulation under certain circumstances. The event that will be analyzed is merger and acquisition.

The remainder of this study is organized as follows. Section 2 discusses the incentives of managers prior to takeover bids. Section 3 discusses consequences of earnings manipulation for bidder companies. Section 4 presents additional factors to explain earnings manipulation prior to takeover bids. Finally, section 5 contains a summary and conclusions.

DISCUSSION OF MANAGERS' INCENTIVE TO MANIPULATE ACCRUALS PRIOR TO TAKEOVER BIDS

Acquiring another company can be considered a major strategic decision for the acquiring company. Thus, it requires the management of the acquiring company to prepare in advance before making a decision to undertake a bid. It is unlikely that such an important decision will be undertaken without sound and early planning. Managers of acquiring companies, like all rational managers, seek to minimise the cost of bids as much as possible to benefit their company and its shareholders, as this will reduce the cost of the financing operation.

There have been several UK studies, in addition to many other international studies, that have investigated the stock market performance of acquiring companies around takeover bids. (Gregory 1997) examines the long-term performance of UK acquiring companies after a takeover. His results indicate that the post-takeover performance of acquiring companies is unambiguously negative, particularly in the case of equity offers. His explanation for this observation is that acquiring companies use over-valued equity to buy target companies. Further, he contends that share-for-share acquisition is simply one way of issuing over-valued equity to the market. Moreover, (Limmack 1991) shows that bidder companies obtain positive abnormal returns in the six months before bid announcement. On the other hand, bidding companies obtain negative returns for the post-bid period. Further, (Limmack 1991) demonstrates that the outcome of the bid does not have an impact on the trend of the results. In the same vein, (Franks and Harris 1989) show that bidding companies achieve negative returns for the post-bid period.

In summary, existing evidence indicates that bidding companies achieve positive abnormal returns in the pre-bid period and negative abnormal returns in the post-bid period, regardless of the outcome of the takeover bid (Limmack 1991). (Dechow et al 1996) found that, among other motivating variables, the most important motivation for management to manipulate earnings is the desire to attract external financing at a low cost. As indicated earlier, acquiring another company involves a financing decision, and when one takes into account the findings of (Dechow et al. 1995) that the main incentive for manipulating earnings is to reduce financing costs, it is clear that there is a great motivation for the managers of bidding companies to increase their earnings prior to takeover bids by opportunistically manipulating their accruals in order to convince the market that their companies are performing efficiently. This is done with a view to boosting their share price in order to allow them to finance their companies at lower cost by acquiring other companies using overvalued shares. A potential consequence of such manipulation is that accruals are expected to reverse in the following years (the bidding year and subsequent years). Accrual manipulation prior to takeover bids and its reversal after making bids may provide an explanation for the recent positive returns for bidding companies prior to takeovers and abnormal negative returns for the post-bid period.

The recommended approach that could be adopted as the methodology of this event study is that of (Defond and Jiambalvo 1994). The argument here is that managers of acquiring companies plan in advance for takeover by boosting reported earnings, particularly, in the year immediately preceding the takeover. This may explain the findings of (Limmack 1991) that bidding companies achieve abnormal positive returns for the pre-bid period as a result of positive earnings manipulation in an effort to fool the market. Consequently, the increase in accruals will be reversed (offset) in the following year(s); this may explain why bidding companies achieve abnormal negative returns for the post-bid period, as accrual reversal occurs due to the technical requirements of double-entry accounting. The market thus revises its expectations downwards by having negative returns in the post-bid period as a reaction to the decline in earnings after the takeover. This scenario provides a logical accounting explanation for the results of the (Gregory 1997) study.

CONSEQUENCES OF EARNINGS MANIPULATION FOR BIDDER COMPANIES

Madura and Wiant (1994) analyzed abnormal returns of acquiring companies over the long term after a takeover. They found that, in a US sample of 152 acquisitions taking place between 1983 and 1987, average cumulative abnormal returns of acquires were negative during the 36-month period following the merger announcement. Additionally, abnormal returns were negative in nearly every month. Acquirer losses around the time of the announcement may reflect a loss of wealth from an overly generous merger price. Negative abnormal returns in months after the announcement may be due to the market revising its expectations for the merger downwards. The clear results of (Madura and Wiant 1994) support the conclusion reached by (Gregory 1997), Limmack (1991), and (Franks and Harris 1989), as mentioned earlier.

The clear evidence regarding negative abnormal returns for bidding companies posttakeover raises the question of the reason. In light of the Efficient Market Hypothesis (EMH) that indicates that share price is a valid and creditable benchmark for company performance, and in light of the market mechanism to detect any manipulation, a potential explanation for negative returns is that the reported Earnings per Share of the bidding companies is an inflated figure used chiefly to convince the target shareholders to accept the takeover offer. This explanation is predicted on the assumption that the managers of bidder companies plan for the takeover ahead of time by utilizing discretionary accruals to inflate earnings. Based on the EMH, such behavior cannot continue over the long run. Furthermore, the accruals' nature is to reverse to correct any manipulation-inflated action(s) based on accruals. The linkage between the negative abnormal returns for the post-bid period that have been revealed in many studies mentioned previously and the accrual-based studies that indicate the possibility of earnings manipulation, especially under certain circumstances, shows that there is a chance to employ accruals to manipulate earnings prior to the takeover bid in order to minimize financing costs.

ADDITIONAL FACTORS TO EXPLAIN EARNINGS MANIPULATION PRIOR TO TAKEOVER BIDS

Following the discussion in the previous sections, one may assume that the takeover event is sufficient motivation for earnings manipulation. Thus, it is quite important to consider additional factors associated with the takeover event that may lead to better understanding of the management behavior of bidding companies prior to takeover bids.

The following list describes additional factors that may explain to extend of earnings manipulation prior to takeover bids and the expected trend of the relationship between these factors and the engagement of earnings manipulation:

Type of offer:-

This factor is expected to have an impact on the extent of earnings manipulation by the management of a bidding company prior to a takeover bid. Based on the analysis of the Datastream listing of the takeover, the most common offer types are the following:

- Cash offer
- Equity offer
- Cash offer with equity alternative
- Equity offer with cash alternative

Gregory (1997) shows that negative abnormal returns were significant in the case of equity offers. Thus, considering the type of offer enables a better understanding of manipulation pre- and post-takeover.

Outcome of offer:-

Offers may be classified as either:

- Successful or
- Unsuccessful
Despite the finding in studies that abnormal returns in the post-bid period did not indicate clear evidence of any differences due to the outcome of the bid, this factor should be considered, as the outcome of the bid is expected to be a function of the preparation for the bid.

Attitude of the offer:-

Takeover bids can be classified as either:

- Friendly or
- Hostile

Martynova and Renneboog (2006) describe greater price reaction for a hostile takeover compared to a friendly offer. Thus, it is worth investigating the potential impact of this factor on the extent of earnings manipulation.

Value of the offer:-

Finally, the value of the bid may explain the motivation for earnings manipulation. In this regard, it is expected that the extent of earnings manipulation is higher when the value of the bid increases.

Overall, the above factors may support the initial argument in this section that the managers of bidding companies manipulate accruals prior to takeover bids. As a consequence of this manipulation, results show that there is a decline in unexpected accruals in the post-bid period. Such an argument may explain the positive abnormal returns in the six months before bid announcement for bidding companies, as noted by (Limmack 1991), as well as later negative, as presented in most of the studies in this field (as discussed previously).

SUMMARY AND CONCLUSIONS.

This study provides theoretical background for earnings manipulation based on a smallsample approach. The major advantage of the sample is in providing a methodology of analysis based on a homogeneous sample with an event that gives the manager the incentive to manipulate accruals in order to reduce external financing costs. Further, this study provides the expected trend of the results.

Other potential factors have been presented in order to provide better explanations of earnings manipulations prior to takeover. These factors are the type of offer, attitude of the offer, outcome of the offer, and value of the offer.

In the further, it is recommended that researchers seek a link between stock-returns behaviour and accounting policy based on accruals around takeover bids.

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REFERENCES

- DeAngelo, L. (1986). "Accounting numbers as market value substitutes: A study of managerial buyouts of public stockholders." The Accounting Review 61: 400--420.
- Dechow, P., R. Sloan, et al. (1995). "Detecting earnings management." The Accounting Review 70: 193--226.
- Dechow, P. (1996). "Causes and consequences of earnings manipulation: an analysis of firms subject to enforcement actions by the SEC." Contemporary Accounting Research 13: 1--36.
- Defond, M. L. and J. Jiambalvo (1994). "Debt covenant violation and manipulation of accruals." Journal of Accounting and Economics 17: 145-176.
- Franks, J. R. and H. R. S. (1989). "Shareholder wealth effects of corporate takeover: the UK experience 1955--1985." Journal of Financial Economics 23: 225--249.
- Gregory, A. (1997). "An examination of the long run performance of UK acquiring firms." Journal of Business Finance and Accounting 24(September): 971--1001.
- Healy, P. M. (1985). "The effect of bonus schemes on accounting decisions." Journal of Accounting and Economics(April): 85--107.
- Jones, J. (1991). "Earnings mangement during import relief investigations." Journal of Accounting Research(Autumn): 193-228.
- Limmack, R. J. (1991). "Corporate mergers and shareholder wealth effects: 1977--1986." Accounting and Business Research 21(Summer): 239--251.
- Madura, J. and K. J. Wiant, 1994. Long-term valuation effects of bank acquisitions, Journal of Banking and Finance 18, 1135-1154.
- Martynova, Marina and Renneboog ,Luc 'Advances in Corporate Finance and Asset Pricing', L.Renneboog (ed.), Amsterdam: Elsevier, March 2006.
- Shubita, Moade. The Impact of Income Smoothing on Earnings Quality in Emerging Markets: Evidence from GCC Markets. Working Paper, 2011.
- Subramanyam, K. R. (1996). "The pricing of discretionary accruals." Journal of Accounting and Economics 22(Aug--Dec): 249--282.

AN EMPIRICAL INVESTIGATION OF THE EFFECTS OF MERGER AND ACQUISITION ON FIRMS' PROFITABILITY

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ABSTRACT

Economic advantage and competitive edge is the name of the game. Business combination is one proven and tested method by companies wanting to grow and gobble up a larger market share. The emerging business scenario created an additional burden to the already struggling corporations' existence, in almost all types of industry, which is due to the ever increasing demand for innovative strategies. To survive the dog-eats-dog world of competitiveness, a number of these players engage in business combination – wherein two or more companies incorporate into a single accounting entity.

This study is considered a causal and correlational research, which aims to determine the relationship of the mergers and acquisitions to the firm's profitability. It is a quantitative study that measured the effects of mergers and acquisitions on return on assets and return on equity of the companies. Besides knowing the relationship, this study also obtained an estimate of the possible impact of the independent variable to the dependent variables. This study covered all the listed companies in the Philippines Stock Exchange for the years 2006 until 2010. This covered companies from the different sectors of the economy, which comprise of 30 companies in the financial sector, 75 firms in the industrial sector, 39 businesses classified as holding firms, 39 companies in the property sector, 54 businesses in the service sector and 22 companies in the mining and oil sector.

The research made use of two linear regressions to analyze the effect of having a merger or acquisition on the profitability of the companies. Two separate regressions are needed because profitability would be proxy by two different but widely used variables: the return on equity and the return on assets ratio. Since the study covered the entire publicly listed companies in the Philippines for the period 2006 until 2010, this essentially means that panel data was used in the study. Hence, the appropriate panel analysis was conducted.

Findings suggest that there is significant negative relation of merger and return on equity, having a merger or acquisition to return on equity implies that most mergers and acquisitions do harm to the financial well-being of the companies, rather than good. Furthermore, merger and acquisition provide an insignificant relation to the return on total assets, as evidenced by the insignificant p-value. As a result, the finding of this variable provides empirical evidence that having a merger and acquisition does not affect the return on assets ratio of companies in the *Philippines*.

Keywords: Merger and Acquisition, Firms' Profitability, Panel Analysis, Return on Equity and Return on Asset.

INTRODUCTION

With the rapid advancement in technology, the global business industry is also at the forefront of such changes. For the past couple of years, we have witnessed the introduction of new products in the market. Over-capacity indeed is the glaring issue here for the very basic of the Law of Demand & Supply seems to have been ignored entirely. In the face of this predicament, firms need to reinvent ways of coping with the harsh reality of the industry. Should production be cut or totally cease from operation and rely solely on robust branding, or be more market pro-active and buy-up fledgling competition to emerge as the "last-man-standing"? Economic advantage and competitive edge is the name of the game. Business combination is one proven and tested method by companies wanting to grow and gobble up a larger market share.

The emerging business scenario created an additional burden to the already struggling corporations' existence, in almost all types of industry, which is due to the ever increasing demand for innovative strategies. To survive the dog-eats-dog world of competitiveness, a number of these players engage in business combination – wherein two or more companies incorporate into a single accounting entity.

It is a common practice for companies who underwent such combination to still continue with their product or brands and distinct identities. However, after the business combination has commenced, the combined companies will now share a common culture and mission aside from bearing the same corporate name.

The major types of business combination as follows: mergers, consolidations and stock acquisitions. Merger is the combination of two or more entities by purchase acquisition whereby the identity of one of the entities remain while the others are being dissolved. The reasons behind the merger transactions are basically gaining market share, competitive advantage, increasing revenues and risk and product diversifications. With the global financial crises, it is noticeable that mergers and acquisitions have considerably increased. Corporations employed such combination not only for the sake of competitiveness but to maintain a firm foothold in the industry as well. This has lead to the significant transformation in the business landscape.

Though one question that hounds the industry, will the entities be able to handle the ramifications of the merger coupled with the risks involved in such activity and will the business combination improve the profitability of the firms. This paper investigates the effect of merger and acquisition on firm's profitability in terms of return on equity and return on assets.

REVIEW OF RELATED LITERATURE

According to Yurtoglo, there are three usual effects of merger and acquisitions: financial performance, industry and aggregate concentration levels and social welfare. The financial performance of the company would definitely be affected by the business combination, as a result of synergies or disruption that may either increase or decrease the company's operating performance. On the other hand, the combination of two or more companies would decrease the number of players in a given industry. Finally, Yurtoglo indicated that as a result of the changes in financial performance and aggregate concentration levels, the social welfare of the people would also be affected by merger or acquisition. For example, the recent acquisition of Equitable PCI by Banko De Oro (BDO) led to the rise of BDO as the number one bank in the Philippines, in terms of assets and amount of deposits. In addition to this, BDO also received increased market presence, as a result of converting the former Equitable PCI banks into BDO banks. This, in effect, made the life of BDO depositors and the society at large easier, since they have more alternatives on which branch they opt to conduct their transaction.

There had been numerous studies from different countries conducted on the effect of merger or acquisition on the financial profitability of the companies. Ollinger, Nguyen, Blayney, Chambers and Nelson (2006) provided empirical evidence that merger and acquisition improved the labor productivity in the food sector. Holmstrom (2001) examined changes in the merger activity and corporate governance mechanism in the United States. He concluded that there is a rise in merger and acquisition activity for the period 1980 until 1999 and that the corporate governance mechanism has evolved from leveraged hostile takeovers and buyouts in the 1980s to incentive-based compensation in the last portion of the 1990s. Kemal (2011) investigated the effects of merger or acquisition on the different financial ratios of companies in the banking industry of Pakistan for the years 2006 until 2009. They found evidence that mergers or acquisitions actually worsen the liquidity, profitability, return on investment and market stock ratios of the banks while the solvency ratio is the only one that improved.

Altunbas and Ibanes (2004) provided evidence that bank mergers in Europe resulted to an improvement on the companies' return on capital, particularly on cross-border mergers, as a result of organizational and strategic fits. They found out that the improved performance can primarily be attributed to the broad similarities between merger participants. Altunbas and Ibanes (2004) separated their analysis between domestic and cross-border mergers and acquisitions and found evidence that financial innovation, capitalization and investment in technology resulted to an enhanced performance for domestic mergers while differences in loan and risks strategies boost the performance of cross-border business combinations. On the flip side, they indicated that the disparities in earnings, loans and deposit strategies brought about damaging consequences for domestic mergers while inconsistencies in capitalization, technology and financial innovation promulgated harmful effects on cross-border mergers and acquisitions.

Hu (2009) examined the long-term financial performance of Chinese-acquiring companies during the post-acquisition period and found that the buying companies receive no significant positive abnormal returns over one year following the merger or acquisition. However, he was also able to establish that acquiring companies receive significant positive abnormal returns three years after the merger or acquisition. In addition, he was able to determine that only acquirers using asset acquisitions experience positive abnormal returns aver the three year period. In contrast, even if the overall result over the one year period is insignificant, Hu (2009) found evidence that acquirers using tender offers receive positive abnormal returns. In summary, Hu (2009) indicated that the type of transaction, the industry characteristics and the year of acquisition have a significant influence on the acquirer's financial performance over the long term.

Mantravadi and Reddy (2008) found empirical evidence that, overall, companies in India are experiencing slight increases in their profitability following the merger or acquisition. However, the impact is different when the different industries are considered in isolation. They indicated that businesses in the banking and finance industry and pharmaceutical companies receive slight positive impact in their profitability while companies in the textile and electrical equipment sectors obtained a negative impact on their performance. In contrast, they depicted that firms in the chemicals and agri-products industry experience a significant decline in their profitability, as measured by their return on investment and return on assets, after the merger or acquisition.

Wong, Cheung and Mun (2009) conducted their research using market measures, specifically the relationship between security returns and returns on the market portfolio, on the Asian markets, particularly Hong Kong, China, Taiwan, Singapore, South Korea and Japan. They provided empirical evidence that stockholders of target firms regard merger or acquisition as bad news while the shareholders in the acquiring company regard it as good news. They found out that there is no abnormal return to the shareholders of target firms surrounding the announcement period. They attributed this to the low market value of the shares before the announcement period as the results of either poor financial performance of the target company or an information leakage with regards to the features of the takeover, such as the acquiring prices. In contrast, they regard the decreasing market value after the announcement as the reaction of the market to the news. On the other hand, Wong et. al (2009) also furnished proof that the market value of the acquisition, depending on the type of acquisitions.

Yen and Andre (2010) cited several evidences that shareholders of acquiring firms either suffer losses, as a result of merger or acquisition, or, at best, break even. They investigated the effects of concentrated ownership, governance mechanisms and legal protection on corporate performance of acquiring firms. As a result, they found out that buying firms with shareholders owning 25% to 30% of the company tends to improve their operating performance within the next three years following the business combination. They indicated that their result is actually in

conformity with the prior literature providing that firm value rises as ownership of the largest shareholders. This finding may have been the result of the agency problem. When individuals own a larger portion of the corporation, their financial well-being is linked more closely to the performance of the said business, which creates an incentive on that individual's part to ensure that the operations of the firm would be profitable. In contrast, if an individual owns only a small portion of a corporation, their financial well-being may be less affected compared to that of the controlling shareholder. In addition, that person would most likely have no capacity to influence corporate decisions, as a result of his small interest. Hence, a corporation with shareholders owning a huge chunk of its corporate ownership tends to have higher corporate performance after merger or acquisition, than businesses whose ownership is levelled out among a handful of shareholders.

Williams (2010) and Lafosse (1999) provided further evidences that may explain the effects of merger and acquisition on the profitability of the companies. Williams (2010) indicated that companies often overlook the marketing synergies that may result from mergers and acquisitions, which actually result to either its failure or undermines the benefit that acquiring firms get from such business combination. He explained that operating synergies on marketing components can also be obtained from mergers and acquisitions, particularly in a horizontal integration. Lafosse (1999) provided empirical evidence that the accounting method (pooling or purchasing) used to consider the merger activity does not give target firms abnormal returns. However, upon separating their analysis between firms listed in the NASDAQ and companies traded in the NYSE, they found out that target companies listed in the NASDAQ tend to have higher premiums paid by the acquirers for their shares.

Singh and Zollo (1999) provided empirical evidence that knowledge codification has a significant positive impact on the post-acquisition financial performance of companies in the banking industry while experience accumulation on mergers or acquisitions provides no such impact. Knowledge codification is defined as the process of converting tacit knowledge or the type of knowledge that is difficult to transmit to another person into explicit knowledge is the capability of swimming. Any swimmer can easily describe the proper way of swimming, yet after hearing the lecture, the person who does not know how to swim would still be unable to swim. On the other hand, explicit knowledge can readily be seen in manuals, lectures and cooking instructions. Singh and Zollo (1999) also expressed a direct relation between the level of integration and financial performance while a negative relation is exhibited by the replacement of top management to corporate performance.

Ismail, Abdou and Annis (2011) pointed out that these studies have conflicting results, primarily because of the differences in the scope and measures used by the contrasting studies. Some studies focused on a particular industry, such as the steel industry, construction sector and railroad industry while others took into account all the listed companies in their area (Ismail et. al, 2011). Hence, it is not really surprising that studies focusing on the food sector would have

different results from studies engaged in the telecommunication sector or that studies concentrating on American firms would have different findings as a similar study on Canada or Germany. On the other hand, the studies also differ on the measures used to signify profitability. According to Ismail et. al (2011), a handful studies used either market measures, such as market power, book to market ratio and cumulative abnormal returns, or accounting measures like operating income over sales, sales ratio and solvency to signify the company's operating performance. In contrast, Ismail et. al (2011) indicated that some studies used a combination of both market-measures and accounting-measures while others used qualitative-measures, particularly the theoretical researches. Either way, the studies falling in each of the four categories depicted conflicting results. The inconsistent result can primarily be attributed to the combination of the differences in both the scope and the measures used to signify operating performance.

STATEMENT OF THE PROBLEM

Accounting is the tool often used to simplify the complex environment of the business world, where every now and then countless transactions are involved. Over the years, business has developed and diversified into various forms and methodologies. This has induced the need for a specialized system of monitoring and evaluation of its objective, to earn profit, without jeopardizing ethics and the welfare of its various stakeholders.

Audit is one of these resulting systems. The primary objective of audits is to ascertain the validity and reliability of information and to administer an assessment of a system's internal controls. Classifications of audit include: operational audit, financial audit, compliance audit, information systems audit, and investigative or forensic audit.

Financial statements are the primary source of quantitative financial information regarding important aspects about a company that is useful to a wide range of users in making economic decisions. In order to ensure the veracity of the reported information, financial statements should be audited by independent certified public accountants (CPAs). The CPA is guided by generally accepted auditing standards (GAAS) in conducting the audit examination and in rendering an opinion as to whether such financial statements were presented fairly and in conformity with the generally accepted accounting principles (GAAP). Nonetheless, it is still the management of the business enterprise that is principally liable for the preparation and presentation of financial statements that conform to GAAP. Management approval is essential to enact any changes or adjustments needed to rectify material misstatements discovered in the audit. If such approval is not obtained, the CPA practitioner would be obliged to make the necessary modification in the "Independent Auditor's Report." Racasa (2003)

Companies use the annual reports as the primary mode of communication to correspond with stakeholders (Botosan, 1997; and Lang and Lundholm, 1993). It is through these reports, where companies disclose relevant information that plays a crucial role in the decision-making processes. Cooke claims that it is important to assess the extent of disclosures made by a corporation, as stakeholders rely heavily on these pieces of information when making different types of decisions (Cooke, 1989). These pieces of information are crucial in the decision-making processes regarding the allocation of scarce resources for stakeholders.

The problem addressed by this paper is: What effect does merger or acquisition have on a company's profitability?

Null Hypotheses

| Null Hypothesis (Ho1): | Merger and acquisition has no significant effect on |
|------------------------|---|
| | return on total assets. |
| Null Hypothesis (Ho2): | Merger and acquisition has no significant effect on |
| | return on equity. |

THEORETICAL FRAMEWORK

The different theories underlying the study includes the transaction cost theory, technological competence theory and internalization theory. Transaction cost theory actually encompasses the other two theories and, hence, could be designated as the "parent" theory.

Transaction cost theory

Transaction cost theory addresses the problem of organizing interdependencies among many individuals (Hennart, 2001). Hennart (2001) explained transaction costs as "the information, enforcement and bargaining costs incurred by economic agents, as a result of bounded rationality and opportunism." Bounded rationality, also known as cognitive limitation, is the idea that an individual's decision, although rational, is limited by the information they have, their capacity to evaluate the information available and the amount of time to make decisions (Jones, 1999). Opportunism, on the other hand, is discussed by Williamson (1981), as the tendency of individuals to pursue actions that would maximize their self-interests. Klein (2006) explained that opportunistic individuals cannot be relied on to retain their promises, to fulfill their obligations and to respect the interests of their trading partners. Hence, safeguards should be placed.

Here is a brief discussion of the transaction cost framework. The transaction cost framework, which was adapted from the study of Mikkonen, signified that companies incur two types of transaction costs, namely external or market transaction costs and internal or bureaucratic transaction costs. External transaction costs comprise of expenses that the company would incur if it chooses to engage in a transaction with another company. On the other hand, internal transaction costs consist of the expenses that the company would incur, if it chooses to produce the product in-house. This is actually the same expenses that the company will incur, if it chooses

to merge with another company. There are two human factors within the framework: bounded rationality and opportunism. In contrast, there are three environmental factors: asset specificity, uncertainty and complexity. The more specialized or rare an asset is; the higher is the transaction costs that the firm would face in order to obtain that asset. This actually provides the company with an incentive to simply merge with the supplier of that rare asset. The same goes for the other two environmental factors. The greater the uncertainty in the environment or the more complex the environment where the company operates, the higher is the transaction costs that the firms would incur. Bounded rationality and opportunism, on the other hand, would also increase transaction cost.





A company may choose to merge with its supplier when it finds it cheaper to produce a product in-house. If a company is thinking whether to outsource its production for a given product, it may assess the costs related to such a transaction with the environment (businessmate.org). If the company sees it as difficult to formulate a contract that controls the uncertainties related to the exchange, the company may regard it as too costly to outsource the production (businessmate.org). This is because the transaction costs of monitoring the exchange are perceived to be higher, than the bureaucratic costs of performing the activity in-house (businessmate.org). Nevertheless, the company may decide to simply acquire the supplier in order to take advantage of its expertise in producing the given product and, hence, also avoiding the high transaction costs associated with the external transaction.

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Transaction cost theory, as stated by Williamson (1981), discusses that "the task of economic organizations is to coordinate transactions so as to economize on bounded rationality while simultaneously safeguarding them against the hazards of opportunism." Hennart (2001) explained that when individuals form groups with different or similar capabilities, they are able to generate economic rents or excess returns. This theory claims that firms or organizations arise when they are the most efficient institutions to organize the interdependencies among individuals (Hennart, 2001). This means that firms would enable individuals to take advantage of each other's skills while minimizing the costs that will be incurred to conduct the transaction. These transaction costs include the legal expenses of forming the contract that will ensure the relation of the parties and the cost of organizing the relation. Applied to the company level, the transaction cost theory explains that companies merge in order to take advantage of the skills or expertise of another company, so as to minimize the transaction costs that need to be incurred everytime they will do business. Hence, the objective of the transaction cost theory is to be able to form groups that would minimize transaction costs.

CONCEPTUAL FRAMEWORK

The effect of having a merger and acquisition to the company's profitability would be the main objective of this study. The company's profitability, which is the dependent variable, would be represented by the return on total assets and the return on equity ratio. On the other hand, the only independent variable of the study is merger and acquisition, which signify whether the company had engaged in the said business combination in a given year.

Figure 2: Diagram of the Conceptual Framework



SIGNIFICANCE OF THE STUDY

This section discusses how the results of the study would be of importance to the various sectors of the economy. This study would particularly be helpful to the following stakeholders: corporate stockholders and managers, investors, academe, government, brokers, consultancy

firms, investment banks, business partners, creditors, customers, the Philippine Stock Exchange and the public in general.

Corporate Stockholders and Managers

This study would help managers in determining whether doing business combinations is a viable option in increasing profitability. It would indicate the effects of merger and acquisition on the company's profitability, which would allow managers to give better decisions for the best interest of the company. Stockholders would also profit from this study by gaining essential information on the effects of mergers and acquisitions on the value of their investments.

Investors

The results of this study would be beneficial to prospective investors, by helping them make correct decisions, with regards to investing in companies that would undergo merger or acquisitions. In addition, it would improve the investors' prediction of the future cash flows and earnings that would be generated by these companies.

Academe

The academe would profit from this study by gaining knowledge on the effect of merger or acquisition on the profitability of publicly listed companies in the Philippines. In addition, this research would also incite future studies with regards to similar topics as merger and acquisition.

Government

With regards to the government, this study would provide them with information about the usual effects of merger and acquisition on the companies' profitability. This would help the government promulgate relevant policies that would regulate the practice of merger between companies, as well as the acquisition of one company on another. In addition, the findings of this study would enable the government to effectively control market conditions of the various sectors of the economy that would be affected by such business combination.

Business Partners, Creditors and Customers

The findings of this research would help companies determine the most likely effects of business combinations on its profitability ratio. This would signal other firms to take measures that will minimize the harmful effects of merger or acquisition of their business partners on the company. Creditors, on the other hand, would gain more knowledge about business combinations,

which will allow them to decide on the appropriate interest rate to charge firms undergoing such business strategy. Customers, likewise, would benefit by enabling them to find out the probable effect of such merger and acquisition on the company's ability to continue going concern. Hence, this research would provide valuable knowledge to business partners, creditors and customers.

The Philippine Stock Exchange

This study would aid the Philippine Stock Exchange when conducting seminars with regard to the possible consequences of business combinations here in the country. Specifically, the PSE would be able to extend the knowledge of the impact of merger and acquisitions on the company's profitability ratios.

Public

The public would be given a clearer picture of the market conditions of industries where business combinations occur. They would be able to usual impact brought about by business combination, particularly merger and acquisition, on the company's profitability.

SCOPE AND LIMITATIONS

This section discussed the scope and limitations of the study. This study covered all the listed companies in the Philippines Stock Exchange for the years 2006 until 2010. It used secondary data, which were obtained primarily from the Osiris database. On the other hand, the main limitation of the study is brought about by its very low r-squared. This is not really surprising; since there is only one independent variable and r-squared normally rise as the number of predictor variables increase.

OBJECTIVE AND METHODOLOGY OF THE STUDY

Research Design

This study is considered a causal and correlational research, which aims to determine the relationship of the mergers and acquisitions to the firm's profitability. It is a quantitative study that measured the effects of mergers and acquisitions on return on assets and return on equity of the companies. Being a causal research, it determined whether the change in the company's profitability is caused by business combination. On the other hand, as a correlational research, the study seeks to know the relationship of mergers and acquisitions to the companies' financial performance. Besides knowing the relationship, this study also obtained an estimate of the possible impact of the independent variable to the dependent variables.

Population of the Study

The population of the study comprised the entire Philippine publicly listed companies from 2006 until 2010. This covered companies from the different sectors of the economy, which comprise of 30 companies in the financial sector, 75 firms in the industrial sector, 39 businesses classified as holding firms, 39 companies in the property sector, 54 businesses in the service sector and 22 companies in the mining and oil sector. The financial sector comprise of the banks, other financial institutions, preferred companies and half of the small and medium enterprise. On the other hand, the industrial sector includes companies that provide chemicals; construction, infrastructure and allied services; utilities; food, beverage and tobacco; as well as the diversified industrials. In contrast, the holding firms sector and the property sector is composed only of holding firms and businesses engaged in the buying and selling of property, respectively. The services sector includes firms that provide diversified services, education, hotel and leisure, information technology, media, telecommunications, transportation services and the other half of the small and medium enterprise. Finally, the mining and oil sector is composed of companies engaged in the mining business and firms that sell oils. Overall, there are 259 listed companies in the Philippine Stock Exchange.

Research Procedures

The study made use of only secondary data, which were obtained from the OSIRIS database. The merger and acquisition information in the OSIRIS database were used to identify the occurrence of the said business combination, which were then recorded as dummy variables. As a result, the independent variable is a dichotomous variable that equals 1 if either merger or acquisition occurred in a given year for the respective companies and 0 otherwise. On the other hand, return on assets and return on equity for the publicly listed companies are readily available in the OSIRIS database. Hence, the ratios used in the data analysis are the exact values obtained from the OSIRIS database.

Methods of Data Analysis

The research made use of two linear regressions to analyze the effect of having a merger or acquisition on the profitability of the companies. Two separate regressions are needed because profitability would be proxy by two different but widely used variables: the return on equity and the return on assets ratio. Since the study covered the entire publicly listed companies in the Philippines for the period 2006 until 2010, this essentially means that panel data was used in the study. Hence, the appropriate panel analysis was conducted.

Linear Regression Analysis

Equation 1: Return on assets ratio as the predicted variable

roa $_{it}$ = ma $_{it}$ Where roa $_{it}$ = return on assets ratio of company i at period t ma $_{it}$ = merger and acquisition of company i at period t

On the above equation, roa $_{it}$ signified the endogenous variable while ma $_{it}$ indicated the exogenous variable. roa $_{it}$ is composed of the return on assets ratio of the respective companies for the period 2006 until 2010. On the other hand, ma $_{it}$ is a binary variable that takes the value of 1 granted that company i had a merger or acquisition in period t and 0 if it did not.

Equation 2: Return on assets ratio as the predicted variable

roe $_{it}$ = ma $_{it}$ Where roe $_{it}$ = return on equity ratio of company i at period t ma $_{it}$ = merger and acquisition of company i at period t

On the above equation, roe $_{it}$ signified the dependent variable while ma $_{it}$ indicated the independent variable. roe $_{it}$ is composed of the return on equity ratio of the respective companies for the period 2006 until 2010. On the other hand, ma $_{it}$ is a binary variable that takes the value of 1 granted that company i had a merger or acquisition in period t and 0 if it did not.

Panel Data Regression

Since panel data was used in the study, the appropriate panel analysis was conducted. Panel analysis is composed of a series of steps to determine which among three models namely, the ordinary least squares, fixed effects model and the random effects model was appropriate for the data used. The ordinary least squares (OLS), also known as the naïve model, does not take into account the variations and possible interactions between cross-sectional observations, as well as its potential time effect. On the other hand, the fixed effects model (FEM), which is also known least squares dummy variable (LSDV), takes into account either/both the individuality of each companies and time. Lastly, the random effects model (REM) assumes that the observations were randomly drawn from the population. The Wald test and the Breusch-Pagan test were used to determine which among the three models is most appropriate. Panel analysis was done twice because there are two dependent variables that were studied. The final model for the return on equity may not essentially be the resulting model for the return on assets. However, as a matter of

coincidence, the panel analysis produces similar results for both dependent variables. That is, both models used OLS as the final model.

Naïve Panel Data Regression/Ordinary Least Squares Regression

The naïve panel data regression treats the panel data as a simple cross-sectional data and runs it as a linear regression. For the naïve panel data regression, the panel data was regressed, first, with return on equity as the output variable and merger and acquisition as the independent variable then, subsequently, with return on assets as the dependent variable and merger and acquisition as the predictor variable.

The equation for the naïve panel data regression is as follows:

y = xWhere y = dependent variable x = independent variable

Fixed Effects Panel Data Regression

After running the naïve panel data regression, the three types of fixed effects models, namely the space-varying fixed effects model, the time-varying fixed effects model and the spaceand time-varying fixed effects model, was tested. Using the fixed model would assume that timeinvariant characteristics (e.g. error term and constant) are unique to the company and that it must not be correlated to another company's individual characteristic (Torres-Reyna, 2009). Afterwards, the test of overall significance of dummies was conducted to determine which among the three models is most appropriate for the dataset gathered.

Space-Varying Fixed Effects Model – Test for Effects of Company-Specific Attributes (LSDV1)

The first type of fixed effects panel data regression was the space-varying fixed effects model, which is also called the within-groups regression or LSDV1. LSDV1takes into account the "individuality" of each company by enabling the intercept for each cross-sectional data or company to vary but still assume constant slope coefficients among firms. Although the use of this model would take into account the interactions between the cross-sectional data, its usage resulted to loss of unchanging explanatory space variables and the loss of a significant amount of degrees of freedom. (Dougherty, 2006)

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The formula based from Torres-Reyna (2009) for the space-varying fixed effects model is stated below:

 $y_{it} = \beta_0 + \beta_1 x_{1,it} + \dots + \beta_k x_{k,it} + \gamma_2 E_2 + \dots + \gamma_n E_n + u_{it}$

Where y_{te} = dependent variable where i = company and t = year

 β_0 = intercept of the model

 $x_{k,t} =$ independent variable

 β_k = coefficient of the independent variable

% =coefficient for the binary regressors (companies)

 E_{n} = dummy variable representing the companies

 $u_{tr} = error term$

Time-Varying Fixed Effects Model – Test for Effects of Time-Specific Attributes (LSDV2)

The second type of fixed effects panel data regression is the time-varying fixed effects model, which also called the first differences regression model or LSDV2. LSDV 2 is similar to LSDV 1, except that it enables the intercept to vary over time. However, the problem in the first fixed model, which is the loss of a significant amount of degrees of freedom, is still present in this model (Dougherty, 2006).

According to Torres-Reyna (2006), the general formula of time-varying fixed effects model is as follows:

 $y_{it} = \beta_0 + \beta_1 x_{1,it} + \dots + \beta_k x_{k,it} + \sigma_2 T_2 + \dots + \sigma_n T_n + u_{it}$

Where y_{te} = dependent variable where i = company and t = year

 β_0 = intercept of the model

 $x_{k,k} =$ independent variable

 β_k = coefficient of the independent variable

- $\sigma_n = \text{coefficient for the binary time regressors}$
- T_n = dummy variable representing the time period

 $u_{te} = error term$

Space- and Time-Varying Fixed Effects Model – Test for Effects of Both Company and Time Specific Attributes (LSDV3)

The last type of fixed effects panel data regression is the space- and time-varying fixed effects model or LSDV3. This model is a combination of the two previously discussed fixed effect models. LSDV 3 allows the intercept to vary across each individual company and over time. However, consistent with the two previous LSDV models, LSDV3 also suffers from the loss of a significant amount of degrees of freedom (Dougherty, 2006).

Looking at the work of Torres-Reyna (2006), the general formula of the space- and timevarying fixed effects model is:

$$y_{it} = \beta_0 + \beta_1 x_{1,it} + \dots + \beta_k x_{k,it} + \gamma_2 E_2 + \dots + \gamma_n E_n + \sigma_2 T_2 + \dots + \sigma_n T_n + u_{it}$$

Where y_{te} = dependent variable where i = company and t = year

 β_0 = intercept of the model

 x_{kdt} = independent variable

 $\beta_k = \text{coefficient of the independent variable}$

 \mathbf{y}_{n} = coefficient for the binary regressors (companies)

 E_n = dummy variable representing the companies

 σ_{n} = coefficient for the binary time regressors

 T_n = dummy variable representing the time period

 $u_{te} = error term$

Test Parm for Determining the Most Appropriate Fixed Effects Model

After creating the three fixed effects models, the command testparm in Stata was used to determine which among the three models would best predict the dependent variables. After entering the command, the model with the highest F-statistics or the lowest p-value was chosen to represent fixed-effects model.

Wald's Test for Comparing Naïve Model and Fixed Effects Model

After determining the best type of Fixed Effects Panel Data Regression model, the naïve panel data regression model and the time-varying fixed effects panel data regression was compared using the Wald's Test. The F statistics and the critical F-value, which are the two elements that would be compared in Wald's test, is manually computed using results from both the OLS and the chosen FEM model with the use of the equation provided in the following page.

 $F = \frac{[(RSS_R) - (RSS_{UR})]/m}{(RSS_{UR})/D_f}$

Where, RSS_R = Pooled Regression Model/Ordinary Least Squares

 $RSS_{UR} = Fixed Effects Model$ M = # of parameters $D_f = \#$ of observations - # of parameters (degree of freedom lost) The degrees of freedom is computed as follows:

df = nT - T - k + 1

Where n = number of time variables or years

T = number of space variables or companies

k = total number of variables including constant and dependent variables

After computing the Fstat, the Fcrit is then determined by looking at the critical F values with m variables, df degrees of freedom and 0.05 level of significance. Finally, the group compared the Fstat and the Fcrit. If the F statistics is greater than the critical f-value, then FEM is presumed to be the better model. In contrast, if the F statistics is less than the critical f-value, then the null hypothesis that OLS is the better model is accepted.

Random Effects Panel Data Regression Model

Unlike the fixed effects model, random effects model assumes that the entity's error term is not correlated with the independent variables, which would allow time-invariant variables to be included as explanatory variables (Torres-Reyna, 2006). The random effects model treats the variables previously unobserved in the fixed effects model as being randomly drawn and that these unobserved variables are independent from the variables included in the fixed effects model (Dougherty, 2006).

According to Torres-Reyna (2006), the random effect model general equation is:

$$y_{te} = \beta x_{te} + \alpha + u_{te} + \epsilon_{te}$$

Where y_{te} = dependent variable where i = company and t = year

 $\beta_k = \text{coefficient of the independent variable}$

 α = unknown intercept for each company

 u_{te} = between entity error

 \mathbf{e}_{tt} = within entity error

Breusch and Pagan Lagrangian Multiplier Test for Random Effects – Comparison Between Naïve Model and Random Effects Model

The Breusch and Pagan lagrangian multiplier test determines whether there is significant evidence against the null hypothesis that the variances of groups in the one-way random group effect model or the naïve model are zero. Thus, if the variances of the groups in the naïve model are not zero, the random effects model will be better than the one-way random group effect model. The Stata command xttest0 allowed the researchers to determine if the p-value of the Breusch and Pagan multiplier test would be lower than 0.05. If the p-value is lower than 0.05, then the random effects would be the better model. If not, the naïve model would be the more appropriate model.

EMPIRICAL RESULTS AND ANALYSIS

This portion of the study answers the research problem and objectives of the paper. This chapter presents the summary statistics of the data gathered, the result of the regression analyses

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made using the IFRS disclosure index as the dependent variable and various profitability measures of the firm as the independent variable.

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|----------|------|-----------|-----------|-----------|----------|
| roe | 1146 | 93.41079 | 2115.766 | -13200 | 56709.8 |
| roa | 1154 | -59.02348 | 1018.74 | -28565.52 | 2520.423 |
| ma | 1177 | .1028037 | .3038315 | 0 | 1 |

 Table 1: Descriptive Statistics

The predicted variables are return on equity and return on total assets while the predictor variable is merger and acquisition. The mean value of return on equity is 93.41, which indicates that the companies, on average, have net income that is larger than their common stockholders' equity. On the other hand, the return on total assets signified an average of -59.02. The negative sign is the result of companies that had obtained a net loss. Lastly, the exogenous variable, merger and acquisition, provided an average of 0.30. This means that there are more observations that did not undergo merger or acquisition, than there are samples that had engaged.

Table 2: Correlation Table

| | roe | roa | ma |
|----------------------|------------------------------|------------------|--------|
| roe roa ma | 1.0000 -0.3707 -0.0220 | 1.0000 0.0046 | 1.0000 |

The correlation table revealed the relation of the different variables with one another. The association of return on assets to return on equity is the only relation that indicated a moderate correlation. It actually signified a moderately negative relation, as indicated by having a correlation coefficient that is above 0.20 but below 0.80. The relation of merger and acquisition to either of the dependent variables, on the other hand, connoted a low correlation. Low negative relations with regards to return on equity while a low positive relation to return on assets ratio.

Panel analysis was conducted in order to determine which among the three models: ordinary least squares, fixed effects model and random effects model was appropriate for the study. The data was first run using the OLS model and the appropriate sum of the squares of the residuals was noted. Afterwards, the data was run under each of the three variations of the fixed effects model, namely LSDV 1, LSDV 2 and LSDV 3. The model with the highest f-value or lowest p-value among the three LSDV models was used to represent the FEM. The test of overall

significance of the dummies revealed that LSDV 2 has the highest f-statistics and the lowest p-value. As a consequence, LSDV2 was the model used to represent FEM.

In order to compare and determine which between OLS and FEM is the more appropriate model for the data, Wald test was conducted. The resulting Wald's statistics revealed a value of 0.9872 while the resulting f-statistics showed 2.3797. It is evident from the results that the Wald statistics is lower than the critical f-value. As a result, the null hypothesis that OLS is the better model is accepted. Hence, OLS is considered the better model, as compared to FEM.



Panel Analysis for Return on Equity Ratio

Figure 3: Diagram of the Panel Analysis for Return on Equity

Since the result of the Wald's test indicate that OLS is the better model, Breusch and Pagan Lagrangian multiplier test was subsequently conducted to examine whether OLS or REM is the better model. The result, as shown in the above figure, indicated a p-value of approximately 0.86, which is significant at α equals 0.05. This implies the failure to reject the null hypothesis that OLS is the better model. Hence, OLS is the resulting model used from panel analysis, which indicate that this is the model that would be used for the regression analysis.

| Linear regression | | | | | Number of obs | = | 1145 |
|-------------------|-----------|-----------|-------|-------|---------------|--------|----------|
| _ | | | | | F(1, 1143) | = | 4.12 |
| | | | | | Prob > F | = | 0.0426 |
| | | | | | R-squared | = | 0.0005 |
| | | | | | Root MSE | = | 2117.1 |
| | | | | | | | |
| | | Robust | | | | | |
| roe | Coef. | Std. Err. | t | P> t | [95% C | onf. I | nterval] |
| ma | -153.2324 | 75.50206 | -2.03 | 0.043 | -301.3706 | -5. | 094228 |
| _cons | 109.1386 | 69.6075 | 1.57 | 0.117 | -27.43424 | 24 | 45.7114 |

Table 3: Linear Regression Model for Return on Equity Ratio

Merger and acquisition displayed a significant negative relation with the return on equity, as evidenced by the significant p-value. The t-statistic of -2.04 connotes a p-value of 0.04, which is significant at α equals 0.05. Consequently, the null hypothesis that the independent variable has no relation with the dependent variable is rejected. The coefficient of merger and acquisition implies that, on average, having a merger or acquisition would decrease the return on equity by - 153.23. Hence, there is a significant negative relation between merger and acquisition and the return on equity.

The significant negative relation of return on equity to merger or acquisition is consistent with the study of Kemal (2011) and Yen and Andre (2010), as well as the apriori expectation, but contrary to the findings of Wong et. al (2009) and Mantravadi and Reddy (2008). The expectation beforehand is that having a merger or acquisition would result to the decline in the profitability of the company because of the disruption on the company's operation, as well as possible desynergistic effects. This expectation is taken from the study of Kemal (2011), Yen and Andre (2010) and Williams (2010). Hence, the finding of this variable actually reinforced the results of many previous studies, which promulgates that most mergers and acquisitions result to the decline in the profitability of the company.

The significant negative relation of having a merger or acquisition to return on equity implies that most mergers and acquisitions do harm to the financial well-being of the companies, rather than good.



Panel Analysis for Return on Assets Ratio

Figure 4: Diagram of the Panel Analysis for Return on Assets

Panel analysis was conducted in order to determine which among the three models: ordinary least squares, fixed effects model and random effects model was appropriate for the study. The data was first run using the OLS model and the appropriate sum of the squares of the residuals was noted. Afterwards, the data was run under each of the three variations of the fixed effects model, namely LSDV 1, LSDV 2 and LSDV 3. The model with the highest f-value or lowest p-value among the three LSDV models was used to represent the FEM. The test of overall significance of the dummies revealed that LSDV 2 has the highest f-statistics and the lowest p-value. As a consequence, LSDV2 was the model used to represent FEM.

In order to compare and determine which between OLS and FEM is the more appropriate model for the data, Wald test was conducted. The resulting Wald's statistics revealed a value of 0.5522 while the resulting f-statistics showed 2.3797. It is evident from the results that the Wald statistics is lower than the critical f-value. As a result, the null hypothesis that OLS is the better model is accepted. Hence, OLS is considered the better model, as compared to FEM.

Since the result of the Wald's test indicate that OLS is the better model, Breusch and Pagan Lagrangian multiplier test was subsequently conducted to examine whether OLS or REM is the better model. The result, as shown in the above figure, indicated a p-value of approximately 0.81, which is significant at α equals 0.05. This implies the failure to reject the null hypothesis that OLS is the better model. Hence, OLS is the resulting model used from panel analysis, which indicate that this is the model that would be used for the regression analysis.

| Linear regression | | | | | Number of obs F(1, 1151) Prob > F R-squared Root MSE | = = = | 1153 0.13 0.7188 0.0000 1019.6 |
|-------------------|----------------------|----------------------|---------------|----------------|---|-------------|--|
| roa | Coef. | Robust Std. Err. | t | P> t | [95% Co | onf. l | Interval] |
| ma _cons | 16.3025 -60.75309 | 45.26997 33.32625 | 0.36 -1.82 | 0.719 0.069 | -72.5184 -126.1401 | 1(4. |)5.1234 633912 |

Table 3: Linear Regression Model for Return on Asset Ratio

Unlike in the previous variable, merger and acquisition provide an insignificant relation to the return on total assets, as evidenced by the insignificant p-value. The t-statistic of 0.36 translates to a p-value of approximately 0.72, which is insignificant at α equals 0.05. This suggests that the true coefficient of merger and acquisition with regards to return on total assets is 0. Hence, merger and acquisition has no relation with the return on total assets ratio.

As opposed to previous expectation, merger and acquisition provided an insignificant relation with the return on assets ratio. This finding is consistent with the result of the study of Hu (2009) regarding the relationship of merger and acquisition to the profitability of the company over a 1 year period. It is, however, inconsistent with the results of Altunbas and Ibanes (2004) and Williams (2010). Altunbas and Ibanes (2004) obtained a positive relation between merger and acquisition and return on capital while Williams (2010) found a negative relation between merger and acquisition and the profitability of a company. The anticipated relation is that having a merger or acquisition would result to the decline in the profitability of the company because of the many researches (Kemal, 2011; Yen & Andre, 2010 and Williams, 2010) suggesting a negative relation between those variables. As a result, the finding of this variable provides empirical evidence that having a merger and acquisition does not affect the return on assets ratio of companies in the Philippines.

CONCLUSIONS

The major types of business combination as follows: mergers, consolidations and stock acquisitions. Merger is the combination of two or more entities by purchase acquisition whereby the identity of one of the entities remain while the others are being dissolved. The reasons behind

the merger transactions are basically gaining market share, competitive advantage, increasing revenues and risk and product diversifications. With the global financial crises, it is noticeable that mergers and acquisitions have considerably increased. Corporations employed such combination not only for the sake of competitiveness but to maintain a firm foothold in the industry as well. This has lead to the significant transformation in the business landscape.

Merger and acquisition displayed a significant negative relation with the return on equity, as evidenced by the significant p-value. The t-statistic of -2.04 connotes a p-value of 0.04, which is significant at α equals 0.05. Consequently, the null hypothesis that the independent variable has no relation with the dependent variable is rejected. The coefficient of merger and acquisition implies that, on average, having a merger or acquisition would decrease the return on equity by - 153.23. Hence, there is a significant negative relation between merger and acquisition and the return on equity. Unlike in the previous variable, merger and acquisition provide an insignificant relation to the return on total assets, as evidenced by the insignificant p-value. The t-statistic of 0.36 translates to a p-value of approximately 0.72, which is insignificant at α equals 0.05. This suggests that the true coefficient of merger and acquisition with regards to return on total assets is 0. Hence, merger and acquisition has no relation with the return on total assets ratio.

The significant negative relation of having a merger or acquisition to return on equity implies that most mergers and acquisitions do harm to the financial well-being of the companies, rather than good. Furthermore, merger and acquisition provide an insignificant relation to the return on total assets, as evidenced by the insignificant p-value. As a result, the finding of this variable provides empirical evidence that having a merger and acquisition does not affect the return on assets ratio of companies in the Philippines.

REFERENCES

- Altunbas, Y. & Ibanez, D. (2004). Mergers and Acquisitions and Bank Performance in Europe. The Role of Strategic Similarities. Retrieved September 14, 2011 from:http://www.ecb.int/pub/pdf/scpwps/ecbwp398.pdf
- Dougherty, C. (2007). Introduction to Econometrics. New York: Oxford University Press.
- Hennart (2001). Chapter 5: Theories of the Multinational Enterprise. Oxford Handbook of International Business,127-149. Retrieved from Business Source Complete.
- Holmstram, B. (2001). Corporate Governance and Merger Activity in the U.S.: Making Sense of the 1980s and 1990s. Journal of Economic Perspectives, 15. Retrieved September 14, 2011 from: http://www.hss.caltech.edu/~camerer/BEMEc146/ Winter07/kaplanholmstromjpe01.pdf
- Hu, Y. (2009). The Long-Term Performance of Acquiring Firms: Evidence from Chinese Stock Markets. Retrieved September 14, 2011 from: http://arno.unimaas.nl/show.cgi?fid=16865
- Jones (1999). Bounded Rationality. Annual Review Political Science, 1999 (2), 297-321. Retrieved September 7, 2011 from: http://www.princeton.edu/~smeunier/JonesBounded1.pdf
- Kemal, M. (2011). Post-Merger Profitability: A Case of Royal Bank of Scotland (RBS). International Journal of Business and Social Science, 2. Retrieved September 14, 2011 from: http://www.ijbssnet.com/journals/Vol. 2 No. 5 [Special Issue - March 2011]/20.pdf
- Klein, P. (2006). Does Transaction Cost Economics Need Opportunism? Retrieved September 7, 2011 from: http://organizationsandmarkets.com/2006/10/06/does-transaction-cost-economics-need-opportunism/

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- Lafosse, E. (1999). Consequences of the Choices on the Accounting Methods and the Payment Methods for Acquirers and Targets. A comparative Study between NYSE/AMEX. 4nd NASDAQ for the Nineties. Retrieved September 14, 2011 from: http://www.collectionscanada.gc.ca/obj/s4/f2/dsk1/tape3/ PQDD 0017/MQ47807.pdf
- Markusen, J. (2009). Internalization Theory. The Princeton Encyclopedia of the World Economy,2653-659. Retrieved from ProQuest: ABI/INFORM Global (XML Gateway).
- Mikkonen, I. Real Property Transaction Costs from Slovenia. Retrieved September 7, 2011 from: http://www.theslovenian.com/articles/mikkonen.htm
- Mantravadi, P. & Reddy, A. (2008). Post-Merger Performance of Acquiring Firms from Different Industries in India. International Research Journal of Finance and Economics. Retrieved September 14, 2011 from: http://www.eurojournals.com/irjfe_22_15.pdf
- Ollinger, M., Nguyen, S., Blaynay, D., Chambers, B. & Nelson, K. (2006). Food Industry Mergers and Acquisitions Lead to Higher Labor Productivity. Retrieved September 14, 2011 from: http://www.ers.usda.gov/Publications/ERR27/
- Torres-Reya, O. (2006). Panel Data Analysis Fixed and Random Effects (using Stata10.x). Retrieved July 25, 2011, from Princeton University Web Site: http://dss.princeton.edu/training/Panel101.pdf
- Singh, H. & Zollo, M. (1999). Post-acquisition Strategies, Integration Capability, and the Economic Performance of Corporate Acquisitions. Retrieved September 14, 2011 from: http://openlibrary.org/ books/OL18319482M/Postacquisition strategies integration capability and the economic performance of corporate acquisitions
- Williams, J. (2010). A Case of a Merger and Acquisition Mega Blind Spot. Retrieved September 14, 2011 from: http://www.alliedacademies.org/public/conferences/Presentations/AMS-Williams.ppt
- Williamson (1981). The Economics of Organization: The Transaction Cost Approach. The American Journal of Sociology, 87(3). Retrieved from Jstor.
- What is Transaction Cost Theory? Retrieved September 7, 2011 from: http://www.businessmate .org/Article.php?ArtikelId=182
- Williams, J. A Case Of a Merger and Acquisition Mega Blind Spot. Allied Academies International Conference. Academy of Marketing Studies. Proceedings. Sun-Times News Group. 2010. Retrieved September 13, 2011 at: http://www.highbeam.com/doc/1P3-
- Wong, A., Cheung, K. & Mun, T. (2009). The Effects of Merger and Acquisition Announcements on the Security Prices of Bidding Firms and Target Firms in Asia. International Journal of Economics and Finance, 2. Retrieved September 14, 2011 from: http://www.ccsenet.org/journal/index.php/ijef/article/view/ 3409/3091
- Yen, T. & Andre, P. (2010). The Effects of Ownership Structure on Operating Performance of Acquiring Firms in Emerging Markets. Journal of Business and Policy Research, 5. Retrieved September 14, 2011 from: http://www.essec.edu/faculty/showDeclFileRes.do?declId=9749&key=Publication-Content
- Yurtoglo, B. The Effects of Merger. Retrieved September 13, 2011 from: homepage.univie.ac.at/ besim.yurtoglu/Mergers_Effects.ppt

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FURTHER EVIDENCE ON THE EXTENT OF COSMETIC EARNINGS MANAGEMENT BY U.S. FIRMS

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ABSTRACT

This paper examines the extent to which firms manipulate their financial statements by engaging in cosmetic earnings management (CEM). Prior research has employed Benford's Law to demonstrate that firms tend to engage in rounding behavior in an effort to reach earnings thresholds, attempting to round income of \$1.9 million up to \$2.0 million, for example. The bulk of these prior studies were conducted before the Sarbanes-Oxley Act of 2002 (SOX). The provisions of SOX both limit the opportunities for management to manipulate financial statements and increase the penalties assessed to those caught doing so. Using 2009 data, this study finds no evidence of CEM, a finding in sharp contrast to the results consistently reported by earlier researchers. The results are consistent with increased financial statement reliability and reduced earnings manipulation as result of the SOX reforms.

INTRODUCTION

There are several theories as to why managers are motivated to make small adjustments to their firm's reported earnings, to "round" corporate earnings numbers. Watts and Zimmerman (1986) suggest that management behaviors are affected by contractual parameters. For example, if key contractual numbers in debt covenants or compensation contracts are specified in round earnings numbers, target parameters may be established for the firm. Any deviation from those specified rounded targets may results in a large negative cash flow effect for the firm (Thomas, 1989). Managers might also be motivated to round earnings numbers because of their perceptions of how stock is valued, and their beliefs that small changes in reported earnings might have potentially large effects on firm value.

Also, prior studies in both psychology as well as business literature have indicated the existence of what is known as the \$1.99 pricing phenomenon in marketing. This is due to the human tendency to round up or down the number when the reported numbers is near a cognitive reference point (Gabor and Granger, 1966; Carslaw, 1988). As a result, small changes in reported earnings near user reference points many have disproportionately large effects on perceived firm value (Garbor and Granger, 1966).

Prior studies by Carslaw (1988) and Thomas (1989) have empirically documented that rounding or unusual patterns do exist in the reported earnings of New Zealand as well as U.S.

firms. Kinnunen and Koskela (2003) examined reported earnings from firms in eighteen countries and found rounding behavior to be an international phenomenon.

In their study, Kinnunen and Koskela (2003) defined "cosmetic earnings management" as a "firm's tendency to do small upward rounding of reported net income, when such rounding yields an earnings number that seems abnormally larger than would be the case otherwise (p. 40)." As used by Kinnunen and Koskela (2003), cosmetic earnings management (hereafter CEM) refers to manipulation of the second digit of the reported earnings number in order to increase the first digit of earnings. In particular, when the second digit of reported earnings reaching the psychologically important \$2 million threshold (\$2.0 million). Specifically, they argue that extensive CEM will result in fewer nines and more zeros appearing as second digits of reported earnings. Their results indicated an international tendency for firms to engage in CEM.

In the United States, firms seeking to engage in CEM must contend with measures such as the Sarbanes-Oxley Act of 2002 (hereafter SOX), which are intended to improve the reliability of corporate financial reporting. Some of SOX's many provisions seek to improve internal controls, strengthen audit committees, and increase penalties for misleading financial reporting. Taken together these provisions may reduce both management's ability and incentive to engage in activities such as CEM.

This study seeks to determine the extent to which CEM exists in a post-SOX environment. By employing digital analysis to investigate unusual patterns in earnings numbers, the effectiveness of the current legal and regulatory structure in minimizing financial statement manipulation and in increasing financial statement reliability may be assessed.

The remainder of the paper is divided into five sections. The first section establishes a framework for analysis of reported earnings employing Benford's Law and provides a review of selected research in the field. The second section describes some of the provisions of SOX which may act as a curb on CEM. The third section details the study's methodology and sample selection, while the results are presented in the fourth section. The paper closes with a summary and discussion of the findings.

DETECTING EARNINGS MANIPULATION

One tool used to detect possible earnings manipulation is digital analysis. Digital analysis is a method of analyzing the patterns of digits in a sample of numbers to determine if the sample is similar to a population of numbers. The use of digital analysis is based on the argument that human tampering of numbers inadvertently leaves the observed distribution of digits different from the expected distribution. Digital analysis originates from research by Frank Benford in the 1920s. Benford (1938) calculated the frequency of occurrence of each numeral and found that those frequencies followed predictable patterns. For example, in most situations, one would expect to observe the first and second digits of numbers occurring with the following frequencies:

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|------|-----|
| | • - |

| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|--------------|--------|--------|--------|--------|--------|-------|-------|-------|-------|-------|
| First Digit | N/A | 30.10 | 17.61% | 12.49% | 9.69% | 7.91% | 6.69% | 5.79% | 5.11% | 4.57% |
| Second Digit | 11.97% | 11.39% | 10.88% | 10.43% | 10.03% | 9.67% | 9.34% | 9.03% | 8.76% | 8.50% |

This distribution of digits has become known as Benford's Law. Benford's Law provides an expectation that valid, unaltered data will conform to the above patterns. Deviations in actual data from these expected frequencies may indicate the presence of manipulation or tampering.

Several prior studies have documented unusual patterns in reported earnings using this digital analysis technique. Carslaw (1988) documented that New Zealand firms round up reported earnings when they are just below important reference points. Since reported earnings of \$2.9 million may be perceived as being much lower than \$3 million, firms in that position have a strong incentive to round up their earnings. In this example, rounding behavior would result in a firm moving from having a nine as the second digit in its earnings (\$2.9 million) to having a zero as the second digit (\$3.0 million). Carlsaw (1988) found significantly more second digit zeros and fewer second digit nines than would be expected by chance - evidence that firms engage in CEM.

Thomas (1989) extended Carslaw's study to United States firms and found the same abnormalities in second digit frequencies. He also examined the digital frequencies of net losses reported by firms and found that the patterns of manipulation were reversed. Firms with negative income employ CEM to *avoid* reaching thresholds, resulting is more second digit nines than would be expected (a loss of \$2.9 million) and fewer second digit zeros (a loss of \$3.0 million).

Kinnunen and Koskela (2003) reviewed 1995-1999 sales and earnings data from firms in 18 countries. Internationally, reported sales contain more second digit zeros and fewer second digit nines than expected. This finding was even more pronounced in the reported profits of sample firms. Among firms reporting losses, the expected reversal was found, with fewer second digit zeros and more second digit nines.

Guan, Lin, and Fang (2008) provided further evidence that CEM is an international phenomenon. They analyzed, using Benford's Law, the reported earnings of Taiwanese firms from 1981-2005. They found that firms round earnings to achieve key reference points, with the incentive to round strongest when firms were closest to the key reference point. In other words, a firm with earnings of \$1.9 million is much more likely to engage in CEM to reach the \$2.0 million level than is a firm with earnings of \$1.6 million.

The studies summarized above reported clear evidence of CEM. However the effect of the enactment of SOX and other changes in the financial reporting environment on CEM activity by United States companies has yet to be examined. The next section summarizes some of the changes brought about in the SOX era.

SOX AND EARNINGS MANAGEMENT

In 2002, the Securities and Exchange Commission (SEC) began requiring the Chief Executive Officers and Chief Financial Officers of selected corporations to certify that their financial statements were reliable. SOX extended this requirement to all publicly held firms and established penalties for corporate officials intentionally certifying false financial statements. These sanctions include extended time in prison (a maximum sentence of 20 years) and/or fines up to \$5 million (Bhattachyarya, Groznik & Haslem, 2003). These consequences for falsely attesting to firm financial statements may reduce management's incentive to manipulate reported earnings in an attempt to reach earnings targets.

Another set of SOX provisions focus on corporate audit committees, which are charged with overseeing the reliability of the firm's financial reporting. The Act requires that all audit committee members be independent of the firm (Section 307), with at least one member designated as an "audit committee financial expert" (Section 407). Firms without a designated financial expert are required to justify this shortcoming in their annual proxy statements. Finally, Section 301 of the Act explicitly gives audit committees the responsibility for the hiring and oversight of the firm's outside auditor. This combination of increased financial expertise, independence, and involvement may strengthen the ability of audit committees to monitor financial reporting, thus reducing management's ability to manipulate earnings.

Perhaps the most publicized provision of SOX has been Section 404, which requires each firm to include in its annual report an assessment of the effectiveness of its internal controls for financial reporting. The company's assessment is then tested and reported on by the firm's independent auditors. Although this provision has created controversy, there is evidence that it has had some benefits. For example, Couston, Leinicke, Rexroad and Ostrosky (2004) found a consensus among accounting professionals that ". . . this requirement would increase management's knowledge and concern about the quality of its internal controls structure, thus sending significant signals that management takes such controls very seriously"(p. 43).

Taken together, the provisions of SOX appear to have the potential to greatly reduce the ability of, and incentives for, management to manipulate earnings, even if those manipulations are relatively minor in nature.

SAMPLE SELECTION AND RESEARCH METHOD

The sample for this study consisted of public firms with fiscal 2009 income data available on the S&P Research Insight database. Data were available for 6,297 firms. Thomas (1989) documented the potential differences in earnings management motivations between profitable and unprofitable firms. Accordingly, companies reporting a loss for the period (2,735 firms) were analyzed separately from those reporting a profit (3,562 firms). A number (304) of companies

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had no reported sales for the period, reducing the sample size to 5,989 for examination of this variable.

Following Kinnunen and Koskela (2003), a Chi-square statistic was computed with nine degrees of freedom to assess whether the overall distribution of second digits differed from expectations. To test whether any single digit's observed frequency was significantly different from its expected frequency under Benford's Law, the following z-statistic was calculated:

$$z_i = \frac{\text{ObsSD}_i - n\text{Prob}(SD_i)}{\sqrt{n\text{Prob}(SD_i)[1 - \text{Prob}(SD_i)]}}$$

where $ObsSD_i$ = the observed frequency of second digits for digit class *i* Prob(SD_i) = the expected probability of occurrence of second digits for digit class *i n* = the sample size.

DATA ANALYSIS AND RESULTS

Table 1 presents the results of these analyses for reported net sales. The table provides the observed frequency of occurrence, the difference between that level and the frequency expected under Benford's Law, and the calculated z-statistic for that difference. The Chi-square statistic for the overall distribution is also presented.

| Table 1: Second Digit Frequencies - Observed vs. Expected Net Sales | | | | | | | | | | | | |
|---|---------------------------|--------|--------|---------|--------|-------|--------|--------|-------|--------|---------|--|
| Second Digit | | | | | | | | | | | | |
| | 0 1 2 3 4 5 6 7 8 9 Total | | | | | | | | | | | |
| Expected % | 11.97% | 11.39% | 10.88% | 10.43% | 10.03% | 9.67% | 9.34% | 9.03% | 8.76% | 8.50% | 100.00% | |
| Number of Observations | 751 | 737 | 644 | 556 | 602 | 594 | 539 | 520 | 537 | 509 | 5989 | |
| Observed % | 12.54% | 12.31% | 10.75% | 9.28% | 10.05% | 9.92% | 9.00% | 8.68% | 8.97% | 8.50% | 100.00% | |
| Percentage deviation | 0.57% | 0.92% | -0.13% | -1.15% | 0.02% | 0.25% | -0.34% | -0.35% | 0.21% | 0.00 | 0.00% | |
| z-value/Chi-square | 1.363 | 2.233* | -0.320 | -2.910* | 0.053 | 0.655 | -0.897 | -0.951 | 0.573 | -0.003 | 15.973 | |
| * p < .05 | | | | | | | | | | | | |

If firms engage in CEM, the observed frequency of second digit zeros should exceed the level predicted by Benford's Law, while the observed frequency of nines should be correspondingly less. The results in Table 1 do not follow such a pattern. Although the observed frequency of second digit zeros is, in fact greater, than the expected frequency, the difference is not statistically significant. No difference was noted between the observed and expected frequencies of second digit zeros. The Chi-square statistic does not allow rejection of the hypothesis of no difference between the observed and expected distributions of second digits. There are significantly more second digit ones than expected, but such differences are not easily

attributable to CEM under the paradigm established by prior research. As a whole, the findings are in contrast to those reported by Kinnunen and Koskela (2003), who found strong evidence of CEM in reported sales.

Table 2 provides the second digit frequencies observed in reported net incomes of profitable firms. The section is remarkable only for its lack of significant differences. Profitable firms actually reported *fewer* second digit zeros than expected. There were a statistically insignificant fewer number of second digit nines than would be expected under Benford's Law. The Chi-square statistic for the distribution as a whole was not significant. The results provide no evidence of CEM in reported net incomes.

| Table 2: Second Digit Frequencies - Observed vs. Expected Net Profit | | | | | | | | | | | | | |
|--|---------------------------|--------|--------|--------|--------|-------|--------|-------|--------|--------|---------|--|--|
| Second Digit | | | | | | | | | | | | | |
| | 0 1 2 3 4 5 6 7 8 9 Total | | | | | | | | | | | | |
| Expected % | 11.97% | 11.39% | 10.88% | 10.43% | 10.03% | 9.67% | 9.34% | 9.03% | 8.76% | 8.50% | 100.00% | | |
| Number of Observations | 422 | 414 | 408 | 369 | 363 | 349 | 323 | 326 | 303 | 285 | 3562 | | |
| Observed % | 11.85% | 11.62% | 11.45% | 10.36% | 10.19% | 9.80% | 9.07% | 9.15% | 8.51% | 8.00% | 100.00% | | |
| Percentage deviation | -0.12% | 0.23% | 0.57% | -0.07% | 0.16% | 0.13% | -0.27% | 0.12% | -0.25% | -0.50% | 0.00% | | |
| z-value/Chi-square | -0.222 | 0.439 | 1.097 | -0.144 | 0.318 | 0.262 | -0.552 | 0.244 | -0.529 | -1.067 | 3.086 | | |
| * p < .05 | | | | | | | | | | | | | |

Table 3 presents the second digit frequencies observed in reported net losses of unprofitable firms. Following Thomas (1989) and Kinnunen and Koskela (2003), CEM among this group of firms would result in fewer second digit zeros and more second digit nines than predicted by Benford's Law. As Table 3 shows, there are, in fact, fewer second digit zeros than expected, although the difference is not statistically significant. There are *fewer* second digit nines than expected, although the difference is again not statistically significant. Firms with net losses did report significantly fewer second digit sixes than expected, a result not readily attributable to CEM. As with the other variables examined. the Chi-square statistic for the distribution as a whole is not significant.

Taken together, no inference of second digit anomalies can be drawn from the results reported in Tables 1, 2, and 3. Whether in the frequencies of nines and zeros, or in the distribution of digits as a whole, whether in sales, reported profits, or reported losses, the differences between expected and observed second digit frequencies do not provide support for the hypothesis that firms engage in CEM.

Table 3: Second Digit Frequencies - Observed vs. Expected Net Loss

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| Second Digit | | | | | | | | | | | | |
|------------------------|--------|--------|--------|--------|--------|-------|---------|-------|--------|--------|---------|--|
| | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | Total | |
| Expected % | 11.97% | 11.39% | 10.88% | 10.43% | 10.03% | 9.67% | 9.34% | 9.03% | 8.76% | 8.50% | 100.00% | |
| Net Loss: | | | | | | | | | | | | |
| Number of Observations | 301 | 330 | 321 | 311 | 271 | 271 | 224 | 253 | 225 | 228 | 2735 | |
| Observed % | 11.00% | 12.06% | 11.74% | 11.37% | 9.91% | 9.91% | 8.19% | 9.25% | 8.23% | 8.34% | 100.00% | |
| Percentage deviation | -0.97% | 0.67% | 0.86% | 0.94% | -0.12% | 0.24% | -1.15% | 0.22% | -0.53% | -0.16% | 0.00% | |
| z-value/Chi-square | -1.551 | 1.114 | 1.435 | 1.605 | -0.213 | 0.426 | -2.061* | 0.393 | -0.981 | -0.307 | 12.523 | |
| * p < .05 | | | | | | | | | | | | |

SUMMARY AND DISCUSSION

A consistent stream of prior research has shown that firms engage in CEM, resulting in higher than expected frequencies of second digit zeros and lower than expected frequencies of second digit nines. Most of these studies, however, were conducted before the provisions of SOX, which were designed to reduce financial statement manipulation and increase financial statement reliability, took effect.

The reported financial data examined in this study contained no statistically significant evidence supporting the continued existence of CEM. The frequency of occurrence of both zeros and nines was not significantly different from expectations developed using Benford's Law. Deviations from expected frequencies cannot, by themselves, provide direct evidence of irregularities or income manipulation. Similarly, the lack of such deviations is not iron clad evidence that such manipulations do not occur. However, the contrast between the findings of this and earlier studies is striking. The lack of observable CEM among U.S. firms is consistent with increased reliability in financial reporting as a result of the SOX reforms.

Several further areas of research are suggested by these results. First, future research might examine sales and earnings behavior over several years, rather than the single year analyzed here. Second, given the perception of higher audit quality among the "Big Four" audit firms, the investigation of potential differences in CEM between clients of Big Four auditors and clients of smaller auditors might be of interest.

REFERENCES

Bhattachyarya, U., P. Groznik & B. Haslem (2003). Is CEO certification credible? Regulation. (Fall), 8-10.

- Benford, F. (1938). The law of anomalous numbers. *Proceedings of the American Philosophical Society*, (March): 551-572.
- Carslaw, C. A. P. N. (1988). Anomalies in income numbers: Evidence of goal oriented behavior. *The Accounting Review*, (April), 321-327.
- Coustan, H., L. Leinicke, W. Rexroad & J. Ostrosky (2004) Sarbanes- Oxley: What it means to the marketplace. *Journal of Accountancy*, 197 (2), 43-47.

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- Gabor, A. & C. W. J. Granger (1966). Price as an indicator of quality: Report on an enquiry. Economica, (February): 43-70.
- Guan, L., F. Lin & W. Fang (2008). Goal-oriented earnings management: Evidence from Taiwanese firms. *Emerging Markets Finance & Trade*, 44(4), 19-32.
- Kinnunen, J. & M. Koskela (2003). Who is miss world in cosmetic earnings management? *Journal of International Accounting Research*, 2(1), 39-68.
- Thomas, J. K. (1989). Unusual patterns in reported earnings. The Accounting Review, (October),773-787.
- Watts, R. L. & J. L. Zimmerman (1986). Positive Accounting Theory. Englewood Cliffs, NJ: Prentice-Hall.
DISCOUNT RATE CHANGES SUBSEQUENT TO ADOPTION OF SFAS-158: THE EFFECT OF THE NEW LIABILITY REPORTING REQUIREMENTS

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ABSTRACT

SFAS-158, "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans", was adopted in 2005, and implemented by firms for fiscal periods starting after 12/15/06. The reporting requirements of SFAS-158 give firms a new and different set of incentives to manipulate their pension assumptions. The purpose of this paper is to examine the changes in the interest rate use to discount the projected benefit obligation upon implementation of SFAS-158. It is found that firms with higher pension obligations, measured as a percentage of firm assets, increased their discount rates relative to those firms with lower pension obligations. This finding holds even after controlling for a "reversion to the mean" effect for the pension discount rate.

INTRODUCTION

SFAS-158, "Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans", was adopted in 2005 and implemented by firms for fiscal periods starting after 12/15/2006. This new standard required a substantial change in the way in which a defined benefit pension obligation is disclosed on a firm's balance sheet.

Under both SFAS-87 and SFAS-158 there are two measures of the pension obligation which will be of interest. The Accumulated Benefit Obligation (ABO) is the present value of all future pension benefits, both vested and unvested, based on current salary levels. The Projected Benefit Obligation (PBO) is the present value of all future pension benefits, both vested and unvested, based on expected final salary levels. The discount rate used in computing the present value (the "settlement rate" or "interest rate") should be the rate at which the pension obligation could effectively be defeased by setting aside high quality debt securities of maturities appropriate to satisfy pension obligations as they come due. The settlement rate should therefore be the expected rate of return on high quality corporate or government debt securities with maturities corresponding to the expected payouts from the pension plan.

Under the previous standard (SFAS-87 "Employers' Accounting for Pensions") there were two means by which a pension liability could be reported on the balance sheet. First, the cumulative historical difference between pension expense and the amount funded was disclosed as either prepaid or accrued pension cost. If cumulative contributions exceeded cumulative pension expense there was a prepaid pension cost asset; if cumulative expenses exceeded cumulative contributions there was an accrued pension cost liability. Due to the way in which prior service cost and pension gains and losses were accounted for it was possible for a firm to have a pension asset on their balance sheet even if the pension plan was severely underfunded (i.e., if the plan assets were exceeded by the pension obligation). For this reason SFAS-87 also had a "minimum liability" requirement, where firms were required to show a net pension liability at least equal to the amount by which the Accumulated Benefit Obligation (ABO) exceeded the pension plan assets. If a firm had an existing pension plan asset, and if the minimum liability reporting requirement was triggered, they would have to eliminate the pension plan asset and replace it with a liability of the required size.

If a firm's plan assets exceeded their ABO, or if they already reported an accrued pension cost liability on their balance sheet, then they had little incentive to attempt to manage their obligation measures downwards via changes in their discount rate. As was documented in Amlie (2009), there is evidence that firms with existing pension plan assets on their balance sheet, and a marginal minimum liability position, did in fact select discount rates in order to avoid triggering the minimum liability requirement.

Under SFAS-158, all firms are required to report on their balance sheet an asset or liability equal to the difference between their projected benefit obligation and their pension plan assets. As a result all firms now have an incentive, to one degree or another, to reduce their reported projected benefit obligation. By reducing the PBO they can either reduce the amount of the pension liability or increase the amount of the pension asset. The degree to which a firm will benefit from an adjustment to the discount rate is proportional to the size of their projected benefit obligation. A firm with a small PBO, relative to total assets, will only garner a small benefit if they increase their assumed discount rate, while a firm with a large PBO relative to total assets will garner a greater benefit from the same increase in the discount rate.

The purpose of this study is to determine whether there is evidence that firms with greater pension obligations increased their discount rate assumptions upon implementation of SFAS-158 relative to firms with lesser pension obligations.

The remainder of this paper is organized as follows: the next section provides a review of the existing literature on pension plan assumptions. After that, the hypothesis to be tested is formally developed, and some ancillary issues which need to be addressed are discussed. The paper continues with a description of the sample selection process, and concludes with a discussion of the empirical results.

EXISTING EMPIRICAL RESEARCH

Since the adoption of SFAS-87 in 1985, there has been occasional interest in how firms determine the levels of their various actuarial assumptions. With the implementation of SFAS-158 a new stream of research has focused on how firms have responded to the changes in the reporting requirements.

Grant, et al. (2007) provide a broad overview of the relationship between actuarial assumptions and financial statement elements. They discuss in general terms how changes in actuarial assumptions affect various financial statement elements, and provide summary statistics for the assumptions made by firms in the S&P 100.

Blankey and Swanson (1995), in a longitudinal study of pension assumptions for the period from 1987 – 1993, found that average discount rates fell substantially over the 1987 – 1993 period, although they fell less than the yields on high-quality corporate bonds, 30 year treasury bonds, or PBGC (Pension Benefit Guarantee Corporation) rates (the benchmarks against which firms would be expected to set their discount rates). This suggests that firms do select their discount rates in a manner that is not consistent with the provisions of SFAS-87. It is presumed that firms use these higher discount rates to either lower their reported pension obligation or to affect their reported periodic pension expense.

Some researchers focus on the relationship between actuarial assumption choices and pension funding requirements. Since the government requires firms to maintain some minimum funding level relative to their pension obligations, it is reasonable to assume that firms may attempt to manipulate their reported pension obligation in an effort to minimize mandated funding requirements, and firms facing liquidity or debt constraints may have a greater incentive to avoid these funding requirements. Most recently, Houmes and Boylan (2010) examined the difference between the pension discount rate and the average yearly rate on AA rated bonds. They find that firms with lower liquidity or higher debt levels had a greater discount rate than firms with higher liquidity or lower debt levels, and that discount rates relative to the AA bond yield increased upon adoption of SFAS-158. Asthana (1999) explored how actuarial assumptions, funding levels, and funding decisions are related to profitability, cash flows from operations, debt levels, and tax liability, finding that firms tend to make liberal (conservative) changes in their assumptions when faced with unfavorable (favorable) financial conditions. Gopalakrishnan and Sugrue (1995) look at the association between discount rate choice, leverage, and funding (measured as the ratio of the PBO to pension plan assets).

Other authors have examined the relationship between actuarial assumptions and the pension liability itself, without considering the related funding questions. Blankley and Tang (1995) found that firms often use discount rates which exceed the Pension Benefit Guarantee Corporation annuity rates, and that these firms therefore appear to be in a better-funded position since the higher discount rate results in a lower computed obligation. Similarly, they find that firms with higher funded status tend to use higher discount rates: a sensible result, since the higher discount rate will yield a lower obligation and therefore a better funded position.

Hann, et al. (2007) consider how managerial discretion in selecting pension assumptions impacts the reported value of the projected benefit obligation, arguing that the difference between the reported PBO and the PBO computed using industry-median assumptions is a discretionary component of the PBO. They then assess whether this incremental discretionary component of the PBO is associated with the market value of the firm.

Amlie (2009) found evidence that firms were manipulating discount rate assumptions in order to avoid minimum liability reporting requirements under SFAS-87, and that this particular manipulation ceased under SFAS-158.

HYPOTHESES DEVELOPMENT

Upon implementation of SFAS-158, firms will for the first time have to recognize on their balance sheet a pension asset or liability equal to the difference between their projected benefit

obligation and their pension plan assets. If we assume that firms generally prefer more assets to less, or less liabilities to more, then firms will generally prefer a lower projected benefit obligation. Barring changes in the terms of the pension plan, firms can lower their PBO through changes in their actuarial assumptions. Although firms use myriad estimates in accounting for their pensions, the only ones disclosed in the financial statements are the expected rate of return on pension plan assets, the expected rate of compensation increase, and the discount rate used in computing the present value of the obligation. Of these three, the expected rate of return on plan assets has no effect on the PBO, so the implementation of SFAS-158 should have no impact on how or why firms select that assumption.

The relationship between the rate of compensation increase and reported financial position has always been unambiguous. Although the rate of compensation increase has no effect on the ABO, and hence did not impact the minimum liability computation under SFAS-87, it does impact the computation of periodic pension expense. Periodic pension expense includes the increase in the present value of expected future benefits due to current employee service, as well as the increase in the present value of expected future benefits. Since increased rates of compensation growth lead to increase future benefit costs, an increase in the expected rate of compensation growth leads to an increase in periodic pension expense. Under the assumption that firms tend to prefer less expense to more, there will have been a general incentive to understate the expected rate of compensation increase under SFAS-87. While SFAS-158 provides an additional incentive to minimize the rate of compensation increase, if firms have already been understating that rate under SFAS-87 in order to lessen pension expense the incremental effect may be small.

The effect of the discount rate on reported financial position was ambiguous under SFAS-87. The "interest cost" or "settlement cost" component of pension expense is computed by multiplying the settlement rate (discount rate) by the beginning of period projected benefit obligation. The use of a higher discount rate lowers the PBO, so that a higher rate is applied to a lower balance, leaving the ultimate effect on interest cost, and by extension pension expense, indeterminate. If the firm is well funded (as measured by the minimum liability criterion) then the firm gleans no additional benefit from lowering its ABO or PBO via increases in the discount rate. A short-term increase in the discount rate lowered the projected benefit obligation, but this off-balance sheet reduction in the obligation was offset by an off-balance sheet unrealized gain, so that neither was recognized in the balance sheet or income statement.

Under SFAS-158, all firms now have an unambiguous motivation to decrease their PBO. While the effect of discount rate changes on pension expense is still indeterminate, the effect on the reported pension asset or liability on the balance sheet is not. The question then becomes which firms would be most likely to try to manage their PBO through changes in their assumed discount rate. If a firm has a small pension plan, and a small PBO, relative to total firm size, then the balance sheet benefit from increasing the discount rate might be minimal. In contrast, a firm with a sizeable pension plan, with a large PBO, might realize significant balance sheet benefits from increasing their discount rate. Therefore, a testable proposition would involve the relationship between a firm's PBO, expressed as a function of firm size, and changes in discount rate assumptions upon implementation of SFAS-158.

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H1: Firms with a higher projected benefit obligation, relative to firm size, increased their discount rates upon implementation of SFAS-158 relative to firms with lower obligations.

One of the difficulties in examining the relationship between a firm's projected benefit obligation and the assumed discount rate is that the two are mathematically related. If we find that firms with higher pension obligations have lower discount rates, we cannot directly determine to what extent that relationship is due solely to the mathematical relationship between the discount rate and the present value, and to what extent it might be due to underlying financial conditions. Similarly, if we see a firm with a low discount rate and high pension obligation subsequently increase their discount rate, thus lowering their PBO, we cannot determine with certainty whether the increase in the discount rate was due to an attempt to reduce their PBO or whether it was simply a case of the firm trying to bring its discount rate in line with other firms'.

To illustrate the research difficulties in trying to relate a firm's pension's funded status and its choice of discount rate, consider a firm which has a pension plan which is "underfunded". In order to mitigate their underfunded status, they increase their discount rate slightly, which improves their funded status. In an empirical study, this firm which is in reality underfunded, and which is using an artificially high discount rate, may very well escape detection since its reported pension balances place it squarely in the "adequately funded" category.

Hann (1997) attempted to work around this difficulty by estimating what each firm's obligation would have been had the firm used an average or median discount rate. Unfortunately, estimated revisions to the present value of the pension obligation would be extraordinarily tenuous in the absence of firm-specific pension cash flow information.

Since this paper focuses on the change in the discount rate from the SFAS-87 to the SFAS-158 period, the first question is whether the change in discount rate is in fact related to the initial discount rate. Finding that firms with low discount rates and high obligations subsequently increased their discount rates might be evidence of nothing more than a "reversion to the mean" effect.

If there is such an effect, and changes in the discount rate are systematically related to the discount rate in the previous period, then this effect will need to be controlled for. To do this, the change in the firms' discount rate is regressed on the firms' discount rates in the previous period. The residual from this regression – the change in the discount rate unexplained by the rate in the previous period – will be the variable of interest.

SAMPLE SELECTION

Since most firms have a December 31 year-end, and since SFAS-158 was implemented for fiscal periods ending after 12/15/06, most firms implemented SFAS-158 for their 2006 financial statements. For expositional ease the year of adoption of SFAS-158 will therefore be referred to as 2006, even though that group includes all firms with fiscal year ends from 12/15/06 to 12/14/07.

Firms included in this study are those with adequate pension data disclosed in the COMPUSTAT data base for the period under study. Required data included the projected benefit

obligation, total firm assets, and the discount rate used in computing the pension obligation. Since the research question involves how firms changed their behavior following implementation of SFAS-158, firm data was required for the two years following the implementation of SFAS-158, as well as for the preceding 3 years (2005, 2004, and 2003). Although results are not presented for 2003, that data was needed in order to compute the changes from 2003 to 2004.

Pension plans for foreign firms, or for foreign-based business units of domestic firms, face a different credit market, and therefore may have materially different discount rates. For example, pension plans based in Japan tend to have relatively low discount rates (e.g., 2% or less), while pension plans from countries with higher inflationary expectations tend to have higher discount rates (10% or more). The presence of these firms in the sample may be problematic for two reasons. First, changes in a firm's discount rate from one period to the next will be a function of changes in the credit markets. If overall rates in the United States drop by 0.5%, while rates in Japan rise by 0.5%, and if location is not controlled for, then finding that a firm increased its discount rate will have different interpretations depending on where the firm is located. A USbased firm showing a 0.25% increase would appropriately be viewed differently than a Japanese firm showing the same increase. A second concern is that the change in discount rate is to be measured as the residual from a regression of the change in the discount rate on the discount rate in the previous period. If there is a "reversion to the mean" effect then all Japanese firms, which have a below-global-average discount rate, would be expected to have a large positive change, so they would be much more likely to have a large negative residual.

The COMPUSTAT data base includes information for both domestic and foreign firms. Although the sample can be restricted to US firms, the resultant distribution of discount rates still includes many values which could be considered outliers. Further examination revealed that the presence of these outliers is often due to the pension plans being related to foreign subsidiaries or business units of the US-based corporations. In an attempt to separate out these foreign-based pension plans, observations where the discount rate for the year in question is more than 1.5% above or below the mean rate for that year are excluded from the sample.

EMPIRICAL TESTS & RESULTS

The first empirical test is to determine whether there is in fact a "reversion to the mean" behavior in pension discount rates. If the annual change in discount rates is unrelated to the previous period's rate, then we can simply use the "raw" change in discount rate. If there is some relationship then this is a factor which will have to be controlled for. To test this, the change in the discount rate from one year to the next is regressed on the discount rate in the earlier period; e.g., the firm's change from 2005 to 2006 is regressed on the firm's rate in 2005. Results for this regression, for the changes from 2003 to 2004, 2004 to 2005, 2005 to 2006, and 2006 to 2007 are presented in table 1.

| Table 1: Regression of change in discount rate [ch(PBARR)] on discount rate in prior period (PBARR _{T-1}) | | | | | | | | |
|--|--|------------|------------|------------|--|--|--|--|
| | $Ch(PBARR) = a + b(PBARR_{T-1}) + residual$ | | | | | | | |
| where: PBARR: the discount rate used to compute the present value of the PBO; Ch(PBARR): the change in the PBARR from the previous to the current period; PBARR _{T-1} : The PBARR in the previous period | | | | | | | | |
| | 2004 | 2005 | 2006 | 2007 | | | | |
| Intercept | ntercept 1.264 2.460 2.068 1.824 | | | | | | | |
| t-statistic | -statistic 9.605*** 18.02*** 27.355*** 16.551*** | | | | | | | |
| PBARR _{T-1} | -0.268 | -0.455 | -0.340 | -0.239 | | | | |
| t-statistic | -12.420*** | -19.115*** | -25.103 | -12.422*** | | | | |
| F | 154.251*** | 365.366*** | 630.161*** | 154.304*** | | | | |
| \mathbb{R}^2 | 0.098 | 0.209 | 0.319 | 0.113 | | | | |
| Sample size 1421 1384 1346 1216 | | | | | | | | |
| *** Significant at <.001 | | | | | | | | |

The statistically significant (as evidenced by the t-statistics) negative coefficients on the prior period discount rate indicate that the higher a firms discount rate in one period, the greater the decrease (or lesser the increase) in that firm's discount rate in the following period. The R^2 or coefficient of determination indicates that a reasonable proportion of the variability in the change in PBARR is "explained" by the previous period PBARR, which suggests a strong reversion to the mean effect.

Since the discount rate is negatively related to the PBO, and since the discount rate is negatively related to the change in discount rate, the change in the discount rate can be expected to be positively related to the previous PBO. In other words, a firm with a lower discount rate is likely to have a higher PBO, all else being equal. A subsequent increase in the discount rate may be due either to the "reversion to the mean" effect documented above, or to an attempt to manage the PBO.

In order to control for this "reversion to the mean" effect, as well as for sample-wide changes in discount rates, the residuals from the above regressions are treated as the variable of interest in examining the change in discount rate. The residual will be uncorrelated with the discount rate in the previous period, and, since an intercept term was used in the regression, it will be independent of sample-wide changes in the discount rate as well. As a result, it should reflect the portion of the change in the discount rate unexplained by market-wide changes and the reversion to the mean effect.

Table 2 presents the results of regressing the "unexplained" change in the discount rate on the PBO as a percentage of the firms' assets in the previous period. For the first two columns, representing the changes from 2003 to 2004 and from 2004 to 2005, respectively, there is no apparent relationship between the level of the projected benefit obligation in the previous period

and the subsequent change in the discount rate. In the third and fourth columns, which represent the years immediately following SFAS-158 implementation, we see that there is a negative relationship between the change in the discount rate and the level of the projected benefit obligation. This provides some support for the contention that the implementation of SFAS-158, with its requirement that firms record a pension asset or liability based on their PBO, caused firms with substantial pension obligations (relative to firm size) to choose higher discount rates in order to reduce their reported liability.

| Table 2: Regression of unexplained change in discount rate (residual) on PBO/Total Assets in previous period (PBO _{T-1} /AT _{T-1}) | | | | | | | |
|--|---|-------|---------|----------|--|--|--|
| $residual = a + b(PBO_{T-1}/AT_{T-1}) + e$ where: residual: the residual from the regressions presented in table 1; PBO_{T-1}/AT_{T-1}: the PBO in the previous period divided by total assets in the previous period. | | | | | | | |
| 2004 2005 2006 2007 | | | | | | | |
| Intercept | cept 0.001 -0.013 -0.015 -0.033 | | | | | | |
| t-statistic | 0.082 | -1.07 | -1.655 | -3.080** | | | |
| PBO _{T-1} /AT _{T-1} | ₁ /AT _{T-1} -0.005 0.08 0.093 0.210 | | | | | | |
| t-statistic | -0.131 | 1.804 | 2.654** | 4.964*** | | | |
| F | 0.017 3.255 7.046** 24.637*** | | | | | | |
| R^2 | .003 | .002 | .005 | .020 | | | |
| Sample size 1421 1384 1346 1216 ** Significant at < .01 | | | | | | | |
| *** Significant at <.001 | | | | | | | |

Although there is a statistically significant relationship between the previous PBO, relative to firm assets, and the subsequent change in the discount rate, the low R² suggests that it explains only a small proportion of the variability in the dependent variable. As other researchers have found, funding requirements and liquidity considerations may drive part of the changes in discount rates. This study does document a new relationship that exists under SFAS-158, which apparently did not exist under SFAS-87.

CONCLUSION

This paper finds that upon implementation of SFAS-158 firms appeared to increase their assumed pension discount rate more if they had a larger pension obligation relative to total firm assets. Under the preceding standard, SFAS-87, there was apparently no such relationship. One of the contributions of this paper to the literature in this area is the way in which the previously troublesome correlation between the pension obligation, the discount rate, and the subsequent change in the discount rate was addressed.

REFERENCES

- Amlie, Thomas (2009). Pension Discount Rate Assumptions under SFAS-87 and SFAS-158: The Distorting Influence of Minimum Liability Requirements, *Journal of Business and Economic Perspectives*, 35(1), 6-13.
- Asthana, Sharad (1999) Determinants of Funding Strategies and Actuarial Choices for Defined-Benefit Pension Plans, *Contemporary Accounting Research*, 16(1), 39 74.
- Blankley, Alan I. and Edward P. Swanson (1995). A Longitudinal Study of SFAS 87 Pension Rate Assumptions, Accounting Horizons, 9(4), 1-21.
- Blankley, Alan I. and Roger Y. W. Tang (1995). Measuring Pension Liabilities: An Examination of the Funding Levels of Defined Benefit Pension Plans, *Journal of Applied Business Research*, 11(2), 73 83.
- Gopalakrishnan, V., and Timothy F. Sugrue (2005). The Determinants of Actuarial Assumptions Under Pension Accounting Disclosures, *Journal of Financial And Strategic Decisions*, 8(1), 35 41.
- Grant, C. Terry, Gerry H. Grant, and William R. Ortega (2007). FASB's Quick Fix for Pension Accounting Is Only First Step, *Financial Analysts Journal*, 63(2), 21 35.
- Hann, Rebecca N., Yvonne. Y. Lu, and K. R. Subramanyam (2007). Uniformity versus Flexibility: Evidence from Pricing of Pension Obligation. *The Accounting Review*, 82(1), 107 137.
- Houmes, Robert, and Bob Boylan (2010). Has The Adoption of SFAS 158 Caused Firms to Underestimate Pension Liability? A Preliminary Study of the Reporting Impact of SFAS 158. Academy of Accounting and Financial Studies Journal, 14(4), 55-66.

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METHODOLOGIES USED TO DETERMINE MERGERS AND ACQUISITIONS' PERFORMANCE

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ABSTRACT

Over the years, several studies have been done by researchers and practitioners to understand the significance of adopting Mergers & Acquisitions (M&A) strategy by organizations. The motivation has been to understand whether the perceived benefits from this strategy have accrued or not. They have studied whether these acquisitions are value enhancing or destructive strategies for acquiring organizations.

We investigate this question from the perspective of methods used to determine post acquisition value. We research M&A literature over the last three decades to describe different methods used to measure acquisition performance; identify the most popular methods; their limitations and benefits; and analyze whether research conclusions differ depending upon the method used to measure performance. We also research whether methods used in emerging markets such as India differ from those typically used in the developed markets.

We find that internationally event studies dominate acquisition performance research; while research on Indian acquisitions has primarily been based on accounting returns. There are a few other methods such as data envelopment analysis and balanced score card methods which warrant further research and inclusion in M&A literature. We also find that research conclusions differ depending on the method selected for performance evaluation; which is an important factor for researchers and practitioners to consider while drawing conclusions on acquisition success or failure.

We recommend that the method of evaluation should be based on the country of study, and more significantly the aspect under examination i.e. profitability, stock market perception or efficiency. Our contribution to the present body of knowledge is to suggest that methods of evaluation used in developed markets may not work in emerging markets and that method selection can influence research conclusions.

Keywords: Mergers and Acquisitions, Performance, Value JEL classification numbers: G34, L25

INTRODUCTION

"There is a need for additional theory development and changes to M&A research methods, most post-acquisition performance research has only employed stock market event studies, thus ignoring M&A effects on other potentially relevant dimensions of firm performance" (King, Daily and Covin. 2004).

Over the years, several studies have been done by researchers and practitioners to understand the significance of adopting M&A strategy for organizations. The motivation has been to understand whether the perceived benefits from this strategy have accrued or not. They have studied whether these acquisitions are value enhancing or destructive strategies for the acquiring organization. The methods used to measure this parameter have been varied. We have reviewed the literature to identify the methodologies used to measure post acquisition performance and the benefits and limitations of these methodologies. The objective of doing this review is to analyze the methodologies and identify the research gaps for further research in the area.

Our contribution is to bring together the various methods of measuring acquisition performance over the last three decades, including an analysis of recent studies during the 2005 to 2010 time frame. We describe the benefits and shortcomings of different methods, which would be useful to researchers in understanding how their conclusions on performance may be impacted by the method selected for measurement. We also research whether methods used in emerging markets such as India are the same as those typically used in the developed markets.

As M&A literature is inter-disciplinary in nature, we have selected research papers from several domains of management though emphasizing more on finance and strategy. Search terms used were 'Mergers' and 'Acquisition' and 'Performance', with the primary focus on journals such as Strategic management Journal, Journal of Finance, Journal of Financial Economics, Journal of Financial and Quantitative Analysis, Journal of Management, Academy of Management. In case of Indian studies, peer reviewed research papers with the additional search term of 'India' were selected for review.

The paper is structured as follows: Section I on performance studies provides a description of the various methods such as Event Study, Accounting Returns, Questionnaire, and some more recent approaches such as the Data Envelopment Analysis, Residual Income Approach, Innovative Performance approach. Section II includes a review of the most recent papers on acquisition research during the 2005 to 2010 time frame, with the intention of covering new developments in this field. We find that internationally Event studies are used pre dominantly, however a few researchers have ventured into the use of Data Envelopment Analysis and a balanced score card approach. Section III focuses on Indian studies and covers a review of literature on acquisition by Indian companies. Most studies on Indian acquisitions have used the accounting returns approach. Section IV includes a critical analysis of methods including details about the reasons for adopting some of the more popular approaches such as Accounting Returns, Event Study and Questionnaire methods and the limitations of these approaches. Section V includes a conclusion along with scope for future research.

PERFORMANCE STUDIES

Event Studies

Event Study is the most popular methodology adopted by researchers. Zollo, and Degenhard, (2007) reviewed 87 research papers on acquisition performance from top Management and Finance Journals between 1970 and 2006, and found that 41% used the short-term event study method, while 16% used the long term event study method.

This methodology has its origin in the 1930's. A detailed description of the methodology which is the basis of most of the recent event studies has been provided by MacKinlay (1997). First the normal returns for the selected firm in relation to the market are estimated using a regression equation.

$$Rit = \alpha i + \beta i Rmt + \varepsilon it$$

Rit is the expected return on the firm. Rmt is the return on the market portfolio αi is the intercept term βi is the sensitivity of the return on the firm to market returns εit is the zero mean disturbance term

Typically daily returns are used for estimation and not monthly returns. The researcher has a choice of the time lines to be used for estimating the normal returns before the event (the announcement date). In our review, refer Table I we found that the estimation period used was typically a 200 day period for about -250 to -50 days before the event. However, a few researchers, Anand and Singh (1997); Singh and Montogomery (1987) used an event window of -800 to -551 days before the event. They used this method to remove any effect of rumors in the market before the actual event announcement.

Having estimated the normal returns for a firm, the market model is then used to determine cumulative abnormal returns for a firm around the event announcement.

Anand and Singh (1997); Hayward (2003); Masulis, Wang and Xie (2007); Moshifique and Boetang(2009); Krishnan, Krishnan and Lefanowicz (2009), Pangarkar and Lie (2004), Hayward (2002) and (2003) have used the short term event window up to -5 to +5 days. While Chatterjee, (1986) has calculated long term abnormal returns up to 50 days post the event announcement. Singh and Montgomery (1987) have used the long term event window up to 100 days post acquisition.

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| Table I: Review of Studies That Used Event Study Methodology | | | | | |
|--|-----------------|-----------|-------------------|------------------------------|--|
| Researcher | Sample Size and | Period of | Estimation | Event window (Day 0 is the | |
| | Scope | Study | Period | announcement date) | |
| Anand & Singh (1997) | 289 US | 1986-1992 | -800 to 551 | -1 to +1 | |
| Ben-Amar & André (2006) | 232 Canada | 1998-2002 | - 240 and - 40 | -1 to +1 | |
| Boateng, Qian & Tianle, (2008) | 27 Chinese | 2000-2004 | -150 to -21 | -1 to +1, 20 to +20 | |
| Chatterjee, (1986) | 158 US | 1969-1972 | -199 to -50 | -49 to 50 | |
| Hayward (2002) | 100 US | 1985-1995 | -250 to -30 | -1 to +1, -2 to +2, -4 to +4 | |
| Hayward (2003) | 120 US | 1985-1995 | -250 to -30 | -2 to + 2 and Day 0 | |
| Kiymaz & Baker, (2008) | 869 US | 1989-2003 | -210 to -30 | -1 to 0 | |
| Krishnan, Krishnan & Lefanowicz (2009) | 50 | 1992-1996 | -285 to -45 | -1 to +1, -2 to +2, -5 to +5 | |
| Masulis, Wang & Xie (2007) | 3,333 US | 1999-2003 | -210 to -11 | -2 to +2 | |
| Pangarkar & Lie (2004) | 115 Singapore | 1990-1999 | 90 prior to event | -9 to +1 | |
| Singh & Montgomery (1987) | 105 US | 1975-1980 | -800 to 551 | -5 to + 25, +25 to + 100 | |

Table I, summarizes studies that have used the event study methodology. A few researchers included here have also used other method in addition to the event study methodology, for e.g. Anand and Singh(1997); Krishnan, Krishnan and Lefanowicz (2009).

Laabs, and Schiereck, (2010) used a slightly different approach to the event study methodology for measuring long term performance. They computed the abnormal returns using the buy and hold return for a period of 36 months post acquisition announcement. Buy-and-Hold-Abnormal- return methodology involves determining abnormal returns of acquirers by holding the stock for a period of 36 months post the acquisition announcement as compared to buy and hold returns for control firms matched by market value and market-to-book-ratio.

Accounting Return

Accounting Returns studies involve the analysis of the accounting performance of the combined entity measured in terms of Return on Assets or Return on Equity; two to three years post acquisition. Accounting studies typically compare results for the sample firms with control firms to discount any industry wide phenomenon.

Healy, Palepu and Ruback, (1992) largely contributed to the growth of accounting returns or operating performance methodology. They stated that most previous studies had analyzed the stock price performance; however equity gains could be due to capital market inefficiencies and market mispricing. They have used an operating cash flow measure of operating performance which has been adjusted against industry benchmark returns to evaluate performance for a period of 5 years post acquisition. They studied the post-acquisition operating performance of 50 large mergers between U.S. public industrial firms completed in the period 1979 to 1983. They computed a return metric of cash flows defined as sales, minus cost of goods sold, and selling and administrative expenses, plus depreciation and goodwill expenses as a ratio of market value of assets (market value of equity plus book value of net debt) to provide a return metric that was comparable across firms. By excluding the effect of depreciation, goodwill, interest expense/income, and taxes, this methodology is unaffected by the method of accounting for the merger (purchase or pooling accounting) and/or the method of financing the merger (cash, debt, or equity). The pre acquisition accounting data of the target and bidding firms prior to merger was computed to obtain pre-merger performance of the combined firm.

Table II summarizes research based on accounting returns studies. Performance studies based on accounting returns have been done by Melicher and Rush, (1974), Guest, Bild, and Runsten (2010), Harrison, Hitt, Hoskisson, and Ireland (1991), Krishnan, Miller, and Judge, (1997); Melicher and Rush, (1974) Zollo, and Singh, (2004). As seen in Table II, most researchers have used Return on Equity or Return on Assets as an indicator of acquisition performance.

| Table II: Review of Studies That Used Accounting Returns Methodology | | | | | | |
|--|-----------------------------|---|--|--|--|--|
| Researcher | Sample Size and scope | Period of Study | Post acquisition time frame of study | Variables considered | | |
| Healy, Palepu &Ruback, (1992) | 50 US | 1979-1983 | Year 1 to Year 5 | Ratio of operating cash flow to market value of equity + book value of debt | | |
| Harrison, Hitt, Hoskisson & Ireland (1991) | 1100 US | 1970-89 | Year 3 to Year 5 | Return on Assets | | |
| Guest, Bild & Runsten (2010) | 303 UK | 1985-1996 | Year 1 to Year 3 | Return on Equity | | |
| Krishnan, Miller &Judge (1997) | 147 US | 1986-1988 | 3 Years | Return on Assets | | |
| Melicher & Rush, (1974) | 132 US | 1960-69 | 5 Years | EBIT/Total Assets, Net Profit /Total Assets, Net Profit/Net Sales, Net Profit/Common equity, Total Debt/Total Assets, Total Leverage/Total Assets, Price Earnings Ratio | | |
| Sharma, (2010) | 5 US | No specific period 5 mega mergers | 2.5 Years | Return on Equity, Operating Cash Flow and Absolute Cash Flow | | |
| Zollo & Singh (2004) | 228 US | 1986-1994 | 3 Years | Return on Assets | | |

Economic Value Added

Sirower, and O'Byrne, (1998) determine the expected level of annual operating performance expressed in terms of Economic Value Added (EVA) to justify the acquisition. This measure developed by Stern Stewart & Co involves measuring a firms financial performance by deducting cost of capital from operating profits.

EVA provides a useful benchmark to use to measure actual versus expected acquisition performance. They use the pre acquisition market values of both companies and the acquisition premium to determine the future level of annual operating performance necessary to justify the investment. They computed an annual expected increase in EVA, for the acquirer and target to arrive at a performance benchmark. They then calculated the actual EVA improvement and compared the difference between the Actual EVA improvements to the performance benchmark with the Market Abnormal Returns. They found a high correlation between the market abnormal returns and the EVA Performance benchmark return. The methodology shows what the combined organization must accomplish if it acts in the interest of its shareholders.

Residual Income Approach

Guest, Bild, and Runsten (2010) observed that both the event study methodology and the accounting returns methodology had limitations that did not determine the true fundamental valuation of an acquisition. Their approach is similar to the EVA approach. They proposed an alternative approach which they called the residual income approach, wherein they compare the fundamental value of acquirers before acquisition with the fundamental value post acquisition. The fundamental value of the firm pre acquisition is defined as

$$V_{pre} = \frac{E_{-1}(\text{DPS}_0)}{(1+r_e)} + \frac{E_{-1}(\text{BPS}_0)}{(1+r_e)} + \frac{E_{-1}(\text{EPS}_1 - r_e.\text{BPS}_0)}{(1+r_e)^2} + \frac{E_{-1}(\text{EPS}_2 - r_e.\text{BPS}_1)}{(1+r_e)^3} + \frac{E_{-1}(\text{EPS}_3 - r_e.\text{BPS}_2)}{(1+r_e)^3}$$

 V_{pre} - Value of acquirer pre acquisition $E_{-1}(DPS_{0,1,2})$ - Expectation of dividend per share in year of acquisition, one year after acquisition and two years after acquisition.

 $E_{-1}(BPS_{0,1,2})$ – Expectation of book value per share in the year of acquisition, one year after and two years after acquisition.

 $R_{e\,-} Cost \ of \ Equity$

The first two terms of the equation are the expectation of dividend per share and book value per share in the year of consolidation. The third and fourth term describe the expected

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residual income in year 1 and 2 post consolidation and the last term denotes the expectation of terminal value.

While the value post acquisition is defined as

 $V_{post} = \frac{\text{DPS}_0}{(1+r_e)} + \frac{\text{BPS}_0}{(1+r_e)} + \frac{\text{EPS}_1 - r_e.\text{BPS}_0}{(1+r_e)^2} + \frac{\text{EPS}_2 - r_e.\text{BPS}_1}{(1+r_e)^3} + \frac{\text{EPS}_3 - r_e.\text{BPS}_2}{(1+r_e)^3 r_e}$

 V_{post} - Value of acquirer pre acquisition

 $DPS_{0,1,2}$ - Dividend per share in year of acquisition, one year after acquisition and two years after acquisition.

 $(BPS_{0,1,2})$ – Book value per share in the year of acquisition, one year after and two years after acquisition.

 R_{e-} Cost of Equity

The first two terms of the equation represent the dividend per share and book value per share in the year of consolidation. The third and fourth term describes the residual income in year 1 and 2 and the last term denotes the terminal value.

The difference between V_{post} and $V_{\text{pre}}\,$ is the fundamental value created or lost by the acquisition.

Guest et all (2010) also compute the accounting and event study abnormal returns for their sample of 303 acquisitions of UK public companies by UK public companies, completed between January 1985 and December 1996. While the accounting returns showed significant improvement in performance, event study results showed negative performance for both short term and long term event periods.. The residual income approach finding was that acquisitions had a small and insignificant effect on fundamental value, relative to control firms.

Questionnaire Method

A questionnaire method has been used typically where objective methods of assessing performance are not available, for example, in the case of acquisition of small divisions or private acquisitions. This measure can be used to measure perceptions, attitudes which are not possible using objective measures.

Datta, and Grant (1990) have advocated the use of a questionnaire method for analyzing performance. They have said that both accounting and market measures are strongly influenced by external variables, hence separating the impact of acquisitions from other events becomes very difficult. In case the acquiring firm is multidivisional or acquired firm is very small then these measures would not be able to detect the acquisition performance. They have also stated that abnormal returns reflect the performance expectation, not actual outcome.

Questionnaire may be administered either to managers of the acquiring company,(Datta, and Grant (1990), Cannella, and Hambrick (1993), Reus and Lamont (2009)) managers of the acquired company or to external experts such as Stock Market Analysts (Cannella, and Hambrick (1993).

Cannella, and Hambrick (1993) studied the effects of executive departures on a sample of 96 acquisitions that occurred between 1980 and 1984 by collecting expert opinion from 6 executives from the acquired firm and 6 security analysts who specialized in the securities of the acquiring firm. The experts were asked to rate the profitability of the acquired firm at the time of the deal and four years later. Their study concluded that the departure of executives from acquired firms was harmful to post acquisition performance, with a higher negative impact of higher ranking executive departure. There was a positive impact providing one or more acquired firm executives with top management team in the merged firm.

Data Envelopment Analysis

A few recent studies have used the Data Envelopment technique to gauge performance. Data envelopment analysis (DEA), is a linear programming technique more prevalent in operations research for comparing the relative efficiency of decision making units. The efficiency of each unit is measured in terms of a ratio of output to input variables. An efficiency frontier is computed consisting of the most efficient firms; each unit is then compared to the efficiency frontier. Kwoka, and Pollitt (2010) used this technique to investigate the efficiency of mergers that took place in the U.S. electric power distribution sector in the 1994-2003 time frames. They measured the effect of mergers on firm cost efficiency, measured in terms of the sum of operating expenses plus current capital expenditure by the firm. Each firm was then compared to a linear combination of best practice firms which could produce at least as much of each output as the less efficient firm but with the minimum amounts of inputs. Their sample included 73 utilities of which twelve were buyers, 20 sellers, and the remaining 41 were control firms not involved in a merger during the 1994-2003 study periods.

Innovative Performance

This technique measures the impact of acquisitions on innovation outputs as measured by the patenting frequency of the acquiring firm. Ahuja, and Katila, (2001) used innovation performance as a measure to indicate success of technological acquisition. This paper examines the impact of acquisitions on the subsequent innovation performance of acquiring firms in the chemicals industry. They selected a sample of firms from the global chemicals industry independent of their acquisition behavior, and traced the acquisition behavior of these firms over a 12-year period, from 1980 to 1991.

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Case Study Approach

A few researchers have selected a case study approach wherein they have studied a small sample of acquisitions to understand the factors that have lead to success or failure in a particular situation for example Appelbaum, S., and Roberts, J., Shapiro B.,(2009), studied the role of cultural fit, direction and leadership in the success and failure of 10 M&A situations.

Studies using Multiple Methodologies

Most studies have depended on one methodology for determining acquisition success, with Event studies being the most popular method internationally. There have been a few studies that have used multiple methodologies. These studies provide a useful basis for understanding if there is a correlation between multiple methods; whether different methods can be treated as substitutes, and finally; whether there is one most appropriate method to be used to determine acquisition performance.

Healy, Palepu and Ruback, (1992), compared operating performance results with the abnormal returns event study methodology and found a strong positive relation between post merger increases in operating cash flows and abnormal stock returns at merger announcements. However, not all studies using multiple methods exhibit a positive relationship. Studies that have used multiple methods are summarized in Table III.

| Table III: Review of Studies That Used Multiple Methodologies | | | | | |
|---|-------------|--|--|--|--|
| Researcher | Sample Size | Period of | Methods Used | Relation between results | |
| | | Study | | from different methods | |
| Healy, Palepu & Ruback, (1992), | 50 US | 1979-1983 | Accounting Returns and Event Study | Positive relationship | |
| Krishnan, Krishnan & Lefanowicz (2009) | 50 US | 1992-1996 | Accounting Returns and Event Study | Positive relationship | |
| Hayward, M, (2002) | 100 US | 1985-1995 | Event Study and Questionnaire | Positive relationship | |
| Anand, & Singh. (1997) | 289 US | 1986-1992 | Event Study, Accounting Returns and Tobins Q | Positive relation between event study and accounting returns | |
| Sharma, M. (2010) | 5 US | No specific period 5 mega mergers | Event Study and Accounting Returns | Negative - Accounting returns showed value creation, event study showed no value creation | |

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| Table III: Review of Studies That Used Multiple Methodologies | | | | | |
|---|-------------|--------------------|--|---|--|
| Researcher | Sample Size | Period of Study | Methods Used | Relation between results from different methods | |
| Schoenberg, R. (2006) | 61 UK | 1988-1990 | Event Study, questionnaire Managers/ Experts, Divestment | Negative correlation. Only Positive between questionnaire to managers and experts | |
| Zollo & Degenhard, M. (2007). | 161 Global | 1994-2001 | Combination of subjective and objective measures including overall acquisition performance, event study, accounting returns, long term returns | Most significant finding is the negative co relation between event study and overall acquisition performance challenging the market efficiency theory | |
| Guest, Bild & Runsten (2010) | 303 UK | 1985-1996 | Event Studies Accounting Returns Residual Income | Negative relation between accounting returns and event studies. Residual income approach showed no impact. | |

As seen in the table, different methods do not always provide the same results. Healy, Palepu and Ruback, (1992), Krishnan, Krishnan, and Lefanowicz (2009), Hayward, M, (2002), Anand, and Singh, (1997) find a positive relationship between the methods used. However, Zollo, and Degenhard, M. (2007), Guest et all (2010) find a significant difference between conclusions drawn on the basis of Event studies and other methods of acquisition performance. Hence, we see that the performance measurement technique selected could significantly impact the nature of conclusions drawn on either success or failure of an acquisition.

RECENT STUDIES ON ACQUISITION PERFORMANCE

We reviewed studies on acquisition performance between 2005 and 2010 to understand if there has been a change in the methods used for assessing acquisition performance, and if there have been any recent developments in this field. Table IV summarizes the recent studies, with methods used.

| Table IV: Recent studies on acquisition performance from 2005 to 2010 | | | | | |
|---|------|--------------------------|---------------------------------------|--|--|
| Researcher | Year | Scope | Method Used | | |
| Ben-Amar, & André (2006). | 2006 | Canadian companies | Event Study | | |
| Boateng, Qian & Tianle, (2008). | 2008 | Chinese listed companies | Event Study | | |
| Capasso & Meglio (2007), | 2007 | Book chapter | Balance Score Card | | |
| Guest, Bild, & Runsten, (2010). | 2010 | Domestic UK | Residual Income Approach | | |
| Hsiang-Hsi, Tser-Yieth & Lin-Yen, (2007). | 2007 | Taiwanese | Data Envelopment Analysis | | |
| Kiymaz, H., & Baker, H. (2008). | 2008 | US | Event Study | | |
| Krishnan, H., Krishnan, R., &Lefanowicz, C., (2009) | 2009 | US Related acquisitions | Event study and Accounting Returns | | |
| Kumar, N. (2009). | 2009 | India | Case Study | | |
| Kumar,R.,(2009), | 2009 | India | Accounting Returns | | |
| Kwoka, J. & Pollitt, M. (2010). | 2010 | Domestic US | Data Envelopment Analysis | | |
| Laabs, J. & Schiereck, D. (2010). | 2010 | Cross Border | Event Study | | |
| Mantravadi, P. & Reddy, V., (2008), | 2008 | India | Accounting Returns | | |
| Masulis, Wang, &Xie, (2007). | 2007 | US Acquisitions | Event Study | | |
| Olson, G., & Pagano, M. (2005). | 2005 | US Banks | Event Study | | |
| Ramakrishnan, K. (2008). | 2008 | India | Accounting Returns | | |
| Reus, T.,& Lamont, B (2009). | 2009 | Cross border | Questionnaire | | |
| Saboo,S & Gopi, S., (2009) | 2009 | India and Cross Border | Accounting Returns | | |
| Sharma, M. (2010). | 2010 | US Acquisitions | Event study and Accounting Returns | | |
| Shukla, A., & Gekara, M. (2010). | 2010 | India | Case Study | | |
| Singh, P., (2009). | 2009 | Indian Banks | Data Envelopment Analysis | | |
| Uddin,M. & Boateng, A., (2009). | 2009 | Cross border UK | Event Study | | |

Most researchers have used the event study methodology. However a few new methods described in section II such as the data envelopment analysis (Kwoka, J., and Pollitt, M.,2010; Singh, P., 2009) and residual income approach have been used. Capasso, A., and Meglio. O., (2007), have recommended the use of a balanced score card method that looks beyond accounting and event study to provide a more complete view of acquisition success. Capasso and Meglio (2007) had recommended the evaluation of the following metrics to create a balanced score card for evaluating overall acquisition performance - market returns, accounting-based measures: revenue, net income, operating income. Cost-synergies economies of scale and scope, productivity increase, overhead reduction, headcount reduction, cost savings. revenue-synergies customer retention/ new customers acquisition, turnover increase, customers' fidelity, customers'

cross selling, organizational climate top management turnover, absenteeism rate, productivity rate, sabotage episodes, employees' satisfaction, resources, transfer/sharing/exploitation, knowledge transfer at R&D unit, new products, new patents, managerial skills and systems transfer.

INDIAN STUDIES ON ACQUISITION PERFORMANCE

Accounting Returns studies dominate Indian studies on acquisition performance. Pawaskar (2001), Kumar (2009), Mantravadi and Reddy (2008), Saboo and Gopi (2009), Ramakrishnan (2008) have used accounting returns methodology. The primary ratios used in analysis are Return on Capital Employed, Asset Turnover, Debt/equity, Operating Profit Margin, Gross and Net Profit Margins. Most researchers have focused on Indian acquisitions. Saboo and Gopi (2009) studied both domestic and cross border acquisitions.

Ray and Gubbi (2009) used an Event Study methodology to scrutinize all 'completed' cross-border acquisitions by publicly traded Indian firms over the period starting January 2000 and ending on December 2007. They computed cumulative abnormal returns for -7 to +7 days around the announcement date. Singh (2009) used Data Envelopment Analysis to study the Cost Efficiency and Profit efficiency of Banks post acquisition. The two output factors considered were cost efficiency and profit efficiency. Cost efficiency of a bank is the relative ability of banks at minimizing the cost in the production of earning assets. Profit efficiency of banks is the profit maximizing efficiency of banks. The input parameters considered are shareholder Tier I capital, interest expense and operating expense. The output parameters considered are annual increase in assets and total income for cost efficiency and annual increase in assets and profit after tax for measuring profit efficiency.

A few researchers have used the case study method instead of carrying out large sample studies of acquisition performance. For example Kumar, N. (2009) has described how Hindalco grew its M&A competency by making several small acquisitions and then finally acquired Novellis which was twice its size. Shukla, and Gekara, (2010) has studied the Tata Corus acquisition impact on shareholder value and operating performance using both event studies and accounting returns.

Most Indian studies are dominated by the Accounting Returns methodology. Some recent studies have ventured into other methods for example Singh (2009) has used data envelopment analysis and Ray and Gubbi (2009), Shukla, and Gekara, (2010) use an Event Study methodology.

Though internationally event study has been the most commonly used methodology, this has been rarely used in the Indian context. The use of event study assumes that the stock market is efficient. In the Indian context the results on market efficiency have been inconclusive. Mittal, and Jain (2009), have supported the efficient market hypothesis, while Basu, D., Chawla, D., (2010) have stated the Indian Stock Market is inefficient. In the light of these studies we cannot

depend on the Event studies alone to determine M&A success but can use this to supplement other methods.

CRITICAL ANALYSIS OF METHODOLOGIES

The proponents of each of the methodologies described in section II have stated that the methodology selected in their study, though with some limitations is the best suited for the specific purpose under review. However, there are some shortcomings in the techniques which researchers should be aware of.

Event study methodology has been used to a large extent in international studies. The primary justification as described by Lubatkin (1986), is that this gives a direct measure of shareholder value, is not prone to manipulation, is easy to measure for listed firms and shows the impact not only of the firm action but also of rivals in the market.

However, the use of event study assumes capital market efficiency which may not be the case in all markets, specifically in emerging market countries such as India. Event studies measure the impact of an acquisition on stock market expectations and not actual performance. There can be situations of market mispricing or inability of the market to comprehend the complexities involved in an acquisition. The event study results are sensitive to the selection of time frame selected for study, and the estimation period. In case of acquisitions of firms relatively smaller than the acquiring company, the impact of an acquisition on stock price would be difficult to detect. Harrison, J., Hitt, M., Hoskisson, R., and Ireland, R. (1991), have stated that the market may not react accurately to news concerning acquisitions if information concerning uniquely valuable synergies are kept private.

The next most popular technique is the Accounting Performance measure. Harrison, J., Hitt, M., Hoskisson, R., and Ireland, R. (1991) have justified the use of accounting returns as it is not subject to market inefficiency or perception of the market, but measures the actual outcome of an acquisition. Managers' use accounting returns for evaluating diversification strategies or making strategic decisions. However, it is difficult to compare accounting returns for companies from different geographical regions across the globe due to differences in regulation and accounting practices. This measure does not take into account the market value of the firm, and is open to manipulation. Differences in method of accounting for the acquisition either Purchase or Pooling would result in differences in asset base which need to be taken into account.

Capasso, A.,and Meglio,O., (2007), have contended that both accounting returns and event studies have shortcomings. They have doubted the ability of the financial market to predict the effectiveness of actual integration within a few days of deal announcement. While, they have stated that increasing the duration of the event study would make it impossible to remove the effect of confounding events. Capasso and Meglio (2007) state that accounting returns are backward looking, unable to account for intangible assets and provide a weak picture of performance.

A questionnaire method can be applied when it is difficult to get an objective measure of performance, when perception of an action is required to be measured. However, this methodology lacks objectivity and is open to the bias of the respondent.

Data Envelopment Analysis uses a mathematical programming method to generate a set of weights for each indicator, DEA model can ensure consistent performance assessment. However Data Envelopment is more complex requires a careful selection of input and output variables, also could require proprietary data not available to external researchers or analysts. Very few researchers in M&A literature have used this method. It warrants further research and inclusion in M&A literature.

King at all (2004) carried out a survey of literature of studies on acquisition performance between 1921 and 2002. They concluded that most studies had used the event study methodology however; they found a need for changing the research methods, with a requirement to use a combination of methods.

On a comparison of results where researchers have used multiple techniques on the same set of acquisitions, we find contradictory results. Healy, Palepu and Ruback, (1992), Krishnan, Krishnan, and Lefanowicz (2009), Hayward, M, (2002), Anand, and Singh. (1997) found a positive relationship between multiple techniques. Whereas Sharma, M. (2010), Schoenberg, R. (2006), Zollo, and Degenhard, M. (2007) found a negative relationship between studies with multiple methods as described in our review in section I.

Comparing the pros and cons of the various techniques and also the on the basis of the fact that studies that have used multiple methods have come up with contradictory results, it would not be appropriate to recommend one best technique for measuring acquisition performance. Method selection would depend upon the aspect sought to be researched i.e. stock market perception, product innovation, profitability etc.

CONCLUSION

Over the years several studies have be carried out to evaluate whether Mergers and Acquisitions have been value enhancing or destructive for organizations. The methods that have been used to analyze acquisition performance are varied. The objective of our study is to review the literature to identify different methods used for measuring performance; evaluate their benefits and shortcomings; investigate whether there have been new developments in the techniques used over the last few years; examine whether techniques used in emerging markets such as India differ from those used internationally.

We find that most researchers have adopted either the event study methodology or accounting based measures to evaluate acquisition performance. Other methods used include economic value added, residual income approach, innovative performance, questionnaire methods. Recent studies have included newer approaches such as the data envelopment analysis and balance score card approach.

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Studies on Indian acquisitions have typically used accounting measures of performance, while international studies primarily use the event study methodology. Limited studies use a combination of measures.

Interestingly, in our review of literature on studies using multiple techniques, we observe that studies on the same sample using multiple methods provide contradictory results. For example an acquisition announcement may result in negative short term abnormal returns using event studies while accounting performance may be positive. In this instance branding an acquisition as unsuccessful on the event study alone would be incorrect. A short term event study would measure stock market perception of success, not overall acquisition performance.

To conclude, our review shows that there are multiple methods of measuring acquisition performance, each with its merits and demerits. The selection of the method of measurement is crucial to the results drawn, hence should be selected with great care. We recommend that the method of evaluation should be based on the country of study, and more significantly the aspect under examination i.e. profitability, stock market perception or efficiency. Our contribution to the present body of knowledge is to suggest that methods of evaluation used in developed markets may not work in emerging markets and that method selection can influence research conclusions.

REFERENCES

- Ahuja,, G and Katila R (2001). Technological acquisitions and the innovation performance of acquiring firms: A longitudinal study. *Strategic Management Journal*, 22(3), 197-220.
- Anand, J and Singh, H. (1997). Asset redeployment, acquisitions and corporate strategy in declining industries. *Strategic Management Journal: Special Issue, 18*, 99-118
- Basu, D., Chawla, D., (2010) An Empirical Test of CAPM—The Case of Indian Stock Market, *Global Business* Review July 20, 2010 vol. 11(2) 209-220
- Ben-Amar, W., and André, P. (2006). Separation of Ownership from Control and Acquiring Firm Performance: The Case of Family Ownership in Canada. *Journal of Business Finance and Accounting*, *33*(3/4), 517-543.
- Boateng, A., Qian, W., and Tianle, Y. (2008). Cross-border M&As by Chinese firms: An analysis of strategic motives and performance. *Thunderbird International Business Review*, 50(4), 259-270.
- Cannella, A, and Hambrick, D. (1993). Effects of executive departures on the performance of acquired firms. *Strategic Management Journal: Special Issue, 14*, 137
- Capasso, A and Meglio, O, (2007), The Evolving Role of Mergers and Acquisitions in Competitive Strategy Research Available at SSRN: http://ssrn.com/abstract=1015722
- Chatterjee, S (1986). Types of Synergy and Economic Value: The Impact of Acquisitions on Merging and Rival Firms. *Strategic Management Journal*, 7(2), 119
- Datta, D., and Grant, J. (1990). Relationship Between Type of Acquisition, The Autonomy Given to the Acquired Firm, and Acquisition Success: An Empirical Analysis. *Journal of Management, 16*(1), 29.
- Faisal A., (2010), The Pre-Acquisition Evaluation of Target Firms and Cross Border Acquisition Performance . Available at SSRN: http://ssrn.com/abstract=1549830
- Fowler, K., and Schmidt, D., (1989). Determinants Of Tender Offer Post- Acquisition Financial Per. Strategic Management Journal, 10(4), 339
- Guest, P., Bild, M., and Runsten, M.. (2010). The effect of takeovers on the fundamental value of acquirers. *Accounting and Business Research*, 40(4), 333-352.

- Harrison, J., Hitt, M., Hoskisson, R., and Ireland, R. (1991). Synergies and Post-Acquisition Performance: Differences versus Similarities in Resource Allocations. *Journal of Management*, 17(1), 173. Retrieved from Business Source Complete database.
- Hayward M, (2003). Professional influence: The effects of investment banks on clients' acquisition financing and performance. *Strategic Management Journal*, 24(9), 783-801
- Hayward, M, (2002). When do firms learn from their acquisition experience? Evidence from 1990-1995. *Strategic Management Journal*, 23(1), 21-39.
- Healy, Paul, K. Palepu, and Richard Ruback, 1992, Does Corporate Performance Improve After Mergers?, *Journal of Financial Economics 31*, 135-175
- Haleblian, H., Devers, C., McNamara, G., Carpenter, M., & Davison, R. (2009). Taking stock of what we know about mergers and acquisitions: A review and research agenda . *Journal of Management*, 35(3), 469-502.
- Hsiang-Hsi, L., Tser-Yieth, C., and Lin-Yen, P. (2007). The Influence of Merger and Acquisition Activities on Corporate Performance in the Taiwanese Telecommunications Industry. *Service Industries Journal*, 27(8), 1041-1051.
- King, D, Dalton, D, Covin J, Daily C, (2004). Meta-Analyses of Post-Acquisition Performance : Indications of Unidentified Moderators. *Strategic Management Journal*, 25(2), 187+
- Kiymaz, H., and Baker, H. (2008). Short-Term Performance, Industry Effects, and Motives: Evidence from Large M&As. *Quarterly Journal of Finance and Accounting*, 47(2), 17-44.
- Krishnan, H., Krishnan, R., and Lefanowicz, C. (2009). Market Perception of Synergies In Related Acquisitions. *Academy of Strategic Management Journal*, *8*, 99-119.
- Krishnan, H., Miller, A., and Judge, W., (1997). Diversification and top management team complementarity: Is performance improved by merging similar or dissimilar teams? *Strategic Management Journal*, 18(5), 361-374
- Kumar, N. (2009). How Emerging Giants Are Rewriting the Rules of M&A. *Harvard Business Review*, 87(5), 115-121.
- Kumar R., 2009, "Post-merger corporate performance: an Indian perspective", Management Research News Vol. 32 No. 2, 2009 pp. 145-157
- Kusewitt, J., (1985). An Exploratory Study of Strategic Acquisition Factors Relating to Performance. *Strategic Management Journal*, 6(2), 151
- Kwoka, J., and Pollitt, M. (2010). Do mergers improve efficiency? Evidence from restructuring the US electric power sector. *International Journal of Industrial Organization*, 28(6), 645.
- Laabs, J., and Schiereck, D. (2010). The long-term success of M&A in the automotive supply industry: determinants of capital market performance. *Journal of Economics and Finance*, 34(1), 61-88.
- Lane, P Canella J., and Lubatkin M., (1998). Agency problems as antecedents to unrelated mergers and diversification: Amihud and Lev reconsidered. *Strategic Management Journal*, 19(6), 555-578.
- Lubatkin, M. (1987). Merger Strategies and Stockholder Value. Strategic Management Journal, 8(1), 39-53
- Lubatkin, M., and Shrieves, R. (1986). Towards Reconciliation of Market Performance Measures to Strategic Management Research. Academy of Management Review, 11(3), 497-512
- Mantravadi, P., and Reddy, V., (2008), "Post-Merger Performance of Acquiring Firms from Different Industries in India", *International Research Journal of Finance and Economics* (22)
- Masulis, R., Wand. C., and Xie, F., Corporate Governance and Acquirer Returns. *Journal of Finance, 62*(4), 1851-1889.
- McKinlay, A. Craig, (1997) "Event Studies in Economics and Finance." Journal of Economic Literature 35: 13-39
- Melicher R., and Rush, D. (1974). Evidence On the Acquisition-Related Performance of conglomerate Firms. *Journal* of Finance, 29(1), 141-149.
- Mittal, S., and Jain, S. (2009). Stock Market Behaviour: Evidences from Indian Stock Market. Vision (09722629), 13(3), 19-29.

Academy of Accounting and Financial Studies Journal, Volume 16, Number 3, 2012

- Olson, G., and Pagano, M. (2005). A New Application of Sustainable Growth: A Multi-Dimensional Framework for Evaluating the Long Run Performance of Bank Mergers. *Journal of Business Finance and Accounting*, 32(9/10), 1995-2036
- Pangarkar N, and Junius R. Lie. (2004). The impact of market cycle on the performance of Singapore acquirers. *Strategic Management Journal*, 25(12), 1209-1216
- Pawaskar, V., 2001, 'Effect of Mergers on Corporate Performance in India', Vikalpa The Journal for Decision Makers, 26(1), January – March, 2001 pp 19-32
- Ramakrishnan, K. (2008). Long-term Post-merger Performance of Firms in India. *Vikalpa: The Journal for Decision Makers*, 33(2), 47-63.
- Ray, S., Gubbi, S., 2009 "International Acquisitions by Indian Firms: Implications for Research on Emerging Multinationals." *Indian Journal of Industrial Relations; Jul2009, Vol. 45* Issue 1, p11-26
- Reus, T., and Lamont, B. (2009). The double-edged sword of cultural distance in international acquisitions. *Journal* of International Business Studies, 40(8), 1298-1316.
- Saboo,S and Gopi, S 2009, Comparison of Post-Merger performance of Acquiring Firms (India) involved in Domestic and Cross-border acquisitions. *Working Paper MPRA Paper from University Library of Munich*, Germany
- Schoenberg, R. (2006), Measuring the Performance of Corporate Acquisitions: An Empirical Comparison of Alternative Metrics. British Journal of Management, 17: 361–370
- Sharma, M. (2010). Determining Value Creation through Mergers and Acquisitions in the Banking Industry using Accounting Study and Event Study Methodology. *European Journal of Economics, Finance and Administrative Sciences, (19)*, 61-73. Retrieved from Business Source Complete database
- Shukla, A., and Gekara, M. (2010). Effects of Multinational Mergers and Acquisitions on Shareholders' Wealth and Corporate Performance. *IUP Journal of Accounting Research and Audit Practices*, 9(1/2), 44-62.
- Singh, H., and Montgomery, C., (1987). Corporate Acquisition Strategies and Economic Performance. *Strategic Management Journal*, 8(4), 377
- Singh, P.. (2009). Mergers in Indian Banking: Impact Study Using DEA Analysis. South Asian Journal of Management, 16(2), 7-27
- Sirower, M. L. and O'Byrne, S. F. (1998), The Measurement Of Post-Acquisition Performance: Towards a Value Based Benchmarking Methodology. *Journal of Applied Corporate Finance*, 11: 107–121.
- Uddin, M., and Boateng, A., (2009). An analysis of short-run performance of cross-border mergers and acquisitions :Evidence from the UK acquiring firms. *Review of Accounting and Finance*, 8(4), 431-453
- Vishwanathan, S, and Rhodes-Kropf, M. (2005). Market valuation and merger waves. *The Journal of Finance, 59*(6)
- Zollo, M and Singh, H., (2004). Deliberate learning in corporate acquisitions: post-acquisition strategies and integration capability in U.S. bank mergers. *Strategic Management Journal*, 25(13), 1233-1257
- Zollo, M, and Degenhard, M. (2007). Understanding the performance of corporate acquisitions. *INSEAD Working Paper*

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THE EFFECT OF EXECUTIVE OPTION REPRICING ON MANAGERIAL RISK-TAKING

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ABSTRACT

In this paper we address the question, does reducing the risk on the manager, by repricing her out-of-the-money stock options, reduce firm risk. We test this conjecture by studying changes in capital expenditure and R&D intensities, variances of stock returns and accounting returns, and implied variances in the traded call options around repricing of stock options. We find evidence indicating that capital expenditure intensity and variances of stock returns and accounting returns significantly decrease subsequent to repricing of stock options. This result is consistent with our hypothesis that repricing stock options encourages managers to take actions to reduce firm risk.

INTRODUCTION

Managerial stock options have played a critical role as an important component of executive compensation (Hall, 1998). Firms grant stock options to garner at least two important benefits. One is to increase the sensitivity of the manager's wealth to stock price by improving their incentives for future firm performance, and the second is to increase the sensitivity of manager's wealth to risk by decreasing managerial risk aversion (Guay, 1999).¹ However, prior literature has shown that if the firm's stock price drops below the option's exercise price, 1) the incentive effect to increase stock price is severely reduced, because pay-for-performance sensitivity decreases (Murphy, 1999); and 2) the incentive to take risks (or the sensitivity of managers wealth to volatility) increases beyond what is optimal (Coles, et al., 2005; Rogers, 2004; Ju, Leland, and Senbet, 2003; Carpenter, 2000; Gilson and Vetsuypens, 1993). As Coles et al. (2005) and Kalpathy (2009) point out, it is possible to mitigate the reduction in the incentive to increase stock price, by issuing additional options. However, issuing additional options makes the second benefit worse by excessively increasing the manager's incentive to take risks, which may be detrimental to the firm. One alternative to this dilemma is to reprice the stock options. Repricing the underwater stock options has the potential to both restore the incentives to raise stock price and to reduce the incentive to take risk to more optimal levels, in essence to rebalance managerial equity incentives.²

Stock option repricing is the practice of resetting the exercise price of the underwater options to the new and lower market price by an amendment or by canceling underwater options

and reissuing options with a lower exercise price (Saly, 1994). This repricing practice has been very controversial. The academic literature and public media have suggested both positive and negative aspects of this repricing practice. Supporters of repricing argue that it is necessary in order to restore incentives lost when the options are out-of-the-money and to retain highly talented managers especially in a competitive labor market. However, opponents argue that managers should suffer the consequences of their decisions and actions like other investors and not be shielded from the loss of value of the options. Institutional investor groups have also argued that repricing removes any downside risk on the manager reducing the benefits of option incentives (Moore, 1999; Reingold, 1999).

Prior papers have investigated several aspects of repricing: 1) the characteristics of firms that reprice, the optimality of repricing, and the timing of repricing³, and 2) the justification for repricing including the ability of the firm to retain executives and improvements in future performance⁴. The repricing controversy and literature however, seldom if ever, discuss the merit of repricing relative to reduction in managerial risk, which is the focus of this paper. Theory papers, like Carpenter (2000), show that deep underwater options result in excessive risk being placed on the manager and hence repricing may be one alternative to reduce this managerial risk. However, whether repricing actually induces managers to reduce their risk taking is an empirical question. Furthermore, it is not necessarily true that repricing of employee stock options by the firm will translate to lower firm risk through manager's actions and decisions due to two institutional facts about how option repricings were implemented during our period of study from 1992 through 1997.⁵ First, option repricings are not announced prior to or immediately following the event during the period of our study. In fact, information about the option repricing only becomes public many months later with the release of the proxy statements. Hence, investors cannot assume firm risk changes directly by observing the repricing event. They can only learn of firm risk changes through announcements of other events by the managers and observing their actions and decisions following the repricing event. Second, many firms issue new options within one year of the repricing and hence any decrease in the sensitivity of the manager's wealth to risk due to option repricing and related decrease in firm risk may be subsumed by the risk increase from the new option issuances during the period following the repricing. We account for these two issues in our tests by using short one or two year windows and deleting a six-month period around the repricing event.

Our primary interest in this paper is to examine empirically whether repricing of employee stock options lowers the firm risk. We use 217 firms reported in the ExecuComp database that repriced stock options during the period of 1992 and 1997. Since we value the stock option using the Black-Scholes model, first we expect and show that the sensitivity of manager's wealth to risk measured by option vega drops when options are repriced. Kalpathy (2009) finds that firms reprice options to increase sensitivity of pay to stock price and to temper down sensitivity of pay to volatility compared to other alternatives available when stock options are underwater. However, while Kalpathy (2009) was interested in finding the differences among

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firms that used alternatives to repricing, we are interested in explicitly testing whether this decline in the sensitivity of manager's wealth to risk, due to repricing, translates to decreases in managers' risk-increasing activities, actual stock and accounting return risk measures in the period following the repricing.

We first look at the effect of repricing on the manager's actions on real activity. We do this by studying the changes on the R&D intensity and capital expenditure intensity immediately following the repricing. If managerial incentive to risk declines then it is likely that managers may take actions to reduce the firm risk. This study is the reverse of the situation studied by Coles et al. (2006), Larcker (1983), Nam et al. (2003) and Cohen (2000). They study the impact of increases in managerial incentive to risk on R&D and capital and expenditure intensities due to increases to equity pay. Larcker (1983) finds an increase in capital expenditures following a performance plan adoption and Nam et al. (2003) find an increase in R&D investment following option grant issuances. Hence, if an increase in managerial incentive to risk, through initiation of performance plans or option grant issuances, is related to increases in capital expenditure and R&D intensities, we argue that option repricing (which decreases sensitivity of manager's wealth to risk) should potentially decrease capital expenditure and R&D intensities. However, it is possible managers taking actions to increase capital expenditures and R&D intensities due to changes in the manager's sensitivity to risk may be easier when firms and the economy are doing well. However, while it may be optimal to reduce capital expenditure and R&D intensities following a repricing it is not clear that managers will be willing or able to shift capital expenditures and R&D down, at least in the short term, which is the basis of our study. Next, we study the stock return and accounting return variance changes following the repricing event as evidence of reduction in firm risk similar to DeFusco et al. (1990) who study variance changes for option plan adoptions.

Consistent with our hypothesis, we find the capital expenditure intensity declines following the repricing event. However, there is no change in R&D intensity following the repricing event compared to the pre-repricing period. More importantly, we find the stock return variance is lower following the stock option repricing using both daily and monthly returns over a twelve-month period. In addition, we also find the accounting return variance is lower following the stock option repricing using quarterly data over ten quarters. Next, we perform a test of the implied volatility on a smaller set of traded call options that were traded during a one-week period prior to and following the repricing. We find a reduction in implied volatility but the result is not significant.

We organize the remainder of this paper as follows. Section II discusses prior literature. Section III describes the sample selection of repricing firms. Section IV reports the results of our tests on managerial actions on real activity and on firm risk. Section V concludes the paper.

PRIOR LITERATURE

Several papers show that stock or option grants can increase managerial incentive to raise a firm's stock price (Jensen and Murphy, 1985; Hall and Liebman, 1998; Hanlon et al., 2003). Hall and Murphy (2000) argue that deep-out-of-the-money options cannot play any role as incentives for managers, so reducing and resetting the exercise price to the lower market price may restore the original incentive effects of stock options. Saly (1994) provides a theoretical model to address the necessity of repricing as a method of protecting employees from marketwide factors that negatively affect the firm's stock but are beyond the manager's control. Acharya, et al. (2000) also study optimality of repricing and provide a theoretical model of the incentive effects of repricing. They identify sufficient conditions for stock option repricing to increase shareholder value and show that the relative advantage to shareholders from repricing improves with increases in the cost of replacing incumbent managers and diminishes with increases in the importance of external factors on stock performance and management's influence on the repricing process. Hence, their argument relates to the cost of repricing relative to the cost to replace good managers.

Similar to Acharya et al. (2000), Carter and Lynch (2001) suggest that repricing may help retain valuable employees or key executives. This might be especially true in a competitive labor market such as in a high-technology industry where it is highly likely the manager might leave the firm given her reduced cost of moving to another firm, which in all cases will issue new at-the-money options to attract the executive. Callaghan et al. (2005) find CEO turnover is lower for repricing firms compared to a control sample of non-repricing firms following the repricing in support of the retention argument.

In addition to an incentive to raise stock price, stock options also reduce managerial risk aversion. Smith and Stulz (1985) show that when only stock is held by managers it increases their sensitivity to firm performance. However, their risk aversion to holding only their own firms' stock causes these managers to pass up risk increasing positive net present value projects. Similarly, Smith and Watts (1992) argue that risk-averse managers have an incentive to underinvest in R&D. Guay (1999) shows that option grants reduce this risk aversion or risk related agency costs by increasing the sensitivity of the manager to firm risk, in addition to the manager's incentive to increase stock prices. Increasing the sensitivity of the managers with incentives to invest in risky projects. This makes managers more likely to increase capital expenditures and R&D. Guay (1999) also finds that this sensitivity to risk imposed on the manager is positively related to stock return volatility, a proxy for firm risk. However, this relationship is not perfect. Guay (1999) shows that the convexity of the payoff structure can be more than offset by the concavity of the risk-averse manager's utility function. Similarly, Ross (2004) shows that there is no incentive scheme that will make all expected utility maximizers less risk averse and Ju, Leland

and Senbet (2002) show a call option can induce too much or too little corporate risk-taking depending on managerial risk aversion and the underlying investment technology.

Other papers of a similar vein include Rajgopal and Shevlin (2002), Agrawal and Mandelkar (1987) and DeFusco et al. (1990). Rajgopal and Shevlin (2002) find a positive relationship between the sensitivity of managers' equity wealth to stock return volatility and the coefficient of variation of future cash flows, which they use as a proxy for exploration risk for a sample of oil and gas producers. Agrawal and Mandelker (1987) also support this notion by showing that firms undertake variance-increasing investments as management compensation contracts have a larger common stock and option component. The managers' preference for risky projects can have a favorable effect on shareholder wealth, because one can view shareholders as holders of a European call option (Jensen and Meckling, 1976). Due to this favorable effect of managerial stock options for the shareholder, granting stock options can resolve the agency problems existing between shareholders and managers by aligning managerial payoffs to shareholder wealth. DeFusco et al. (1990) provide the empirical evidence supporting the notion that the adoption of managerial stock option plans induces managers to take on more risk. They show that firms' stock and accounting return variances as measures of risk increases following the adoption of option plans.

However, there is not much literature on the effect of excessive risk being placed on managers when the stock options are deep out-of-the-money. Using very general model specifications, Carpenter (2000) shows that when options are deep out-of-the-money following poor stock performance, options provide managers with incentives to take excessive risk and suggests that stock option repricing is one way to reduce this risk-taking incentive. Empirically, Coles et al., (2005) show that when stock options are underwater, the sensitivity of the managers' wealth to risk (vega) is significantly higher than its target amount where the target amount is estimated based on the individual firms' economic determinants using a methodology similar to Core and Guay (1999) or when compared to a control sample of non-repricing firms. One consequence of increasing sensitivity to risk beyond the optimal point is excessive risk-seeking behavior by the managers in order to raise the stock price. In fact, Lambert, Larcker and Verrechia (1991) and Gilson and Vetsuypens (1993) show that firms in financial distress could be pressured by creditors to reprice executives' underwater options in order to reduce the manager's incentive to engage in high-risk projects. In general, these papers suggest that repricing deep outof-the- money executive options should result in reducing excessive risk placed on the manager. However, it is an empirical question whether managers will take actions to reduce firm risk following option repricing, and there is no prior evidence that firm risk is actually reduced subsequent to option repricing. In other words, this paper empirically investigates whether the reduction of the manager's incentive to take on risk due to the option repricing actually induces managers to take actions to lower firm risk.

Alternatives to repricing stock options to resolve the issue of reduced managerial incentives to increase stock price (option delta) for underwater options in prior papers include

additional stock option grants, accelerating the timing of new option grants, issuing other forms of equity compensation and/or changing the emphasis on the equity proportion of total compensation. However, while these alternatives have potential to increase the incentive to raise stock price (delta), they do very little to decrease the excessively high incentive to risk (vega).

In this paper, we first show that the incentive for risk (vega) declines and incentive to raise stock price (delta) rises following repricing, as expected. However, these changes in and of itself do not imply that managers actually reduce risk taking behavior following the repricing. Hence, we empirically test the proposition that firms reduce excessive risk-taking activities by examining whether there is a significant change in real activity by the firms with respect to R&D and capital expenditure intensities. In addition, we examine firm volatility following option repricing using stock returns, accounting returns and traded call options.

SAMPLE DESIGN

Our sample selection process follows Callaghan et al. (2004) and Chidambaran and Prabhala (2000). For the period 1992 through 1997 S&P's ExecuComp Database reports a sample of 281 repricing events. We cross-check the repricing events identified in ExecuComp with the actual proxy statements in order to ensure the repricing events. Finally, we collect 236 repricing events as our sample.

The sample period begins at the time the SEC mandated proxy disclosure of option repricing for top executives, and ends prior to the 1998 FASB change in the accounting for option repricing. We choose this period for several reasons. On December 4, 1998, the FASB announced that it intended to release an exposure draft requiring firms repricing after December 15, 1998 to use the "variable" method.⁶ This exposure draft, finally released, as FIN 44 in March 2000 requires that changes in market value subsequent to the repricing event be recorded in the income statement as gains or losses. Repricing events virtually disappeared between 1999 through 2001. Beginning 2002 to 2005 most firms with out-of-the-money options reset their options not by resetting the exercise price but by cancelling the underwater options and reissuing new at-themoney options six months and one day later. Under GAAP rules, this cancellation and reissuance of new options after a period of at least six months is not considered a repricing. Following SFAS 123R in 2005, six months and one day type of option exchange has virtually disappeared. All repricings following SFAS 123R are similar in nature to those prior to 1998.⁷ In fact, this study is very timely and relevant at this time since the general market decline starting in 2008 has caused more the 70 percent of the Fortune 500 companies to have underwater options (Plourd, 2009). This has many companies seriously reexamining their equity incentive programs. King and Guglielmo (2009) report that from early 2008 through March 2009, more than 114 large companies have proposed or completed option repricings.⁸ However, we choose not to examine post 2006 repricings in this study since stock options in this recent period are more likely to be underwater due to significant general market declines rather than poor decision making by the

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manager, which makes it difficult to study changes in individual firm risk. Option repricings implemented during the 1992-1997 period are interesting since they occurred during a period when the general market increased by more than 150%, measured by the Dow Jones Industrial Average and the Russell 3000 Value Index, giving us opportunities to study manager behavior when their stock options were underwater, due to firm specific actions rather than market downturns.

Since employee level information is only available for the top five highest paid employees in the proxy, we focus on repricing events that exclusively involve the CEO and other high level managers. In addition, we believe that these top five highest ranking individuals are more likely to have the ability and power within the firm to make major firm-wide decisions to affect firm risk compared to other employees.

Consistent with Callaghan et al., (2004), we also omit firms if the proxy is unavailable or it provides insufficient information, if return information is not available in the CRSP database, if the firm reprices in-the-money options by raising the exercise price, or the resetting occurs for non-price related reasons. In addition, firms with multiple repricings within a fiscal year are required to have the repricings to be at least six months apart and if any repricing occurred within the six-month period the last repricing is selected.⁹ These requirements produce a sample of 217 independent repricing events.

From the ExecuComp Database, we also construct a matched control sample. Since the repricing firms have poor stock performance prior to the repricing, we follow the methodology of Barber and Lyon (1996) in selecting our control sample. For each repricing firm, we select the non-repricing firm in the same four-digit SIC code that is most similar in size (sales and market value) and stock return (over one and two year event window). This matching process results in a matched sample of 196 repricing events used in the study.

PRIMARY TESTS

We start by showing that consistent with economic theory the sensitivity of the manager's wealth to stock price increases and the sensitivity of manager's wealth to risk decreases following the repricing event, as expected. Our first empirical test studies the changes in real activity around the repricing events using R&D and capital expenditure intensities. Our next set of tests are similar to DeFusco, et al. (1990) except that they study the changes in firm risk due to the granting of stock options and we study the changes when firms initiate repricing of the stock options following a significant price decline. To test changes in firm risk, we study the changes in stock return volatility, change in accounting return volatility and finally the implied volatility of a traded call option. To ensure reliable estimates in determining implied volatility we require traded options to be as close as possible to being at-the-money with at least a 3-month maturity.

Changes in sensitivity of manager's wealth to stock price and risk

Consistent with prior literature we define managerial incentives to stock price and risk as the sensitivity of manager's wealth to a 1% change in stock price (option delta) and the sensitivity of the manager's wealth to a 0.01 change in standard deviation of stock returns (option vega) using the Black-Scholes model prior to and subsequent to repricing. To estimate delta and vega for one unit option and total options repriced, we obtain additional variables such as risk free rate, dividend yield, and stock return volatility. We obtain risk free rate using the Treasury bond rate for a period similar to the remaining life of the option from the Wall Street Journal. We obtain the dividend yield from COMPUSTAT. We measure the stock return volatility of the firm during the year prior to the repricing year. We do not use the stock return volatility in the repricing year since this may change due to the event itself and the repricing year is the subject of our study.¹⁰ We also recognize that the amount of common stock, restricted stock and stock options owned by the manager can affect the price and risk sensitivities. However, the price and risk sensitivities for any of the equity components owned by the manager do not change on the day of repricing except for those options that are repriced. Hence, holding all other equity components held by the manager constant, we collect the necessary information and calculate the value of delta and vega on the options repriced. The change in total delta and vega of repriced options between pre- and post repricing is expected to be exactly equal to the change in total delta and vega of all equity owned by managers between pre- and post repricing. In addition, about 20 percent of firms that reprice options reissue fewer stock options to the managers. In this situation, we calculate the total delta and vega in the pre-repricing period based on the number of options to be repriced and in the post-repricing period based on the number of option granted following the repricing, respectively.

Changes in the sensitivity of manager's wealth to stock price (Delta)

The sensitivity of managerial wealth to stock price is measured by the option delta, which is calculated based on Black-Scholes model.¹¹ Specifically, delta is the dollar change in the value of the managerial wealth for a 1% change in stock price.

In Table 1, the mean (median) delta for one unit option before repricing is 0.096 (0.077), implying that, before repricing, the managerial wealth for one unit option increases by 9.6 (7.7) cents for a 1% increase in stock price. However, after repricing, the mean (median) delta for one unit option increases to 0.110 (0.088) implying that managerial wealth increases by 11.0 (8.8) cents for each 1% rise in stock price. The mean of the total delta also increased after repricing from \$41,704.4 to \$47,297.4. These differences are significant at the 1 percent level in both parametric and non-parametric tests. The results suggest that the manager's incentive to raise stock price is greater subsequent to repricing than prior to repricing, consistent with the theory that repricing stock options can restore the performance-based-incentives.
| Table 1: Changes in Managerial Incentives around Repricing | | | | | | |
|--|--------------------|---------|---------|---------|---------|--|
| | | Un | it | Total | | |
| | | Delta | Vega | Delta | Vega | |
| | N | 217 | 217 | 217 | 217 | |
| Defere reprising | Mean | 0.09634 | 0.10861 | 41704.4 | 47836.8 | |
| Before repricing | Median | 0.07731 | 0.09239 | 17983.1 | 22579.5 | |
| | Standard Deviation | 0.06818 | 0.07230 | 74594.9 | 83488.3 | |
| | Ν | 217 | 217 | 217 | 217 | |
| A flor roprising | Mean | 0.10980 | 0.08203 | 47297.4 | 36837.2 | |
| After repricing | Median | 0.08822 | 0.06692 | 21761.7 | 16216.9 | |
| | Standard Deviation | 0.07734 | 0.05864 | 82217.6 | 67234.3 | |
| Paired <i>t</i> -test | p-value | < 0.001 | < 0.001 | < 0.001 | < 0.001 | |
| Wilcoxon rank test | p-value | < 0.001 | < 0.001 | < 0.001 | < 0.001 | |

Changes in the sensitivity of manager's wealth to return volatility (Vega)

The sensitivity of managerial wealth to stock return volatility is measured by the option vega.¹² Specifically, vega is the dollar change in the value of the managerial wealth for a 0.01 change in stock return volatility. Because the changes in vega can directly induce changes in managerial risk taking, we expect that vega will significantly decrease subsequent to repricing.

In Table 1, the mean (median) vega for one unit of repriced option decreases from \$0.1086 (\$0.0924) to \$0.0820 (\$0.0669) subsequent to repricing, and the mean total vega for all options repriced by the top five executives of the repricing firm also declines from \$47,836 to \$36,837 which is a decrease of 23%. These differences are all significant at the 1 percent level. These results imply that the manager's incentive to take excessive risk in investment or financial decisions would be reduced subsequent to repricing.

Together, these results support the theoretical prediction that repricing stock options is expected to increase sensitivity to managerial wealth and decrease excessively high sensitivity of executive pay to stock return volatility. In the following sections we study whether the change in risk sensitivity due to stock option repricing actually affects managerial actions.

Changes in real activity

In this section, we study if managers change the amount of real activity due to the change in the incentive for risk following the repricing of options. Using the average exercise price of the firm's options reported in the proxy and the average quarterly stock price we find that on average, options in the repricing firms become out-of-the-money about 3 quarters before the repricing date for our set of repricing firms. Hence, we attempt to capture the changes in real activity for one year around the repricing date using quarterly data. Similar to Larcker (1983), Nam et al. (2003) and Coles et al. (2006) we test how the manager's incentive to bear risk that are inherent in the manager's portfolios affect two key corporate decisions, capital expenditure and R&D investment. Nam et al. (2003) and Coles et al. (2006) find R&D intensity increases when manager's sensitivity to risk increases. Coles et al. (2006) view R&D investments more risky than capital expenditures and suggests one way to increase firm risk through vega is to reallocate investment dollars away from capital expenditures to intangibles like R&D¹³. Following Coles et al. (2006), repricing employee stock options, which decreases vega, should result in increasing capital expenditure and decreasing R&D, all else being equal.

However, in a period when the firm's stock price has dropped significantly and the markets are unhappy with the firm's performance, managers' ability to raise cash for capital expenditures may be limited. In this case, they may be forced to reduce both R&D and capital expenditures. In addition, Larcker (1983) suggests that we should expect increasing capital expenditures with increasing vega. Whether the reverse is also true is an empirical question.

We measure quarterly net capital expenditure intensity using the capital expenditure minus the sale of property, plant and equipment divided by total assets at the beginning of the quarter. We measure R&D intensity in a similar way.¹⁴ To ensure that the scaling process is not driving the test results, we also retest 1) by scaling all capital expenditures and R&D costs for all nine quarters using fixed beginning assets at quarter -4, 2) by current quarterly sales and 3) by lagged quarterly sales. Results are qualitatively unchanged in all cases. In addition, we compute adjusted capital expenditure and R&D intensities by subtracting those of control firms from those of repricing firms in order to consider extraneous factors to influence capital expenditure and R&D intensities of repricing firms.

We present our results graphically in Figure 1. In Panel A, we find that capital expenditure intensity starts at about 6.5% of assets four quarters prior to the repricing event. Four quarters following the repricing event, the capital expenditure intensity is only 3.8% of assets. This decrease starts around quarter -3 but declines more rapidly following the repricing event. We do not find such a decrease in the R&D intensity. We repeat the test using matched control firm adjusted capital expenditure intensity and R&D intensity in panel B. Due to missing information for control firms in COMPUSTAT, we report results for 169 repricing events (140 firms). The results show that repricing firms have greater capital expenditure intensity during the pre-period. By quarter +2 in the post-repricing period, repricing firms have lower capital expenditure intensity for repricing firms, we find that control firm adjusted R&D intensity is stable throughout the period, with the repricing firms having a slightly higher R&D intensity compared to control firms.



Panel A : Capital expenditure and R&D intensity for the total 201 (160) sample repricing events (firms) Panel B : Matched control firm adjusted capital expenditure and R&D intensity for the total 169 (140) sample repricing events (firms) $(CAPX-SSPE)/TA = (Compustat #90 - #83)_{1} / (#44)_{1}$

 $(R\&D)/TA = (Compustat #90 - #85)_{t} / (#44)_{t-1}$

To test the statistical significance of the changes in capital expenditure and R&D intensities we first calculate the mean (median) differences between the post-repricing period and the pre-repricing period. We present the results in Table 2. The mean (median) change in capital expenditure intensity is -0.0188 (-0.0094) when comparing the average for the four quarters postrepricing period to the pre-repricing period (See Panel A). This difference is statistically significant at the 1 percent level. We also find that the number of firms decreasing their capital expenditure intensity is approximately three times the number of firms increasing their capital expenditure intensity (142 firms to 52 firms), which is significant at less than 1 percent using the mean, median, and binomial test. The mean (median) change in R&D intensity is 0.0012 (less than 0.0001) with 71 firms increasing their R&D intensity compared to 52 firms decreasing their R&D intensity. None of the R&D results are significant at conventional levels. For robustness, we retested the change in capital expenditure intensity and R&D intensity after dropping quarter -1 and quarter +1 around the repricing quarter. The results are qualitatively similar. Hence, in general these results are consistent with our expectation that managers, whose options are repriced and have their sensitivity to risk reduced, are likely to reduce firm risk through reducing varianceincreasing activities, at least with respect to capital expenditures.

| Table 2: Ch | anges in Capital Expenditu | re and R&D In | tensity around | d Repricing | | | |
|--|--------------------------------|---------------------|----------------|------------------|------------|--|--|
| Panel A: Changes in capital expenditure intensity and R&D intensity around the repricing events | | | | | | | |
| | | [-4 to -1] vs. | [+1 to +4] | [-4 to -2] vs. | [+2 to +4] | | |
| | Ν | 19: | 5 | 19 | 5 | | |
| | Mean | -0.0188 | *** | -0.0205 | *** | | |
| | Median | -0.0094 | *** | -0.0083 | *** | | |
| $\Delta (CAFA-SSFE)/IA$ | Number of 'increase' | 52 | | 56 | | | |
| | Number of 'no change' | 1 | | 1 | | | |
| | Number of 'decrease' | 142 | | 138 | | | |
| | Ν | 19: | 5 | 19 | 5 | | |
| | Mean | 0.0012 | | 0.0009 | | | |
| Δ (R&D)/TA | Median | 0.0000 | | 0.0000 | | | |
| | Number of 'increase' | 71 | | 68 | | | |
| | Number of 'no change' | 72 | | 72 | | | |
| | Number of 'decrease' | 52 | | 55 | | | |
| Panel B: Changes in match | ed control firm adjusted ca | apital expenditu | re and R&D i | ntensity | • | | |
| | | [-4 to -1] vs. | [+1 to +4] | [-4 to -2] vs. | [+2 to +4] | | |
| | Ν | 169 | | 16 | 8 | | |
| | Mean | -0.0106 | ** | -0.0134 | ** | | |
| Λ $A = \frac{1}{\sqrt{C}} \frac$ | Median | -0.0046 | ** | -0.0082 | ** | | |
| Δ Adj (CAPA-SSPE)/TA | Number of 'increase' | 70 | | 68 | | | |
| | Number of 'no change' | 1 | | 1 | | | |
| | Number of 'decrease' | 98 | | 99 | | | |
| | Ν | 16 | 9 | 16 | 8 | | |
| | Mean | -0.0019 | | -0.0039 | | | |
| | Median | 0.0000 | | 0.0000 | | | |
| $\Delta Aaj (R \alpha D)/TA$ | Number of 'increase' | 59 | | 55 | | | |
| | Number of 'no change' | 54 | | 54 | | | |
| | Number of 'decrease' | 56 | | 59 | | | |
| Paired t-test (Wicoxon signe | d-rank test) is performed to t | test the significar | ice in mean (m | edian) differend | ces. | | |
| ***, **, and * corresponds t | o 1%, 5%, and 10% significa | nce level, respec | tively. | | | | |

Next, we test the change in control firm-adjusted capital expenditure and R&D intensities. Panel B provides the results showing that extraneous factors are not driving the above results. For the four quarters preceding and following the repricing quarter, we find the control firm-adjusted capital expenditure decreases by an average (median) of 0.0106 (0.0046) which is significant at greater than the 0.05 level. Of the 169 firms, 98 firms had a decline in capital expenditure compared to 70 firms increase. The results are similar even after excluding the adjacent quarter around the repricing quarter. However, similar to results from Panel A, control firm-adjusted R&D intensity does not appear to be different between pre- repricing quarters and post repricing quarters.

Finally, it is possible that the results above could be driven by other firm-specific factors influencing firms' investment decisions. Therefore, we run the following OLS multivariate regression model to control for other firm-specific factors that may affect capital expenditures and R&D intensities.

$$Chg_CAPX_{i} \text{ (or } Chg_R\&D_{i}) = \beta_{0} + \beta_{1}REPRICE_{i} + \beta_{2}Div_{i} + \beta_{3}Size_{i} + \beta_{4}BM_{I} + \beta_{5}Profit_{i} + \beta_{6}NetCF_{i} + \beta_{7}Cash_{i} + \beta_{8}Inside_Own_{i} + \beta_{9}Inst_Own_{i} + \varepsilon_{i}$$

In the above regression model, the dependent variable is 'Chg CAPX' or 'Chg R & D'. 'Chg CAPX' ('Chg R&D') denotes the change from the average capital expenditure (R&D) intensity for the 4 consecutive quarters following the repricing date to the average capital expenditure (R&D) intensity preceding the repricing date ([+4 to +1] vs. [-1 to -4]).¹⁵ The main test variable in the regression is 'REPRICE', which is set to be '1' for repricing firms and '0' for control firms. We expect the estimated coefficient of 'REPRICE' to be significantly negative if option repricing induces managers to reduce R&D and capital expenditure investments. The control variables we adopt in the regression are similar to those in Nam et al. (2003). For the control variables, we compute the respective 4-quarter average preceding the repricing date. 'Div' is the quarterly dividend yield. We use 'Div' because the dividend payment can constrain managers' discretion in investment decisions. We include 'Size', 'Profit', 'NetCF', and 'Cash' in order to control for firms' ability to provide assets for capital expenditure and R&D investments. 'Size' is the logarithm of the average quarterly market value of the firm measured by the sum of the book value of debt and preferred stock plus the market value of common stock. 'Profit' is the average quarterly operating profit scaled by total assets. 'NetCF' is the average quarterly net operating cash flows divided by total assets. 'Cash' is the cash plus short-term investments divided by total assets. To control for firms' investment opportunities, we adopt the book-tomarket ratio (BM) computed by dividing book value of common stock by market value of common stock. Finally, we consider ownership structure as control variables in the sense that firms' ownership structure can influence managers' discretion in capital expenditure or R&D investments. We use the percentage of the total shares held by insiders (Inside Own) as a proxy of the degree of alignment between managers and shareholders, and the percentage of the total shares held by institutional owners (Inst Own) as a proxy of the degree of institutional shareholder monitoring.

Table 3 reports the result from the regression analysis. In the regression model with the dependent variable, ' Chg_CAPX ', the estimated coefficient of 'REPRICE' is negative and statistically significant at 5% level ($\beta_1 = -0.0183$, p-value = 0.02). This result suggests that the average change in capital expenditure intensity in repricing firms are significantly lower than that in control firms, after controlling for other factors. However, we do not find significant coefficient of 'REPRICE' in the regression model with ' $Chg_R\&D'$. In the control variables, the estimated

coefficient of 'Profit' and 'Cash' are positive and statistically significant at conventional levels, suggesting that firms increase capital expenditure when firms are profitable and liquid. In sum, the results from the multivariate regression analysis show that firms significantly reduce capital expenditure after option repricing, confirming our previous findings from the univariate and control-firm matched analysis.

| Table 3 | Table 3: Multivariate Regression Results for Capital Expenditure and R&D Intensity | | | | | | |
|---|--|--------------------------------------|----------|-----|-----------------------------|----------|-----|
| Independent | Predicted | Dependent Variable:PredictedChg_CAPX | | | Dependent Variab Chg_R&D | | |
| Variable | Sign | Estimated coefficient | Pr > t | | Estimated coefficient | Pr > t | |
| Intercept | | -0.0223 | 0.2439 | | 0.0068 | 0.3164 | |
| REPRICE | _ | -0.0183 | 0.0205 | ** | -0.0016 | 0.5637 | |
| Div | +/- | 0.0973 | 0.5766 | | 0.0163 | 0.7929 | |
| Size | +/- | 0.0004 | 0.8791 | | -0.0015 | 0.1045 | |
| BM | +/- | 0.0123 | 0.1017 | | 0.0009 | 0.7245 | |
| Profit | +/- | 0.1877 | 0.0241 | ** | 0.0552 | 0.0619 | * |
| NetCF | +/- | -0.1026 | 0.0125 | ** | -0.0443 | 0.0024 | *** |
| Cash | +/- | 0.0344 | 0.0077 | *** | 0.0115 | 0.0123 | ** |
| Inside_Own | +/- | 0.0001 | 0.7677 | | 0.0000 | 0.6511 | |
| Inst_Own | +/- | -0.0004 | 0.0960 | * | 0.0001 | 0.2353 | |
| N | | 328 | | | 328 | | |
| Adj. R-square | | 0.0352 | | | 0.0427 | | |
| F-statistic | | 2.33 | | | 2.6200 | | |
| <i>p</i> -value | | 0.0150 | | | 0.0062 | | 1 |
| ***, **, and * corresponds to 1%, 5%, and 10% significance level, respectively. | | | | | | | |

Since managers drive decisions on changes to real activity it is possible that management changes during the year of repricing could affect our results. As a robustness test, we repeat the multivariate regression analyses after excluding the repricing events which had a CEO turnover in the repricing year. Out of the total 236 option repricing events, 44 repricing events had a CEO turnover during the repricing year, of which 30 (14) CEOs were replaced prior (subsequent) to the repricing dates.¹⁶ Our results are qualitatively unchanged from those with the full data, suggesting that the significant reduction in capital expenditure intensity is not due to CEO turnovers during the period surrounding option repricings.

Our overall results suggest that during periods of sharp downturns for the firm, they appear to reduce capital expenditures prior to the repricing date and accelerate this reduction in capital expenditure following the repricing for at least the next four quarters. However, there does

not appear to be any significant changes in the amount of R&D expenditures around the repricing period.

Evidence from Stock Returns

In this section, we examine whether firm variance in the stock market decreases subsequent to the repricing of stock options. We obtain daily stock market data for the repricing firms and the control firms from CRSP database. We estimate both daily and monthly variance data as the average squared daily and monthly returns assuming continuous compounding.

We follow the research methodology detailed in Skinner (1989) and DeFusco et al. (1990) to test for differences in stock return variances. We form a variance ratio for each firm by dividing the variance computed after the repricing date by the variance before the repricing date. Variance ratios less than one indicate a variance decrease following the repricing.

To account for changes in market volatility, we compute market-adjusted variance ratios both daily and monthly returns. Before forming the variance ratio, we first divide each firm's estimated variance by the variance of the CRSP equally weighted market index estimated over the same time interval.¹⁷ Variances (variance ratios) computed in this manner are referred to as market-adjusted variances (variance ratios).

We compute variances over intervals preceding and following the repricing dates. Since the precise date of the repricing event are not announced by the firm we exclude three-month intervals on either side of the repricing date in the calculation of pre- and post-repricing variance in order to give investors sufficient time to learn about management actions which may affect firm risk. Estimation intervals for the stock return variance cover periods of 250 days and 12 months beyond the three-month period around the repricing event date.¹⁸

Table 4 presents the variance ratios with and without the market adjustment for 250-day and 12-month sampling intervals. For the unadjusted daily and monthly return variances, the variance changes are not significantly different from zero. However, since market changes in risk may affect firm variances we test the market-adjusted daily and monthly return variances next. We find 66 (55) percent of the firms experienced a market-adjusted daily (monthly) variance decrease. The Wilcoxon signed-rank test produces p-value less than 0.01 for the market-adjusted daily variances and p-value of 0.0330 for the market-adjusted monthly variances, indicating that the distribution of stock return variance significantly decreases subsequent to the repricing. This result is consistent with our expectation that repricing of stock options induces managers to undertake less risky projects. We also perform the same tests after winsorizing the data at the 1% level and find results similar to those reported in Table 4. In summary, the median variance ratio is smaller than one for both sampling intervals, suggesting that firm variance in the stock market decreases following the repricing of stock options.¹⁹

| Table 4: Variance Ratios with Stock Returns – Full Sample | | | | | | |
|---|-------------------|---------------------|----------------|---------------------|--|--|
| Estimated interval on either side of repricing date | 250 days 12 month | | | onths | | |
| Types of stock return | Raw | Market- Adjusted | Raw | Market- Adjusted | | |
| Number of repricing events with data available | 198 | 198 | 197 | 197 | | |
| Fractiles of estimated variance for period after reprice | ing date divid | ed by estimat | ed variance be | fore: | | |
| lst | 0.303 | 0.162 | 0.159 | 0.136 | | |
| 5th | 0.459 | 0.257 | 0.222 | 0.246 | | |
| 10th | 0.559 | 0.349 | 0.340 | 0.318 | | |
| 25th | 0.695 | 0.509 | 0.572 | 0.489 | | |
| Median | 0.938 | 0.751 | 0.983 | 0.827 | | |
| 75th | 1.301 | 1.190 | 1.491 | 1.469 | | |
| 90th | 2.061 | 1.935 | 2.396 | 2.303 | | |
| 95th | 2.519 | 2.343 | 3.163 | 3.126 | | |
| 99th | 3.670 | 5.365 | 4.473 | 6.828 | | |
| Percentage of firms for which measured volatility decreases | 55.56 | 65.66 | 50.00 | 54.55 | | |
| Two-tailed signed-rank probability | 0.2944 | < 0.0001 | 0.6325 | 0.0330 | | |

To completely remove the effect of multiple repricings and overlapping periods from these repricing affecting our results, we perform the same test using the sample firms with only one repricing during the six year sample period. For this test, the sample is reduced to 119 (118) firms for daily (monthly) returns. The results in Table 5 supports the earlier result that the stock return variance declines following repricing, and in fact the variance decreasing effect in the reduced sample of firms with only one repricing is more pronounced than in the full sample which included multiple repricings. For market-adjusted daily (monthly) return variances, 70 (56) percent of the firms experienced a variance decrease which is significant at less than 5 percent, consistent with Table 4. For the unadjusted daily return variances, 60 percent of the firms experienced a variance decrease. However, while the median variance ratio for the unadjusted monthly return is 0.926 (which is less than 1), it is not statistically significant. In summary, again in all cases, the median variance ratios are smaller than one for both sampling intervals using raw and market adjusted returns, suggesting that firm variance in the stock market decreases subsequent to the repricing of stock options.

Finally, it is possible that our return results in this section are due to changes of risk over different periods. Why that would be so is debatable since our test firms reprice the manager's options at different times over a six-year period from 1992-1997. However, to mitigate the possibility that firm risk could be changing over time based on the environment and stock return variances can be driven by other influential factors such as market and year effects we compare

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| Table 5: Variance Ratios with Stock Returns – Firms with Only One Repricing | | | | | | |
|---|--------|---------------------|--------|---------------------|--|--|
| Estimated interval on either side of repricing date | 250 | days | 12 m | 12 months | | |
| Types of stock return | Raw | Market- Adjusted | Raw | Market- Adjusted | | |
| Number of repricing events with data available | 119 | 119 | 118 | 118 | | |
| Fractiles of estimated variance for period after repricing date divided by estimated variance before: | | | | | | |
| lst | 0.303 | 0.162 | 0.159 | 0.175 | | |
| 5th | 0.359 | 0.201 | 0.222 | 0.246 | | |
| 10th | 0.518 | 0.297 | 0.309 | 0.318 | | |
| 25th | 0.695 | 0.478 | 0.594 | 0.467 | | |
| Median | 0.930 | 0.722 | 0.926 | 0.740 | | |
| 75th | 1.244 | 1.118 | 1.436 | 1.416 | | |
| 90th | 1.832 | 1.846 | 2.155 | 2.158 | | |
| 95th | 2.519 | 2.317 | 3.163 | 3.106 | | |
| 99th | 3.447 | 5.365 | 4.412 | 4.300 | | |
| Percentage of firms for which measured volatility decreases | 59.66 | 69.75 | 53.39 | 55.93 | | |
| Two-tailed signed-rank probability | 0.1043 | < 0.0001 | 0.3976 | 0.0154 | | |

the variance ratios of repricing firms adjusted for variance ratios of non-repricing control firms next.

Table 6 presents the results of the statistical tests comparing variance ratios between repricing firms and control firms using a paired comparisons test. We form a variance ratio for each firm by dividing the variance computed after the repricing date by the variance computed before the repricing date. We compute the difference of variance ratios between a repricing firm and a control firm corresponding to the repricing firm by subtracting the variance ratio of the control firm from the variance ratio of the repricing firm. We find negative differences in variance ratios between repricing firms and control firms in each case, indicating that the variance ratio for repricing firms is lower than that for control firms. Specifically, we run a paired comparison t-test and the Wilcoxon signed-rank test. We find the paired comparison t-test of means is negative and significant at less than 5 percent level for both the unadjusted and the market adjusted daily returns. Using the Wilcoxon test, we find the control firm adjusted variance test of medians also declines at less than 10 percent significance level for the unadjusted daily returns and the market-adjusted returns. These results suggest that the variance decreasing effect for repricing firms is stronger for repricing firms than control firms.

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| Table 6: Comparison of Variance Ratios between Repricing Firms and Control Firms | | | | | | | |
|--|--------------|---------------|--------------|------------------|--|--|--|
| | Paired-Compa | risons T Test | Wilcoxon Sig | Signed-Rank Test | | | |
| | Mean | p-value | Median | p-value | | | |
| Diff _{daily, raw} | -0.30853 | 0.0037 | -0.03530 | 0.0738 | | | |
| Diff daily, market-adjusted | -0.15078 | 0.0426 | -0.03000 | 0.1054 | | | |

Evidence from Accounting Rates of Return

The volatility of stock return measure tested above requires investors to learn about the changes in the firm risk either through the decisions and actions of the managers that they can observe or through information on firm performance that managers report. Hence, a more direct test of the changes in firm risk is testing for changes in volatility using reported accounting performance rates of return. Therefore, we investigate whether firm risk decreases subsequent to the repricing of stock options using the volatility of the return on assets measure as a proxy. For each firm, we compute the variability of quarterly return on assets over 10 quarters immediately preceding and following the repricing date excluding the option repricing quarter.²⁰ We choose ten quarters to be sufficiently efficient in calculating variances and not too large that the impact of repricing is lost. Similar to the stock return test, the repricing events have to be at least six months apart for firm's with multiple repricing events during the period. In order to reduce the compounding effect of overlapping periods before and after the repricing dates for the same firm, we use the last repricing event if firms have multiple repricings during this period. In addition, we exclude repricing firms with less than five quarterly data available preceding or following the repricing event date, in order to enhance the validity of the computed variances of accounting data. The total 169 repricing firms had complete data available on Compustat.²¹ Consistent with Defusco et al. (1990), we compute quarterly return on assets by dividing the quarterly operating income before depreciation (Compustat #21) by the beginning of the quarter total assets (Compustat #44).²² We compute variances of guarterly return on assets over intervals preceding and following the repricing date.

Table 7 shows the results for the variance tests with return on assets using the 10 quarters immediately preceding and following the repricing date. The variability of return on assets decreased after the repricing date in fifty-seven percent of the cases (94 out of 165). The median variance ratio is less than 1, indicating that the variance of return on assets following repricing is lower than that preceding repricing. A Wilcoxon signed-rank test yields a p-value of 0.05 and indicates that the median variance of return on assets following repricing dates is significantly lower than the median variance preceding the repricing dates.

Our result here provides additional evidence supporting our conjecture that repricing stock options induce managers to undertake less risky projects since the variance of accounting rates of return decreases significantly subsequent to the stock option repricing.

| Table 7: Variance Ratios with Accounting Returns | | | | | |
|---|-------------|--|--|--|--|
| Estimated interval on either side of repricing date | 10 quarters | | | | |
| Number of repricing events with data available | 165 | | | | |
| Fractiles of estimated variance for period after repricing date divided by estimated variance before: | | | | | |
| 1st | 0.012 | | | | |
| 5th | 0.043 | | | | |
| 10th | 0.145 | | | | |
| 25th | 0.328 | | | | |
| Median | 0.733 | | | | |
| 75th | 1.658 | | | | |
| 90th | 4.367 | | | | |
| 95th | 8.701 | | | | |
| 99th | 62.380 | | | | |
| Percentage of firms for which measured volatility decreases | 57.00 | | | | |
| Two-tailed signed-rank probability | 0.0503 | | | | |

Evidence from traded Call Options

In this section, we study the implied volatility of traded options around repricing as another measure of a firm's risk. We hypothesize that the speed of information flow about a firm's risk is potentially faster and impounded in call options traded in the market. Since the stock return volatility is one of the factors to determine the option price in the Black–Scholes (1973) option pricing model, we can compute the implied volatility given the available data such as the option price and the other factors. Again as before, we exclude a three-month window around the repricing date to ensure that the market can observe management's actions and decisions through management's representations or analyst's forecasts, since executive option repricings were not announced to the public. We measure implied volatility for all firms trading call options for one-week period (five trading days) prior to and following the three excluded months around the repricing date.

Numerous researchers have employed the Black-Scholes model for option pricing to obtain implied variances. In this study, we employ the Newton-Raphson algorithm to estimate implied variance. Consistent with DeFusco et al. (1990) the call option with the longest time to expiration and closest to being at-the-money is examined because the Black-Scholes option pricing model produces unreliable estimates for deep in-the-money and deep out-of-the-money options (See MacBeth and Merville, 1980). The 66 repricing events (56 different firms) had at-the-money call options traded for a one week period three months before and three months after the repricing date. We use the Treasury bill rate whose maturity most closely corresponds to the

maturity of the call option as an estimate of the risk-free rate. We obtain the traded call option prices and Treasury bill rates from the *Wall Street Journal*.

We compute changes in implied variance for each of the 66 events in the sample. As in earlier tests, we determine the variance ratio by dividing the implied variance in the post-repricing period by the implied variance preceding the repricing event. If option repricing does induce managers to take less risk-seeking actions following the repricing, then we hypothesize the variance ratio to be less than one. We present our results in Table 8. The median variance ratio is 0.946. Of the 66 events in our sample, 36 experienced variance decreases and 30 variance increases. These results appear to be consistent with our hypothesis that repricing induces a decrease in implied volatility of traded call option. However, these results are not statistically significant in the Wilcoxon matched-pairs signed-ranks test.

| Table 8: Variance Ratios with Traded Call Options | | | | | |
|---|----------|--|--|--|--|
| Estimated interval on either side of repricing date | 3 months | | | | |
| Number of repricing events with data available | 66 | | | | |
| Fractiles of estimated variance for period after repricing date divided by estimated variance before: | | | | | |
| 1st | 0.226 | | | | |
| 5th | 0.395 | | | | |
| 10th | 0.523 | | | | |
| 25th | 0.797 | | | | |
| Median | 0.946 | | | | |
| 75th | 1.206 | | | | |
| 90th | 1.467 | | | | |
| 95th | 1.630 | | | | |
| 99th | 2.281 | | | | |
| Percentage of firms for which measured volatility decreases | 54.55 | | | | |
| Two-tailed signed-rank probability | 0.3533 | | | | |

CONCLUSIONS

As Carpenter (2000) and Gilson and Vetsuypens (1993) point out managers could potentially undertake excessively risky investment projects in order to maximize their own wealth, when the stock options owned by them are 'out-of-the-money'. In this paper, we empirically investigate whether repricing underwater stock options, which effectively reduces the sensitivity of manager's wealth to risk, actually leads to changes in firm risk. We study firm risk changes by analyzing managers' real activity, the stock return variance, the accounting return on assets variance and the implied volatility computed from Black-Scholes option pricing model. First, we show that capital expenditure intensity significantly decreases following the repricing events. The evidence from stock market data also indicate that market adjusted return variances on both daily and monthly basis significantly decrease subsequent to the repricing dates. In addition, we find the variability of accounting return on assets also decreases. However, we could not find any significant change in implied volatility in traded call option surrounding the managerial stock option repricing. One potential reason could be that the options market may not be efficient for the set of firms in our repricing sample given that they are generally smaller firms and only about a third of the sample was traded at least once in the options market over the one-week period. Generally, our results are consistent with the hypothesis that repricing stock options can curb managers' preference for excessively risky projects, and induce managers to reduce firm risk.

ENDNOTES

- 1. Firms may also grant stock options to managers as a means of retention/attraction or sorting purposes (Core and Guay, 2001; Ittner et al., 2003; Oyer and Shaeffer, 2005) and/or as remuneration for past performance, tax savings, cash flow considerations (Ittner et al., 2003; Core and Guay, 1999, 2001). However, we do not test these contentions in this paper.
- 2. Kalpathy (2009) studies these alternatives to repricing and finds that repricing, granting more options or giving restricted stock grant has the same effect of increasing the firm delta but repricing options has the effect of decreasing vega whereas additional option grant and restricted stock increase vega.
- Brenner, Sundaram, and Yermack (2000), Chance, Kumar, and Todd (2000), Chidambaram and Prabhala (2003), Carter and Lynch (2001), and Pollock, Fischer, and Wade (2002) study the characteristics of repricing firms. Gilson and Vetsuypens (1993), Saly (1994), Acharya, John, and Sundaram (2000), and Grein, Hand, and Klassen (2002) study the optimality of repricing, and Callaghan, Saly and Subramaniam (2004) study the timing of repricing.
- 4. Carter and Lynch (2003), Chen (2004), Chidambaran and Prabhala (2003), Chakraborty, Sheikh, and Subramanian (2003) and Daily et al. (2002) study the impact of repricing on CEO turnover. Chidambaran and Prabhala (2003) also study the future performance of firms that repriced CEO stock options.
- 5. Option repricing post-2006 (due to SFAS 123R) is similar in character to the period we examine. However, option repricings post-2006 are entangled with market economic conditions rather than poor individual stock performance due to managerial actions or non-actions. We explain further our reason for using this period rather than the post 2006 period in our study in Section III.
- 6. Carter and Lynch (2003) document a disproportionate increase in the number of firms repricing executive options prior to the effective date of the FASB rule. In addition, in 1998 institutional investors in a number of firms initiated resolutions requiring shareholder approval for any future repricing.
- Option repricings following 2006 are different from repricing in the nineties in only one respect. Due to an SEC rule issued on June 30th, 2003 (SEC Release 34-48108), post 2006 option repricings require shareholder approval.
- 8. Repricing companies include Google, Ebay, Motorola, Advanced Micro devices, Intel Inc., Williams– Sonoma Inc., Starbucks Corp., MGM Mirage, Real Networks, United Therapeutics, among others.
- 9. For completeness we also repeat the tests using the first repricing if there are multiple repricing during the year (unreported), and the set of firms which only had one repricing during the six year period (reported in Table 4). The results are qualitatively unchanged.

- 10. Repricing events can occur early in the year and others late in the repricing year. Hence, using the volatility measure for the period prior to the repricing year as calculated in ExecuComp can either be a few days from the repricing event date or close to one year away. To alleviate this problem we recalculated the annual stock return volatility using daily returns for a 250 day period starting from -265 days to -15 days prior to the repricing event. The results are qualitatively unchanged.
- 11. Delta for one unit is computed using the following formula based on the Black-Scholes model: Delta = $0.01*S*exp(-dT)*N(\{ln(S/X)+T(r-d+0.5* \sigma^2)\}/\{\sigma T^{0.5}\}), S:$ stock price, X: exercise price, T: time to maturity, r: risk-free interest rate, d: dividend yield, σ : stock return volatility, N(): c.d.f. of a standard normal distribution. Total delta for each firm is computed by multiplying delta for one unit option by the number of options available for exchange prior to repricing and replacement options granted postrepricing.
- 12. Vega for one unit option is computed using the following formula based on Black-Scholes model: Vega = $0.01*S*exp(-dT)*N'[\{ln(S/X)+T(r-d+0.5* \sigma^2)\}/\{\sigma T^{0.5}\}]*T^{0.5}$, S: stock price, X: exercise price, T: time to maturity, r: risk-free interest rate, d: dividend yield, σ : stock return volatility, N'[]: p.d.f. of a standard normal distribution. Total vega for each firm is computed by multiplying vega for one unit option by the number of options available for exchange prior to repricing and replacement options granted postrepricing.
- 13. This hypothesis of course assumes that the ability to raise cash as needed for increases in *both* R&D and capital expenditures is limited.
- 14. Capital expenditure and R&D intensities are computed by the following ways in the Compustat Database. Capital expenditure intensity = (COMPUSTAT #90 - #83)_t /(#44)_{t-1}, R&D intensity = (COMPUSTAT #4)_t/(#44)_{t-1}
- 15. For the dependent variables, '*Chg_CAPX*' and '*Chg_R&D*', we also use the change from average for the 3 consecutive quarters ending at the quarter -2 to the average for the 3 consecutive quarters starting at the quarter +2 ([-4 to -2] vs. [+2 to +4]). However, the results are qualitatively similar.
- 16. We thank Sandra Callaghan for providing this information.
- 17. Brenner et al (2000) and Callaghan (2004) have shown that repricing firms are smaller than the non-repricing firms, on average. Hence, based on prior literature we view the equal-weighted index as the appropriate index. However, for robustness purposes we repeat the tests using the CRSP value-weighted market index. The results are qualitatively unchanged.
- 18. Callaghan et al. (2004) observe significant decreases (increases) in stock prices prior (subsequent) to option repricing. When stock prices move significantly, stock return volatility might be higher than usual. To isolate this effect from our analysis, we exclude the three-month before or after the repericing date from the estimation period. This research design was the reason for our requirement that multiple repricing dates in the same firm should have at least 6 month gap. For the repricing dates with less than 6 month gap, only the last repricing event is retained in our sample. Some firms do not have a complete return for the full 250 days and 12 months. In order to retain as many firms as possible we required that, at a minimum, firms should have at least 150 days and 9 months of complete return information. This minimum period criterion reduces the sample size from 217 to 198 (197) for daily (monthly) returns, as shown in Table 3.
- 19. Many repricing firms issue new stock options within the one year of the repricing date which mitigates the reduction in vega due to option repricing. Hence, we also tested the variance ratios in the pre and post period for those firms whose CEO did not receive any new options for at least one year following the repricing date. This reduced our sample to 44 firms. For this presumably cleaner sample we find the median variance ratios are significantly smaller (at less than 2 percent) for both the unadjusted and market-adjusted variance ratio tests using the daily return variance.

- 20. For robustness, we also perform a variability test using quarterly return on assets over 10 quarters after deleting one quarter immediately before and after the repricing date. The results are not qualitatively different from the test results presented.
- 21. Consistent with DeFusco et al. (1990) we also repeated this test using 20 quarters and found qualitatively similar results. While the much longer period may be appropriate for DeFusco et al. (1990) we believe 10 quarters is appropriate for our study since effects of repricing is expected to be short term.
- 22. For robustness we also computed quarterly return on assets with the additional two income measures such as the quarterly operating income after depreciation (Compustat #21 Compustat #5) and the quarterly pretax income (Compustat 25). The result is qualitatively similar for operating income after depreciation, but not for pretax income.

REFERENCES

- Acharya, V., K. John, and R. Sundaram (2000). Contract renegotiation and the optimality of resetting executive stock options, *Journal of Financial Economics*, 57, 65-101.
- Agrawal, A. and G. Mandelker (1987). Managerial incentives and corporate investment and financing decisions, *Journal of Finance*, 42, 823-837.
- Amihud, Y. and B. Lev (1981). Risk reduction as managerial motive for conglomerate mergers, *Bell Journal of Economics*, 12, 605-617.
- Barber, B. and J. Lyon (1996). Detecting abnormal operating performance: The empirical power and specification of test statistics, *Journal of Financial Economics*, 49, 359-399.
- Black, F. and M.S. Scholes (1973). The Pricing of Options and Corporate Liabilities, *Journal of Political Economy*, 81, 637-654.
- Brenner, M., R. Sundaram, and D. Yermack (2000), Altering the terms of executive stock options, *Journal of Financial Economics*, 57, 103-128.
- Callaghan, S.R., P.J. Saly, and C. Subramaniam (2004). The timing of option repricing, *Journal of Finance*, 59, 1651-1676.
- Callaghan, S. R., C. Subramaniam, and S. Youngblood (2005). Does option repricing Retain executives and improve future performance?, *Working paper*, Texas Christian University.
- Carpenter, J. (2000). Does option compensation increase managerial risk appetite? *Journal of Finance*, 55, 2311-2331.
- Carter, M.E. and L.J. Lynch (2003). The consequences of the FASB's 1998 proposal on accounting for stock option repricing, *Journal of Accounting & Economics*, 35, 51-72.
- Carter, M.E. and L.J. Lynch (2001). An examination of executing stock option repricing, *Journal of Financial Economics*, 61, 207-225.
- Chakraborty, A., and S. Sheikh, and N. Subramanian (2003). Repricing is motivated by turnover, *Working Paper*, Brandeis University and Boston College.
- Chance, D., R. Kumar, and R. Todd (2000). The 'repricing' of executive stock options, *Journal of Financial Economics*, 57, 129-154.
- Chen, M. (2004). Executive option repricing, incentives and retention, Journal of Finance, 59, 1167-1199.
- Chidambaran, N.K. and N.R. Prabhala (2003). Executive stock option repricing, internal governance mechanisms, and management turnover, *Journal of Financial Economics*, 69, 153-189.
- Cohen, R., R. Hall, and L. Viceira (2000). Do executive stock options encourage risk-taking?, *Working Paper*, Harvard University.
- Coles J.L., N.D. Daniel, and L. Naveen (2006). Managerial incentives and risk-taking, *Journal of Financial Economics*, 79, 431-468.

- Coles J.L., N.D. Daniel, and L. Naveen (2005). Option repricing and incentive realignment, *Working paper*, Arizona State University and Purdue University.
- Core J. and W. Guay (1999). The use of equity grants to manage optimal equity incentive levels, *Journal of Accounting and Economics*, 28, 154-184.
- Core J. and W. Guay (2001). Stock option plans for non-executive employees, *Journal of Financial Economics*, 61, 253-287.
- Daily, C.M., S.T. Certo, and D.R. Dalton (2002). Executive stock option repricing: Retention and performance reconsidered, *California Management Review*, 44(4), 8-24.
- DeFusco, R.A, R.R. Johnson, and T.S. Zorn (1990). The effect of executive stock option plan on stockholders and bondholders, *Journal of Finance*, 45, 617-627.
- Gilson, S., and M. Vetsuypens (1993). CEO compensation in financially distressed firms: an empirical analysis, *Journal of Finance*, 48, 425-458.
- Grein, B., J. Hand, and K. Klausen (2002). The stock price reaction to repricing employee stock options, *Contemporary Accounting Research* 22 (4), 791-828.
- Guay, W.R. (1999). The sensitivity of CEO wealth to equity risk: An analysis of the magnitude and determinants, *Journal of Accounting and Economics*, 53, 43-71.
- Hall, B.J. (1998). The pay to performance incentives of executive stock options, *Working Paper*, National Bureau of Economic Research.
- Hall, B.J. and J.B. Liebman (1998). Are CEOs really paid like bureaucrats? *Quarterly Journal of Economics*, 113, 653–691.
- Hall, B.J., K. Murphy (2000). Optimal exercise prices for executive stock options, *American Economic Review*, 90, 209-214.
- Hanlon, M., R. Rajgopal, and T. Shevlin (2003), Are executive stock options associated with future earnings?, *Journal of Accounting and Economics*, 36, 3-43.
- Ittner, C., R. Lambert, and D. Larcker (2003). The structure and performance consequences of equity grants to employees of new economy firms, *Journal of Accounting and Economics*, 34, 89–127.
- Jensen, M.C. and W.H. Meckling (1976). Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics*, 3, 305-360.
- Jensen, M.C., and K.J. Murphy (1990). Performance pay and top management incentives, *Journal of Political Economy*, 98 (2), 225-264.
- Ju, N., H. Leland, and L. Senbet (2002). Options, option repricing and severance packages in managerial compensation: Their effects on corporate risk, *Working paper*, University of Maryland.
- Kalpathy, S. (2009). Stock option repricing and its alternatives : An empirical examination, *Journal of Financial & Quantitative Analysis*, 44 (6), 1459-1487.
- King, I., and C. Guglielmo (2009). Stock option repricing lets employees sidestep crash., Bloomberg. Com Mar 23, http://www.bloomberg.com/apps/news?pid=20601103&sid=a1YDwh5dvYkY
- Lambert, R., D. Larcker, and R. Verrecchia (1991). Portfolio considerations in valuing executive compensation, *Journal of Accounting Research*, 29 (1), 129-149.
- Larcker, D. (1983). The association between performance plan adoption and corporate capital investment, *Journal of Accounting and Economics*, 5, 3-30
- MacBeth, J. and L.Merville (1980). Tests of the Black-Scholes and Cox call option valuation models, *Journal of Finance*, 35, 285-300.
- May, D.O. (1995). Do managerial motives influence firm risk reduction strategies?, *Journal of Finance*, 50, 1291-1308.
- Moore, B.L. (1999, March 10). The Wall Street Journal, C2.
- Murphy, K. (1999). *Executive compensation In: Ashenfelter, O., Card, D. (Eds.), Handbook of Labor Economics* 3B, North-Holland, Amsterdam.

- Nam J., R.E. Ottoo, and J.H. Thornton (2003). The effect of managerial incentives to bear risk on corporate capital structure and R&D investment, *The Financial Review*, 38, 77-101.
- Oyer P. and S. Shaeffer (2005). Why do some firms give stock options to all employees?: An empirical examination of alternative theories, *Journal of Financial Economics*, 76, 99-133.
- Plourd, K. (2009). Is option repricing making a comeback? CFO.com March 5, http://www.cfo.com/ article.cfm/ 13251920?f=related
- Pollock, T.G., H.M. Fischer, and J. B. Wade (2002). The role of power and politics in repricing executive options, *Academy of Management Journal*, 45(6), 1172-1182.
- Rajgopal., S. and T. Shevlin (2002). Empirical evidence on the relation between stock option compensation and risk taking, *Journal of Accounting and Economics*, 33, 145-171.
- Reingold, J. (1999, February 15). Business Week, 38.
- Rogers, D.A. (2005). Managerial incentives and executives stock option repricing: A study of US casino incentives, *Financial Management*, 34 (1), 95-121.
- Ross, S. (2004). Compensation, incentives and the duality of risk aversion and riskiness, *Journal of Finance*, 59, 207-225.
- Saly, P.J. (1994). Repricing executive stock options in a down market, *Journal of Accounting and Economics*, 18, 325-356.
- Skinner, D.J. (1989). Options markets and stock return volatility, Journal of Financial Economics, 23, 61-78.
- Smith, C.W. and R.M. Stulz (1985). The Determinants of Firms' Hedging Policies, *The Journal of Financial and Quantitative Analysis*, 20(4), 391-405.
- Smith, C.W. and R.L. Watts (1992). The investment opportunity set and corporate financing, dividend, and compensation policies, *Journal of Financial Economics*, 32(3), 263-292.

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EARNINGS MANAGEMENT AND THE BANKING CRISIS OF THE 1990S: EVIDENCE FROM NIGERIA

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ABSTRACT

The objective of this study is to investigate whether there is evidence of earnings management during the Nigeria banking crisis of the 1990s. I hypothesize and find that Nigeria banks generally show a positive association between earnings before taxes and provisions for loan loss and loan loss provisions; indicating earnings smoothing. Also that healthy banks have smoother earnings than distressed ones, even as the latter continue to deliberately underprovide/understate loan loss provisions to inflate profitability, thus benefiting from the naivety of Nigerian public to 'fixate' on profits as a measure of banks soundness. This trend enables those banks to continue to attract deposits and banking businesses from unsuspected banking public until their eventual collapse and belated regulatory interventions.

<u>*Keywords*</u>: Income smoothing; earnings management; audit quality; loan loss provisions; banking crisis; emerging economy

INTRODUCTION

Nigeria economic prosperity was greatly threatened by a monumental crisis in her banking sector in the 1990s spanning into the new millennium. The crisis almost led to the total collapse of the entire banking/financial sector of the country. One can appreciate the importance of such crisis if over 25% (i.e. 32 out of 120) of the country's banks became distressed and eventually liquidated during the period. The susceptibility of a banking industry to colossal crisis is adequately documented in the literature. Campbell (2006), for example, notes the "inevitable limit" in the capability of "effective supervision" and other related steps to prevent or resolve banking crisis (see also Campbell and Cartwright, 2002). Hence the need to examine other probable contributing factors to the crisis.

I do not in any way suggest that banking crisis is limited to Nigeria or emerging economies. For example, the US is currently going through its own banking and financial turmoil. However, while the current US experience is largely influenced by the unprecedented and monumental collapse of its mortgage industry, the Nigerian context is not completely evident. However, the common denominator to both crises is the abysmal failure of the regulatory frameworks at the macro/systemic level.

In the Nigeria context, several scholars, practitioners and commentators have examined variety of issues and causes of the crisis. No one, to the best of my knowledge, has directly examined the financial reporting practices of the banks, especially as it relates to the real potential for aggressive earnings management and the impact on the quality of earnings that were reported by the failed banks in their financial statements to their owners and other relevant stakeholders. Therefore, I hypothesize and find evidence that aggressive earnings management was a key contributing factor to the banking crisis and that ignoring this evidence could undercut/undermine the recovery and preventive policies of the regulators to forestall future occurrences. For example, my study reveals that the quality of earnings of the failed banks is poorer than the healthy ones and that managers of the former deliberately under-provided/understated loan loss provisions in an attempt to report decent profitability as a signal of the soundness of their banks to the unsuspecting and unsophisticated Nigerian banking public and other relevant stakeholders; most of whom fixated on reported performance (profitability) as a measure of the soundness of banks. In sum, earnings quality, generally measured in the earnings management literature as the extent of the managerial use of discretionary accounting choices, is the focus of this study.

While the widely documented qualitative reasons advanced in the previous literature as causes of the banking crisis could be valid in their own merit, it is suffice to say that signs of impending crisis could have been evident in the financial fundamentals of those banks if only such were explored and closely monitored. Consequently, regulators and other stakeholders would have arguably taken appropriate proactive measures to avert the crisis and more importantly its colossal and devastating impact on the Nigerian hitherto buoyant economy.

Nigeria is a developing country with developing capital/stock markets. One of the characteristics of a less developed capital/stock market is undoubtedly the lack of sophistication to a degree that one finds in advanced or developed capital/stock markets. Leuz et al (2003) submit that managers' discretionary use of accounting choices in managing earnings "is more pervasive in countries characterized by less developed stock markets..." Therefore, examining the quality of reported earnings of Nigeria banks during the nation's banking crisis is considered a significant research effort.

The promise with which the Nigeria banking sector is coming out of the crisis is assuring and encouraging and hopefully will be sustainable. This feat is being achieved in part; by the massive merger and acquisition actions taking place in the industry as well as some strong regulatory requirements that should provide conducive and enabling environments for prosperous banking practices and culture. However, it is important to learn lessons from the past occurrences that can avert future reoccurrence of such crisis. One of such lessons will be to monitor earnings quality of the banks.

The remainder of the paper proceeds as follows. The next section briefly describes the background of the Nigerian banking industry and also examines earnings management and its impact on earnings quality reported by managers. This then motivates research questions and the hypotheses to be tested in the study. Section 3 describes the research design which includes

sample selection, data and the empirical model specifications. In section 4, I present and discuss the empirical results while the conclusion is presented in Section 5.

BACKGROUND

Dynamics of the Nigerian Banking Industry in The 1990s

The significance of the banking industry to a nation's financial system cannot be overemphasized (Campbell, 2006). Nigeria experienced a crisis in her banking industry in the 1990s which led to the failure of 32 banks out the existing 120 banks. With over 25% of the nation's banks distressed and subsequently liquidated and over 85% of depositors savings vanished (see Neu et al, 2010), one could only imagine the turbulence in her financial system and the economy at large. Some of the causes examined by prior research include the unguided adoption of the IMF policy of structural adjustment program (Neu et al, 2010), questionable professionalism on the parts of auditors (Okike, 2004), weak regulatory structures/framework (Daumont et al, 2004), the insensitivity of the accounting professional organization (Uche, 2002) and the conflicting micro/macro economic policies of the country (Iyhoa and Oriakhi, 2002). While these streams of thoughts are valid in their own merits, it is also important to examine the financial reporting patterns of the banks and the potential of managers to abuse the accounting discretionary powers in the financial reporting process. This motivation is stronger if one considers the assertion of Leuz et (2003) that "weak outsider protection and private control benefits create incentives to manage earnings".

In order to strengthen the financial reporting process, the Government statutorily required every bank to maintain proper books of account and publish same after duly certified by approved auditor who shall express professional opinions as to the truth and fairness of the accounts¹ (see Banking and Other Financial Institutions Decree (BOFID 1991²). In a manner similar to the popular requirement for publicly owned firms, every bank either privately or publicly owned must engage the professional services of auditors, and publish its financial statements including auditors' opinions within stipulated time frame. In other words, the financial statements of all banks (regardless of public or private ownership) are publicly available and accessible to relevant stakeholders. However, many depositors and shareholders apparently were unsophisticated, but instead 'fixate' on reported profits, which inherently were mostly managed to achieve managers' financial reporting objectives. However, some of these managerial objectives might be in conflict with those of other relevant stakeholders.

Unlike in most developed banking environments, capital base requirement for Nigeria banks was small. It was just two billion naira³. To attest to the weakness in the capital base, the Central Bank of Nigeria (CBN) in an attempt to intervene in the crisis mandated that every bank must recapitalize to \$25 billion by the end of 2005 calendar year. This 1150% increase in capital base requirement forced aggressive merger and acquisition in the country's banking industry⁴.

The CBN justifying such a huge mandatory increase noted that the best option "to salvage the nation from the 1990s distress" was to recapitalize the banks (Guardian, August 12, 2004).

Earnings Management and Quality of Earnings

The opportunistic tendencies of managers to maximize their interests through the use of discretionary powers in making accounting choices has been widely examined in the literature. For example, Cornett et al (2008) relying on earlier literature recognize that firms characteristically "use the latitude in accounting rules to manage their reported earnings in a wide variety of contexts..." (see also Healy and Wahlen, 1999; Beneish and Vargus, 2002; Cheng and Warfield, 2005; Bergstresser and Philippon, 2006).

According to Ahmed et al (1999), loan loss provisions constitute a big accrual for commercial banks, implying that the impact of such a measure on the banks' earnings and regulatory capital cannot be insignificant. Beaver and Engel (1996) refer to this measure as a "major accrual in the banking industry". Liu and Ryan (2006) argue that banks conceal their earnings management intentions from regulatory authorities, auditors and the public by ensuring that loan loss allowances do not "fluctuate too much". I interpret such bank actions as managing the impressions of those players in order to avoid increased and careful scrutiny/monitoring by regulators and the public.

Making adequate loan loss provisions clearly indicates the best case scenario. It is however not clear what level/amount is considered adequate. Notwithstanding, I believe that the higher the loan loss provisions, the better the soundness of the overall loan profile of the bank. My assertion here is informed by the following: (1) an increase in the bank's loan loss provisions suggests that such a bank is more likely than not to have made adequate provisions for potential loan default; and such a disclosure is considered useful to relevant stakeholders; (2) higher loan loss provisions arguably indicate the ability of the bank earnings to absorb such expense in its income statements. Beaver et al (1989), (c.f. Wahlen, 1994) argue that investors interpret increased loan loss provisions as a sign of strength, "...because it indicates that management perceives the earnings power of the bank to be sufficiently strong that it can withstand a 'hit to earnings' in the form of additional loan loss provisions." (See also, Barth et al, 1991)

These two reasons constitute my motivations for studying the Nigerian bank crisis in the 1990s in the context of earnings management. I conjecture that many of the distressed banks used loan loss provisions to window-dress their reported earnings by under-provision so as to report questionable 'higher' performance as the Nigerian public 'fixate' on reported earnings. That is, interpreting high reported earnings as favorable information ignoring the fact that for earnings to be sustainable, it should be supported by necessary fundamentals. (See Akindayomi, 2010; Yasuda et al, 2004 on similar evidence from Japan)⁵. The unsophisticated Nigerian depositors generally measured how well a firm performs by the amount of profit that such a firm reports. This simply creates an incentive for the banks to manage the expenses side of the income

statement downward. Since managers can exercise discretions on loan loss provisions, this variable becomes an easy target for earnings management within this context.

One can rightfully argue that a sound regulatory environment should have preempted such a crisis. However, the crisis and its monumental dimension were manifestations of the fact that the regulatory environment in the country was very weak. Nigeria for the most parts of the pre and post banking crisis period was being ruled by very unstable military juntas whose regimes were characterized by the worst imaginable level of corruption and incompetency (see also Ojo, 2006; Werlin, 1995). Several regulatory institutions such as the Central Bank of Nigeria (CBN) and Nigeria Deposit Insurance Corporation (NDIC)⁶ were very much incapacitated in their roles by the then overall systemic decadence in the country (for more on the regulatory environment, see Neu e al, 2010).

RESEARCH QUESTION AND HYPOTHESES

Following the indicated motivations for the study and the discussions above, it becomes imperative to ask the research question: does earnings management contribute to the Nigeria banking crisis in the 1990s? In order to answer this question, I intend to test the following hypotheses

 H_1 : Nigerian banks used loan loss provisions to engage in earnings management during the sample period.

 H_2 : Distressed banks are more likely to make less loan loss provisions compared to Healthy banks.

H₃: Audit quality moderates the level of earnings management undertaking by the banks.

Hypothesis 1 is informed by the earnings smoothing argument. It is generally believed that firms, including banks do smooth earnings especially during the good business years (see Liu and Ryan, 2006). Loan loss provisions as a variable is considered a prime candidate for achieving this purpose (see Ahmed et al, 1999; Beatty et al, 2002; Liu and Ryan, 2006). It must be stressed however, that income smoothing is a form of earnings management and if unguided, may lead to material misstatement of accounting numbers and thus compromise the financial reporting process.

The second hypothesis is central to the objective of this study. Given the probably lack of sophistication on the part of depositors and other relevant parties, and following the Leuz et al (2003) assertion, it is appropriate to expect that the financial reporting objectives of the banks in distress will reflect a considerable amount of aggressive earnings management activities, in part, as a coping strategy. I believe that such banks would like to repeatedly report higher earnings so as to continue to attract deposits and other banking businesses from the public, as these players 'fixate' on earnings as a measure of how sound a bank was. Consequently, these (distressed) banks will adopt increasing financial reporting objectives which among others, will prominently

involve making less and less loan loss provisions even if the underlying characteristics of those loans require otherwise.

Audit quality has been found to improve earnings quality by constraining the extent of managers' earnings management behaviors (see Balsam et al, 2003; Craswell et al, 1995). During the sample period, some of the Nigerian banks were audited by some of the so-called big international audit firms. These firms (as was being called then) were Coopers & Lybrand, Price Waterhouse, Peat Marwick, Deloitte, and Arthur Anderson. It would therefore be interesting to see the extent of the impact of auditor's 'brand' name on audit quality and by extension reported earnings quality.

RESEARCH DESIGN

Sample Selection and Data

I employ panel data of Nigerian banks covering the periods of 1987 through 1993. I only include commercial and merchant banks⁷. I exclude specialized banks such as development banks, community banks, mortgage institutions, partly because the regulatory environments and the operational mechanisms of these banks are largely different from the regular banks that substantially rely on public patronage. In addition, the excluded banks might not have any incentive to manage earnings and if they did, the rationale is expected to be largely different.

There are 120 banks used in my sample of which 88 are healthy and 32 are distressed. The distressed banks were subsequently liquidated. In 2000, NDIC provides the list of banks that were distressed and subsequently liquidated. This list is contained in the third quarter issue of its NDIC Quarterly (NDIC 2000). 80 of the banks were audited by the big internationally audit firms⁸ while the remaining 40 were audited exclusively by the local audit firms. 70 of the banks were publicly quoted in the Nigeria Stock Exchange, while the remaining 50 were not publicly quoted⁹.

The financial data for the banks in my sample are obtained from Nigeria Banking, Finance and Commerce; NBFC (1994), a publication of the Research and Data Services Limited, a private Nigeria company specializing in gathering financial information of banks in a standardized format. For example, in addition to the annual reports and a five-year summary of banks' financial information, this publication also contains detailed information concerning bank external auditors and ownership structure of the entire population of the nation's banks. In order to validate the data sets in this publication, I obtain the annual financial statements of most of the banks in my sample. I also compare the data with the electronically assessable database of the African Businesses Research Limited (www.africanfinancialmarkets.com). My review corroborates its accuracy (see Neu et al (2010), for studies that have used this publication in the past).

Empirical Design

Studies have shown that managers manage loan loss provisions for the following main reasons: signaling (and by extension, earnings management) and capital management (see Ahmed et al, 1999; Cornett et al, 2008). Therefore, In order to investigate the research question and test the hypotheses stated above, I use the following empirical design:

| $LLP_{it} = \alpha_0 + \alpha_1 EBTP_{it} + \alpha_1 EBTP_{it}$ | $\alpha_2 ROA_{it} + \alpha_3 STATUTORY_{it} + \alpha_4 LOAN_{it} + \alpha_5 SIZE_{it} + \alpha_6 Year Dummies + \varepsilon_{it}$ | (1) |
|---|--|-----|
| Where: | | |
| LLP | = Loan loss provisions scaled by deposit | |
| EBTP | = Earnings before taxes and loan loss provisions scaled by deposit | |
| ROA | = Profit after taxes divided by Assets | |
| STATUTORY | = Statutory reserves balance scaled by deposits | |
| LOAN | = Gross loan balance scaled by deposit | |
| SIZE | $= \ln (\text{total assets})$ | |
| Year Dummies | = The fiscal year when LLP is measured. | |

I deflated LLP, LOAN and STATUTORY by deposits to control for the possible heteroskedasticity effect of bank deposits. I use EBTP to test the signaling effect/income smoothing and so expect α_1 to be positive. I expect to further test the earnings management incentive with the ROA variable. Recall my earlier argument that Nigeria banks could also manage loan loss provisions as a means of manipulating profitability due to the fact that Nigeria public naively 'fixate' on reported performance as a substantial measure of the soundness of the banks. Therefore, I expect α_2 to be negative. It is generally believed that banks' statutory reserve is more visible and so could easily invite regulators interventions. Therefore, STATUTORY variable is introduced to proxy for the possible capital management incentive of managers during the sample period. I expect α_3 to be negative in that the lower the capital level; the higher loan loss provisions (see Ahmed et al, 1999). As argued earlier, I do not expect the incentives for capital management to be strong as there was a very weak capital regime in the country prior to and during my sample period and the fact that establishing a bank required very small minimum capital. The control variables in the above model are the SIZE and the LOAN variables. Expectedly, α_4 should be positive. The mixed findings of the effect of the SIZE variable (see Bishop, 1998 and Watts and Zimmerman, 1986) make it difficult to predict a priori the sign of α_5^{10} .

Recall that while some banks survived the Nigerian banking crisis of the 1990s, some did not. In fact, the distressed banks did not survive the crisis. Therefore, in order to investigate whether there is a difference in the incentives for the banks to under-provide for loan loss so as to manipulate profitability given the naivety of Nigerian public to 'fixate' on profits, I introduced a binary variable STATUS and interact this variable with ROA in the equation below:

$$LLP_{it} = \alpha_0 + \alpha_1 EBTP_{it} + \alpha_2 ROA_{it} + \alpha_3 STATUTORY_{it} + \alpha_4 LOAN_{it} + \alpha_5 SIZE_{it} + \alpha_6 STATUS + \alpha_7 Year Dummies + \epsilon_{it}$$
(2a)

$$LLP_{it} = \alpha_0 + \alpha_1 EBTP_{it} + \alpha_2 ROA_{it} + \alpha_3 STATUTORY_{it} + \alpha_4 LOAN_{it} + \alpha_5 SIZE_{it} + \alpha_6 STATUS_{it} + \alpha_7 STATUS^*ROA_{it} + \alpha_8 Year Dummies + \epsilon_{it}$$
(2b)

STATUS takes the value of 1 if the bank was healthy and 0 if the bank was distressed. In both equations above (2a&b), a positive sign for α_6 will imply that healthy firms engage more in smoothing than the distressed ones by providing for more loan losses in period of improved earnings. On the other hand, a positive sign for α_7 in equation 2(b) will be interpreted to mean that distressed banks aggressively under-provide for loan losses in order to inflate profitability consistent with the naïve fixation doctrine.

In order to test hypothesis three, I adjust equation 2(a) above by including the binary variable AUDIT as follows:

$$LLP_{it} = \alpha_0 + \alpha_1 EBTP_{it} + \alpha_2 ROA_{it} + \alpha_3 STATUTORY_{it} + \alpha_4 LOAN_{it} + \alpha_5 SIZE_{it} + \alpha_6 STATUS_{it} + \alpha_7 AUDIT_{it} + \alpha_8 Year Dummies + \varepsilon_{it}$$
(3)

AUDIT takes the value of 1 if a bank is audited by any of the big international audit firms and 0 if solely audited by local audit firms. I will interpret a positive α_7 as an indication that banks audited by foreign audits firms are more likely to make adequate provisions for loan loss relative to the banks that are solely audited by local firms, as the big foreign audit firms moderate the potential for deliberate or unwarranted underprovision of loan losses by their clients.

I estimate the above models using OLS regression analysis. The results are the provided in the next section.

EMPIRICAL RESULTS

Descriptive Statistics

Table 1 presents the descriptive statistics and the correlation matrix for the appropriate variables in panel A and B respectively. There are usable 502 firm year observations for a total of 120 firms. On the average, the banks generate annual earnings before taxes and loan loss provisions of \$0.087 billion (median \$0.021 billion). The banks' assets averaged \$2.83 billion (median \$0.59 billion), raking in an average deposit of \$1.66 billion (median \$0.403 billion). The average loan granted by the banks during the sample period amounted to \$0.65 billion

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(median \$0.12 billion) while making average provisions for loan loss of \$0.037 billion (median \$0.005 billion) during the same period. Return on assets is approximately 1.6% (median 1.5%).

The correlation matrix is shown in panel B and it indicates that the selected variables are significant at conventional thresholds. Notably, while earnings before taxes and loan loss provisions are positively related to loan loss provisions, returns on assets displays negative relationship with loan loss provisions but positive relationship with banks' earnings before taxes and loan loss provisions.

| Table 1: Descriptive Statistics and Correlation Matrix | | | | | | | |
|--|---------------------------------|-----------------------|--------|----------|---------|--|--|
| | Panel A: Descriptive Statistics | | | | | | |
| | | N = 502: F | = 120 | | | | |
| Variables | Mean | Std. deviation | Median | Q1 | Q3 | | |
| Loan (Nbillion) | 0.650 | 4.82 | 0.12 | 0.062 | 0.30 | | |
| Assets (Nbillion) | 2.83 | 18.3 | 0.59 | 0.325 | 1.354 | | |
| Deposit (Nbillion) | 1.656 | 9.819 | 0.403 | 0.222 | 0.867 | | |
| LLP (Nbillion) | 0.037 | 0.243 | 0.005 | 0.0009 | 0.016 | | |
| EBTP (Nbillion) | 0.087 | 0.513 | 0.021 | 0.009 | 2.053 | | |
| STATUTORY | | | | | | | |
| (Nbillion) | 0.024 | 0.076 | 0.007 | 0.002 | 0.020 | | |
| ROA (%) | 1.6 | 3.5 | 1.5 | 0.7 | 2.7 | | |
| LLP/DEP | 0.028 | 0.208 | 0.010 | 0.003 | 0.023 | | |
| LOAN/DEP | 1.027 | 15.262 | 0.321 | 0.183 | 0.472 | | |
| EBTP/DEP | 0.072 | 0.237 | 0.506 | 0.029 | 0.079 | | |
| | Р | anel B: Correlation N | Matrix | · · | | | |
| Variables | LLP/DEP | LOANOUT | T/DEP | EBTP/DEP | ROA (%) | | |
| LLP/DEP | 1 | | | | | | |
| LOAN/DEP | 0.990 | 1 | | | | | |
| EBTP/DEP | 0.910 | 0.902 | | 1 | | | |
| ROA (%) | -0.071 | -0.019 |) | 0.163 | 1 | | |

Note on Panel A: The model is estimated using 502 firm-year observations for a total of 120 firms with no missing data. The firm years span through 1987 through 1993. Loan is the year-end loan outstanding; Assets(TA) is the year-end balance sheet value of the total assets; Deposit is the respective bank deposit for the year; LLP is the year-end loan loss provisions; EBTP is the earnings before tax and loan loss provisions for the year; STATUTORY (STAT) is the year-end statutory reserve; ROA is the return on asset.

<u>Note on Panel B</u>: Variables are as described above scaled by deposit. All correlations are significant at conventional thresholds except otherwise indicated as a superscript NS.

Regression Results

Table 2 provides the regression coefficients of the baseline model¹¹. The significant positive coefficient of EBTP indicates that Nigerian banks like most banks use loan loss provisions to smooth income and signal their earnings capacity (referred to as signaling effect in the literature). One interpretation is that these banks make increased provisions for loan loss to signal to financial statements users that the banks' earnings profile is strong enough to take such a hit (i.e. increased loan loss provisions). Similarly, these banks generally make increased

provisions for loan loss in the years when earnings are high (vice versa; see discussions on ROA below). This smoothening/signaling activity is considered by some to be a sign of good news. Notwithstanding, income smoothening/signaling is a form of earnings management in that it is grossly a product of the exercise of managers' discretionary accounting powers. On the other hand, increasing loan loss provisions in itself implies the ability of the bank to steadily withstand eventual loan defaults without threatening the operational existence of the banks, especially in a crisis period. Therefore, I further investigate the loan loss provisions behaviors of the managers through profitability.

| Table 2: Regression Coefficients Estimates $\{N = 502; F = 120\}$ | | | | | | |
|---|------------------|---------|--|--|--|--|
| Panel A (Without Dummy Variables) | | | | | | |
| Variable {Dependent: LLP} Predicted Sign | Coefficients | p-value | | | | |
| EBTP + | 0.089 | .000 | | | | |
| ROA - | -0.016 | .014 | | | | |
| STATUTORY + | 0.028 | .426 | | | | |
| LOAN + | 0.883 | .000 | | | | |
| LNTA ? | 0.021 | .000 | | | | |
| Adj. R ² overall | 0.542 | | | | | |
| Panel B (With D | oummy Variables) | | | | | |
| EBTP + | 0.091 | .000 | | | | |
| ROA - | -0.017 | .010 | | | | |
| STATUTORY + | 0.027 | .457 | | | | |
| LOAN + | 0.884 | .000 | | | | |
| LNTA ? | 0.022 | .001 | | | | |
| Adj. R ² overall | 0.544 | | | | | |
| | C 1 C100 C1 | 1 171 0 | | | | |

The model is estimated using 502 firm-year observations for a total of 120 firms with no missing data. The firm years span through 1987 through 1993. Loan is the year-end loan outstanding; Assets(TA) is the year-end balance sheet value of the total assets; Deposit is the respective bank deposit for the year; LLP is the year-en loan loss provisions; EBTP is the earnings before tax and loan loss provisions for the year; STATUTORY (STAT) is the year-end statutory reserve; ROA is the return on asset. Variables are as described above scaled by deposit. Years are indexed by t and firms by i, time dummies are suppressed for expositional convenience.

The coefficient of ROA is negative and significant at the 5% level. I interpret this result to mean that in years of high profitability, loan loss provisions are low¹². The STATUTORY variable is positive but nonsignificant. This corroborates my earlier assertion that Nigerian banks did not have strong incentive for capital management due to the weak capital base requirement¹³. Other control variables (LOAN and LNTA) display expected pattern, that is, the larger the bank and the higher the bank loans profile, the higher loan loss provisions. Larger banks tend to have smoother earnings and loan loss provisions are positively related to the banks loans level.

In table 3, I introduce the STATUS variable to examine the relationship presented in table 2 above between LLP and ROA vis-à-vis the 'health' of the banks. STATUS is positive and significant at the 5% level. This suggests that healthy banks generally make more loan loss provisions relative to the distressed ones. This result becomes revealing when I introduced the interaction variable between STATUS and ROA (the results presented in table 4). The interaction

variable is strikingly positive and significant suggesting that in the years when a bank is distressed (healthy) but (and) profitable, the bank makes less (more) loan loss provisions. These findings thus mean that distressed banks deliberately understate or under-provide for loan loss provisions in order to boost profitability relative to the healthy ones, further corroborating the naïve fixation doctrine. In a context where there are concerns about regulatory adequacy, it might be costly to deliberately understate loan loss provisions, but in the case of Nigeria during the sample period, banks could achieve an increase in reported profitability without violating capital requirement as a result of the weak capital requirement regime.

| Table 3: Regression Coefficients Estimates $\{N = 502; F = 120\}$ | | | | | | |
|---|---------------------|-----------------|---------|--|--|--|
| Panel A (Without Dummy Variables) | | | | | | |
| Variable {Dependent: | LLP} Predicted Sign | Coefficients | p-value | | | |
| EBTP | + | 0.089 | .000 | | | |
| ROA | - | -0.016 | .018 | | | |
| STATUTORY | + | 0.034 | .342 | | | |
| LOAN | + | 0.878 | .000 | | | |
| LNTA | ? | 0.022 | .000 | | | |
| STATUS | + | 0.009 | .040 | | | |
| Adj. R ² overall | | 0.547 | | | | |
| | Panel B (With D | ummy Variables) | • | | | |
| EBTP | + | 0.091 | .000 | | | |
| ROA | - | -0.017 | .013 | | | |
| STATUTORY | + | 0.031 | .380 | | | |
| LOAN | + | 0.879 | .000 | | | |
| LNTA | ? | 0.022 | .000 | | | |
| STATUS | + | 0.009 | .041 | | | |
| Adj. R ² overall | | 0.549 | | | | |

The model is estimated using 502 firm-year observations for a total of 120 firms with no missing data. The firm years span through 1987 through 1993. Loan is the year-end loan outstanding; Assets(TA) is the year-end balance sheet value of the total assets; Deposit is the respective bank deposit for the year; LLP is the year-end loan loss provisions; EBTP is the earnings before tax and loan loss provisions for the year; STATUTORY (STAT) is the year-end statutory reserve; ROA is the return on asset. STATUS is a dummy variable that takes 1 if the bank is healthy and 0 if distressed. Variables are as described above scaled by deposit. Years are indexed by t and firms by i, time dummies are suppressed for expositional convenience.

Table 5 presents the results of the effects of audit quality on the banks propensity to manage earnings through loan loss provisions. The coefficient of the variable AUDIT is positive but only significant at the 10% level. This weak positive sign provides some evidence that banks audited by the big international audit firms are more likely to make 'adequate' loan loss provisions relative to the banks audited by the local firms. That is the big foreign audit firms moderate the incentives to mask bank performance and the potential for aggressive earnings management by their clients (i.e. the banks).

In sum, the above results show that there is evidence of earnings management by Nigerian banks during the sample period, with the distressed banks became more aggressive in their

earnings management behaviors. Therefore, one can infer that this contributes to the banking crisis that the nation witnessed in the 1990s.

| Coefficients 0.129 -0.022 0.034 0.793 0.018 0.082 0.045 0.547 0.130 -0.022 0.031 0.798 | p-value .000 .001 .342 .000 .002 .021 .000 .000 |
|--|---|
| 0.129 -0.022 0.034 0.793 0.018 0.082 0.045 0.547 0.130 -0.022 0.031 0.798 | .000 .001 .342 .000 .002 .021 .000 .000 |
| -0.022 0.034 0.793 0.018 0.082 0.045 0.547 0.130 -0.022 0.031 0.798 | .000 .001 .342 .000 .002 .002 .000 .000 |
| 0.034 0.793 0.018 0.082 0.045 0.547 0.130 -0.022 0.031 0.798 | |
| 0.793 0.018 0.082 0.045 0.547 0.130 -0.022 0.031 0.798 | .000 .002 .021 .000 .000 .013 |
| 0.018 0.082 0.045 0.547 0.130 -0.022 0.031 0.798 | .002 .021 .000 .000 .013 |
| 0.082 0.045 0.547 0.130 -0.022 0.031 0.798 | .001 .000 .000 .013 |
| 0.045 0.547 0.130 -0.022 0.031 0.798 | .000 .000 .013 |
| 0.547 0.130 -0.022 0.031 0.798 | .000 |
| 0.130 -0.022 0.031 0.798 | .000 |
| 0.130 -0.022 0.031 0.798 | .000 |
| -0.022 0.031 0.798 | .013 |
| 0.031 0.798 | 200 |
| 0.798 | .380 |
| | .000 |
| 0.016 | .009 |
| 0.077 | .030 |
| 0.046 | .000 |
| 0.549 | |
| ; $F = 120$ } | |
| · · · | |
| Coefficients | p-value |
| 0.089 | .000 |
| -0.016 | .014 |
| 0.043 | .235 |
| 0.869 | .000 |
| 0.023 | .000 |
| 0.008 | .047 |
| 0.010 | .086 |
| 0.551 | - |
| | |
| 0.092 | .000 |
| -0.017 | .010 |
| 0.041 | .258 |
| 0.870 | .000 |
| 0.023 | .000 |
| 0.008 | .048 |
| .011 | .074 |
| 0.555 | |
| | 0.549 ; F = 120} Coefficients 0.089 -0.016 0.043 0.869 0.023 0.008 0.010 0.551 0.092 -0.017 0.041 0.870 0.023 0.008 .011 0.555 h no missing data. Th |

indexed by t and firms by i, time dummies are suppressed for expositional convenience.

| Table 6: Regression Coefficients Estimates {N = 502; F = 120}Panel A (Without Dummy Variables) | | | | |
|--|---|--------|------|-------------------------|
| | | | | Variable {Dependent: Ll |
| EBTP | + | 0.089 | .000 | |
| ROA | - | -0.016 | .014 | |
| STATUTORY | + | 0.045 | .218 | |
| LOAN | + | 0.867 | .000 | |
| LNTA | ? | 0.022 | .000 | |
| STATUS | + | 0.007 | .048 | |
| AUDIT | + | 0.010 | .091 | |
| PUBLIC | ? | 0.003 | .645 | |
| Adj. R ² overall | | 0.550 | | |
| Panel B (With Dummy Variables) | | | | |
| EBTP | + | 0.092 | .000 | |
| ROA | - | -0.017 | .010 | |
| STATUTORY | + | 0.043 | .240 | |
| LOAN | + | 0.868 | .000 | |
| LNTA | ? | 0.023 | .000 | |
| STATUS | + | 0.010 | .047 | |
| AUDIT | + | 0.011 | .079 | |
| PUBLIC | ? | 0.003 | .630 | |
| Adj. R ² overall | | 0.551 | | |

The model is estimated using 502 firm-year observations for a total of 120 firms with no missing data. The firm years span through 1987 through 1993. Loan is the year-end loan outstanding; Assets(TA) is the year-end balance sheet value of the total assets; Deposit is the respective bank deposit for the year; LLP is the year-en loan loss provisions; EBTP is the earnings before tax and loan loss provisions for the year; STATUTORY (STAT) is the year-end statutory reserve; ROA is the return on asset. STATUS is a dummy variable that takes 1 if the bank is healthy and 0 if distressed AUDIT is a dummy variable that takes 1 if the auditor is local and 0 if foreign. Variables are as described above scaled by deposit. Years are indexed by t and firms by i, time dummies are suppressed for expositional convenience.

ADDITIONAL ANALYSES

In table 6, I attempt to examine whether there is a difference in the earnings management activities between publicly quoted and non-quoted banks. In equation 4 below, PUBLIC is a dummy variable which takes the value of 1 if quoted and 0 otherwise.

$$LLP_{it} = \alpha_0 + \alpha_1 EBTP_{it} + \alpha_2 ROA_{it} + \alpha_3 STATUTORY_{it} + \alpha_4 LOAN_{it} + \alpha_5 SIZE_{it} + \alpha_6 STATUS_{it} + \alpha_7 AUDIT_{it} + \alpha_8 PUBLIC_{it} + \alpha_9 Year Dummies + \varepsilon_{it}$$
(4)

The coefficient of PUBLIC is positive but non-significant at conventional thresholds. This implies that the ownership type (i.e. either publicly owned or not) does not affect the level of loan loss provisions made by Nigeria banks during the sample period. This result is interesting in that it challenges the conventional understanding that public banks have more incentives to manage earnings than private banks largely due to capital/stock market pressures (see Beatty et al, 2002).

One plausible explanation could be that since substantial number of the publicly quoted banks were audited by foreign audit firms and given the findings of model 3, audit quality could constraint earnings management potentials of client-banks. Further, it could be that the financial statements of all banks were public regardless of ownership type consistent with the requirement of the financial reporting disclosure environment that existed in the country then. On the other hand, private ownership could in itself impose somewhat strict monitoring on the private banks thus constraining their earnings management activities. In addition, the unsophisticated nature of the Nigerian stock market during those years could be a factor. The country's stock market has since undergone substantial reforms and it is safe to say that it is increasingly improving if one compares its current liquidity and capitalization level to earlier years.

Further, I subject the sensitivity of the results to alternative scalar choices. For example, I use total assets and gross income to scale the variables and the results are qualitatively similar.

CONCLUSIONS

I find evidence that during the sample period, managers of distressed banks in Nigeria deliberately under-provided/understated loan loss provisions in an attempt to report decent profitability as a signal of the soundness of their banks to the Nigerian banking public and other relevant stakeholders. This is an instance of aggressive earnings management and I submit that this is a contributing factor to the nation's banking crisis in that the public fixated on reported performance (profitability) as a measure of the soundness of banks, thereby ignoring some (majorly the distressed ones) reporting managers' real potentials for abuse in the use of their discretionary accounting powers to foster the pursuit of their selfish financial reporting objectives. This arguably made it possible for the distressed banks to continue to attract deposits and banking businesses from the unsuspected banking public.

Further I also find some evidence that audit quality moderates these earnings management behaviors, but that ownership type (quoted vs. unquoted) does not impact the level of loan loss provisions made by the banks. This is not unexpected given the then state of development of the country's stock market. In addition, I could not find evidence of capital management. I believe that this is due to the fact that then, there was a weak capital requirement regime in the nation's banking industry.

Notwithstanding state of the country's banking industry during the crisis, substantial improvements have been made towards sanitizing and improving that industry. In fact, the promise with which the Nigerian banking sector is coming out the crisis is assuring and encouraging and hopefully will be sustainable. This feat is achieved by massive merger and acquisition taking place in the industry, in addition to some regulatory requirements that should provide conducive and enabling environments for prosperous banking practices and culture. However, it is important to learn lessons from the past occurrences that can avert future

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reoccurrence of such crisis. One of such lessons will be to monitor earnings quality of the banks, especially given the findings of this study.

My findings are robust to alternative scalar choices and ownership type. Nevertheless they should be interpreted with caution in that it is somewhat difficult to measure earnings management. Also, if there is omitted variable, simultaneous causality or endogeneity bias, then the OLS estimates will no longer be consistent. It will be interesting for future studies to come up with appropriate instrumental variable(s) to correct such potential bias(es); such variable(s) are hitherto nonexistent in the literature in this area of empirical research.

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ENDNOTES

- 1. This reporting practice has been in effect even prior to the banking crisis.
- 2. After the end of the long military regime, the 'decree' in BOFID was changed to 'act' to reflect democratic legislation. Therefore, it is now BOFIA 1991 as amended.
- In fact Daumont, et al (2004) noted that the then capital requirement to establish banks in Nigeria was as low as \$300,000. Naira () is the currency of Nigeria since 1973 when the country switched from the 'pound' £sd currency system.
- 4. As would be argued later, capital management was not a priority of many of the banks prior to and during the crisis, but instead this study reveals that managers were more concerned about the quality of the accounting numbers that they report, hence the need for earnings management as a means to achieving this priority.
- 5. Yasuda et al findings reveal that "…naïve investors would interpret high reported earnings as being favorable information about bank health…".
- 6. .NDIC was established in 1988. According to its website (www.ndic-ng.com), it is to protect depositors in case of a bank failure "through effective supervision of insured institutions". Scholars have questioned not only the ability of such an agency to protect depositors, but also the extent of protection that depositors actually need (see Campbell, 2006; Hall, 2002; Sijben, 2002; Campbell and Cartwright, 1999).
- 7. With the emergence of universal banking, the distinction between commercial and merchant banking becomes inconsequential. However, the categorization existed during the sample period.
- 8. Note that in some years, some of the banks that I categorized as audited by the international audit firms were joint auditors with local audit firms. However, I assume that the presence of these big international firms will substantially influence or determine the quality of the audit engagements.
- 9. Recall that the same financial statement and audit requirements apply to all banks in Nigeria regardless of ownership type.
- 10. While Watts and Zimmerman argue that the "political cost hypothesis suggests a positive sign, Bishop suggests the "too big to fail hypothesis". The former presumes incentives to regulators for extra oversight on

big firms, the latter implies reluctance on the part of regulators to intervene in big firms (see also Kim and Kross, 1998; Core and Schrand, 1999).

- 11. I present and discuss results in panel B of the regression results tables (i.e. tables 2 through 6). Although the time dummies coefficients are suppressed for expositional convenience, in all my regressions, there are no significant differences in the years of the sample periods.
- 12. I am aware of the likely mechanical relationship that might subsist between this variable and the dependent measure. However, it becomes more telling if there is a difference in the results based on the 'health' of the banks, hence the need to introduce the STATUS variable (discussed below).
- 13. Excepting for the fact that this variable is not statistically significant, the positive sign on its own implies that even in years when the capital base was low, banks still made reduced loan loss provisions. This sign further shows that capital management was not a priority during the reporting banks.

REFERENCES

- Ahmed, A.S., C. Takeda & S. Thomas (1999). Bank loan provisions: A reexamination of capital management, earnings management and signaling effects. *Journal of Accounting and Economics*, 28(1), 1-25.
- Akindayomi, A. (2010). The dynamics of the informational contents of accounting numbers. In *Handbook on Business Information System, (pp.*639-652).World Scientific.
- Balsam, S., J. Krishman & J.S. Yang (2003). Auditor industry specialization and earnings quality. *Auditing: A Journal of Practice & Theory*, 22(2), 71-98.
- Barth, M., W. Beaver & C. Stinson (1991). Supplemental data and the structure of thrift share prices. *The Accounting Review*, 66(1), 56-66.
- Beatty, A. L., B. Ke & K.R. Petroni (2002). Earnings management to avoid earnings declines across publicly and private held banks. *The Accounting Review Review*, 77(3), 547-570.
- Beaver, W., C. Egger S. Ryan & M. Wolfson (1989). Financial reporting, supplemental disclosures, and bank share prices. *Journal of Accounting Research*, 27(Autumn), 157-178.
- Beaver, W. E. Engel (1996). Discretionary behavior with respect to allowance for loan losses and the behavior of security prices. *Journal of Accounting and Economics*, 22(1-3), 177-206.
- Beneish, M.D. & M.E. Vargus (2002). Insider trading, earnings quality and accrual Mispricing. Accounting Review, 77(4), 755-791.
- Bergstresser, D. & T. Phillippon (2006). CEO incentives and earnings management. *Journal of Financial Economics*, 80(3), 511-529.
- Bishop, M. L. (1998). Managing bank regulation through accruals. Working Paper, University of Pennsylvania, Philladelphia, PA.
- BOFID. (1991). Banks and other financial institutions decree No. 25, Part 1 Sec. 29(1).
- Campbell, A. (2006). Bank insolvency and the interests of creditors. Journal of Banking Regulation, 7(1/2), 133-144.
- Campbell, A. & P. Cartwright (1999). Deposit insurance. consumer protection, bank safety and moral hazard. *European Business Law Review*, 10(3/4), 96-102.
- Campbell, A. & P. Cartwright (2002). Bank in crisis: The legal response" Ashgate, Aldershot.
- Cheng, Q. & T.D. Warfield (2005). Equity incentives and earnings management. Accounting Review, 80(2), 441-476.
- Core, E.J & C.M. Schrand (1999). The effect of accounting-based debt covenants on equity valuation. *Journal of Accounting and Economics*, 27(1), 1-34.
- Cornett, M..M., A. J. Marcus, & H. Tehranian (2008). Corporate governance and pay-for-performance: The impact of earnings management. *Journal of Financial Economics*, 87(2), 357-373.
- Craswell, A. T., J.R. Francis & S.L. Taylor (1995). Auditor brand name reputations and industry specializations. *Journal of Accounting and Economics*, 20(3), 297-322.

- Daumont, R., F. Gall & F. Leroux (2004). Banking in sub-saharan Africa: What went wrong? Washington, International Monetary Fund, 48; WP/04/55.
- Guardian (2004). Bankers oppose 25 billion naira capital base. Lagos, Nigeria: online: retrieved August 12, 2004 from http://www.ngrguardiannews.com.
- Hall, M. (2002). Incentive compatibility and the optimal design of deposit protection Schemes. *Journal of Financial Regulation and Compliance*, 10(2), 115-134.
- Healy, P.M. & J.M. Wahlen (1999). A review of the earnings management literature and its implications for standard setting. Accounting Horizons, 13(4), 365-383.
- Iyoha, M. A. & D. Oriakhi (2002). Explaining African economic growth performance: The case of Nigeria." Interim Report on Nigerian Case Study prepared for the *African Economic Research Project*.
- Kim, M & W. Kross (1998). The impact of the 1989 change in bank capital standards on loan loss provisions and loan write-offs. *Journal of Accounting and Economics*, 25(1), 69-99.
- Leuz, C., D. Nanda & P.D. Wysocki (2003). Earnings management and investor protection: An international comparison. *Journal of Financial Economics*, 69(3), 505-527.
- Liu, C. & S.G. Ryan (2006). Income smoothing over the business cycle: Changes in banks' coordinated management of provisions for loan losses and loan charge-offs from the pre-1990 bust to the 1990s boom. *The Accounting Review*, 81(2), 421-441.
- NBFC (1994). Nigeria banking, finance and commerce. A publication of the research and data services limited, Lagos Nigeria.
- NDIC (2000). Nigeria deposit insurance corporation. NDIC Quarterly; Third Quarter
- Neu, D., A., Rahaman, J. Everett & A. Akindayomi (2010). The sign value of accounting: IMF structural adjustment programs and African banking reform. *Critical Perspectives on Accounting*, 21(5), 402-419.
- Ojo, E.O. (2006). Taming the monster: Demilitarization and democratization in Nigeria Armed Forces & Society, 32(2), 254-272.
- Okike, E. (2004). Management of crisis: The response of the auditing profession in Nigeria to the challenge to its legitimacy. *Accounting, Auditing & Accountability Journal,* 17(5), 705-730.
- Sijben, J.J. (2002). Regulation versus market discipline in banking supervision: An overview Part 2. Journal of International Banking Regulation, 4(1), 55-71.
- Uche, C. U. (2002). Professional accounting development in Nigeria: Threats from the inside and outside. *Accounting, Organizations and Society,* 27(4-5), 471-496.
- Wahlen, J.M. (1994). The nature of information in commercial bank loan loss Disclosures. *The Accounting Review*, 69(3), 455-478.
- Watts, R.L. & J.L. Zimmerman (1986). Positive accounting theory" Prentice-Hall, New Jersey.
- Werlin, H. H. (1995). Comparative solid waste management: The technical assistance Implications. *Journal of Asian and African Studies*, 30(3-4), 121-145.
- Yasuda, Y., S. Okuda & M. Konishi (2004). The relationship between bank risk and earnings management: Evidence from Japan. *Review of Qualitative Finance and Accounting*, 22(3), 233-248.

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