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LETTER FROM THE EDITORS

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.

Dr. Mahmut Yardimcioglu, Karamanoglu Mehmetbey University, is the Editor. The mission is to make the *AAFSJ* better known and more widely read.

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.

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DO CEOS AND PRINCIPAL FINANCIAL OFFICERS TAKE A "BATH" SEPARATELY OR TOGETHER?: AN INVESTIGATION OF DISCRETIONARY ACCRUALS SURROUNDING APPOINTMENTS OF NEW CEOS AND PFOS

Marshall A. Geiger, University of Richmond
David S. North, University of Richmond

ABSTRACT

This study presents the first targeted examination of changes in financial reporting surrounding the appointment of both new CEOs and Principal Financial Officers (PFOs). We identify companies that appoint new CEOs and PFOs in the period 1995 to 2002 and find that the change in discretionary accruals is negative and significant in the year of hire (from t-1 to t) for firms appointing a new CEO or both a new CEO and PFO (i.e., the "big bath"), but not for firms appointing only a new PFO. We also find that firms appointing both executives in the same year report significant increases in discretionary accruals in the subsequent year (from t to t+1) and for the combined two-years surrounding the joint appointments (from t-1 to t+1). However, similar increases are not found for firms hiring only one of these executives. Additional analyses indicate that our results are robust when examining other discretionary financial reporting choices (i.e., special items, extraordinary items and discontinued operations), and that the type of compensation contract offered by the firm (i.e., having a high bonus component) is not significantly related to the changes in discretionary accruals surrounding these appointments. Our findings contribute to the corporate governance and executive turnover literature and provide evidence of a heightened financial reporting effect when firms concurrently appoint both new CEOs and PFOs.

INTRODUCTION

Personal certification requirements for Chief Executive Officers (CEOs) and Principal Financial Officers (PFOs) arrived in corporate America during the summer of 2002 in the form of an SEC Order and the watershed Sarbanes-Oxley Act (Sarbanes-Oxley Act 2002; SEC 2002b, 2002c). These legislative mandates were the first in the U.S. to require CEOs and PFOs to separately and personally file sworn statements with the SEC regarding the material accuracy and completeness of their companies' periodic financial filings. The Congressional investigations leading up to these mandates highlighted the significant influence of both the CEO and PFO on corporate financial reporting and led to the adoption of legislation to hold both of these individuals personally accountable for the release of accurate and complete corporate financial disclosures (SEC 2002a, Williams 2002; Geiger and Taylor 2003; Smith 2004). As implied by personal certification requirements, and argued by prior researchers (Pourciau 1993; Geiger and North 2006), individual CEOs and PFOs exert substantial influence on the reporting of their company's financial condition, and a personnel change at either of these two positions could lead to significant changes in financial reporting outcomes for the company.

Prior researchers have paid particular attention to the effect of newly appointed CEOs on corporate financial reporting (Pourciau 1993; Murphy and Zimmerman 1993; Murphy 1999; Reitenga and Tearney 2003), and some research has begun investigation of the relationship between PFO appointments and a firm's reported financial information (Mian 2001; Aier et al. 2005; Geiger and North 2006). However, prior studies have focused on either CEO or on PFO turnover effects, and have not adequately considered turnover at both senior financial executive positions. While Mian (2001) finds that turnover at the CFO position is often accompanied by CEO turnover, we find no extant study that adequately examines concurrent turnover in both of these financial executive positions. In fact, no prior study examining changes in CEOs has considered concurrent turnover in PFOs, and, no extant PFO turnover study has adequately assessed or controlled for concurrent CEO turnover.

In order to properly examine the effect of both CEO and PFO turnover on changes in corporate financial reporting, we identify a sample of large publicly traded firms appointing a new CEO, a new PFO, or concurrently appointing both a new CEO and PFO in the same year. If individual CEOs and PFOs have the ability to effect financial reporting, a likely outcome would be the reporting of unexpected financial results by the hiring firm. Thus, we examine changes in a company's discretionary accounting accruals surrounding the change in personnel at either of these two positions. Using the EXECUCOMP database we are able to identify a sample of 9,550 company reporting years from 1995-2002 for which we can obtain unambiguous information on the individuals appointed as CEO and PFO of the firm. We use these reporting year observations to examine the effect of CEO and PFO turnover on financial reporting for large U.S. public companies. Specifically, we examine changes in a firm's performance-adjusted total discretionary accruals surrounding CEO and PFO appointments. We assess total discretionary accruals in order to include all reported accruals and not only the current accruals that might be more easily managed by company reporting executives (DeFond and Jiambalvo 1994; Kothari et al. 2005). Further, we examine performance-adjusted accruals in order to provide better control for unidentified firm performance effects that might unwittingly affect our discretionary accruals measure (Kothari et al. 2005; Reynolds and Francis 2006). In addition, unlike most prior executive turnover studies, we employ a fixed-effects approach in our regression analyses that provides enhanced control for unspecified firm-specific factors by assigning each firm to serve as its own control.

Our results indicate that changes in performance-adjusted discretionary accruals for large U.S. firms appointing new CEOs, new PFOs, and both in the same year, were all negative in the initial reporting year of the new executive (i.e., the "big bath" from *t*-1 to *t*); however they were significant only for the CEO appointment firms and firms appointing both a CEO and PFO in the same year, but not for the PFO appointment firms. Further, we find that changes in discretionary accruals are positive in the first full reporting year after companies appoint these new individuals (i.e., from *t* to *t*+1), however they are significantly different from non-hiring firms only when firms concurrently appoint a new CEO and PFO. We also find that only the firms hiring both financial executives in the same year report significant increases in accruals over the entire *t*-1 to *t*+1 two-year period surrounding the new appointments, providing further support for the compound effects of concurrent CEO and PFO hires.

Additional analyses indicate that our results are robust to the specification of financial reporting choice. Specifically, our findings with respect to performance-adjusted total discretionary accounting accruals are reinforced when examining other financial reporting choices such as the reporting of special items, extraordinary items and discontinued operations for our sample of large U.S. public firms.

We then examine whether the type of compensation package offered by the hiring firm to the new executive is related to changes in reported discretionary accruals. Results of these additional analyses indicate that high bonus firms exhibit higher year-end levels of discretionary accruals, but are not associated with differences in changes in discretionary accruals compared to low bonus firms. Thus we find evidence of an association between compensation type and levels of discretionary accruals; however, we do not find an association between compensation type and changes in levels of accruals for our samples of hiring firms.

Motivation for our study comes not only from the lack of comprehensive research on the effects of financial executive turnover on reported financial performance, but also from the continuing interest of legislators, corporate directors, investors, auditors, and the SEC regarding corporate financial reporting and the ability of individuals to affect reported corporate financial information (Levitt 2000; SEC 2002b; US Senate 2002; Bartov and Mohanran 2004; Desai et al. 2006). An individual CEO's or PFO's affect on earnings management, and their role in overall corporate governance, continues to be an issue of considerable debate and research focus (McVay 2006; Larcker et al. 2007; Cohen et al. 2008).

Our study contributes to the existing literature in several important ways. First, it extends the corporate governance and executive turnover literature, as well as the discretionary accounting choice literature, by presenting a comprehensive examination of the effect of both CEO and PFO turnover on changes in corporate financial reporting. Prior research has focused either on CEO turnover or PFO turnover, but has not adequately examined concurrent turnover in both of these financial executive positions. Second, we provide improved statistical analyses of changes in firm's discretionary accounting accruals by examining performance-adjusted total accruals, and employ a firm fixed-effects approach in our analyses to provide better control for performance related and firm-specific factors often overlooked in prior studies. Third, we contribute to the ongoing debate within the corporate governance literature regarding the significant influence of individual financial executives within the firm (Shen and Cannella 2002; Wells 2002; Smith 2004).

The remainder of the paper is organized as follows. Section 2 discusses the related literature and develops our hypotheses. Section 3 presents our research method. Section 4 presents our empirical results and Section 5 presents additional and robustness tests. The final section summarizes our main findings and offers suggestions for further research.

PRIOR LITERATURE AND HYPOTHESES

CEO Turnover and Financial Reporting

Financial statement participants, including corporate executives, investors, regulators, audit committees and external auditors, are all concerned with individuals and companies attempting to misrepresent the true financial position of the firm by manipulating reported accounting information (Levitt 1998, 2000; SEC 2000; Bartov et al. 2002; Bartov and Mohanran 2004; Desai et al. 2006). This concern has generated a considerable amount of research over the years into the influence of CEOs on the quality of corporate reporting and the existence of earnings management through the use of discretionary accounting choices (DeAngelo 1988; Dechow and Sloan 1991; Puffer and Weintrop 1991; Aboody and Kasznik. 2000; Barton and Simko 2002; Dechow and Dichev 2002; Wells 2002; Brickley 2003; Engle et al. 2003; McVay 2006; Larcker et al. 2007; Cohen et al. 2008). The influence of individual CEOs on corporate financial reporting has typically been assessed by identifying situations where large public companies appoint a new individual and then examining changes in reported financial information surrounding this turnover event. In sum, prior studies on CEO turnover have consistently found that companies appointing new CEOs are more likely to report reduced income in the initial year of the new CEO (i.e., at time *t*) – the financial “big bath” phenomena – and then report increased income in the immediately succeeding years (i.e., at time *t*+1) (Strong and Meyer 1987; DeAngelo 1988; Pourciau 1993; Murphy and Zimmerman 1993; Denis and Denis 1995; Murphy 1999; Wells 2002). In this way, new CEOs are often able to lay claim to improved financial performance under their new leadership. However, prior research has also concluded that companies hiring a new CEO are generally poorer performers in terms of previous stock price performance and financial profitability, with smaller firms being the most sensitive to these performance indicators (Murphy 1999; Matusmoto 2002). Prior empirical work has also documented that in planned successions, outgoing CEOs may attempt to inflate earnings and discretionary accounting accruals in their last years prior to departure in order to increase compensation and the likelihood of maintaining board seats (Dechow and Sloan 1991; Murphy and Zimmerman 1993; Reitenga and Tearney 2003).

However, no prior examination of CEO turnover has considered the impact of concurrent PFO appointments during the CEO turnover event horizon. The results of Geiger and North (2006) regarding the significant influence of CFOs on reported financial results, coupled with the fact that a substantial number of firms appoint a new CEO and PFO in the same year (Mian 2001), call in to question whether the results of these earlier CEO turnover studies are driven, or at least influenced, by concurrent PFO turnover.

PFO Turnover and Financial Reporting

While the literature is fairly established for CEO changes and corporate reporting, there has been relatively little direct investigation of the influence of the PFO in the financial reporting process. In the first general examination of PFO appointments, Mian (2001) examined companies hiring a new CFO and documents where the new CFOs come from and where the former CFOs went to in the corporate executive turnover process. Similar to CEO turnover events, he also concluded that CFO turnover is often punitive in nature, in that it is regularly preceded by poor stock price and operating income performance; and also noted that CFO turnover is preceded by relatively high CEO turnover. However, Main (2001) did not assess the effect of CFO turnover on the company's reported financial results.

More recently, several post-Sarbanes-Oxley Act studies have begun to examine the impact of PFO appointments on corporate financial reporting by assessing levels of discretionary accounting accruals. Menon and Williams (2004), Dowdell and Krishnan (2004) and Geiger et al. (2005) examine the impact of a company hiring a financial reporting executive directly from their external audit firm – i.e., the hiring practice referred to as the "revolving door" – which is now restricted under the Sarbanes-Oxley Act. Menon and Williams (2004) examine companies that over time have appointed former partners of their external audit firm to PFO positions, as well as to board of director's positions, and find that discretionary accruals are significantly higher for companies appointing individuals from their external audit firms into PFO positions. Dowdell and Krishnan (2004) and Geiger et al. (2005) provide a more direct assessment of hiring individuals directly from the company's external audit firm into corporate financial reporting positions and report mixed results. Dowdell and Krishnan (2004) conclude that levels of signed and absolute discretionary accruals are higher for these hiring companies, while Geiger et al. (2005) find no differences with respect to changes in absolute total accruals or non-operating accruals once these individuals begin their employ with the company.

The first targeted examination of the general effect of hiring PFOs on company financial reporting is presented in Geiger and North (2006). Their study examines changes in signed current discretionary accruals surrounding CFO appointments for a broad sample of public companies and concludes that current discretionary accruals decrease significantly over a two year period surrounding the appointment of a new CFO. Geiger and North (2006) also present a test for concurrent CFO and CEO hiring by examining a sub-sample of their CFO hiring firms that also appointed a new CEO. However, their analysis may be confounded by their identification of concurrent CEO appointments. Specifically, they identify CFO hiring firms that also appoint a CEO during the t-1 to t+1 time period surrounding the CFO appointment. Therefore, they include not only cases where companies appoint both a new CFO and CEO in the same year, but also companies that hire a CFO in one year and a CEO in either the year prior or subsequent to the CFO hiring (i.e., years t-1 and t+1). This possible confounding due to the inclusion of differing timings of the CEO and CFO appointments readily could have lead to their non-significant results when assessing this sub-sample of CFO hiring firms, particularly in light of the findings of the present study.

Changes in Discretionary Accruals and CEO/PFO Turnover

Prior authors have argued that the level of discretionary accounting accruals reported by a company is an indication of management's use of the reporting flexibility and choice inherent in current generally accepted accounting principles that allow companies considerable latitude to either increase or decrease reported net income (Schipper 1989; Jones 1991; Healy and Wahlen 1999; Levitt 2000; DeFond and Park 2001). Earlier research has differentiated between nondiscretionary (or normal) and discretionary (or abnormal) components of accounting accruals. Nondiscretionary accruals are the expected, or normal, level of accruals for the company based on factors such as type of operating industry, company size, level of property plant and equipment, and revenue growth (Jones 1991; DeFond and Jiambalvo 1994; Kothari et al. 2005). The discretionary, or abnormal, accrual for a company is the unexpected component of accruals and is the difference between actual levels reported and the level expected to be reported by the company for the period. Since discretionary accruals are largely subject to management's reporting judgment, and are therefore potentially more easily changed than are nondiscretionary accruals, if individual CEOs and PFOs can significantly impact corporate financial reporting we would expect that influence to be manifest in changes in the levels of discretionary accruals reported by companies making a change in senior financial executive personnel. In this study we examine the association between appointing a new CEO or new PFO and changes in a company's financial reporting by assessing changes in total discretionary accounting accruals. We assess total signed discretionary accruals in order to include all firm reported accruals and not only the current accruals that might be more easily managed by company reporting executives (DeFond and Jiambalvo 1994; Levitt 2000).

Prior research has consistently documented that new CEOs are more likely to reduce income when they are first appointed (i.e., the "big bath" in time t), and then report significant increases in income in the year subsequent to their appointment (in time t+1) (Strong and Meyer 1987; DeAngelo 1988; Pourciau 1993; Murphy and Zimmerman 1993; Denis and Denis 1995; Murphy 1999; Wells 2002). In other words, the new executive wants to "clean the corporate financial house" when they are first appointed and they do so by making reporting choices that reduce income in the year of their hire in order to report more favorable results in subsequent years under their direction. Once the company has eliminated the possible effects of future asset write-downs or reserve shortfalls, for example, by taking the write-offs and increasing reserves in their initial year, future periods are less likely to include these or similar charges to income and, therefore, appear more profitable in comparison. Thus, we expect that our total discretionary accruals results would be consistent with this general pattern of income reducing accruals from time t-1 to t when the new executive is hired, and then show income increasing accruals in the subsequent year from time t to t+1.

When examining CFO turnover, however, Geiger and North (2006) identify a broad sample of public firms and find that CFO hiring companies have significantly higher current discretionary accruals in the year prior to appointing a new CFO (in time t-1) and then report uniform decreases in these current discretionary accruals over the entire t-1 to t+1 period. Unlike the earlier CEO turnover research, they report that the decrease in current discretionary accruals from t-1 to t for their sample of all firms in COMPUSTAT is not significant for the CFO turnover firms, indicating no substantial support for the "big bath" in the initial reporting period. Geiger and North (2006) also report that the change in current discretionary accruals from t to t+1, unlike the findings on CEO turnover, is again negative but not significant. However, they find that the aggregate two-year change in current discretionary accruals for their sample of CFO hiring firms is significantly negative compared to non-hiring firms.

There are several possible reasons for the disparity in the findings regarding the change in financial reporting between the CEO turnover studies and the results reported in Geiger and North (2006) for CFO turnover. It could be that CEOs and CFOs differ with respect to their influence on the reported results of their firms. This might suggest that CEOs have greater influence over these reported changes than CFOs, or that new CEOs are more interested in reporting subsequent positive financial results than are new CFOs. The difference may also be due to the use of differing financial reporting metrics across the studies. Prior CEO turnover studies have often used summary financial measures such as changes in net income or total accruals; however, Geiger and North (2006) examine changes in current discretionary accruals, representing only a portion of all firm accruals. Additionally, the differences in sample composition between studies likely affect the results. Specifically, Geiger and North (2006) include all firms in COMPUSTAT with available data, leading to the inclusion of a significant number of relatively small public firms in their sample. In contrast, the vast majority of earlier CEO turnover research has been performed on the largest public companies where financial and turnover data has historically been more readily available. For example, Engel et al. (2003) and Reitenga and Tearney (2003) use the *Forbes* Annual Compensation Survey consisting of the 800 largest public firms to identify their sample, Farell and Whidbee (2003), similar to the present study, use the EXECUCOMP database to identify their sample, and Desai et al. (2006) indicate that the average total assets for firms in their study is \$1.1 billion. This compares to the average total assets for the sample of firms examined in Geiger and North (2006) of only \$88 million. Thus, the average firm size in the sample examined in Geiger and North (2006) is on the order of approximately 11 times smaller than most prior research examining CEO turnover. Accordingly, somewhat divergent results between studies using different financial reporting metrics and vastly different sizes of sample firms may not be unexpected when examining executive turnover.

Since the majority of the extant CEO turnover research has been performed on larger, more closely followed public firms like those included used in this study, we believe our results will be more consistent with the "big bath" reporting phenomena documented in the extant CEO turnover literature. This expectation is also driven by the fact that we examine total discretionary accruals, and not current accruals, in order to assess changes in overall firm reporting postures surrounding these new executives (DeFond and Jiambalvo 1994; Kothari et al. 2005). Therefore, we expect that our sample of large companies hiring new CEOs and new PFOs would initially report significant reductions in the level of total discretionary accruals in the year of appointment (from *t*-1 to *t*) and then report significant increases in total discretionary accruals in the year after their initial appointment (from *t* to *t*+1) compared to companies not hiring a new CEO or new PFO. Thus, the first hypothesis examined in our study is:

H_1: *Companies that appoint a new CEO or PFO report significant reductions in signed discretionary accruals upon their hire and then report significant increases in signed discretionary accruals in the subsequent year compared to other non-hiring firms.*

As previously discussed, we believe that both individual CEOs and PFOs have generally the same incentives to affect the financial results of their companies. However, no prior research has directly compared the financial reporting changes surrounding the appointments of both CEOs and PFOs. Accordingly, it is an empirical question as to whether the new CEO or the new PFO is associated with greater changes in a company's reported financial statement results. Thus, our second hypothesis (in null form) examines the relative impact of hiring individuals at these two positions on the change in the firm's reported total discretionary accruals:

H_2: *Companies that appoint a new CEO report similar changes in signed discretionary accruals surrounding their hire as companies appointing a new PFO.*

Concurrent CEO and PFO Appointments and Changes in Financial Reporting

Our study is the first to allow for the accurate examination of the combined effects of appointing new individuals to both CEO and PFO positions in the same reporting year. We expect larger changes in financial reporting for companies appointing new executives to both positions for several reasons. First, if both top financial reporting executives are replaced in the same year, neither individual is as readily captured by the commitment to prior policies and decisions as the former executives and thus the new executive is more willing to adopt new approaches to financial accounting and reporting issues than their predecessors (Tversky and Kahneman 1981; Ross and Staw 2003). This lack of commitment to prior reporting policies is compounded if both executives are replaced in the same year (McNamara et al 2002; Jensen 2007), leaving neither of the two new executives bound by previous reporting decisions. We argue that the changes in accruals would be heightened by the fact that both of the new financial reporting executives no longer need to be concerned about making reporting choices that were supported by the other financial executive since that person is also no longer with the firm (McNamara et al 2002; Ross and Staw 2003). That is, a new PFO, for example, no longer needs to be concerned about the reporting choices made or supported by the former CEO since that person has also been replaced in the current year. Thus, appointing new individuals to both of these positions in the same year reduces each individual's concern for changing reporting practices or choices (e.g., estimates, reserve balances, internal and external accounting and disclosure policies, etc) formerly approved by not only their predecessor, but by the other senior financial reporting executive. This reduction in the reliance on prior reporting choices would then lead to greater changes in financial reporting and, therefore, greater changes in discretionary accruals for firms appointing both a new CEO and PFO in the same year.

Additionally, prior research has found significantly different decision-making processes develop within a new decision-making group when several individuals are replaced than would be found if only one new influential decision-maker (i.e., a CEO or PFO) were added to the existing group (LePine 2003; Choi and Thompson 2005; Bosman et al. 2006). Therefore, we would expect this new, substantially changed group, and new group decision-making dynamic would lead to greater changes in reporting decisions and result in more substantial changes in discretionary accruals compared to companies hiring only one new top financial reporting executive in any one year. Accordingly, our third hypothesis addresses the joint effect on changes in discretionary accruals when firms concurrently hire individuals at both senior executive financial reporting positions:

> H_3: *Companies that appoint both a new CEO and PFO in the same year report greater changes in signed discretionary accruals than firms hiring only a new CEO or new PFO.*

RESEARCH METHOD

Sample Identification

To identify our sample of public companies appointing new CEOs and PFOs from 1995 to 2002 we use the EXECUCOMP database for the years 1994 to 2003. While this database constitutes an average of just 20.2 percent of the number of publicly traded firms in the U.S. , the firms in EXECUCOMP represent an average of 64.5 percent of total U.S. market capitalization for all publicly traded firms included in COMPUSTAT over our sample period. Thus, the EXECUCOMP database contains data on large public firms and also provides yearly information on the top five salaried individuals for each firm. EXECUCOMP also specifically identifies the CEO of each firm and any CEO turnover dates. In order to identify the PFO for each firm-year we searched the five top salaried employees and verified the inclusion of the CEO as well as identified the top financial reporting executive. If no financial reporting executive was listed in the top five for a given firm-year, we searched the firm's annual report or 10k filing and identified the person who signed as the firm's PFO. Additionally, if EXECUCOMP identified more than one financial executive in the top five compensated individuals for the firm, we used the signatures on the annual report or 10k filing to identify the PFO. We then tracked these individuals over time to identify PFO turnover events. For identified CEO and PFO turnover events we were able to identify start dates in either the 10k filings or by searching for announcements on *Factiva*. We were also able to obtain annual reports and 10k filings for all companies in the EXECUCOMP database for all of our sample years. As a final check on the accuracy of our appointment data, we hand verified all CEO and PFO identifications in our samples, if not already performed, by reference to annual reports or 10k filings, ensuring that our specification of newly appointed individuals and continuing appointments is accurate.

Consistent with prior discretionary accounting accruals studies, we exclude financial services and utilities industry firms due to idiosyncratic and industry specific financial reporting issues. After these data requirements are satisfied, we are able to obtain complete data on a sample of 786 firm-years indicating the appointment of a new CEO (i.e., the CEO sample), 1,232 firm-years indicating the appointment of a new PFO (i.e., the PFO sample), and 335 firm-years indicating the appointment of a new CEO and a new PFO concurrently in the same reporting year (i.e., the BOTH sample) in the years 1995-2002.

We are also able to identify 7,197 firm-years with no CEO or PFO turnover. These firm-year observations comprise our non-HIRE control sample and include all firm-years for the companies in EXECUCOMP with necessary data to calculate the discretionary accruals models and all control variables used in our multivariate regressions. Additionally, of these non-turnover year observations, 3,891 firm-years were also not included in any of the *t*-1 or *t*+1 years surrounding a CFO or PFO appointment. Accordingly, we use the 7,197 non-hire observations in our combined sample regression analyses that provide control for the *t*-1 to *t*+1 years surrounding a CFO or PFO appointment and we use the 3,891 observations when making univariate comparisons of turnover firms to non-turnover firms. Unlike prior research that has individually addressed either CEO turnover or PFO turnover, our study accurately identifies three separate hiring groups (i.e., CEO, PFO, BOTH) as well as firms having no turnover, resulting in the creation of highly precise samples for examination. Table 1 presents the distribution of our sample of 9,550 firm-year observations for the CEO, PFO, BOTH and non-HIRE companies across the years of our examination period.

Table 1: Sample Distribution
Distribution for our samples of companies that appointed a new CEO, PFO or BOTH, along with our non-HIRE firms in the period 1995 – 2002.

Year	No Turnover	CEO Turnover	PFO Turnover	Both Turnover	Total Sample
1994	266				266
1995	762	101	135	30	1,028
1996	861	82	140	35	1,118
1997	851	97	143	31	1,122
1998	830	100	171	34	1,135
1999	834	107	174	52	1,167
2000	873	118	176	74	1,241
2001	914	100	166	53	1,233
2002	786	81	127	26	1,020
2003	220				220
Total	7,197	786	1,232	335	9,550

As presented in Table 1, the distribution of hiring and non-hiring firms is relatively evenly distributed across our 1995 to 2002 examination period. Table 2 presents descriptive data on the variables used in our regressions for our samples of non-HIRE companies and companies hiring CEOs, PFOs, and BOTH for each of the three years surrounding the turnover event. We winsorize outliers (top and bottom 1 percent in each year) for discretionary accruals, size, book-to-market ratio, distress (measured using Zmijewski's [1984] model), cash flow scaled by total assets, and sales growth percentage. Our results are substantively unchanged if we delete the top and bottom 1 percent of firms instead of winsorizing these outliers.

The sample size in time *t*+1 for the CEO, PFO, and BOTH samples are slightly lower due to events in which the new executive did not remain with the company for a second year. As also indicated in Table 2, we find significant differences in each of the three groups in terms of mean and median return on assets (ROA) between our CEO, PFO and BOTH samples compared to the non-HIRE control firm years. Consistent with prior research (Denis and Denis 1995; Mian 2001), our hiring firms exhibit significantly lower ROA than the non-HIRE control firms. As discussed in the next section, in order to mitigate the effect of firm performance on our estimates of discretionary accruals, we employ a performance-adjusting procedure to arrive at our discretionary accruals metric (Francis et al. 2005; Kothari et al. 2005; Cahan and Zhang 2006).

Table 2: Descriptive Statistics

Descriptive statistics for our samples of CEO, PFO and BOTH hiring firms along with the non-HIRE firms. Time *t* is the year of the new appointment for the hire firms.

	Time (t-1)			Time (t)			Time (t+1)	
	Mean	Median		Mean	Median		Mean	Median
CEO Turnover (n = 786 / 786 / 716)								
ROA	0.0429**	0.0567**		0.0209***	0.0426***		0.0327***	0.0488***
LN Market value equity	7.1754	7.0438		7.1128	6.9718		7.220*	7.131**
Book-to-Market Equity	0.4762**	0.3978		0.5103	0.4252		0.5030	0.3987
Normalized Distress Score	0.0127	0.0000*		0.0196***	0.0000***		0.0180**	0.0000*
CFFO/Total Assets	0.1133	0.1099**		0.1039***	0.1018***		0.1122	0.1092*
Sales Growth	0.1622	0.0887		0.0792***	0.0534***		0.0742***	0.0508***
Financing Dummy	0.3447	0.0000		0.3295**	0.0000**		0.3505	0.0000
Acquisition Dummy	0.4681	0.0000		0.4605	0.0000		0.4748	0.0000
Special Items	-0.0200***	0.0000**		-0.0278***	0.0000***		-0.0212***	-0.0016***
Negative Special Items	-0.0225***	0.0000***		-0.0303***	-0.0043***		-0.0238***	-0.0016***
Sp., Extra. & Disc. Items	-0.0215***	0.0000		-0.0299***	-0.0058***		-0.0219***	-0.0029***
PFO Turnover (n = 1,232 / 1,232 / 1,079)								
ROA	0.0452***	0.0585**		0.0323***	0.0521***		0.0304***	0.0504***
LN Market value equity	7.1229	6.9388		7.1085	6.9890		7.1499	7.0855
Book-to-Market Equity	0.4580***	0.3675***		0.4956	0.3952*		0.4873	0.3980
Normalized Distress Score	0.0151	0.0000***		0.0179***	0.0000***		0.0198***	0.0000***
CFFO/Total Assets	0.1110**	0.1072***		0.1072***	0.1053***		0.1086***	0.1073***
Sales Growth	0.1824**	0.0984		0.1342*	0.0796***		0.0931***	0.0598***
Financing Dummy	0.4090***	0.0000***		0.3685	0.0000		0.3123***	0.0000***
Acquisition Dummy	0.4602	0.0000		0.4650	0.0000		0.4643	0.0000
Special Items	-0.0219***	0.0000***		-0.0221***	-0.0008***		-0.0213***	-0.0017***
Negative Special Items	-0.0246***	0.0000***		-0.0246***	-0.0008***		-0.0244***	-0.0017***
Sp., Extra. & Disc. Items	-0.0223***	0.0000***		-0.0240***	-0.0032***		-0.0231***	-0.0035***
Both Turnover (n = 335 / 335 / 327)								
ROA	0.0220***	0.0455***		-0.0212***	0.0183***		0.0049***	0.0299***
LN Market value equity	7.0016	6.8815		6.7599***	6.5481***		6.7602***	6.5847***
Book-to-Market Equity	0.5620**	0.4589*		0.6187***	0.4789***		0.5934***	0.4897***
Normalized Distress Score	0.0279***	0.0000***		0.0403***	0.0001***		0.0258***	0.0000***
CFFO/Total Assets	0.0866***	0.0906***		0.0848***	0.0856***		0.0877***	0.0900***
Sales Growth	0.1665	0.0735*		0.0502***	0.0226***		0.0184***	0.0074***
Financing Dummy	0.3761	0.0000		0.3492	0.0000		0.2752***	0.0000***

Table 2: Descriptive Statistics
Descriptive statistics for our samples of CEO, PFO and BOTH hiring firms along with the non-HIRE firms. Time *t* is the year of the new appointment for the hire firms.

	Time (t-1)			Time (t)			Time (t+1)	
	Mean	Median		Mean	Median		Mean	Median
Acquisition Dummy	0.4865	0.0000		0.4298	0.0000		0.4128	0.0000
Special Items	-0.0287***	0.0000***		-0.0437***	-0.0106***		-0.0255***	-0.0065***
Negative Special Items	-0.0307***	0.0000***		-0.0452***	-0.0106***		-0.0283***	-0.0065***
Sp., Extra. & Disc. Items	-0.0288***	0.0000***		-0.0457***	-0.0134***		-0.0293***	-0.0074***
No Turnover (n = 3,891)								
	Mean	Median						
ROA	0.0570	0.0646						
LN Market value equity	7.0958	6.9197						
Book-to-Market Equity	0.510	0.4139						
Normalized Distress Score	0.0108	0.0000						
CFFO/Total Assets	0.1188	0.1161						
Sales Growth	0.1552	0.0972						
Financing Dummy	0.3654	0.0000						
Acquisition Dummy	0.4548	0.0000						
Special Items	-0.0139	0.0000						
Negative Special Items	-0.0162	0.0000						
Sp., Extra. & Disc. Items	-0.0155	0.0000						

$^{***, **, *}$ Denotes significance at the 1%, 5%, and 10% level, respectively.
Note – P-values were calculated using two-tailed t-tests (Wilcoxon rank sum tests) for differences in means (medians).

For all other control variables and alternate specifications of discretionary accounting choice (e.g., Special Items, Negative Special Items, and Special Items, Extraordinary Items and Discontinued Operations items – discussed further in a subsequent section), except the Acquisition indicator variable (ACQ), we find significant differences between our samples of hiring firms and our non-HIRE control years for one or more of the periods examined. Accordingly, we use these additional measures identified in prior research in our regression analyses to control for the effects of these differing factors on the levels and changes in levels of discretionary accruals across our samples.

Discretionary Accruals Measure

Following prior research (DeFond and Jiambalvo 1994; Becker et al. 1998; Chung and Kallapur 2003; Geiger and North 2006) we examine signed discretionary accruals. These earlier researchers have argued that companies are rarely sued for booking accruals to reduce earnings, so examining signed discretionary accruals is the most appropriate measure of the intentional influence of management on financial reporting. Additionally, we expect directional changes in discretionary accruals in that we hypothesize a reduction in signed accruals corresponding with the hire of a new CEO or PFO, and then an increase in signed accruals in the subsequent reporting year. Accordingly, we examine signed total discretionary accruals in our study.

Following prior research, we use the modified cross-sectional version of the Jones (1991) model introduced by DeFond and Jiambalvo (1994) and calculate total discretionary accruals using the following model:

$$AC_{i,t} / TA_{i,t-1} = \beta_1 [1/TA_{i,t-1}] + \beta_2 [[CREV_{i,t} - CAR] / TA_{i,t-1}] + \beta_3 [PPE_{i,t} / TA_{i,t-1}] + e_i \quad (1)$$

where: AC is our accruals measure defined as income before extraordinary items less operating cash flows adjusted for discontinued operations and extraordinary items (Hribar and Collins 2002), TA is total assets, CREV is change in revenue, CAR is change in accounts receivable, and PPE is property, plant and equipment, for firm *i* at year *t*. Following Francis et al. (2005) and Cahan and Zhang (2006), we estimate the model cross-sectionally for every firm in COMPUSTAT based on the Fama and French (1997) industry groupings containing at least 20 firms, excluding the sample firm. The estimated coefficients from the industry regressions are used to predict accruals for the sample firms in our study. Discretionary accruals (DA) are calculated as actual accruals minus the predicted accruals. All COMPUSTAT firms with available data are used to calculate DA, even if they were not included in EXECUCOMP or did not have all data available to enable them to be used in the later analyses.

As noted in the previous section, and consistent with prior research, our hiring firms exhibit significantly lower financial performance in terms of return on assets (ROA) than our non-HIRE control firms. Kothari et al. (2005) provide evidence that when assessing discretionary accruals across firms, Type I error rates are inflated if the portioning variable is correlated with performance – as it is in our samples. In order to mitigate this bias we compute a performance-adjusted measure of DA (Kothari et al. 2005). Following Francis et al. (2005) and Cahan and Zhang (2006) we use all firms with available COMPUSTAT data for each Fama and French (1997) industry and divide each industry sample into deciles based on ROA. We then compute the performance-adjusted discretionary accrual (PDA) for our sample firms by taking the DA for firm *i* from eq. 1 and subtracting the median unadjusted DA for firm *i*'s industry ROA decile. We also exclude firm *i* from the computation of the median industry-ROA deciles.

Our performance-adjusting procedure, while it may lower the power of our statistical tests compared to non-performance-adjusting, reduces discretionary accruals estimation errors and eliminates any idiosyncrasies derived when employing a firm-by-firm ROA matching procedure (Francis et al. 2005; Ayers et al. 2006). We use these performance-adjusted discretionary accruals (PDA) metrics as our measure of discretionary accruals reported by the firm.

RESULTS

In order to examine the influence of individual CEOs and PFOs over corporate financial reporting, we present data on the year-end performance-adjusted discretionary accruals positions of our sample firms for periods immediately before to immediately after companies appoint a new CEO or PFO. Consistent with Cahan and Zhang (2006) and Geiger and North (2006), the main focus of our study is on the *changes* in levels of PDA. Accordingly, we also examine changes in PDA over the period beginning immediately prior to the hiring event (i.e., time *t*-1) to the first full reporting period after the new executives take over financial reporting responsibility (i.e., time *t*+1) in our assessment of the influence of individuals on reported discretionary accruals. Table 3 presents the PDA and change in PDA results for our samples of hiring firms and the non-HIRE control sample.

Table 3: Univariate Results – Performance-Adjusted Discretionary Accruals (PDA)

Panel A: Discretionary accruals by time generated by the modified cross-sectional Jones (1991) model; PDA is performance-adjusted discretionary accruals. Panel B: Changes in performance-adjusted discretionary accruals from time (t-1) to time (t+1). Time *t* is the year of appointment for the sample of CEO, PFO and BOTH hiring firms, and all non-HIRE firm years.

PANEL A: Year-end comparisons

	Observations	Time (t-1)		Time (t)		Time (t+1)	
Firm Years	(t-1) / (t) / (t+1)	Mean	Median	Mean	Median	Mean	Median
Non-Hires	3,891 / 3,891 / 3,891	-0.0182***	-0.0143***	-0.0182***	-0.0143***	-0.0182***	-0.0143***
CEO turnover	786 / 786 / 716	-0.0269***	-0.0175***	-0.0251***	-0.0207***	-0.0194***	-0.0190***
PFO turnover	1,232 / 1,232 / 1,079	-0.0195***	-0.0163***	-0.0232***	-0.0179***	-0.0181***	-0.0158***
Both turnover	335 / 335 / 327	-0.0184***	-0.0089***	-0.0321***	-0.0255***	-0.0085	-0.0101**
Non-Hires vs. CEO turnover		-0.0086***	-0.0032*	-0.0068**	-0.0064**	-0.0011	-0.0047
Non-Hires vs. PFO turnover		-0.0012	-0.002	-0.0049*	-0.0036	0.0001	-0.0015
Non-Hires vs. Both turnover		0	0.0054	-0.0139***	-0.0112**	0.0097**	0.0042
CEO turnover v. PFO turnover		0.0074*	0.0012	0.0018	0.0028	0.0012	0.0032
CEO turnover v. Both turnover		0.0086	0.0086	-0.007	-0.0048	0.0108*	0.0089**
PFO turnover v. Both turnover		0.0011	0.0074	-0.0089	-0.0076	0.0096*	0.0057

PANEL B: PDA comparisons

		Changes in PDA Time (t) - Time (t-1)		Changes in PDA Time (t+1) – Time (t)		Changes in PDA Time (t+1) - Time (t-1)	
Firm Years		Mean	Median	Mean	Median	Mean	Median
Non-Hires	2,696 / 2,696 / 2,673	-0.0031	-0.0001	-0.0031	-0.0001	-0.0032	0.0005
CEO turnover	786 / 786 / 716	0.0025	0.0003	0.0051	0.0014	0.0090**	-0.0019
PFO turnover	1,232 / 1,232 / 1,079	-0.0039	-0.0001	0.0068**	0.0045*	0.0022	0.003
Both turnover		-0.0115*	-0.0061	0.0241***	0.0079**	0.0122*	0.0015
Non-Hires vs. CEO turnover		0.0058	0.0004	0.0083*	0.0015	0.0123***	-0.0024

Table 3: Univariate Results – Performance-Adjusted Discretionary Accruals (PDA)

Non-Hires vs. PFO turnover		-0.0007	0	0.0101***	0.0046*	0.0054	0.0025
Non-Hires vs. Both turnover		-0.0082	-0.006	0.0273***	0.0080***	0.0154**	0.001
CEO turnover v. PFO turnover		-0.0065	-0.0004	0.0017	0.0031	-0.0068	0.0049
CEO turnover v. Both turnover		-0.0141*	-0.0064*	0.0189***	0.0065	0.0031	0.0034
PFO turnover v. Both turnover		-0.0075	-0.006	0.0172**	0.0034	0.01	-0.0015

***,**,* Denotes significance at the 1%, 5%, and 10% level, respectively. Note – P-values were calculated using two-tailed tests.

Univariate Tests

In performing our calculation of PDA for our sample firms, we use all available firm data in COMPUSTAT to estimate our DA and PDA measures. The use of all available data to estimate PDA for our EXECUCOMP firms results in a non-zero mean (median) PDA for our EXECUCOMP sample firms. Table 3 indicates that the mean (median) PDA for our sample of 3,891 non-HIRE firm-years is -1.82 (-1.43) percent of total assets. In fact, Panel A of Table 3 indicates that all mean (median) PDA levels, with the exception of the BOTH firm mean in *t*+1, are significantly different than zero at $p < .05$. We calculate the change in PDA (PDA) for the non-HIRE firms by using all available non-HIRE firm-years that have continuous data for two consecutive years when calculating the one-period change; and that have all necessary data over three consecutive years when calculating the two-period change. This results in a sample of 2,696 non-HIRE firm observations for the one-year change and 2,673 non-HIRE firm observations for the two-year PDA comparison. We use the non-HIRE sample results, as opposed to zero, as a benchmark to compare our samples of CEO, PFO, and BOTH hiring firms.

Panel A of Table 3 presents the year-end PDA results and comparison tests for the CEO, PFO and BOTH samples. When comparing among companies that hire CEOs, PFOs or BOTH, our year-end comparisons indicate that the PFO firms report higher PDA than the CEO firms at time *t*-1 ($p < .10$), and the BOTH companies report significantly lower mean PDA at time *t* than the PFO firms ($p < .10$), and higher mean PDA than the CEO and PFO hiring companies at time *t*+1 ($p < .05$). However, the focus of our study and our hypotheses address *changes* in PDA for our samples of hiring firms, which are reported in Panel B of Table 3.

As noted in Panel B, the one-year mean (median) PDA is -0.31 (-0.01) percent of total assets and the two-year mean (median) PDA is -0.32 (-0.05) percent of total assets for the non-HIRE firms, both of which are not significantly different from zero. Thus, even though our non-HIRE firms report a non-zero initial mean PDA in *t*-1, they report very little change in PDA over a one-year or a two-year time horizon.

In examining the PDA for our hiring samples from *t*-1 to *t* we find significant differences when compared to the non-HIRE control firms only for the BOTH firms ($p < .10$). These univariate results suggest that CFOs and PFOs take a bigger "earnings bath" in their first year if they are hired together than when they are appointed separately. Further, in assessing the *t* to *t* +1 time period we find that all three hiring groups report significantly increased PDA compared to the non-HIRE control firms. Specifically, the mean PDA for the *t* to *t* +1 period for the CEO sample is significant at the $p < .10$ level, and the increase for the PFO and BOTH samples are significant at the $p < .01$ level. Thus, we find consistent evidence of the use of more income increasing PDA over the *t* to *t*+1 period for all of our hiring firms.

Assessing the relative differences in PDA among our three samples of hiring firms, we find that the CEO and PFO samples report similar PDA in both of the one-year sub-periods. However, our sample of BOTH firms report significantly greater decreases in mean PDA in the *t*-1 to *t* time period compared to the CEO firms ($p < .10$), and report significantly greater increases in mean PDA in the *t* to *t*+1 period than the CEO firms ($p < .01$) and PFO sample firms ($p < .05$). In sum, these results indicate that PDA are fairly consistent among the CEO and PFO hiring firms, but are greater for the BOTH sample firms in terms of PDA reduction during the initial year of hire (*t*-1 to *t*) and increases in the subsequent reporting year (*t* to *t*+1).

When we examine the combined two-year change period surrounding the executive hiring in the last two columns of Panel B we find that the mean ΔPDA change from *t*–1 to *t*+1 is greater for the CEO sample ($p < .01$) and BOTH sample ($p < .05$) compared to the mean two-year change for the non-HIRE control firms. The non-HIRE firms report a mean two-year change of – 0.32 percent while the CEO firms report an increase of 0.90 percent and the BOTH firms report an increase of 1.22 percent. When we compare among companies that hire CEOs, PFOs or BOTH, our univariate tests reveal no significant differences in PDA among our three hiring groups for the combined period from *t*-1 to *t*+1. Next, we conduct multivariate analyses to investigate whether our univariate results are robust to controlling for other factors found to be associated with discretionary accruals.

Multivariate Tests

To provide examination of the impact of hiring a new CEO, PFO or both on PDA and PDA, we combine our hire and non-hire samples and use the following multivariate model to control for factors found in prior research to be related to levels of discretionary accruals:

$$\begin{aligned} \text{PDA, PDA} = {} & a + b_1\text{CEO}_{t-1,t,t+1}/\text{PFO}_{t-1,t,t+1}/\text{BOTH}_{t-1,t,t+1} + b_2\text{MVE} + b_3\text{BM} + \\ & b_4\text{DISTRESS} + b_5\text{CFFO} + b_6\text{GROWTH} + b_7\text{FINANCE} + b_8\text{ACQ} \qquad (2) \end{aligned}$$

where:

PDA = performance-adjusted discretionary accruals estimated from the modified cross-sectional Jones (1991) model, PDA = changes in performance-adjusted discretionary accruals estimated from the modified cross-sectional Jones (1991) model,

CEO_{t-1} = 1 if company hired a CEO in the succeeding year, 0 otherwise,

CEO_{t} = 1 if company hired a CEO in the current year, 0 otherwise,

CEO_{t+1} = 1 if company hired a CEO in the previous year, 0 otherwise,

PFO_{t-1} = 1 if company hired a PFO in the succeeding year, 0 otherwise,

PFO_{t} = 1 if company hired a PFO in the current year, 0 otherwise,

PFO_{t+1} = 1 if company hired a PFO in the previous year, 0 otherwise,

$BOTH_{t-1}$ = 1 if company hired both a CEO and PFO in the succeeding year, 0 otherwise,

$BOTH_{t}$ = 1 if company hired both a CEO and PFO in current year, 0 otherwise,

$BOTH_{t+1}$ = 1 if company hired both a CEO and PFO in previous year, 0 otherwise, and the additional control variables are

MVE = log of the market value of equity,

BM = book-to-market equity ratio,

DISTRESS = financial distress measure (calculated from Zmjewski 1984),

CFFO = cash flow from operations divided by total assets,

GROWTH = sales growth rate,

FINANCE = 1 if number of o/s shares increased by at least 10 percent or long-term debt increased by at least 20 percent during the year, and

ACQ = 1 if the company engaged in an acquisition during the year.

In order to simultaneously assess all three hire samples and the years surrounding these appointments to the non-HIRE control firms, we estimate our year-end PDA and PDA regression models using all firm years with available data. The year-end PDA regression examines all firm-year observations and includes time period indicator variables for *t*-1, *t*, and *t*+1 for each of our three samples of hiring firms. To examine the PDA over a one-year period (either from *t*-1 to *t*, or from *t* to *t*+1), we include indicator variables for our three samples of hiring firms for each of the one-year time periods. When examining the PDA over the entire two-year period (from *t*-1 to *t*+1), we include indicator variables for each of our three samples of hiring firms in the model.

Following prior literature, we include controls for company size, financial condition, operating cash flow, sales growth, and structural changes due to significant new financing or acquisitions. While our accruals measures are scaled for size, and our sample contains relatively larger sized firms from the EXECUCOMP database, it is still possible that scaled accruals or changes in accruals may be related to firm size. We use the log of market value of equity (MVE) at the end of the period as our measure of firm size. Geiger and North (2006) find that MVE is positively related to levels of discretionary accruals. BM is the proportion of book value to market value and represents the growth opportunities available to the firm. Ashbaugh et al. (2003), Butler et al. (2004), and Menon and Williams (2004) have found BM to be negatively related to discretionary accruals.

Even though we use performance-adjusted discretionary accruals metrics, we include an additional measure of financial condition (DISTRESS) due to concerns that the Jones (1991) model may over estimate accruals for poorly performing companies (Dechow et al. 1995; Kothari et al. 2005). We use Zmijewski's (1984) measure of financial distress as our firm condition metric. Greater values of DISTRESS indicate higher levels of financial stress present in the firm. Reynolds and Francis (2000), Ashbaugh et al. (2003), and Menon and Williams (2004) find evidence that financial health is negatively associated with discretionary accruals. CFFO is our measure of operating cash flow scaled by total assets. Prior research has shown that CFFO is negatively related to discretionary accruals (Ashbaugh et al. 2003; Becker et al. 1998; Chung and Kallapur 2003; Frankel et al. 2002). Sales growth has also been found to be positively associated with discretionary accruals (Menon and Williams 2004). Accordingly, we include a sales growth variable (GROWTH), measured as the percentage growth in sales over the period, into our regression models. We include a measure of significant changes in company financing (FINANCE) and whether the company entered into an acquisition during the period (ACQ) due to concerns regarding the effects of significant changes in capital structure on estimating accounting accruals and because of the possible limitations of accruals management imposed by the structure of the balance sheet (Barton and Simko 2002). Prior research by Ashbaugh et al. (2003) and Chung and Kallapur (2003) provide evidence that significant changes in financing and entering into a substantial acquisition are positively related to discretionary accruals.

We initially examine year-end PDA levels, and then we assess the PDA from *t*-1 to *t,* from *t* to *t*+1, and from *t*-1 to *t*+1 as dependent variables in our regression analyses. In our second set of regressions, because we are examining changes in PDA, and because discretionary accruals tend to reverse over time, we use the changes in our control variables and we also include the initial level of PDA exhibited by the firm at the start of the period (i.e., either PDA_{t-1} or $PDA_{t,}$ depending on the model). Including initial levels of PDA provides a control for the potential differences in the magnitude of accruals reversals across firms based on initial PDA levels for our sample firms. Accordingly, we would expect there to be a negative relationship between initial levels of PDA and PDA over the ensuing period. In our PDA regression models we also include the *changes* in our control variables across the time period examined. Based on the change regression results in Geiger and North (2006) we expect to find positive associations between PDA and MVE, GROWTH, and FINANCE, and negative associations between PDA and BM,?DISTRESS, CFFO, and ACQ.

In order to provide additional statistical control for unidentified firm effects not captured in our control variables, we perform our PDA and PDA analyses using a firm fixed-effects model. The firm fixed-effects model gauges the effects of within-firm variation over time, which provides a more direct, and we believe a more accurate, assessment of firm-specific PDA changes over the time periods surrounding executive turnover. Results of our combined sample regressions are presented in Table 4.

Table 4: Regression Results

Regression models for the combined samples of CEO, PFO, BOTH and non-HIRE firms in the period 1995 – 2002. Time *t* is the year of the new appointment. Dependent variables are performance-adjusted discretionary accruals (PDA) and in changes in performance-adjusted discretionary accruals (PDA). P-values are in parentheses.

Panel A: Regressions

Variables	PDA at Year-end (1)	Exp. sign	Variables	Exp sign	One-year PDA (2)	Two-year PDA (3)
CEO (t-1)	-0.0096*** (0.001)	?	CEO Turnover (t) – (t-1)	-	-0.0054* (0.100)	
CEO (t)	-0.0110*** (0.000)	-	PFO Turnover (t) – (t-1)	-	-0.0030 (0.288)	
CEO (t+1)	-0.0017 (0.560)	+	Both Turnover (t) – (t-1)	-	-0.0121** (0.017)	
PFO (t-1)	0.0020 (0.412)	?	CEO Turnover (t+1) – (t)	+	0.0019 (0.566)	
PFO (t)	-0.0028 (0.264)	-	PFO Turnover (t+1) – (t)	+	0.0044 (0.131)	
PFO (t+1)	0.0027 (0.288)	+	Both Turnover (t+1) – (t)	+	0.0149*** (0.003)	
Both (t-1)	-0.0086** (0.050)	?	CEO Turnover	?		0.0003 (0.910)
Both (t)	-0.0163*** (0.000)	–	PFO Turnover	?		0.0040 (0.167)
Both (t+1)	0.0064 (0.150)	+	Both Turnover	?		0.0107** (0.037)
Controls			Controls			
MVE	0.0069*** (0.000)	+	MVE	+	0.0191*** (0.000)	0.0161*** (0.000)
BM	-0.0156*** (0.000)	-	BM	-	0.0181*** (0.000)	0.0025 (0.244)
DISTRESS	-0.2529*** (0.000)	-	DISTRESS	-	-0.3392*** (0.000)	-0.2159*** (0.000)
CFFO	-0.5866*** (0.000)	-	CFFO	-	-0.4644*** (0.000)	-0.3883*** (0.000)
GROWTH	0.0116*** (0.000)	+	GROWTH	+	0.0214*** (0.000)	0.0215*** (0.000)
FINANCE	0.0064*** (0.000)	+	FINANCE	+	0.0021 (0.140)	0.0018 (0.238)
ACQ	-0.0007 (0.703)	-	ACQ	-	-0.0013 (0.466)	0.0001 (0.966)

Table 4: Regression Results

			Initial PDA	-	-0.6717*** (0.000)	-0.7104*** (0.000)
N =	9,550		N =		8,318	7958
Prob > F	0.000***		Prob > F		0.000***	0.000***
FE F-test	2.600***		FE F-test		1.339***	1.494***
R-Squared	0.434		R-Squared		0.563	0.565

Panel B: F-test Results

Table 4 Model Number	Variable 1	Variable 2	F-statistic	Prob > 0
2	CEO Turnover (t) – (t-1)	PFO Turnover (t) – (t-1)	0.37	0.544
2	CEO Turnover (t) – (t-1)	Both Turnover (t) – (t-1)	1.32	2.55
2	PFO Turnover (t) – (t-1)	Both Turnover (t) – (t-1)	2.76*	0.096
2	CEO Turnover (t+1) – (t)	PFO Turnover (t+1) – (t)	0.36	0.549
2	CEO Turnover (t+1) – (t)	Both Turnover (t+1) – (t)	4.84**	0.027
2	PFO Turnover (t+1) – (t)	Both Turnover (t+1) – (t)	3.52*	0.060
2	CEO Turnover (t) – (t-1)	CEO Turnover (t+1) – (t)	3.28*	0.070
2	PFO Turnover (t) – (t-1)	PFO Turnover (t+1) – (t)	5.07**	0.024
2	Both Turnover (t) – (t-1)	Both Turnover (t+1) – (t)	19.96***	0.000
3	CEO Turnover	PFO Turnover	0.77	0.378
3	CEO Turnover	Both Turnover	2.91*	0.088
3	PFO Turnover	Both Turnover	1.34	0.246

***, **, * Denotes significance at the 1%, 5%, and 10% level, respectively.

Note – P-values were calculated using two-tailed tests. F-tests are two-tailed tests. Control variables in the PDA regressions are defined as: MVE = log of the market value of equity, BM = book-to-market equity ratio, DISTRESS = financial distress measure (calculated from Zmjewski 1984), CFFO = cash flow from operations divided by total assets, GROWTH = sales growth rate, FINANCE = 1 if number of o/s shares increased by at least 10 percent or long-term debt increased by at least 20 percent during the year, and ACQ = 1 if the company engaged in an acquisition. Control variables in the PDA regressions are defined as: PDA_{t-1} = PDA from $time_{t-1}$, and all others are changes in the control variables as defined in the PDA regressions. Yearly indicator variables included in all models are not shown. All models are firm fixed effects models.

Year-End PDA Levels

The results of the combined year-end PDA regression are reported in column 1 of Table 4. We note in column 1 that inclusion of the fixed-effects (FE) control adds significantly to the explanatory power of the year-end PDA model (p<.01), as well as to the explanatory power of the PDA models also reported in Table 4. Consistent with the univariate results, we find that CEO hire firms have significant negative PDA at *t*-1, even after controlling for factors found to be associated with levels of discretionary accruals. This year-end analysis also reveals that the BOTH firms have similarly negative PDA at *t*-1 as well. At time *t*, the CEO firms and the BOTH firms exhibit significantly negative PDA, however, the BOTH firms report the greatest negative PDA for all firms in all periods of -1.63 percent. While in the expected directions, after controlling for other factors associated with discretionary accruals, the PFO hiring firms exhibit levels of PDA that are not significantly different from non-hire firms across all year-end periods surrounding their executive hiring. In order to more directly assess the changes in reported PDA, and in order to control for initial levels of reported PDA by the firms, we present separate analyses of the one-year and two-year PDA surrounding these executive appointments.

One-Year PDA Changes

The examination of the PDA over a one-year period (either from *t*-1 to *t*, or from *t* to *t*+1) for our samples of hiring firms compared to the mean one-year change in PDA reported for non-HIRE firms is presented in column 2 of Table 4. The overall results indicate, as expected, that all three samples of hiring firms report reductions in PDA from *t*-1 to *t* and report increases in PDA from *t* to *t*+1. These one-year change results suggest that, even after the other hiring samples and factors associated with levels of discretionary accruals are controlled for, we find general evidence of the "big bath" being reported by firms hiring new CEOs and new PFOs in our examination of discretionary accruals. Firms report reduced levels of PDA in the executive's initial reporting year (from time *t*-1 to *t*) and then increases in PDA in the subsequent reporting year (from time *t* to *t*+1). However, only the CEO and BOTH firms report significantly greater reductions in PDA in the period *t*-1 to *t* than the non-HIRE firms or the PFO hiring firms. In sum, these findings are consistent with prior research providing support for the "bath" taken by firms appointing new CEOs – including the BOTH sample (Brickley 2003), but not for the PFO hiring firms (Geiger and North 2006) .

The individual F-tests in Panel B of Table 4 directly compare model coefficients and indicate that the reduction for the BOTH firms is significantly greater than the reduction in PDA reported by the PFO firms ($p<.10$) from *t*-1 to *t*, but not when compared to the CEO hiring firms ($p>.10$). However, consistent with H_2, our F-test comparisons do not reveal any significant differences in the PDA reductions between the CEO and PFO hiring firms, suggesting that firms hiring only one of these executives report similar reductions in PDA from *t*-1 to *t*.

The one-year change results also indicate that all three hiring groups reported increases in PDA in the *t* to *t*+1 time period. However, the BOTH firms reported the greatest increase in PDA in the year subsequent to the company's appointment of these two new individuals. Separate F-tests in Panel B indicate that the one-year PDA change for the BOTH firms from *t* to *t*+1 is not only significant compared to non-HIRE firms, it is also significantly greater than that reported by either the CEO ($p < .05$) or the PFO ($p < .10$) hiring firms for the same period. Therefore, consistent with our third hypothesis, we find evidence that the BOTH firms report larger reductions in PDA in the year they hire the two new executives and subsequently report larger increases in PDA in the following year compared to other hiring and non-hiring firms.

Additionally, the F-tests results indicate that the CEO and PFO hiring firms report similar increases in PDA from *t* to *t*+1, consistent with H_3. Further, all hiring firms reported significantly greater increases in PDA in the *t* to *t*+1 time period compared to the PDA changes reported in the *t*-1 to *t* time period, with the greatest changes reported by the BOTH firms ($p < .01$). The aggregate results of the one-period change analyses confirm H_1 that firms appointing new CEOs and PFOs report significantly greater changes in PDA than similar non-hiring firms. Our results also suggest that the CEO and PFO hiring firms report substantially similar changes in PDA, and that the largest one-period PDA changes are reported in the year subsequent to appointment of the new executive. Consistent with H_3, we find support that the largest changes are reported by firms concurrently appointing new executives to both CEO and PFO positions.

Our findings are also consistent with prior research on the "big bath" financial reporting phenomenon in the CEO and PFO turnover literatures. Consistent with these earlier studies, we also find evidence of a *t*-1 to *t* period "big bath" reporting effect for CEOs, consistent with prior CEO turnover research (Aboody and Kasznik. 2000; Dechow and Dichev 2002; Wells 2002; Brickley 2003; Engle et al. 2003); but not for PFOs, consistent with prior PFO turnover research (Geiger and North 2006). However, we also extend these earlier studies and demonstrate that the largest one-period PDA changes are reported by firms hiring both a CEO and PFO in the same reporting year. In fact, in support of our third hypothesis, we find strong and consistent evidence that our BOTH hiring firms report the greatest one-year changes in PDA.

Two-Year PDA Changes

While PDA changes in the opposite direction for the two yearly time periods were expected, we are also interested in determining whether there exists an overall two-year reporting effect with regard to changes in PDA around these appointments (e.g. Geiger and North 2006). Accordingly, column 3 of Table 4 reports the regression results when examining the aggregate two-year PDA from *t*-1 to *t*+1 surrounding a firm's appointment of a new CEO or PFO. Consistent with H_3, and our earlier results, only the BOTH firms report significant two-year PDA compared to those reported by the other hire and non-HIRE firms in our study ($p < .05$). In the aggregate, these results suggest that the BOTH firms report significantly greater increases in PDA following the joint appointments of a new CEO and new PFO than they report reductions in PDA upon their arrival. For the combined two-period reporting horizon, the F-test results in Panel B indicate that the BOTH firms are significantly different from the CEO hiring firms ($p<.10$), but not the PFO hiring firms. However, this is largely driven by the non-significant reductions in PDA of the PFO hiring firms in the t-1 to *t* reporting period, contrasted with the significant reductions in PDA for the BOTH firms over the same period. In the aggregate, our results provide support for H_3 and the argument that there are heightened reporting effects when firms appoint both a CEO and PFO in the same reporting year.

DISCUSSION

In this study we assess the relationship between appointing a new CEO and PFO on corporate financial reporting by examining the changes in a firm's performance-adjusted discretionary accounting accruals surrounding these new appointments. Specifically, we assess year-end levels and changes in levels of discretionary accruals from the year preceding the appointment to the year after their appointment. The examination period represents the time period under the full purview of the former executive to the first year the new individual had full responsibility for all company financial information.

Using the modified cross-sectional Jones (1991) model, and employing a performance-adjusting procedure, we find that the change in total discretionary accruals is negative and significant in the first reporting year (from *t*-1 to *t*) a firm appoints a new CEO or both a new CEO and PFO (i.e., the "big bath"), but not for firms appointing only a new PFO. We also find that firms appointing both a new CEO and PFO in the same year report significant increases in discretionary accruals in the subsequent reporting year (from *t* to *t*+1) and for the combined two-years surrounding the joint appointments (from *t*-1 to *t*+1), but similar increases are not found for firms hiring only one of these executives. We also find that the firms appointing only a CEO and those appointing only a PFO report similar changes in accruals surrounding these single executive appointments. Finding strong and consistent differences for firms hiring both executives compared to firms hiring only one in any reporting year clearly evidences the necessity to separately identify firms appointing both a new CEO and PFO in the same year from those appointing only one of these senior financial executives when examining corporate financial reporting issues.

Additional analyses confirm that our results are robust when examining alternative discretionary financial reporting choices (i.e., special items, extraordinary items and discontinued operations). We also find that the type of compensation contract offered by the firm (i.e., having a high bonus component) is related to levels of discretionary accruals, but not to changes in levels. Analyses of different partitions of our sample firms and of alternative discretionary accruals metrics suggest the equivalency of our samples with those of prior researchers and reinforce the necessity to separately identify firms concurrently appointing a new CEO and PFO in the same year compared to firms hiring only one senior financial executive.

Our study contributes to the corporate governance and discretionary accruals literatures by presenting a more robust analysis of the effect of executive turnover in both the CEO and PFO positions on a firm's reported financial performance. Additionally, we provide the first study in the executive turnover literature to incorporate firm-specific controls as well as examine performance-adjusted discretionary accruals to ensure that our results are not spuriously driven by performance differences of our hiring samples. A considerable amount of prior research has documented the effects of CEO hiring on a company's reported financial results, and more recent studies have begun the examination of PFO appointments. Our study combines and extends these research streams by presenting evidence regarding financial reporting effects for concurrent and separate appointments of individuals to both of these positions.

While we examine changes in total discretionary accruals, investigating other measures of reported financial performance or firm evaluation (e.g., changes in the cost of capital, differential risk assessments, etc.) surrounding these significant corporate events would also be fruitful areas for future research. Further, Parrino (1997) and Geiger and North (2006) find that individuals appointed from outside the firm are associated with the largest changes in reported financial results. Such examinations would provide additional insight into the changes brought about in connection with these new executives and the possible synergistic effect of concurrently appointing new individuals to both of these positions in the same year. Additionally, we include all reasons for CEO and PFO turnover events in our study. Future research could extend this study to examine whether planned turnover firms report differently from forced turnover firms (Reitenga and Tearney 2003), or whether our results hold when examining executive turnover in other countries (Kang and Shivdasani 1995). We also present an initial examination of the type of compensation contract offered to executives and the effect on changes in discretionary accruals. While we find no significant association between high/low bonus firms and changes in discretionary accruals in our analyses, the association between compensation and changes in discretionary reporting choice following executive turnover appears ground for additional future research. Additional investigation of these relationships would extend our knowledge regarding the possible association between individual incentives and corporate financial reporting. Finally, our examination period essentially ends with the adoption of the *Sarbanes-Oxley Act* in 2002. An examination of post-*Sarbanes-Oxley Act* reporting surrounding CEO and PFO turnover would be a valuable extension to this study and would inform the debate regarding the effect of this important legislation on corporate financial reporting in the US.

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EARNINGS MANAGEMENT AND LONG-RUN STOCK UNDERPERFORMANCE OF PRIVATE PLACEMENTS

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ABSTRACT

The study investigates whether private placement issuers manipulate their earnings around the time of issuance and the effect of earnings management on the long-run stock performance. We find that managers of U.S. private placement issuers tend to engage in income-increasing earnings management in the year prior to the issuance of private placements. We further speculate that earnings management serves as a likely source of investor over-optimism at the time of private placements. To support this speculation, we find evidence suggesting that the income-increasing accounting accruals made at the time of private placements predict the post-issue long-term stock underperformance. The study contributes to the large body of literature on earnings manipulation around the time of securities issuance.

INTRODUCTION

This study seeks to accomplish two goals regarding the issuance of seasoned private placements of common equity (hereafter, *private placements*): (1) to investigate managers' earnings manipulation behavior of U.S. issuers around the time of the issuance; (2) to examine whether such earnings manipulation behavior helps explain the long-term post-issue stock underperformance.

Private placements, together with seasoned public offerings of common equity (SEO), are two important vehicles by which public firms obtain equity financing. Contrary to seasoned public offerings of common equity, which issue new equity to the general public, private placement issuers sell new equity to a restricted number of investors. More than 30 percent of seasoned equity financing from external investors in recent years has come from private placements (Federal Reserve Bulletin, see Appendix A). While there is a sizeable body of literature on earnings management around the time of seasoned public offerings and on the issuers' post-issue stock underperformance, research on these issues related to private placements is scarce.

Studies on earnings management constitute an important research stream in the literature about the quality of earnings. Typical research methodology on earnings management first identifies a firm-specific event around which managers' incentives to engage in opportunistic earnings manipulation appear to be strong, then employs various accrual models to test the researchers' earnings management hypotheses (Healy and Wahlen 1999). In response to the call of Dechow and Skinner (2000) for further research on earnings management incentives around the time of securities issuance, this study examines, among other things, earnings management around the time of private placement, an important corporate event.

Earnings have been widely used by investors to assess firm value and security offerings provide a direct incentive to manipulate earnings (Dechow and Skinner 2000). Managers of an issuing firm could use the accounting methods allowed under generally accepted accounting principles (GAAP) to inflate reported earnings at the time of the issuance in an attempt to portray a rosy picture of the firm's prospects. To the extent that such income-increasing accounting choices are not detected by investors, managers may obtain more favorable terms when selling new shares, thus gaining direct monetary benefits for themselves and the firm. Existing literature provides an abundance of evidence of earnings management around the time of various types of security issues, particularly initial public offerings (Aharony et al. 1993; Friedlan 1994; Teoh et al. 1998a; DuCharme et al. 2001), seasoned public equity offerings (Teoh et al. 1998b; Rangan 1998), convertible bond issues (Margetis 2004), and stock-for-stock mergers (Erickson and Wang 1999). Since private placement is one of the most important sources of corporate financing, this study predicts that managers of the issuing firms have strong economic incentives to inflate reported earnings around the time securities are issued.

This study finds that managers of U.S. private placement issuers tend to engage in income-increasing earnings management around the time of the issuance. The mean and median of the discretionary accruals, the proxy for earnings management, of 348 sample firms from 1989 to 2001 are 3.27 percent and 2.49 percent of total assets in the year prior to the issue year. To eliminate the impact of other influencing factors, the study employs a control sample consisting of firms matched on size and leverage in the same industry of the issuing firms. In the year prior to the private placements, the discretionary accruals of the issuing firms significantly exceed their non-issuing peers by 3.99 percent in mean and 1.98 percent in median.

Issuing private placements could be an endogenous choice. To mitigate this self-selection bias, the study also adopts the propensity score matching method to form the control sample. Consistent with those of size and leverage matching, discretionary accruals of issuing firms significantly exceed their non-issuing peers by 4.27 percent in mean and 1.87 percent in median in the year prior to the issuance. This result suggests that the findings on earnings management are not sensitive to alternative matching methods in selecting the control sample.

Among various anomalies in the semi-strong form of the market efficiency hypothesis, private placement has recently been found to be mispriced at the time of the issuance. In particular, Hertzel et al. (2002) observe that firms conducting private placements experience negative abnormal stock returns during the post-issue period. They postulate that the reason for the post-issue stock underperformance is that, at the time of the issuance, investors are over-optimistic about the issuing firms' future performance. However, the source of the over-optimism is not identified clearly.

Thus, the second purpose of this study is to examine whether earnings management at the time of private placements serves as a likely source of investor over-optimism. If investors misinterpret the manipulated earnings around the time of private placements, the stock price would be temporarily overvalued. However, when the inflated earnings do not persist in the future and/or the income-increasing accruals made at the time of issuance reverse in the subsequent periods, investors become disappointed and beat down the stock price of the issuing firms. To test this projection, this study proposes that the income-increasing accounting accruals made at the time of private placements predict the post-issue stock underperformance.

To explore the relationship of discretionary accruals at the time of private placement issuance with the post-issue stock performance, the sample is divided into four groups according to the discretionary accruals made in the year prior to the issuing year. The quartile group with the smallest discretionary accruals is called the conservative group and the one with the largest discretionary accruals is called the aggressive group. The study finds that the aggressive group has consistently poorer post-issue stock performance than the conservative group. For example, the three-year post-issue market excess return of the aggressive group lags that of the conservative group by 13.29 percent, and the three-year post-issue abnormal return of the aggressive group lags that of the conservative group by 35.23 percent. This result suggests that firms that inflate their earnings more aggressively around the time of private placements experience poorer stock performance subsequent to the issuance.

The study also runs regressions of the post-issue stock performance on discretionary accruals at the time of private placements, along with control variables such as size, book to market ratio, and industry dummies. Three-year market excess returns and the abnormal returns of issuing firms are both significantly negatively correlated with the discretionary accruals made in the year prior to the issuance. This evidence supports the hypothesis that the discretionary accruals around the issuance of private placements predict the post-issue stock underperformance. Thus, earnings manipulation around the time of private placements could be a source that causes investors' over-optimism at the time of the issuance.

This study makes a number of contributions to the literature. First, the study adds evidence to the sizeable body of research on earnings management around the time of security issuance by documenting income increasing earnings management around the time of private placements. Therefore, it complements the findings of prior studies on other types of security issuances. Second, the study sheds new light on the capital market anomaly related to private placements. While existing literature attributes post-issue stock underperformance to investor over-optimism at the time of the private placement, the findings of this study suggest that a possible source of this over-optimism is earnings management around the time the securities are issued.

BACKGROUND AND LITERATURE REVIEW

Public offerings and private placements, focusing on raising equity capital from external investors, are two important ways for public companies to conduct seasoned equity offerings. Both individuals and institutional investors can participate in public offerings, which are usually conducted via a managing investment bank as the underwriter or underwriting syndicate. U.S. companies must register the issue with the Security and Exchange Commission (SEC) when they conduct public offerings.

Companies can avoid this costly process if they conduct equity offerings privately. Private placements refer to the direct issuance of equity securities to a restricted number of investors. Most private placement investors are large institutional investors such as mutual funds and pension funds. The price of the issue is determined by negotiation between the issuer and the investors (Ross et al. 2002; Keown et al. 2003; Marciukaityte 2001).

There are several other advantages of private placements over public offerings. First, the issuers are exempted from the registration and disclosure requirements of various securities statutes. Second, investment dealers' fee for a private placement is much less than that for a public offering. Third, private placements can also help firms raise capital quickly. Fourth, obtaining private placements significantly improves a firm's ability to attract additional capital, research partners, and commercial partners (Srivastava 1989; Folta and Janney 2004; Janney and Folta 2006).

Most studies on seasoned public offerings in the mid-1980s examine the stock market reaction to the issue announcements. These studies generally document a negative market reaction to the announcement of the issuance. On average, the two-day abnormal stock returns on announcement of public offerings are -3.14 percent for industrial companies and -0.75 percent for utility companies (Smith 1986), suggesting that stock price is overvalued when firms conduct public offerings. A theory developed by Myers and Majluf (1984) to explain this negative market reaction argues that managers know a good deal about the company they manage, so when the company's stock price is undervalued, managers will be less likely to issue equity to new investors because it would let them take advantage of existing shareholders. It is more likely that managers decide to issue new equity when the stock price is overvalued, so stock price falls when firms announce the public offerings because it sends a signal to the market that managers believe the company's stock is overvalued.

Loughran and Ritter (1995) conduct the first study to examine the long-run post-issue stock performance of firms that conduct public offerings. They find that after public offerings, firms experience negative abnormal stock returns for up to five years compared to similar size firms in the same industry which do not issue new equity. Spiess and Affleck-Graves (1995) find similar results, so both studies conclude that managers take advantage of a firm's specific information to issue equity when the firm's stock is overvalued. This explanation was called the *windows of opportunity hypothesis*. Considering the negative market reaction to the announcement of the new issues, the *underreaction hypothesis* is developed to explain the poor post-issue stock performance. The underreaction hypothesis maintains that the stock market reflects only part of the information about the share price when new issues are announced. Daniel et al. (1998) develop a model to explain the underreaction phenomenon from the behavioral theory approach and conclude that investors tend to overestimate their ability to generate information and tend to underestimate their forecast errors. Unlike firms making public offerings, firms conducting private placements experience positive market reaction at the announcement of issuance. Wruck (1989) documents a 4.5 percent average abnormal return during the announcement period and Hertzel and Smith (1993) report a similar result. However, the two papers differ in their explanations for this phenomenon. First, Wruck proposes an ownership structure hypothesis to interpret her findings, explaining that the higher the level of ownership concentration, the easier it is for a small group of shareholders to influence managers' behavior to align managers' and shareholders' interests. To support this explanation, Wruck finds that the total holdings of those investors reported in proxy statements increase from an average of 31 percent to an average of 37 percent of the firm's voting shares and the change in firm value at the announcement of a private placement is strongly correlated with the resulting change in ownership concentration. Hertzel and Smith (1993), on the other hand, propose the information hypothesis to explain the positive market reaction. Following Myers and Majluf's (1984) assumption, Herzel and Smith conclude that undervalued firms will not likely issue equity publicly to avoid releasing negative signals about the firms' value. In addition, they argue that the willingness of private placement investors to commit funds to the issuers conveys a signal to the market that the issuers are undervalued. To support this hypothesis, they find a correlation between the positive abnormal returns at the announcement time and the potential undervaluation.

The findings of Wruck (1989) and Hertzel and Smith (1993) tend to support the view that the involvement of large investors that purchase private placements increases the issuer's value by providing either a monitoring role or a certification role. Given that most private placement investors are large institutional investors such as mutual funds and pension funds, this is consistent with many studies documenting that institutional investors have an effective monitoring effect on management behavior (In a review of corporate governance studies, Shleifer and Vishny (1997) conclude that institutional investors in the U.S. reduce agency cost in firms and pressure managers to improve their true economic performance).

If the institutional investors that purchase private placements do enhance the monitoring role and constrain managers' opportunistic behavior, different from the public offerings, we may not find earnings management behavior around the time of private placement issuance. However, recent findings on private placements have suggested that most of those institutional investors involved in private placements are *passive* and that they bring no more of a monitoring role than do investors in public offerings (Barclay et al. 2005; Wu 2004). Therefore, it is still likely that managers engage in earnings management to mislead investors at the time of private placements.

Hertzel et al. (2002) find that, along with positive market reaction to the announcements of issuance, public firms conducting private placements experience poor post-issue stock performance, which is not consistent with the underreaction hypothesis drawn from public offering studies. Under the underreaction hypothesis, the positive announcement effect should cause firms conducting private placements to experience positive abnormal returns in the long run. Hertzel et al. conclude that investors are overoptimistic about the prospects of firms that issue equity, publicly and privately. The importance of this finding is that, contrary to the traditional belief, firms conducting private placements are overvalued, possibly because investors are overoptimistic about the monitoring role of new institutional investors.

Recent studies have challenged the anticipated monitoring effect by the involvement of new institutional investors. Larcker et al. (2005) find that fourteen corporate governance factors, including institutional ownership, explain only 0.6 percent to 5.1 percent of the cross-sectional variation of a wide set of dependent variables, including abnormal accruals. This finding suggests that institutional ownership has very limited ability to explain managerial behavior and organizational performance. Barclay et al. (2005) provide evidence that supports the *entrenchment hypothesis,* which proposes that managers consider not only the interests of shareholders but their own interests as well when they conduct private placements. The entrenchment hypothesis also maintains that managers dislike being monitored (Brennan and Franks 1997; Field and Sheehan 2004), and are, therefore, likely to place the equity with *passive* institutional investors who will not interfere with managerial decisions. Barclay et al. find that, after the issuance, most private placement purchasers remain passive, that firm value declines, and that there are few acquisitions. Wu (2004) examines the monitoring role of managers on the choice between public offerings and private placements and finds that private placement investors do not engage in more monitoring than public offering investors do. In the absence of the monitoring roles brought by the new *passive* institutional investors, managers may act opportunistically when they conduct private placements if there are strong incentives for them to do so.

HYPOTHESIS DEVELOPMENT

Earnings are among the most important measures investors use to assess a firm's future performance (Healy and Wahlen 1999). Dechow and Skinner (2000) suggest that, around the time of new securities issuance, managers have strong incentives to manipulate earnings to portray a rosy picture of the firm's future performance and, consequently, may sell the securities on more favorable terms and therefore reduce the cost of financing. Empirical evidence on certain types of securities issue appears to support this argument. For example, both the initial public offering issuers (Aharony et al. 1993; Friedlan 1994; Teoh et al. 1998a; DuCharme et al. 2001) and seasoned public equity issuers (Teoh et al. 1998b; Rangan 1998) tend to make income-increasing accounting choices around the time of issuance in an attempt to increase the selling prices of the new equity. In corporate stock for stock mergers, the acquiring firms manage earnings upward in the periods prior to the merger agreement to increase their stock prices in order to reduce the cost of buying the target firms (Erickson and Wang 1999). Unlisted firms also tend to manipulate earnings upward prior to receiving venture capital financing in order to show a better picture of their company's prospects, thereby increasing the chances of being funded by venture capitalists (Beuselinck et al. 2005). Similarly, firms conducting private placements may also have incentives to report inflated earnings prior to the issuance in order to attract more investors since the manipulated earnings may lead the investors to believe that the reported earnings could continue into the future and therefore become overly optimistic about the issuers' future performance. This would allow private placement issuers to boost their images and sell their new equity on more favorable terms.

It would be pointless for managers to manipulate earnings if private placement purchasers could see through it. However, Healy and Wahlen (1999) argue that investors may not fully see through earnings management that is reflected in accruals; even for underwriters, fully adjusting for accounting choices may be difficult and costly (Friedlan 1994). Since most private placement investors are institutional investors, managers' opportunities to manage earnings around the issuance may be restrained because of the *active* involvement of institutional investors (Chung et al. 2002). However, Barclay et al. (2005) find that managers issuing private placements deliberately select *passive* institutional investors, and Wu (2004) provides evidence showing that private placements investors do not provide more monitoring roles than public investors. Therefore, it is likely that private placement issuers still have the opportunity to manipulate earnings around the issuance and that such behavior may go undetected by private placement investors.

Engaging in earnings management at the time of private placement is not without downside risks. First, subsequent discovery of the earnings management around the time of private placement may lead to lawsuits by investors if the earnings overstatement leads to investor losses (DuCharme et al. 2004). Second, such a discovery will undoubtedly reduce the credibility of the issuing firms' financial statements and impair their ability to raise additional capital at favorable terms in the future. Finally, U.S. firms identified by the Securities and Exchange Commission (SEC) as violators of GAAP will face an increase in their future costs of capital.

Even so, because the economic benefits of reporting inflated earnings prior to private placement are substantial, if managers do not think they are likely to be discovered or if the costs of discovery are perceived less than the potential benefits, they are likely to adopt the discretionary accounting choices that increase the reported earnings around the time of private placement issuance. Therefore, the first hypothesis of the study is:

> H_1: *Managers of U.S. private placement issuing firms manipulate reported earnings upward around the time of issuance.*

Hertzel et al. (2002) recently pinpoint the long-term stock underperformance subsequent to private placements. Relative to control firms matched by size and book to market ratio, the mean three-year buy and hold abnormal return is -23.8 percent, which is similar to that found for initial public offerings and seasoned public equity offerings. Hertzel et al. argue that the post-issue stock underperformance is likely due to the investors' over-optimism about the issuers' future performance around the time of private placements, although they do not identify clearly the source of the over-optimism.

This study proposes that earnings management around the time of the issuance of private placements is a likely source of investor over-optimism. If investors expect the reported (but manipulated) earnings around the time of private placements to persist into the future, stock price will be temporarily overvalued. Then, when the income-increasing accruals reverse in subsequent periods and the earnings trend does not persist, investors may become disappointed and beat down the stock price. Thus, if earnings management at the time of issuance is a source of investor over-optimism, the aggressive accounting accruals at the time of the private placement issuance will cause post-issue stock underperformance. Several studies examining seasoned public offerings have made a similar prediction and found evidence supporting this prediction. For example, Teoh et al. (1998b) and Rangan (1998) find that earnings management around the issuance of seasoned public offerings explains a portion of the post-issue stock underperformance. Teoh et al. (1998a) find that the manipulated earnings around the issuance of initial public offerings are correlated with post-issue stock underperformance. The higher the discretionary accruals around the issuance of initial and seasoned public offerings, the lower the abnormal post-issue stock returns. Following this line of reasoning, the second hypothesis is:

> H_2: *Earnings management around the time of private placements conducted by U.S. issuers predicts post-issue stock underperformance.*

SAMPLE AND METHODOLOGY

The initial U.S. sample of private placement issues is obtained from the *New Issues Database* from Securities Data Corporation. The issuers' financial data are obtained from Standard and Poor's *Research Insight* database, and stock returns from the Center for Research in Security Prices (*CRSP*). The *New Issues Database* contains 831 private placement common stock issues from 1989 to 2001 in the New York Stock Exchange (NYSE), the American Stock Exchange (AMEX), and the NASDAQ. To qualify for the study sample, firms issuing private placements must have the necessary financial data to allow a calculation of discretionary accruals in the year prior to the issue, matching measurements, and stock returns for at least one month after the issue. Financial and utility firms are eliminated from the sample because these firms are subject to special regulations. In order to reduce the confounding effects on earnings management from public equity offerings, firms conducting both public offerings and private placements in the same year are also excluded from the sample. If firms issued multiple private placements within three years, only the first issue is kept in the final sample.

The final sample contains 348 observations. Table 1 presents the sample size and gross proceeds by year and industry classification for the U.S. private placements issues. Because the study adopts the cash flow approach to calculate discretionary accruals for the U.S. firms, the sample starts from the year 1989. The study also needs to test the stock performance five years after the issuance, so sample data ends in the year 2001. Four years (1992, 1993, 2000, and 2001) are very active and contain more than 25 issues each year. Chemical products, instruments and related products, and service industries each carry more than 10 percent of the sample.

Table 1: Summary of U.S. private placements sample size and gross proceeds

Panel A: Sample size and gross proceeds by calendar year

Year	Sample size	Percentage	Gross proceeds (million $)
1989	17	4.89%	1,214.65
1990	13	3.74%	688.74
1991	14	4.02%	213.50
1992	25	7.18%	275.50
1993	25	7.18%	324.25
1994	19	5.46%	272.27
1995	16	4.60%	474.40
1996	15	4.31%	199.65
1997	16	4.60%	464.96
1998	7	2.01%	169.33
1999	18	5.17%	872.46
2000	40	11.49%	1,710.40
2001	123	35.34%	2,675.25
Total	348	100.00%	9,556.08

Panel B: Sample size and gross proceeds by industry classification

Industry classification	Sample size	Percentage	Gross proceeds (million $)
Mining	9	2.59%	221.76
Oil And Gas	6	1.72%	438.42
Food Products	6	1.72%	368.10
Chemical Products	94	27.01%	2,218.40
Computer Equipment	16	4.60%	431.52
Electronic Equipment	25	7.18%	299.00
Transportation	18	5.17%	470.88
Instruments And Related Product	38	10.92%	677.54
Communications	12	3.45%	294.48
Wholesale	6	1.72%	69.90
Retail	21	6.03%	893.97

Table 1: Summary of U.S. private placements sample size and gross proceeds

Panel A: Sample size and gross proceeds by calendar year

Year	Sample size	Percentage	Gross proceeds (million $)
Financial Services	12	3.45%	482.88
Services	67	19.25%	1,886.05
Others	18	5.17%	801.54
Total	348	100.00%	9,556.08

Identifying of the timing of earnings management *a priori* is critical in any earnings management study. In keeping with the earnings management research on IPOs and SEOs, a company's annual financial statements are defined as being for the issuing year (year 0) if the fiscal year-end of the financial statements is within 12 months after the private placement date. Based on this definition, it is possible that the annual financial statements of an issuing firm for year 0 will cover some months prior to the private placement date because the fiscal year-end can be less than 12 months after the private placement date. Once year 0 is defined, financial statements for other years surrounding the private placement date (i.e., year –2, –1, +1 and +2) can be defined accordingly.

Extant earnings management literature on IPOs and SEOs documents that earnings management is most prominent in the year preceding the issuing year (year –1) and/or the year of the issuing year (year 0). Several studies (Friedlan 1994; Aharony et al. 1993; DuCharme et al. 2000) have examined earnings management prior to making IPOs and find that IPO firms tend to inflate earnings in the year prior to the IPO (year -1). Teoh et al. (1998a) define the issue year (year 0) as the fiscal year in which the IPO occurs (which is the same definition this study uses) and includes both pre- and post-IPO months, arguing that IPO firms have incentive to manipulate both pre- and immediate post-IPO earnings. Teoh et al. (1998b) study earnings manipulation around the issue of SEOs and find that discretionary current accruals for SEO firms are positive in year –1 and more prominent in year 0.

While the same arguments about earnings management for IPOs and SEOs can be made for private placements, the relative strength of these arguments and the effects of some other factors also need to be considered in determining the timing of earnings management by private placement issuers:

1. Most IPO and SEO studies maintain that earnings management made in year –1 helps to inflate stock prices and to increase the proceeds from the issuance.

2. Since the reverse of accruals made in earlier years increases the litigation risk for the issuers, managers have incentives to continue to manage earnings upward after issuing securities.

3. Prior to issuing securities, firms have strong incentive to release optimistic earnings forecasts and to announce good news in order to boost the stock price or investors' confidence. Ruland et al. (1990) find that firms issuing earnings forecasts are more likely to finance externally in the subsequent three months than are the control firms that did not issue earnings forecasts. Frankel et al. (1995) also find that firms are more likely disclose earnings forecasts if they plan to raise capital. When managers conduct voluntary disclosures, they tend to disclose information favoring them or existing shareholders. For example, Aboody and Kasznik (2000) find that CEOs opportunistically manage the timing of their information disclosures to increase the value of their stock option awards by delaying announcements of good news and rushing forward bad news before the awards. Again, to reduce the risk of litigation or to increase the credibility of managers' voluntary disclosures, the issuing firms have incentive to inflate earnings in the annual reports that cover the time period when the earnings forecasts and good news are released.

4. The ability of managers to boost earnings in consecutive years is limited by a number of factors. First, the current accrual accounting system provides a limited set of methods by which to manipulate earnings (Watts and Zimmerman 1986). Second, since the balance sheet accumulates the effect of previous accounting choices, managers' ability to manipulate earnings decreases with how much net asset values have been already overstated on the balance sheet (Barton and Simko 2002).

5. Since all accruals will reverse in the future, the external auditor bears a higher risk of litigation if income-increasing earnings management occurs in consecutive years. Therefore, if earnings management occurs in one year, the external auditor has incentive to curtail earnings management in the following year.

6. The issuing firms may also face litigation and reputation damage if a large amount of earnings management is detected by the investors.

7. Since private placement buyers are mostly institutional investors, the ability of these investors, even though passive, to initiate lawsuits against the issuer, if earnings management is detected, is likely to be greater than the ability of investors in IPOs or SEOs to do so. This is because the free-rider problem is less severe among the private placement buyers.

Thus, the timing and extent of earnings management around the time of private placements are an *empirical* issue. It is possible that the issuers manage earnings upward in both year –1 and year 0, while it is also possible that the issuers manage earnings upward only in year –1 and not in year 0, or vice versa. Since this study examines the discretionary accruals in each of the five years surrounding the issuing year, the timing and extent of the earnings management made by U.S. issuing firms will likely be captured by this time span.

If earnings management has occurred, it is likely that there is evidence in measures that reflect accounting policy choices. It would be informative not only to find evidence of earnings management, but also to identify the accounting choice or choices that have been employed to achieve the desired earnings. However, since most accounting choices are not observed by outsiders, researchers rely on various aggregate measures of earnings management, assuming that methods used by managers to manipulate earnings would be spread over a portfolio of accounting choices. Most recent studies on earnings management have used estimations of discretionary accruals as a measure of earnings management, so this study will adopt the same measurement as the proxy for earnings management.

Dechow et al. (1995) assess the relative performance of five alternative discretionary accrual models for detecting earnings management and conclude that a modified version of the Jones (1991) model provides the most powerful tests of earnings management. Further, Subramanyam (1996) finds that the cross-sectional variation of modified Jones (1991) model provides better estimates of the normal accruals than the times-series model does. Bartov et al. (2000) find that the cross-sectional modified Jones model outperforms the time-series modified Jones model in identifying firms with qualified audit opinions. Therefore, this study will adopt the modified Jones (1991) model and the cross-sectional estimation method to measure discretionary accruals. Also, since firms' past performances could also affect the level of their accruals (Kathori et al. 2005), the lagged return on assets (ROA) is also included in the regressions to estimate nondiscretionary accruals for each firm.

Total accruals are measured using the cash flow approach:

$$TA_t = [NI_t - CFO_t] / A_{t-1} \qquad (1)$$

where:

TA_t = total accruals

NI_t = income before extraordinary items and discontinued operations (Research Insight data item #123)

CFO_t = cash flow from operations (Research Insight data item #308 minus data item #124)

To calculate the discretionary accruals, the non-discretionary portion of total accruals must be estimated. The expected nondiscretionary accruals for firm *i* in year *t* (NDA_{it}) are measured as:

$$NDA_{it} = \beta_{0it}(1/A_{it\text{-}1}) + \beta_{1it}\,(\Delta REV_{it}/A_{it\text{-}1} - \Delta REC_{it}/A_{it\text{-}1}) + \beta_{2it}\,(PPE_{it}/A_{it\text{-}1}) + \beta_{3it}\,(ROA_{t-1}) \qquad (2)$$

where:

ΔREV_{it} = change in revenue for firm *i* in year *t*
ΔREC_{it} = change in net receivables for firm *i* in year *t*
PPE_{it} = gross property, plant, and equipment for firm *i* at the end of year *t*
ROA_{t-1} = Return on average assets in year t-1
$\beta_{0it}, \beta_{1it}, \beta_{2it}, \beta_{3it}$ = firm-specific parameters for firm *i* in year *t*.

In equation (2), the firm-specific parameters, β_{0it}, β_{1it}, β_{2it} and β_{3it}, are estimated cross-sectionally using the two-digit SIC code for firm *j*'s data ($j \neq i$):

$$TA_{jt} = \beta_{0it}\,(1/A_{jt-1}) + \beta_{1it}\,(\Delta REV_{jt}/A_{jt-1}) + \beta_{2it}\,(PPE_{jt}/A_{jt-1}) + \beta_{3it}\,(ROA_{t-1}) + \varepsilon_{jt} \qquad (3)$$

Once the nondiscretionary accruals are estimated, the discretionary accruals for firm *i* in year *t* (DA_{it}) are calculated as the prediction error:

$$DA_{it} = TA_{it} - NDA_{it} \qquad (4)$$

Managers of issuing firms may have managed earnings for reasons other than trying to induce investor optimism. Two prominent reasons relate to firms' desire to reduce the political cost and the debt default cost (Watt and Zimmerman, 1986). Empirically, a firm's political cost is usually proxied by firm size, and debt default cost is proxied by the leverage of the firm. To mitigate the impact of these two factors on the measurement of earnings management, this study employs a matched control sample of non-issuers. If the discretionary accruals of the issuing firms are significantly different from those of the non-issuing control firms in year *t*, then there is evidence of earnings management among the issuing firms in year *t* and the results of earnings management of the issuers are not likely due to incentives other than inducing investors to accept terms more favorable to the issuers.

For the matching procedure, one control firm is selected for each private placement firm by matching the two-digit SIC code, total assets, and debt-to-asset ratio at the end of year –1. The control firm should not have conducted private placements in the following three years. Because there are two continuous variables in the matching, this study employs the procedure proposed by Murray (1983). Thus, for each potential matched firm, the Mahalanobis distance is calculated as:

$$D^2 = (\mathbf{M}_\mathrm{b} - \mathbf{M}_\mathrm{c})'W^{-1}(\mathbf{M}_\mathrm{b} - \mathbf{M}_\mathrm{c}), \qquad (5)$$

where:

D^2 = the distance measure of firm b from private placement firm c,
$\mathbf{M}_b$ = a vector of matching variables for firm b,
$\mathbf{M}_c$ = a vector of matching variables for private placement firm c,
W = the covariance matrix of the cross-section of matching variables.

D^2 is considered as a univariate measure of multidimensional differences and is calculated for all non-issuing firms within the same two-digit SIC code as the issuing firm. The control firm is the one that has the smallest D^2. The Mahalanobis distance approach provides a more precise matching measurement than the Euclidean distance approach in that it considers the variance and covariance of each matching variable (Murray 1983).

Three measures of stock performance are used in this study: raw return, market excess return, and abnormal return. All the measures are the buy-and-hold returns over a three-year period. The raw returns and market excess returns do not adjust for firms' risk and, therefore, are biased estimates of stock performance. The purpose of including these two measures is so they can serve as benchmarks for the abnormal returns.

The method used to calculate the abnormal returns is similar to Hertzel et al. (2002). Specifically, the abnormal return of an issuing firm is calculated as the difference between the buy-and-hold raw return of the issuer and that of a matched non-issuer. Finding the correct matching firm is critical in this process because measures of long-term abnormal stock returns could be subject to greater measurement errors than measures of short-term returns (Kothari and Warner 1997). Barber and Lyon (1997) analyze the empirical power and specification of test statistics in event studies designed to investigate long-run abnormal stock performance and conclude that the control firm approach, in which sample firms are matched by similar size and book to market ratios of industry peers, yields well specified test statistics. The matching procedure in this study will employ the Mahalanobis distance approach using two continuous variables—firm size and book to market ratio—for a firm within the same two-digit SIC code as the issuer. The firm with smallest D^2 in the same two-digit SIC code is the control firm for the issuer.

With the issuing year defined as year 0, discretionary accruals of issuing firms in years -2, -1, 0, +1, +2 are calculated. The most important measures used to test Hypothesis 1 are discretionary accruals in years –1 and 0, since discretionary accruals for other years are not expected to be significantly different from zero. A statistically significant positive measure of discretionary accruals in either year –1 or year 0 (or both) will lend support to Hypothesis 1.

Testing Hypothesis 2 involves two steps. In the first step, four portfolios of issuers are formed based on the quartiles of discretionary accruals around the issue year; the discretionary accruals for the year that are significantly positive are used to form the portfolios, and the two extreme portfolios are called the aggressive (quartile 4) and the conservative (quartile 1) private placement issuers. The abnormal returns for each portfolio are calculated as the cumulative buy-and-hold return on sample firms less the simple cumulative buy-and-hold return on control firms over the three-year post-issue period. Hypothesis 2 predicts that the most aggressive issuers will exhibit the most negative post-issue abnormal returns and that the most conservative issuers will exhibit the least negative (in terms of magnitude) post-issue abnormal returns. This first step provides a view of the relationship between the earnings management around the time of private placements and the post-issue stock performance.

Building on the results of the first step, the second step is a formal statistical test of Hypothesis 2. Specifically, OLS regressions are run using individual issuer's three-year post-issue raw return, market access return, and abnormal return as the dependent variable. The independent variable of primary interest to the study is the abnormal accruals for year –1 or year 0, whichever is significantly positive. The regressions also include an industry dummy, firm size, and book to market variables as control variables. The industry dummy accounts for post-issue stock performance across industries and firm size and book to market variables control for firm characteristics. A significantly negative estimate of the coefficient of the discretionary accruals variable will lend support to Hypothesis 2.

The OLS regression model is specified as:

$$R_i = \beta_0 + \beta_1 (DA_i) + \beta_2 (Size_i) + \beta_3 (BtoM_i) + \Sigma \gamma (Industry\_dummies_i) + \varepsilon_i \qquad (6)$$

where:

R_i = issuer's raw return, market excess return, or abnormal return
DA_i = issuer's discretionary accruals around issuance
$Size_i$ = issuer's market value of equity
$BtoM_i$ = book to market ratio
$Industry\_dummies_i$ = industry dummy variables

EMPIRICAL RESULTS

Table 2 reports five years of asset-scaled discretionary accruals around the issue of private placements for the U.S. issuers and those for the control firms. The mean and median for year –2 are not significantly different from zero; but for year –1, the year prior to the private placements, the discretionary accruals of the issuing firms have a mean of 3.27 percent and a median of 2.49 percent of total assets, both of which are significantly positive. For years 0, +1, and +2, the means and medians are greater than zero; however, they are not statistically significant at the conventional levels (except for the median for year +1, which is significant at ten percent level).

Table 2: Discretionary accruals for U.S. issuing firms versus control firms					
Variable	Mean	Std. Dev.	Median	Min	Max
Year –2 (N=289)					
PP firms	-0.0021	0.3535	0.0104	-1.7926	1.2482
	(t=-0.10, pr=0.920)		(pr=0.281)		
Control firms	0.0044	0.2920	0.0045	-1.2817	1.6583
	(t=0.24, pr=0.811)		(pr=0.444)		
Test of difference	(t=-0.23, p=0.815)		(pr=0.672)		
Year –1 (N=348)					
PP firms	0.0327**	0.2816	0.0249***	-1.4318	1.5114
	(t=2.15, pr=0.032)		(pr=0.001)		
Control firms	-0.0072	0.2125	0.0051	-0.8906	0.8037
	(t=-0.64, pr=0.521)		(pr=0.782)		
Test of difference	(t=2.11, pr=0.035)		(pr=0.059)		
Year 0 (N=321)					
PP firms	0.0054	0.2466	0.0128	-1.1477	1.5460
	(t=0.39, pr=0.694)		(pr=0.307)		
Control firms	-0.0018	0.1991	0.0055	-1.4221	0.7863
	(t=-0.16, pr=0.874)		(pr=0.281)		
Test of difference	(t=0.40, p=0.687)		(pr=0.865)		
Year +1 (N=291)					
PP firms	0.0127	0.1805	0.0143*	-0.6056	0.8132
	(t=1.20, pr=0.231)		(pr=0.066)		
Control firms	-0.0020	0.2189	-0.0080	-1.1885	1.5788
	(t=-0.14, pr=0.886)		(pr=0.627)		
Test of difference	(t=0.83, p=0.405)		(pr=0.157)		
Year +2 (N=260)					
PP firms	0.0193	0.1963	0.0068	-1.2727	1.1556
	(t=1.58, pr=0.114)		(pr=0.108)		
Control firms	-0.0130	0.1855	0.0023	-0.8277	0.8948
	(t=-0.95, pr=0.343)		(pr=0.553)		
Test of difference	(t=1.76, p=0.079)		(pr=0.187)		

Footnotes:

Paired-sample t-test is used to evaluate difference in means, and Wilcoxon rank-sum test is used to evaluate the difference in medians.

***, **, *: Significant different from zero at 0.01, 0.05, and 0.10, respectively, two-tailed test.

Since managers' incentives to manage earnings could also be due to firm size and leverage, the results from the modified Jones model should be compared with those of the control group to draw an overall inference about earnings management around the time of private placements. Table 2 also reports the mean and median for those control firms over the same time period, none of which is significantly different from zero. The study conducts pair-wise comparison tests on the differences in discretionary accruals between private placement issuers and their control firms, and the result shows that in the year –1, private placement issuers have significantly greater discretionary accruals in both mean and median than their non-issue peers, suggesting that the observed abnormally high magnitude of earnings managements in year –1 cannot be attributed to firm size, leverage or the industry-specific categories of the sample. The comparison of the mean and median of discretionary accruals between the issuing firms and the control firms does not reveal any statistically significant difference in other years. Thus, the empirical results support the first hypothesis that managers tend to manipulate earnings upward in the year prior to the issue of private placements.

Existing literature documents that after issuing private placements, firms experience negative abnormal stock performance (Hertzel et al., 2002). This study examines the sample firms and finds results consistent with existing literature. The average three-year buy-and-hold abnormal stock returns for the sample are -32.83 percent. The existing literature has postulated that the negative abnormal stock return is due to investors' over-optimism about these issuing firms' future performance. This study argues that earnings management around the private placement issue could be a factor for the investors' over optimism, because the inflated earnings around the issuance could mislead investors about the issuer's future performance. The reversal of accruals in the following years results in a drop in the issuer's stock price. Thus, the more the earnings management, the poorer the post-issue stock performance.

To test this hypothesis, the study first classifies the issuing firms according to the level of their discretionary accruals in year –1 to derive four portfolios. The quartile group with the lowest discretionary accruals is called the conservative group, and the group with the highest discretionary accruals is called the aggressive group. Buy-and-hold raw returns are developed for each portfolio, and the portfolio is rebalanced every year. Market excess returns for each portfolio are also calculated. In addition, the study adopts the Mahalanobis distance approach to develop a control firm for each sample firm with a similar size and book to market ratio in the same industry. The buy-and-hold excess returns over their control firms for each portfolio are also developed as abnormal returns.

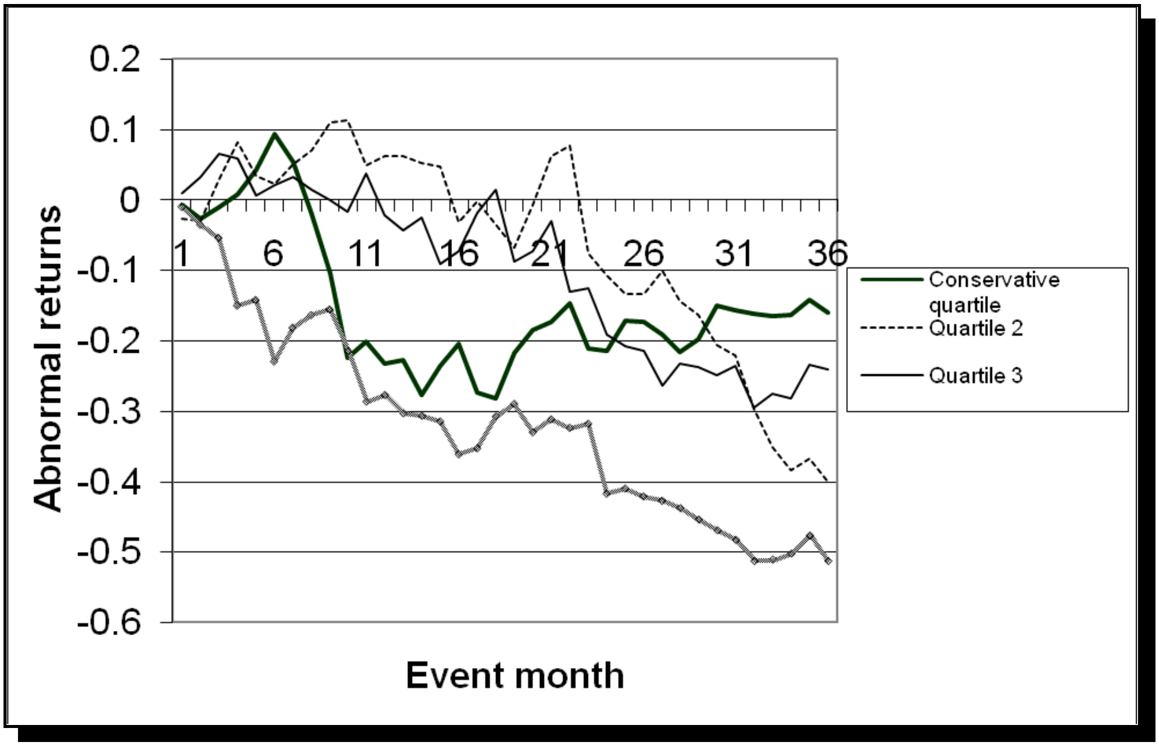
Table 3 reports the raw returns, the market excess returns, and the abnormal returns for the conservative and aggressive portfolio for each year over a three-year post-issue period. The market excess returns for the conservative portfolio over the three-year period are 3.54 percent and they are -9.75 percent for the aggressive portfolio. The abnormal returns for the conservative portfolio over the period are -15.98 percent and they are -51.21 percent for the aggressive portfolio. Figure 1 depicts the size and book-to-market value adjusted abnormal returns for each quartile, showing that the aggressive quartile performs more poorly than the conservative quartile and suggesting that the higher the level of discretionary accruals prior to the private placement issuance, the poorer the post-issue stock performance.

Table 3: Post-issue stock returns for extreme discretionary accruals quartiles: U.S. issuers

Years after issuance	Raw returns		Market excess returns		Abnormal returns	
	Conservative	Aggressive	Conservative	Aggressive	Conservative	Aggressive
1	-11.73	-6.72	-8.49	-3.78	-23.16	-27.67
2	19.25	-5.03	12.91	-13.08	-21.49	-41.66
3	18.22	16.78	3.54	-9.75	-15.98	-51.21

Footnote:
The total sample is classified into four groups by the issuer's discretionary accruals in the year preceding the issuing year. The conservative group is the quartile group with the smallest discretionary accruals and the aggressive group is the one with the largest discretionary accruals.

Figure 1: Abnormal returns classified by discretionary accruals around issue year quartiles for U.S. issuers



The study runs OLS regressions of three-year post-issue stock raw returns, market excess returns, and abnormal returns on discretionary accruals in year -1, as well as on the control variables of market value, book-to-market, and industry dummies. The regression is run at the firm level, and Table 4 reports the regression results. The variable of most interest is the discretionary accruals in year –1. The coefficient of the discretionary accruals in year –1 on the three-year market excess returns is -0.3485 and significant at the 5% level (t = -1.96); the coefficient of discretionary accruals in year -1 on the three-year abnormal returns is -0.4343 and also significant at the 5% level (t = -1.83).

Table 4: Regressions of post-issue stock performance on discretionary accruals in year –1 and control variables for U.S. issuers

		Three-year raw returns	Three-year market excess returns	Three-year abnormal returns
Discretionary Accruals	Coef	-0.2327	**-0.3485****	**-0.4343****
	(t)	(-1.22)	**(-1.96)**	**(-1.83)**
Market Value	(t)	-0.12	(-0.06)	-0.48
Book to Market	(t)	-1.98	-1.76	-1.25
Industry dummies		Not reported	Not reported	Not reported
Obs		293	293	293
R-square		3.31%	3.81%	4.17%

Footnotes:
***, **, *: Significant different from zero at 0.01, 0.05, and 0.10, respectively , one-tailed test

Thus, the results in table 4 support the second hypothesis. For private placement issuers in the U.S., the higher the discretionary accruals in year -1, the poorer the three-year post-issue market excess returns and abnormal returns. Therefore, the level of earnings management is associated with the three-year post issue stock underperformance, suggesting that earnings management could be a factor causing investors' over optimism prior to the issue of private placements.

SENSITIVITY ANALYSIS

The selection of control firms is crucial in many empirical studies. To test the first hypotheses, a control firm for each private placement-issuing firm is chosen to mitigate the influence of factors such as industry, size, and leverage. The discretionary accruals of private placement firms in the year prior to the issues are significantly greater than those of control firms, so the detected earnings management is not due to factors other than the private placement. To test the second hypotheses, control firms are also developed for the calculation of the issuers' post-issue abnormal returns. Compared to raw returns and market excess returns, abnormal returns are a more accurate measure of stock performance in that they mitigate some systematic and firm specific factors that can influence the stock returns.

Empirical studies have used a variety of matching methods to derive the control firms. When two or more continuous variables are used in the matching, many studies have adopted the Euclidean distance approach and have chosen the firm with the closest Euclidean distance to the experimental firm as its control firm. Murray (1983) is the first to apply the Mahalanobis distance approach to accounting and finance empirical research. The Mahalanobis distance approach, as used in this study, improves the Euclidean distance approach by considering the variance and covariance of these control variables when calculating the distance and, thus, provides more accurate matching. However, the application of the Mahalanobis distance approach is seldom used in accounting and finance studies.

An alternative matching approach, the propensity score matching approach that structures non-experimental data to look like experimental data, has gained popularity in economics research in recent years. Rosenbaum and Rubin (1983) advocate the use of propensity scores, which measure the probability that firms receive treatment, to reduce the dimensionality of the matching. By matching on the scalar variable, sample firms could be matched with the nearest non-treated firms having a similar treatment condition on covariates. Since the propensity score matching method is a significant improvement in matching techniques, it becomes a rapid growing method in accounting and corporate finance as a sensitivity analysis to address self-selection issues (Li and Prabhala 2007).

The sensitivity analysis conducted in this study uses the propensity score matching method to select the control sample. A logistic regression is processed to calculate propensity scores for the sample firms and the potential control firms. Following existing literature, the independent variables include trading system, industry, issue year, firm size, leverage, book to market ratio, sales, return on assets, and research and development expenses (Spiess and Affleck-Graves 1995, Schultz 2003, Mclaughlin et al. 1996, Loughran and Ritter 1995, and Jung et al. 1996). The propensity scores, the probability that a firm may conduct private placements, are derived after the regression. The logistic regression results are shown in Table 5.

Table 5: Logistic analysis of private placement decision

Independent variables	Coefficient	z-stat
Return on Assets	-0.0906**	-2.1
Leverage	0.0694	0.5
Size	-0.0855***	-2.83
R & D/ Assets	0.4763**	2.54
Book to Market	-0.1761***	-3.88

Table 5: Logistic analysis of private placement decision

Independent variables	Coefficient	z-stat
Sales/Assets	-0.5164***	-5.06
Traded on American Stock Exchange	0.3466	1.52
Traded on NASDAQ	0.2589*	1.89
Industry Dummies	3 are significant	
Year Dummies	5 are significant	
Intercept	-4.5894***	-10.82
Number of Obs	36942	
Pseudo R-square	11.59%	

Footnotes:
***, **, *: Significant different from zero at 0.01, 0.05, and 0.10, respectively.
The dependent variable is 1 if a firm issues private placement in a certain year and 0 otherwise.

Overall, the logistic model for U.S. firms reports a 70 percent accuracy for the issuing firms and a 75 percent accuracy for non-issuing firms. To be qualified into the pool of non-issuing firms, a firm must have necessary data to calculate discretionary accruals and stock returns. Once the propensity score is calculated for each firm, the control sample can be derived. A non-issuing firm with the nearest neighbor of propensity score in the same industry is chosen as the control firm for each issuing firm.

The annual discretionary accruals for the five-year period surrounding the issue year are calculated for the control firm for each private placement issuer. Table 6 reports the five year discretionary accruals for the issuers and their control firms. Similar to the results from using the Mahalanobis distance matching to select the control sample, the mean and median of discretionary accruals in year –1 of the sample firms are both significantly greater than those of their control firms. There is no significant difference in discretionary accruals between the issuing firms and control firms for years -2, 0, and +1. Although year +2's the mean of discretionary accruals for sample firms is significantly and marginally greater than that for the control firms, the median is not significantly different between the two groups. Thus, the results are consistent with the Mahalanobis distance approach, suggesting that the empirical results in support of the first hypothesis are not sensitive to alternative matching procedures in selecting the control sample.

Table 6: Discretionary accruals for U.S. private placement firms versus control firms – propensity score matching

Variable	Mean	Std. Dev.	Median	Min	Max
Year -2 (N=289)					
PP firms	-0.0021	0.3535	0.0104	-1.7926	1.2482
	(t=-0.10, pr=0.920)		(pr=0.281)		
Control firms	0.0081	0.2920	0.0102*	-1.7113	1.2321
	(t=0.52, pr=0.601)		(pr=0.059)		
Test of difference	(t=-0.39, p=0.694)		(pr=0.869)		
Year -1 (N=348)					
PP firms	0.0327**	0.2816	0.0249***	-1.4318	1.5114
	(t=2.15, pr=0.032)		(pr=0.001)		
Control firms	-0.0100	0.2125	0.0062	-1.7070	1.5687
	(t=-0.56, pr=0.577)		(pr=0.957)		
Test of difference	(t=1.82, pr=0.069)		(pr=0.042)		
Year 0 (N=321)					
PP firms	0.0054	0.2466	0.0128	-1.1477	1.5460
	(t=0.39, pr=0.694)		(pr=0.307)		
Control firms	0.0050	0.1991	0.0060	-1.4365	1.1002
	(t=-0.39, pr=0.695)		(pr=0.420)		
Test of difference	(t=0.02, p=0.983)		(pr=0.662)		
Year +1 (N=291)					
PP firms	0.0127	0.1805	0.0143*	-0.6056	0.8132
	(t=1.20, pr=0.231)		(pr=0.066)		
Control firms	-0.0102	0.2189	-0.0030	-0.9299	1.1316
	(t=-0.78, pr=0.435)		(pr=0.996)		
Test of difference	(t=1.36, p=0.173)		(pr=0.171)		
Year +2 (N=260)					
PP firms	0.0193	0.1963	0.0068	-1.2727	1.1556
	(t=1.58, pr=0.114)		(pr=0.108)		
Control firms	-0.0072	0.1855	-0.0032	-0.6795	0.5421
	(t=-0.78, pr=0.434)		(pr=0.970)		
Test of difference	(t=1.73, p=0.083)		(pr=0.526)		

Footnotes:
Paired-sample t-test is used to evaluate difference in means, and Wilcoxon rank-sum test is used to evaluate the difference in medians.
***, **, *: Significant different from zero at 0.01, 0.05, and 0.10, respectively, two-tailed test.

Raw returns are derived for the control firms and three years post-issue abnormal returns are developed as buy-and-hold excess returns over these control firms. Table 7 reports the results of the regression of post-issue stock performance on discretionary accruals for year –1. The coefficient of discretionary accruals in year –1 on three-year abnormal returns is -0.5082 and is significant at the 10 percent level. The results are qualitatively the same as those from the Mahalanobis distance approach in selecting the control sample, suggesting that the findings on the association between post-issue stock performance and earnings management around the time of private placements are not sensitive to alternative matching methods.

Table 7: **Regressions of post-issue stock performance on discretionary accruals in year –1 and control variables for U.S. issuers – propensity score matching**

		Three-year raw returns	Three-year market excess returns	Three-year abnormal returns
Discretionary Accruals	Coef	-0.2327	**-0.3485****	**-0.5082***
	(t)	(-1.22)	**(-1.96)**	**(-1.43)**
Market Value	(t)	-0.12	(-0.06)	(-0.05)
Book to Market	(t)	-1.98	-1.76	-0.04
Industry dummies		Not reported	Not reported	Not reported
Obs		293	293	293
R-square		3.31%	3.81%	4.28%

Footnotes:
***, **, *: Significant different from zero at 0.01, 0.05, and 0.10, respectively, one-tailed test.

CONCLUSION

Private placements provide direct incentive to managers to manipulate earnings. In doing so, managers may portray a rosy picture of the firms' prospects to attract new investors and obtain more favorable terms for selling new shares. This study investigates whether private placement issuers manipulate their earnings around the time of issue, and the results indicate that managers tend to income increasingly manage their earnings around the private placement.

The study also examines the effect on stock performance of earnings management around the issue of private placements. Investors could be misled by the manipulated earnings and become over-optimistic about the issuers' future performances. When the income-increasing accruals reverse in subsequent periods, investors become disappointed and beat down the stock price to the firms' fundamental values. Thus, the study finds that post-issue stock underperformance is associated with earnings management prior to the private placement and that, the higher the level of earnings management before the issue of private placements, the poorer the post-issue stock performance will be.

The study also investigates whether an alternative matching technique could have influence on the findings. A popular matching method in economics, propensity score matching, is used to replace the Mahalanobis distance approach and the results are similar, suggesting that the findings are not sensitive to alternative matching methods.

Testing earnings management using accrual models is a simultaneous test of earnings management and the validity of the accrual models (Kothari et al., 2005), so this study is limited by the accuracy of the accrual model that is adopted to capture the existence and level of earnings management. Although the study adopts the best performing accrual model, to the extent that the model could fail to correctly extract the discretionary portion from the total accruals, the results should be interpreted with caution.

This study is also limited by the effectiveness of the matching models in dealing with self-selection bias since issuing private placements could be an endogenous choice. To deal with the self-selection problem, this study conduct a sensitivity test using propensity score matching method. Issuing firms are matched with control firms by the similar probability to issue private placements. Although the consistent results using the propensity score matching method with the dimension by dimension matching using Mahalanobis distance are conforming, the robustness of this study is based on the assumption that unobserved private information should not explain outcome differentials between firms choosing to issue private placements and those choosing not to.

The findings of this study document that on average firms issuing private placements have tendency to manipulate their earnings around the issuance. However, the magnitude of the manipulations is different across the issuing firms. It will be interesting to investigate what factors affect the firms' decision to manage earnings or the magnitude of the manipulations, whether these factors have similar impact on private placement issuers with other equity issuers, such as initial public offerings, seasoned public offerings, right offerings and convertible bond offerings, etc and whether these factors have similar impact across countries.

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APPENDIX A: NEW U.S. SEASONED SECURITY ISSUES OF CORPORATION BY TYPE OF OFFERING, 1996-2003

	1996	1997	1998	1999	2000	2001	2002	2003
Public offerings*	114.6	110.9	121.3	125	134.9	120.9	110.4	123.3
Private placements*	43.2	61.9	84.7	112.7	177	100	60.5	58.8
Total*	157.8	172.8	206	237.7	311.9	220.9	170.9	182.1
% of Private placements	27.4%	35.8%	41.1%	47.4%	56.7%	45.3%	35.4%	32.3%

Footnotes:
Source: Board of Governors of the Federal Reserve System, Federal Reserve Bulletin.
* Numbers are in billions of dollars.

CORPORATE RISK INFORMATION IN ANNUAL REPORTS AND STOCK PRICE BEHAVIOR IN THE UNITED ARAB EMIRATES

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ABSTRACT

Regulators enforce different binding and non-binding rules for the corporate firms to publish adequate risk information in their annual report. Adequate risk information in annual report may reduce uncertainty, help investors to take informed investment decisions and consequently reduce agency problems. Therefore, we conjectured that more disclosure of risk information may have negative relationship with the level of stock price volatility and investors' market risk. An empirical test based on 36 UAE companies listed in the Dubai and Abu Dhabi stock exchanges does not show a negative relationship between the disclosure of risk information in one side and stock volatility and market risk factor in the other. Instead, a non-linear quadratic effect of risk disclosure on the level of stock volatility and market risk has been detected. The findings tend to suggest that more disclosure of risk information may increase uncertainty of investment, but with more information investors can effectively diversity their portfolio to minimize the level of market risk.

INTRODUCTION

Corporations often utilize various devices, such as media and newspapers, to communicate information about their activities, but annual report is the official public document that includes information about corporations’ current activities and future plans. Although different studies investigate level of voluntary disclosure in the annual reports (e.g. Robb *et. al.*, 2001; Cabedo and Tirado, 2004; and Hassan, 2009), managers are generally skeptical about providing all information to their shareholders without certain regulatory and professional requirements.

Regulatory requirements are laid in two forms: accounting standards and listing conditions. For example, Financial Accounting Standard Board (FASB) and Accounting Standards Board (ASB) set rules of disclosure in the US and UK respectively, while International Financial Reporting System (IFRS) sets guidelines that aim at enhancing financial disclosure globally. In this regard, Statement of Financial Accounting Standards (SFAS) 119 & 133, Financial Reporting Standard (FRS) 13, and IFRS 7 require the inclusion of risk related information in annual reports. Likewise, security exchange enforces binding rules for the listed corporations to promptly release risk related information and market sensitive information. One the other hand, professional institutions, such as American Institute of Chartered Public Accountants (AICPA) and Association of Investment Management and Research (AIMR), encourage corporations to disclose information about their strategic plans, business opportunities, risks, as well as process and operations management. Therefore, we expect that if annual report provides adequate risk related information to the shareholders then it should influence the cross sectional behavior of stock prices in market trading.

Adequacy of information in annual report could influence the behavior of stock prices because it may help reducing uncertainty of valuation. This enables the shareholders to take informed decisions about their portfolio. Most importantly, the corporate risk information disclosure in annual reports would help reducing the agency problem between the public shareholders and corporate managers. One the one hand, the accounting literature includes plenty of studies related to voluntary and/or mandatory disclosures and factors affecting such disclosures (e.g., Hooks *et. al*., 2002; Leventis and Weetman (2004); and Ferrell, 2007). On the other hand, the information effect on the stock price behavior is well known in the market efficiency literature in finance (e.g., Fama, 1970). However, there is a research gap in investigating whether the inclusion of risk related information in annual reports can influence the stock price behavior. The finding on relationship between corporate risk disclosure and stock price behavior would therefore enrich the current knowledge on the linkage between accounting information and financial market.

This study extends on the prior work that develops a corporate risk disclosure (CRD) index for the United Arab Emirate (UAE) listed corporations (e.g. Hassan, 2009) to examine the CRD cross-sectional relationship with the average volatility of stock price over the different interval of periods after publication of annual reports. The volatility of price movements reflects the behavioral pattern of stock price and the potential risk of investment. This is measured by calculating spread between the highest and lowest prices in each trading week over different intervals until end of the financial year, when the next annual reports become due.

There are several reasons to choose the United Arab Emirates (UAE) for this study. First the UAE is an emerging market in oil-rich gulf region, yet most listed corporations apply the IFRS. The UAE corporations' annual reports demonstrate a pattern of risk disclosure (Hassan, 2009). The limitation however is that the UAE stock markets started in 2000; hence it has only eight years of trading history. Nonetheless, the evidence should have academic value in understanding the relationship between the disclosures of risk information in annual report and behavior of stock price.

The empirical results, based on 36 companies whose financial year ends in December 2005 and annual reports are made available by the next month, show that CRD index has nonlinear relationship with the stock price volatility after the publication of annual reports. The finding is inconsistent with the hypothesis that more risk disclosure reduces uncertainty and hence the volatility of stock price declines. It is also found that CRD has also nonlinear relationship with the market risk factor (beta coefficient) of the stocks.

The paper concludes that the findings may have three major implications. First, more risk information reported in annual reports intensifies the uncertainty about the future corporate performance. Second, corporate risk disclosure helps investors to diversify their investment portfolio that reduces the level of portfolio risk, but excess and unnecessary disclosure of information surpasses the benefits of relevant risk disclosures raising the level of market risk. Third, the risk information revealed in annual reports may not adequately address the investors' concern, hence a survey may be conducted to ascertain the types of risk information that investors are concerned about.

The rest of the paper is organized in five sections. Literature review and hypotheses are presented in Section 2. Research design and methodology are discussed in Section 3. Sample and data are described in Section 4. Results are discussed in Section 5 before conclusions are drawn in Section 6.

LITERATURE REVIEW AND HYPOTHESES

Information asymmetry among the different corporate stakeholders (e.g., shareholders and management) is one of the sources of agency problems (Jensen and Meckling, 1976). This problem can be mitigated effectively by increasing the level of disclosure (Mahoney, 1995). This is because more information enables shareholders to take informed investment decisions, and thereby risks and agency costs are reduced (Hutton, 2007). If corporation need to approach investors to fund their projects they should voluntarily disclose all relevant information [Armitage and Marston (2008) and Mazola et. al., 2006)]. This is because high level of disclosure is more likely to attract investors, who become confident that stocks are fairly priced in the market [Diamond and Verrecchia (1991), Kim and Verrecchia (1991a, 1991b, 1994 and 2001)].

Despite the benefits of high level of disclosure, the level of voluntary disclosure is found to be low and fall short of investors' expectations (Hooks *et. al*., 2002). The problem is more sever in the emerging markets where corporations are less likely to disclose information related to their strategic plans as well as their major weaknesses and risks [Leventis and Weetman (2004) for Greece and Kuasirikun and Sherer (2004) for Thailand]. Compared to developed capital markets, such as USA and UK, emerging markets lack binding rules that enforce listed corporations to promptly release information associated with their strategic plans, opportunities, risks, and key business processes [Salter (1998) and Patel *et. al.,* (2002)]. Disclosure of such information not only enhances business competition but also reduces agency problem (Ferrell, 2007).

Although corporations may disclose information by announcements, annual reports remain the main document that contains both financial and non-financial information[1]. Patel and Dallas (2002) found a significant relationship between the amount of information included in annual reports and market risk as well as investors' valuation of shares. Therefore, it is likely that annual reports' financial and/or non-financial information are relevant for shareholders in assessing the potential risk of investment. The effect of disclosing accounting numbers on the stocks returns is well documented in the literature [Ball and Brown (1968), Beaver *et. al.* (1979), Fama and French (1992 & 1993) and Kraft *et. al.* (2007)], but the effect of disclosing a certain category of information, such as risk information, is yet to be adequately explored. In this regard, Li (2007) found that the textual disclosure of information (strategic plan, market competitions, key resources, growth prospects etc), has relationship with future earnings and stock returns, because investors can better ascertain the risk of future investment.

Although the above studies shed light on the importance of risk information for the investors, this paper poses the question of "whether all the disclosed risk information is relevant for risk perspective". The corporate risk disclosure literature shows different approaches to analyze and measure the level of risk disclosure. Some scholars use the content analysis (e.g. Beretta and Bozzolan, 2004; Lajili and Zeghal, 2005; Linsley and Shrives, 2006). Others use disclosure index (e.g. Robb *et. al.,* 2001; Cabedo and Tirado, 2004 and Naser *et. al.*, 2006). Third rely on the readability of risk sentences in annual reports (Linsley and Lawrence, 2007). Recently, based on literature, Hassan (2009) identifies a total of 45 different risk information items in annual reports.

The paper attempts to investigate whether more informative annual reports, that include more risk related information, can help reducing investors' uncertainty and consequently influence the market price of shares. Accordingly, we investigate that more risk disclosure would enable investors to take informed decisions on their investment (Marino and Matsusaka, 2005) while reducing information asymmetry. Our argument is that the higher the level of risk disclosure the more likely is the reduction in the uncertainty associated with return from the investment, and hence share prices will be less volatile in the periods following the disclosure of annual reports. Therefore, our first null and alternative hypotheses are constructed as follows:

H_0: *The volatility of stocks with higher levels of corporate risk information disclosure will not be significantly lower than that of the stocks with lower levels of risk disclosure.*

H_A: *The volatility of stocks with higher levels of corporate risk information disclosure will be significantly lower than that of the stocks with lower levels of risk disclosure.*

If the null hypothesis is not rejected then findings will shed new light on the relevance of the different risk information supplied to the shareholders. Accepting the null hypothesis not only raises the concerns of corporations and/or regulators but also increases their willingness to align the risk information in annual report with the information needed by the shareholders. However, if the empirical findings reject the null hypothesis then it can be concluded that more disclosure will reduce investors' uncertainty of returns and corporations should voluntarily publish risk information to their shareholders.

Capital asset pricing theory suggests that market risk factor (beta coefficient) determines the investors' expected return (i.e. cost of capital). Accordingly, if the disclosure of more risk information reduces investors' uncertainty then it should negatively affect the stock's market risk factor (beta coefficient). This is because the lower the uncertainty the lower should the risk of investment. Theoretical literature shows that quality and quantity of financial disclosure affect the cost of equity and, in turn, investors require higher return for lower level of disclosure [Easley and O'Hara, (2004), Hughes *et. al.* (2007), Lambert *et. al.* (2007)]. This suggests that more disclosure of risk information should benefit investors and stocks' market risk should decline. While direct evidence on this issue is yet to be found, the present indirect evidence however is not consistent with the conjecture. For example, although the fair disclosure (FD) regulation in the US requires public corporations to increase fair value disclosure to investors, that disclosure did not reduce the cost of capital [Duarte *et. al*., (2007) and Gomes *et. al*., (2007)]. Likewise, Wang *et. al.,* (2008) found that the increase in voluntary disclosure in the Chinese capital market is associated with the higher return on equity (Wang *et. al.*, 2008). The implication of these indirect evidences is that investors' market risk perhaps did not decline after disclosure of more information. Given this background our second null and alternative hypotheses are formulated as follows:

> H_0: *The level of corporate risk information disclosure does not have negative effect on the level of market risk of the stock.*
>
> H_A: *The level of corporate risk information disclosure has negative effect on the level of market risk of the stock.*

If the evidence cannot reject the null hypothesis then it may raise further research question of "whether providing more risk information in annual reports can help corporations to reduce their cost of capital through reducing investors' market risk"[2]. A consequent query would be to investigate "why investors cannot recognize all the risk information provided in annual reports". However, if the null hypothesis is rejected then it will imply that investors are benefited through reduction of information asymmetry. Therefore, risk of investment decreases that in turn helps to reduce the cost of equity capital.

RESEARCH DESIGN AND METHODOLOGY

Since the study empirically examines the impact of corporate risk information on variability of stock returns and market risk factor, it requires to measure three variables: (i) Corporate Risk Disclosure, (ii) Volatility of Securities Return, and (iii) Market Risk Factor. The following subsections discuss how each variable was measured in the context of this study.

Corporate Risk Disclosure

Literature suggests different approaches to measure information disclosure in annual reports.[3] For example, content analysis used by Beretta and Bozzolan (2004), Lajili and Zeghal (2005) and

Linsley and Shrives (2006) among others; corporate information disclosure level is used by Robb *et. al.* (2001), Cabedo and Tirado (2004), Naser *et. al.* (2006) and Hassan (2009); and readability of risk sentences in annual reports is assessed by Linsley and Lawrence (2007). Each approach has weakness as well as strengths and some of them are more subjective than others. The study needs a measure of risk disclosure that comprehensively covers different business aspects such as business operations, management, and financial matters. That measurement, in turn, allows to properly assessing the risk of investment. The study relies on Hassan's (2009) corporate risk disclosure index (hereafter CRD) to rank the UAE corporations according to level of risk disclosure. The index is based on an extensive review of literature while, at the same time, underscoring the UAE statutory requirements. Appendix I outlines CRD index items utilized in this study. The CRD index items are checked against the study sample of 36 annual reports.

The study awards "1" for each risk information item found in the annual report and awards "0" if the information is not found. A firm receiving higher CRD rank means it discloses more risk information and *vise versa.* It is noted that the CRD rank may be computed by assigning specific weight to each information item, but we consider it is less important in this study, as we are concern about the extent of risk information disclosure. It is true that different information item may have different importance to different users hence weighting for information may be useful, but weighting process is subjective and may be biased toward a particular group of users. Therefore, an un-weighted CRD rank is utilized since it serves the purpose of this study.

Volatility of Stock

Stock volatility is primarily estimated by the standard deviation or variance of returns, which is considered as a measure of risk in the portfolio theory. There are sophisticated risk models, developed under Autoregressive Conditional Heteroskedasticity (ARCH), Generalized Autoregressive Conditional Heteroskedasticity (GARCH), and option pricing frameworks, which are valid under specific assumptions. Since we are uncertain whether any of the models provide right descriptions of volatility that is easily understood by general investors, we do not like to keep the findings subject to particular assumptions of any model. Therefore, a model-free simple volatility measure is constructed. This makes study findings easier to understand by general investors while retaining the academic value.

We expect that there will be less uncertainty for the investors following the disclosure of adequate risk information. Thus stock's market price will become more stable and the spread between the highest and lowest prices will become relatively narrower. We examine the volatility of stocks by measuring the average spread of the highest and the lowest prices over different intervals and we estimate it as follows

$$AVOL_{iT} = \frac{1}{N}\sum_{t=1}^{N}\left(\frac{P_{it}^{H}}{P_{it}^{L}} - 1\right) \qquad (1)$$

Where, $AVOL_{iT}$ is the average volatility of stock *i* for the interval of period T, after publication of annual report. P_{it}^{H} and P_{it}^{L} are respectively the highest and lowest prices of the stock *i* in the week *t* of the interval of period T, and N is the numbers of weeks in each interval of period T.

The Average Volatility ($AVOL_{iT}$) is computed over different intervals (T), such as the 1st month, 1st quarter, 1st half-year and full-year following the end of the financial year. We examined the weekly volatility instead of intraday or monthly volatilities. This is because price corrections generally not settled within the trading day; rather it may roll on over the next few days. One-month period is also too long to measure the behavior of general price movements. Therefore, weekly volatility may be suitable in the study. The average weekly volatility over different intervals, T, should depict general pattern of price fluctuations. We check the corporate announcement files maintained by stock exchanges to find out any major announcement (e.g., earning, dividend, and major investments etc.,) made after publication of the annual report. If any such announcement is found, the stock prices of the announcement week and the week after announcement are excluded from $AVOL_{iT}$ calculation. In order to reduce biasness in the statistical calculations, we also exclude the extremely high and low prices of the year that exists beyond ± 3s levels.

The $AVOL_{iT}$ measures the total volatility of a stock, which may be driven by the general market sentiments to certain extent. Hence, the $AVOL_{iT}$ for individual stock *i* in the week *t* has been adjusted for market volatility in same week *t*. We call the adjusted volatility of individual stock as the excess volatility, which is estimated as follows:

$$AEVOL_{iT} = \frac{1}{N}\sum_{i=1}^{N}\left(\frac{P_{it}^{H}}{P_{it}^{L}} - \frac{I_{it}^{H}}{I_{it}^{L}}\right) \qquad (2)$$

Where, $AEVOL_{iT}$ is the average excess volatility of stock *i* for the interval of period T, after publication of annual report. P_{it}^{H} and P_{it}^{L} are respectively the highest and lowest prices of the stock *i* in the week *t* of the interval of period T. I_{it}^{H} and I_{it}^{L} are respectively the highest and lowest values of

> market index in the week t of the interval of period T, and N is the numbers of weeks in each interval of period T.

The Average Excess Volatility ($AEVOL_{iT}$) is computed over the different intervals (T), such as the 1st month, 1st quarter, 1st half-year and full-year following the last financial year. Since the volatility of market has been adjusted, the $AEVOL_{iT}$ may depict the stock price volatility due to the reasons specific to the company.

Market Risk Factor

Investors' market risk factor for the sample stocks is calculated over one-year period following the end of financial year. Our objective is to examine the cross-sectional variation of market risks in the period after disclosure of annual reports. The market risk for each stock is calculated, as follows, by estimating the beta coefficient (β) of time series market model using weekly returns.

$$R_{it} = \alpha_i + \beta R_{mt} + \varepsilon_{\iota\tau} \qquad (3)$$

> Where, R_{it} is the return of stock i for the week t in the period after current financial year. R_{mt} is the market return for the same week t calculated based on the all-share price index, α_i is the constant and ε_{it} is the error term.

In estimating the market model, selection of return interval and estimation period is a crucial decision that may affect the biasness of estimated beta coefficient, β, (henceforth we write as BETA). A long return interval, e.g., one-month, is normally used to reduce the problem of infrequent trading while a reasonably long period, e.g., five years, is taken to ensure precision in estimation. The scope and purpose of this paper limits our BETA estimation over one-year period following the end of the financial year. If adequate risk information of company i is disclosed in its annual report for year T, the stock's market risk factor (BETA) in year T+1 may be affected. We use weekly returns so that we have adequate observations for time-series regression.[4]

Test Design and Models

After constructing the test variables (CRD, AVOL, AEVOL, and BETA) for each company, we test the hypotheses by cross-sectional analyses of the stock volatility and investors' market risk factor across the different subsamples based on the level of risk disclosure. Samples companies are classified into four groups based on their CRD index. Companies with CRD index below the 1st quartile are classified as ‘Very Low Disclosure’ group, companies with CRD index between the 1st and 2nd quartiles as “Low Disclosure’ group, companies with CRD index between the 2nd and 3rd quartile as ‘High Disclosure’ group, and those with CRD index above the 3rd quartile as ‘Very High Disclosure’ group. The mean differences of AVOL, AEVOL, and BETA across these four subsamples are tested for statistical significance. The effect of CRD on the level of excess volatility and investors' market risk is first tested in simple regressions and later examined by estimating the following multiple regression models. In these regressions, the actual CRD numbers are used as explanatory variables.

$$AEVOL_{iT} = \alpha_i + \chi CRD_i + \sum_{j=1}^{N} \delta CH_j + \varepsilon_i \tag{4}$$

$$BETA_i = \alpha_i + \chi CRD_i + \sum_{j=1}^{N} \delta CH_j + \varepsilon_i \tag{5}$$

Where, all the variables are described as above except CH_j ($i=1\ldots\ldots n$) that are the factors determining characteristics of the sample firms. We include a number factors based on the literature review and the UAE market conditions. The following additional variables (as control factors) are feasible for us to compute:

SIZE	is the log of total asset at end of 2005.
DAR	is the total debt divided by total asset of the company as at the end of 2005.
TURN	is the average weekly turnover volume calculated for each company over the 1st month, 1st quarter, 1st half year and full year period after last financial year.
FOWN	is the percent of equity held by the foreign investors.
INDFIN	identifies the company whether it is listed on the finance and banking sector.[5] We include this as a dichotomous variable. INDIN = 1 if the company is finance and banking company, else INDIN = 0.
ADEX	identifies the company whether it is listed on Abu Dhabi Stock Exchange We include this as a dichotomous variable. ADEX = 1 if listed on Abu Dhabi exchange, else ADEX= 0.
MARGIN	is the net profit margin for 2005.
EPS	is the earning per share for 2005.
ROE	is the return on equity for 2005

We examine the degree of the effect of corporate risk disclosure (CRD) on the level of stock volatility (AEVOL) and investors' market risk (BETA) if other relevant factors are considered. Finally we estimate a parsimonious model using the stepwise regression method, and to observe whether CRD remains in the parsimonious model as a significant variable.

SAMPLE DESCRIPTIONS

The primary sample consists of 49 UAE corporations listed in Dubai Financial market (DFM) and Abu Dhabi Stock Market (ADSM). These companies published their annual reports for the year 2005. Since Dubai and Abu Dhabi stock markets started trading activities in 2000, sufficient numbers of published annual reports were not available for the period prior to 2005. Moreover, the UAE financial markets become relatively matured over the five years period since the start of trading activities. As of 2005, a total of 94 companies listed in both exchanges (34 in DFM and 59 in ADSM). Of these, 41 stocks are new companies listed in 2005. Therefore, 49 companies who published their annual report for the year 2005 were listed prior to 2005.

To prevent undue disturbances in the analysis, caused by financial year differences, five corporations with year-ended in the months other than December are removed. Similarly, to maintain homogeneity of the sample corporations, three non-UAE corporations listed in the DFM are removed. Finally, the sample becomes 41 corporations spanning over banks (12 samples), insurance (5 samples), finance/investment (7 samples), hotels (2 samples), construction (5 samples), cement (2 samples), telecommunication (2 samples), and others industries (6 samples). While conducting regression tests, the sample size dropped to 36 because of missing data for certain explanatory variables. However, the findings based on a sample of 36 samples should have statistical significance because it covers about 74 percent of all corporations publishing their annual reports in 2005. The, sample also covers nearly 70 percent of the whole market capital at the end of 2005.

RESULTS AND DISCUSSIONS

Average Volatility

Table 1 shows that average volatility (AVOL) varies with the level of corporate risk disclosure (CRD). The volatility is higher for the companies disclosing maximum risk related information. We divide the samples into four subgroups: very low disclosure, low disclosure, high disclosure and very high disclosure based on number of disclosures. It reveals that the average volatility is consistently higher for the ‘very high disclosure’ group compared to those of the other groups over the different intervals, e.g., one month, one quarter, half year, and a full year after the end of the financial year. For example, a comparison between the two extreme subgroups shows that one-month AVOL appears to be 0.052 for the ‘very high disclosure’ group compared to 0.028 for the 'very low disclosure' group; the difference is statistically significant. Similarly, the one-quarter, half-year and a full year AVOLs for the 'very high disclosure group' are respectively 0.088, 0.094, and 0.070 that are generally higher than the respective AVOLs of same intervals for the 'very low disclosure group'. The differences however are not significant.

Table 1: Average volatility (AVOL) of stocks across different subsamples and periods after official publication of annual report containing risk related information

Period after official publication of annual report	Classification of samples based on corporate risk disclosure (CRD) index				Difference (4-1)	*t* statistics
	1	2	3	4		
	Very Low Disclosure	Low Disclosure	High Disclosure	Very High Disclosure		
One Month	0.028	0.042	0.034	0.052	0.024	2.151**
One Quarter	0.050	0.067	0.052	0.088	0.038	1.346
Half year	0.058	0.069	0.048	0.094	0.036	1.380
Full Year	0.048	0.056	0.040	0.070	0.022	1.731

All of the AVOLs for different subsamples presented in column 1 through 4 are statistically significant at one percent level with *t values* varying from 3.043 to 14.574. The average volatility (AVOL) of stocks is calculated on weekly basis over different intervals of period, e.g., one month, one quarter, half year, and full year after official publication of annual report where the corporate risk related information are disclosed. CRD is an index calculated based on the number of risk related information disclosed in the annual report. Samples companies are classified into four groups based on their CRD index. Companies with CRD index below the below the 1st quartile are classified as 'Very Low Disclosure' group, companies with CRD index between the 1st and 2nd quartiles as "Low Disclosure' group, companies with CRD index between the 2nd and 3rd quartile as 'High Disclosure' group, and those with CRD index above the 3rd quartile as 'Very High Disclosure' group. Asterisks ** and * measure the level of significance at five percent and ten percent levels respectively.

However, the AVOLs of two intermediary groups: 'high disclosure' and 'low disclosure' depict a different pattern. The AVOLs of 'high disclosure' group is generally lower than those of the 'low disclosure' group over the different intervals. The differences though are not significant. The overall finding tends to indicate a non-linear relationship between the volatility of stock prices and the level of corporate risk related information disclosure.

Average Excess Volatility

There is a probability that the volatility of stock is driven, to a certain extent, by the general market sentiments. Therefore, we subtract the market-wide volatility from the individual stock volatility in order to measure the excess volatility that may be more related to the company risk characteristics/reasons. Table 2 shows that average excess volatility (AEVOL) for the subsamples across different intervals are lower than the AVOLs (in Table 1), and many of them are insignificant because the effect of market sentiment is adjusted. The full-year AEVOL for 'low disclosure' and 'very high disclosure' groups are however remain statistically significant. This odd result could be due to information leakage on current operating results, which normally appears in the last quarter. Uncertainty arises if the corporate risk information disclosed in last annual report does not adequately support the current operating results. It is likely that such uncertainty was higher for the companies belong to 'low disclosure' and 'very high disclosure' groups. Nonetheless, the results may imply that a part of the whole-year stock volatility is due to uncertainty arises from the company risk characteristics.

Table 2: Average excess volatility (AEVOL) of stocks across different subsamples and periods after official publication of annual report containing risk related information

Period after official publication of annual report	Classification of samples based on corporate risk related information disclosure (CRD) index				Difference (4-1)	t statistics
	1	2	3	4		
	Very Low Disclosure	Low Disclosure	High Disclosure	Very High Disclosure		
One Month	-0.011	0.005	-0.007	0.013	0.024	1.816*
One Quarter	-0.009	0.012	-0.010	0.030	0.039	1.225
Half year	-0.001	0.013	-0.013	0.035	0.036	1.296
Full Year	0.006	0.016	-0.004	0.028	0.022	1.482

None of the AEVOLs for different subsamples presented in column 1 through 4 are statistically significant, except the full-year AEVOLs for the 'low-disclosure' and 'very high disclosure' subsamples that are significant with *t values* of 2.517 and 1.844 respectively. The average excess volatility (AEVOL) of stocks is calculated on weekly basis over different intervals of period, e.g., one month, one quarter, half year, and full year after official publication of annual report where the corporate risk related information are disclosed. CRD is an index calculated based on the number of risk related information disclosed in the annual report. Samples companies are classified into four groups based on their CRD index. Companies with CRD index below the below the 1st quartile are classified as 'Very Low Disclosure' group, companies with CRD index between the 1st and 2nd quartiles as "Low Disclosure' group, companies with CRD index between the 2nd and 3rd quartile as 'High Disclosure' group, and those with CRD index above the 3rd quartile as 'Very High Disclosure' group. Asterisks ** and * measure the level of significance at five percent and ten percent levels respectively

The important finding is that AEVOLs are consistently higher for the 'very high disclosure' group of subsamples compared to those of the other subsamples. For example, a comparison between the two extreme subgroups shows that one-month AEVOL is 0.013 for the 'very high disclosure' group compared to -0.011 for the 'very low disclosure' group; the difference is statistically significant. Similarly, the one-quarter, half-year and a full year AEVOLs for the 'very high disclosure group' are respectively 0.030, 0.035, and 0.028 that are generally higher than the respective AEVOLs of same intervals for the 'very low disclosure group'. The differences however are not significant.

These findings suggest that companies, that disclose maximum risk information, have higher excess stock volatility than those of companies that disclose minimum risk information. However, like AVOL results, the AEVOLs of the two intermediary groups reveal a different pattern. The AEVOLs of 'high disclosure' groups are lower than those of the 'low disclosure' group across different intervals of period after the financial year. Therefore, the sub-samples' findings indicate that the level of corporate risk disclosure may have non-linear effect on the level excess volatility of stocks.

Investors Market Risk

It was argued that if investors' uncertainty reduces with the disclosure of more risk information in the annual report then it should negatively affect the stock's market risk factor (beta coefficient) that determines investors' expected return (cost of capital) under the capital asset pricing model. The results, presented in Table 3, show that the average beta coefficient for the 'very low disclosure' group is higher than those of the other groups. For example, the average beta of the 'very low disclosure' group of sample companies is 1.3350 while that for the 'very high disclosure' group is 0.6919, though the difference is not statistically significant. The average betas for the two intermediary groups of samples depict different characteristics: beta for the 'low disclosure' group is 0.5391 while that of the 'high disclosure' group is 0.8098. The average betas of the four different groups of sample companies based on the level of risk information disclosure tend to indicate a non linear relationship between the invertors' market risk and level of risk disclosure.

Table 3: Average systematic risk (BETA co-efficient) of stocks across different subsamples over the one year period after publication of annual report containing risk related information

Classification of samples based on risk related information disclosure (CRD) index				Difference (4-1)	t statistics
1	2	3	4		
Very low Disclosure	Low Disclosure	High Disclosure	Very High Disclosure		
1.3350	0.5391	0.8098	0.6919	-0.6431	-0.8923

The systematic risk (beta co-efficient) is calculated using weekly returns over one year period after publication of annual report. Samples companies are classified into four groups based on their CRD index. Companies with CRD index below the below the 1st quartile are classified as 'Very Low Disclosure' group, companies with CRD index between the 1st and 2nd quartiles as "Low Disclosure' group, companies with CRD index between the 2nd and 3rd quartile as 'High Disclosure' group, and those with CRD index above the 3rd quartile as 'Very High Disclosure' group

Regression Findings

Table 4 shows the effect of corporate risk disclosure (CRD) on the level of stock volatility (AEVOL) and investors' market risk (BETA) in a simple regression model. The subsample analyses above indicate nonlinear relationship, which has been tested with linear and nonlinear regressions that used actual CRD index as the explanatory variable. The linear and nonlinear findings are presented in Panel A and Panel B of Table 4 respectively. The linear regression findings in Panel A show that corporate risk disclosure positively affects the stock volatility but do not affect the market risk. The CRD variable depicts positive effect on the level of AEVOL. However, the effect is not very strong because the CRD regression coefficient for the first-month AEVOL is insignificant while those for the other AEVOLs are significant only at 10 percent level. Therefore, the simple linear regression results are inconsistent with the null hypotheses with respect to the stock volatility and investors' market risk.

However, the nonlinear results - presented in Panel B of table 4 - show that risk disclosure has a negative relationship with all the dependent variables (as expected). The inclusion of CRD^2 (non-linear measure of CRD), as an explanatory variable, has led to having linear CRD coefficients across different intervals to be insignificant for all the dependent variables. The coefficients of CRD^2 are significant for the first-quarter, half-year, and full-year AEVOLs. The respective adjusted R^2 for these nonlinear models increased significantly compared to those of the linear models. This suggests that more information disclosure in the annual report may indeed confuse the investors and uncertainty increases at higher rate than the degree of disclosure. This could be because of possible difference between the investors' expectations and the information contents.

The results of multiple regressions, using 11 explanatory variables, presented in Table 5 reveal that the nonlinear effect of corporate risk disclosure (CRD) on the level of stock volatility (AEVOL) and investors' market risk (BETA) has been sustained in multiple regressions. It is found that CRD^2 coefficients of different multiple regressions appear to be more significant compared to the univriate CRD^2 coefficients presented in Table 4. In addition, the linear CRD coefficients of multiple regressions remain insignificant, except the one for the model that uses BETA as the dependant variable. These findings cannot reject our first null hypothesis that more corporate risk disclosure has no negative effect on the stock volatility. However, the second null hypothesis is partially rejected because CRD coefficient in the model with BETA as dependent variable depicts a negative sign and significant at 5 percent level while CRD^2 depicts a positive sign that is also significant.

Therefore, results tend to suggest that more disclosure of corporate risk information may increase investment uncertainty hence stock volatility increases, though additional relevant information may help investors to diversity their portfolio and to minimize the market risk as beta tends to decline with the additional risk information disclosure. However, excess and unnecessary information is not useful for reduction of stock volatility and market risk. This finding is consistent with the recent evidence that voluntary information in the annual report may not contain value-relevant information about future earnings or investors are not capable of incorporating information in the firm value estimates (Banghoj and Plenborg, 2008).

Table 4: Regression findings on the effect of corporate risk disclosures (CRD) on the level of stock volatility and investors' market risk

Panel A: Linear regression using CRD as the only explanatory variable.

Explanatory Variable	**Dependent Variables**				
	AEVOL First Month	AEVOL First Quarter	AEVOL Half Year	AEVOL Full Year	BETA
Constant	-0.021 (-1.309)	-0.041 (-1.464)	-0.036 (-1.417)	-0.015 (-1.046)	1.573 (2.233)**
CRD	0.001 (1.394)	0.002 (1.783)*	0.002 (1.876)*	0.001 (1.950)*	-0.036 (-1.097)
Adjusted R^2	0.026	0.059	0.067	0.074	0.006
F Value	1.943	3.173*	3.519*	3.802*	1.204

Panel B: Nonlinear (quadratic) regression using CRD as the only explanatory variable

Explanatory Variable	**Dependent Variables**				
	AEVOL First Month	AEVOL First Quarter	AEVOL Half Year	AEVOL Full Year	BETA
Constant	0.006 (0.150)	0.066 (0.985)	0.074 (1.225)	0.046 (1.321)	2.871 (1.627)
CRD	-0.002 (-0.457)	-0.009 (-1.355)	-0.009 (-1.577)	-0.005 (-1.498)	-0.171 (-0.996)
CRD^2	0.0001 (0.734)	0.0001 (1.737)*	0.0001 (1.986)**	0.0001 (1.919)*	0.003 (0.803)
Adjusted R^2	0.013	0.111	0.141	0.142	-0.005
F Value	1.228	3.191*	3.884**	3.893**	0.918

This table shows the univariate power of CRD in linear and quadratic models to determine the stock volatility and investors' market risk. CRD is an index of risk information calculated based on the number of risk related information disclosed in the annual report. AEVOL is the average excess volatility of stocks over the different intervals after last financial year for which the annual report has been published. BETA measures the investors' market risk and calculated using weekly returns over one year period after last financial year. The value in parenthesis is the t-statistic of regression co-efficient. Asterisks ** and * measure the level of significance at five percent and ten percent levels respectively.

Table 5: Multiple regression findings of the effect of corporate risk disclosures (CRD) on the level of stock volatility and investors' market risk

Explanatory Variable	Dependent Variables				
	AEVOL First Month	AEVOL First Quarter	AEVOL Half Year	AEVOL Full Year	BETA
Constant	-0.045 (-5.05)***	-0.064 (-4.11)***	-0.056 (-3.15)***	-0.032 (-6.03)***	5.637 (4.22)***
CRD					-0.415 (-2.13)**
CRD^2	0.0001 (2.33)**	0.0001 (2.43)**	0.0001 (2.03)**	0.0001 (4.50)***	0.008 (2.40)**
SIZE					
DAR					
TURN	0.277 (3.17)***	0.065 (2.37)**	0.022 (2,22)**	0.008 (2.20)**	
FOWN	-0.001 (-2,32)**				
INDFIN					
ADEX	0.026 (5,11)***	0.055 (4,13)***	0.053*** (5,35)***	0.041 (3.37)***	-1.090 (-2,09)**
MARGIN					1.195 (1,81) *
EPS					
ROE	0.058* (1,93)*				
Adjusted R^2	0.567	0.304	0.345	0.515	0.140
F Value	10.176***	6.087***	7.141***	13.386***	2.421*

This table shows the effect of CRD variable in determining the excess stock volatility and investors' market risk in different setting of multiple regressions. We considered a number of other explanatory variables based on literature and UAE market conditions. These include total asset size (SIZE), debt asset ratio (DAR), stock turnover in market trading (TURN), percentage of foreign ownership (FOWN), listing as finance and banking company (INDFIN), listing on Abu Dhabi Exchange (ADEX), profit margin (MARGIN), earning per share (EPS), and return on equity (ROE). AEVOL is the average excess volatility of stocks over the different intervals after last financial year for which the annual report has been published. BETA measures the investors' market risk and calculated using weekly returns over one year period after last financial year. We have calculated the cross-correlation among the explanatory variables to examine the severity of multicolinearity problem. It is found that all correlation coefficients are statistically insignificant, except the coefficient of correlation (0.2777) between EPS and ROE that is significant at 10 percent level. We apply stepwise regression method to select only the significant variables to estimate the parsimonious models that are presented in the table. Asterisks ***, **, and * measure the level of significance at one percent, five percent and ten percent levels respectively.

We applied stepwise regression method for estimating parsimonious model to identify the most relevant variables explaining AEVOL and BETA. Results show that CRD^2, TURN, and ADEX are the most relevant explanatory variables in the models using AEVOL as the dependent variable. These three variables together can explain about 51.5 percent of the stock volatility in the UAE market. Therefore, the results suggest that excess and unnecessary disclosure of risk information though intensify the stock volatility due to higher investment uncertainty, the stock volatility also depends on the volume of stock turnover.

In additional, the level of volatility is higher in Abu Dhabi market compare to that in Dubai market. It is found that CRD CRD^2, MARGIN and ADEX are the most relevant explanatory variables in the model using BETA as the dependent variable. These variables together can explain about 14 percent of investors' market risk. These findings depict that more information disclosure allows the investors to diversify their portfolio and to reduce market risk, but excess and unnecessary disclosure of information surpasses the benefits of relevant risk disclosures raising the level of market risk. The profit margin (MARGIN) has significant positive effect on the level of market risk, which is not consistent with the general idea that profit making companies are to be less risky. Results also show that average market risk of Abu Dhabi stocks is lower than that of the Dubai stocks.

Robustness Check

The AEVOL results, presented above, are checked for robustness by estimating the stock volatility using Generalized Auto Regressive Conditional Heterscadasticty (GARCH) model. We estimate GARCH (1,1) model for each stock using 258 daily time-series returns following completion of a financial year for which annual report is published. The GARCH (1,1) model is as follows

$$\sigma_t^{\ 2} = \omega + \alpha\varepsilon_{t-1}^2 + \beta\sigma_{t-1}^2 \qquad (6)$$

Where, $\varepsilon_{\tau-1}^2$ is one-period lag squared error generated by Auto Regressive Moving Average (ARMA) model for stock return [$r = LN(Price_t/Price_{t-1})$]. ARMA(1) is estimated as $r_t = b_0 + b_1 r_{t-1} + \varepsilon_t$.

$\sigma_{\tau-1}^2$ is the variance of the last period.

After estimating the parameters of model 6, the GARCH (1,1) volatilities are calculated for each trading day. The Average GARCH (1,1) Volatility ($AVOL\_GARCH_{iT}$) for stock *i* is computed over different intervals (T), such as the 1st month, 1st quarter, 1st half-year and full-year following the end of the financial year. Finally, the empirical test Model 4 has been redefined as follows:

$$AVOL\_GARCH_{iT} = \alpha_i + \chi CRD_i + \sum_{j=1}^{N} \delta CH_j + \varepsilon_i \qquad (7)$$

Where, all variables except AVOL_GARCH are as defined earlier. The effect of corporate risk disclosure (CRD) on the level of GARCH volatility is examined by estimating the above model with 11 explanatory variables using stepwise regression method. The findings are presented in Table 6. A review of results in Table 5 and Table 6 shows that CRD has similar effect on both excess volatility (AEVOL) and GARCH volatility (AVOL_GARCH).

Table 6: Multiple regression findings of the effect of corporate risk disclosures (CRD) on the level of GARCH (1,1) volatility

Explanatory Variable	Dependent Variables			
	AVOL_GARCH (First Month)	AVOL_GARCH (First Quarter)	AVOL_GARCH (Half Year)	AVOL_GARCH (Full Year)
Constant	-0.0157 (-3.57)****	-0.0111 (-6.12)***	-0.0112 (-7.23)***	-0.0211 (-8.25)***
CRD	-0.0014 (-1.88)*	-0.0032 (-1.69)*		
CRD^2	0.0002 (4.12)***	0.0001 (5.11)***	0.0002 (3.65)***	0.0002 (3.89)***
SIZE			-0.0251 (-1.74)*	-0.0151 (-1.69)*
DAR				
TURN	0.0651 (1.77)*	0.0323 (2.35)**	0.0222 (1.91)*	0.0124 (2.21)**
FOWN				
INDFIN				
ADEX	0.0351 (3.62)***	0.0441 (2.21)**	0.0121 (4.39)***	0.0222 (4.21)***
MARGIN				
EPS				

Table 6: Multiple regression findings of the effect of corporate risk disclosures (CRD) on the level of GARCH (1,1) volatility

Explanatory Variable	Dependent Variables			
	AVOL_GARCH (First Month)	AVOL_GARCH (First Quarter)	AVOL_GARCH (Half Year)	AVOL_GARCH (Full Year)
ROE				
Adjusted R^2	0.377	0.401	0.461	0.555
F Value	9.11^{***}	8.21^{***}	15.21^{***}	18.21^{***}

This table shows the effect of CRD variable in determining the GARCH (1,1) volatility in different setting of multiple regressions. We considered a number of other explanatory variables based on literature and UAE market conditions. These include total asset size (SIZE), debt asset ratio (DAR), stock turnover in market trading (TURN), percentage of foreign ownership (FOWN), listing as finance and banking company (INDFIN), listing on Abu Dhabi Exchange (ADEX), profit margin (MARGIN), earning per share (EPS), and return on equity (ROE). AEVOL is the average excess volatility of stocks over the different intervals after last financial year for which the annual report has been published. We have calculated the cross-correlation among the explanatory variables to examine the severity of multicolinearity problem. It is found that all correlation coefficients are statistically insignificant, except the coefficient of correlation (0.2777) between EPS and ROE that is significant at 10 percent level. We apply stepwise regression method to select only the significant variables to estimate the parsimonious models that are presented in the table. Asterisks ***, **, and * measure the level of significance at one percent, five percent and ten percent levels respectively.

Table 6 shows that all CRD^2 coefficients are positive and statistically significant. This suggests that CRD has non-linear positive effect on the level of GARCH volatility over different intervals of periods from one-month to one-year following the end of a financial year. However, it is noted that over the shorter periods, i.e., one-month and one-quarter, the corporate disclosure has significant negative linear effect on the GARCH volatility. As a whole, GARCH volatility results cannot unequivocally reject the null hypothesis that 'more corporate risk disclosure has no negative effect on the stock volatility'. Therefore, GARCH volatility results reinforce our earlier suggestion (based on AEVOL) that excess and unnecessary disclosure of risk information intensifies the stock volatility due to higher investment uncertainty.

CONCLUSIONS

Accounting regulators and international accounting standards enforce different binding and non-binding rules for the corporate firms to publish adequate risk information in their annual reports. These reports include audited financial statements and other information about current activities and future plans which may be important for the shareholders. Adequate risk information in annual reports may reduce uncertainty. Therefore, investors can take informed investment decisions that reduce agency problems between the shareholders and managers. Based on this, we hypothesized that more disclosure of risk information may have negative relationship with the level of stock price volatility and investors' market risk. An empirical test based on 36 UAE companies listed in Dubai and Abu Dhabi stock exchanges showed that disclosures of corporate risk information have no linear negative effect on the level of stock volatility and investors' market risk. Instead, the results depict a non-linear quadratic effect of risk disclosure on the level of stock volatility and market risk. The findings tend to suggest that more disclosure of corporate risk information may indeed increase uncertainty of investment in UAE market, but more information allows the investors to diversity their portfolio and minimize the market risk. Finally, readers should take note of an inevitable limitation that sample size is relatively small though it covers about 74 percent of the population.

ENDNOTES

[1] For example in the US, publicly traded firms must disclose in their annual report detailed information on the firm's financial results, its assets and financial condition, legal proceedings against the firm, information on the firm's officers and directors. See Item 303, Regulation S-K, Securities Exchange Act of 134, 17 C.F.R. section 249.308a (2002).

[2] According to the Capital Asset Pricing Model (CAPM), 'market risk' determines the level of investors' risk premium. However, firm size, book-to-market ratio, and stock liquidity also play role in determining the level of risk premium [(Fama and French, 1993), Chordia et. al., (2000 and 2001) and Pastor and Stambaugh (2003)].

[3] Information also discloses through corporate announcements, periodic and occasional reports submitted to the market authorities on interim results, market sensitive information, and analysts' reports. These types of information usually revealed before annual report, and stock price adjusts around the event time. But the annual report is a final document that incorporates all the information and events of the last financial year as well as the information on future business plans and strategies. Annual report thus reveals the fundamental characteristics of a corporation which is useful for cross-sectional analyses

[4] Phillip *et. al* (2000) found that BETA estimated using shorter return interval over a period of less than three years results in lower standard error.

[5] The risk information of Finance and Banking companies may be different from those of the non-finance companies. This is because Finance and Banking companies are governed by UAE Central Bank under the Federal Financial Regulations that may require additional information disclosure, e.g., percentage of non-performing loans (bad loans) and sector-wise loans distribution.

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APPENDIX I

Items of risk information reported in the annual report that are utilized in constructing the corporate risk disclosure index (CRD Index)

Sources (Hassan, 2009)

		Alfredson *et al.*, 2006	Beretta & Bozzolan, 2004	Lajili & Zéghal, 2005	Linsley & Shrives, 2006	Abraham and Cox, 2007	Lopes & Rodrigues, 2007	Robb *et al.* 2001	Cabedo & Tirado, 2004	Barako *et al.*, 2006	Ahmed *et al.*, 2004	Meier, 1995	ICAEW 1997, 2000	AICPA 1987, 1994	UAE laws	Dhanani, 2003
General Risks Information																
1	Competition in product market		X	X	X	X		X	X	X			X	X		
2	Brand name erosion / change/ addition		X	X	X	X		X	X	X			X	X	X	
3	New alliances and joint ventures		X	X		X		X	X	X			X	X		
4	Relationship to Government developments plans		X	X		X		X	X	X			X	X		
5	Customer acquisition processes		X	X	X	X		X	X	X			X	X		
6	Recruiting of qualified and skilled professional		X	X	X			X	X	X			X	X		
7	Regulations/Sharia's law/Overseas tax law		X	X	X			X	X	X			X	X		

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Sources (Hassan, 2009)

		Alfredson *et al*., 2006	Beretta & Bozzolan, 2004	Lajili & Zéghal, 2005	Linsley & Shrives, 2006	Abraham and Cox, 2007	Lopes & Rodrigues, 2007	Robb *et al.* 2001	Cabedo & Tirado, 2004	Barako *et al*., 2006	Ahmed *et al*., 2004	Meier, 1995	ICAEW 1997, 2000	AICPA 1987, 1994	UAE laws	Dhanani, 2003
8	Events beyond balance sheet		X	X				X	X	X			X	X	X	
9	Political environment		X	X	X	X		X	X	X			X	X		
10	Natural disasters		X	X	X	X		X	X	X			X			
	Accounting Policies															
11	Use of estimates / judgments	X											X	X		
12	Collateral assets against loans	X					X						X	X		
13	Objectives of provisions / legal constructive	X														
14	Financial assets impairment	X					X						X			
15	Other assets impairment	X					X						X			
16	De-recognition of financial assets	X					X									
17	Risk management	X		X			X						X	X		X
18	Detailed risk management	X		X									X	X		X
19	Objective of holding derivatives / instruments	X					X									
20	Contingent liabilities	X				X							X			
21	Contingent assets	X				X							X			
22	Inventory Lower of Cost or Market	X											X			
23	Key sources of estimation uncertainty	X		X									X			
	Financial Instruments															
24	Classifying instruments by risks	X					X									
25	Principal, stated value, face value	X					X									
26	Reclassification of instruments	X					X						X			

APPENDIX I

Items of risk information reported in the annual report that are utilized in constructing the corporate risk disclosure index (CRD Index)

Sources (Hassan, 2009)

		Alfredson *et al*., 2006	Beretta & Bozzolan, 2004	Lajili & Zéghal, 2005	Linsley & Shrives, 2006	Abraham and Cox, 2007	Lopes & Rodrigues, 2007	Robb *et al.* 2001	Cabedo & Tirado, 2004	Barako *et al*., 2006	Ahmed *et al*., 2004	Meier, 1995	ICAEW 1997, 2000	AICPA 1987, 1994	UAE laws	Dhanani, 2003
27	Cumulative/ change in Fair value	X					X									
	Derivatives hedging															
28	Hedging description	X					X									
29	Change in Fair Value of assets or liability	X					X									
30	Cash flow hedge	X					X									
	Reserves															
31	Statutory														X	
32	Legal														X	
33	Contingency / special/general														X	
	Segment information															
34	Business major segments	X		X				X	X				X	X		
35	Geographical concentration	X		X				X	X				X	X		
36	Customer /(asset/liabilities) concentration	X		X				X	X				X	X		
	Financial and Other Risks															
37	Operational risk/ Insurance risk			X	X			X	X				X	X		
38	Market risk	X		X		X			X	X	X		X			
39	Interest rate = pricing risk sharia'a	X		X	X	X			X	X	X		X	X		
40	Exchange rate	X		X	X	X			X	X			X	X		X
41	Liquidity	X	X	X	X	X			X	X			X	X		
42	Credit	X	X	X	X	X	X		X	X			X	X		
43	Pricing risk sharia'a												X		X	
44	Tabular presentation										X					
45	Sensitivity analysis										X					

DEFINED BENEFIT VS. DEFINED CONTRIBUTION RETIREMENT PLANS FOR FACULTY: AN EXPLORATION OF THE COST OF A PORTABLE RETIREMENT

John B. White, United States Coast Guard Academy
Morgan P. Miles, Georgia Southern University
Roger White, University of Pittsburgh

> "In 2005 Alaska hastily reviewed its pension plan and found that the costs increased dramatically. This is part of the reason the legislature held hearings this year to move back to the pension system. And in West Virginia and Nebraska, lawmakers moved back to the pension system after a failed experiment with a system of individual defined-contribution accounts." Anonymous 2009: A 18.

ABSTRACT

This study is designed to illustrate the differences between a defined benefit and a defined contribution plan for university faculty. It is a case study of the University System of Georgia and examines the actual cost of a faculty member selecting a "portable retirement system."

INTRODUCTION

Providing for an adequate retirement is a topic of considerable interest today (Ezra 2007). As baby boomers approach retirement, more and more information can be found on how to make your "nest egg" last. Suggestions include everything from scaling back retirement lifestyles to postponing retirement to not actually retiring but continuing to work in some capacity. These compromises with retirement all stem from their retirement plan being insufficiently funded to support their original goal or retirement at a certain age. This failure is not surprising, given the vagaries of market returns and their own mortality. Recent high-profile bankruptcies have also played havoc with retirement plans.

Academics are not immune to these retirement uncertainties. What should make retirement planning easier for a faculty member at public colleges, state-sponsored defined benefit retirement systems, adds its own elements of risk. State retirement systems sometimes have vesting periods that exceed the tenure decision timeline. For example, in the University of Georgia System, vesting occurs after ten years service, but the normal tenure decision is in year seven. This creates the chance that you may have to leave the system before you vest, which often entails losing the state's contribution to your retirement fund. Even if the tenure decision is positive and you are able to vest, the state defined benefit plan may act as an impediment to furthering your career through mobility. Most defined benefit plans reward service longevity by making the benefit formula a function of years of service and some average salary figure (such averaging the highest two consecutive years). For most employees, these "high two" salaries are the last two years worked. Should you take a new position after your twelfth year, you have locked up an annuity at retirement based on your average salary for years eleven and twelve. As faculty salaries tend to rise (from merit and/or annual cost of living raises), there is a great deal of difference in the average of the salary in year 11 and 12 as compared to years 24 and 25 or 29 and 30. If your intention is to work thirty years and retire, you have only 18 years to build up a sufficient private retirement to supplement what is already vested.

Because of these risks from the state retirement plans, private retirement plans evolved to serve the academic community. TIAA-CREF is the first of many plans that offer instant vesting and portability to the faculty member. Because of these two advantages, faculty members at state institutions often do not consider the cost of these benefits when weighed against the retirement payout of a defined program.

This study looks at one particular state, Georgia, and compares the contributions and payout of its state retirement plan, the Teachers Retirement System of Georgia (TRSGA), with the optional retirement plan (ORP) available to faculty in the state university system. The cost of one plan over the other will be expressed as the present value of the difference in the payout (assuming a reasonable reinvestment rate). The cost will also be expressed as the difference in return required in the optional plan to produce a payout equivalent to the TRSGA plan.

LITERATURE REVIEW

There have been numerous studies of retirement systems, examining the various investment options and payout decisions faced by the participants. Even TIAA-CREF, which was established in 1918, is the result of Andrew Carnegie's observation that academics changed jobs frequently and needed a retirement fund that would be portable. In the last ninety years, other private retirement plans have evolved and compete with (and complement) a variety of state retirement plans. However, the variability in contribution rates, vesting periods, assumed rates of return and payout options makes the comparison of these plans difficult.

Lahey, Michelson, Chieffe, and Bajtelsmit (2008) recently conducted a descriptive comparative analysis of the largest public university in each state. Several studies have compared a defined benefit retirement program with the retirement income that a similar investment into a defined contribution plan would produce. A study by Johnston, Hatem and Forbes (2001) makes such a comparison. Their study also demonstrates how certain defined benefit features, such as survivor benefits or cost of living adjustments, can be incorporated into a defined contribution plan through the purchase of a lifetime annuity or setting the retirement payout as a growing annuity. The study estimated that the two plans were equal after thirty years if the defined contribution plan earned a rate of return of between 7% and 8%. (The required return varies depending on the assumed salary growth rate. For instance, a 1.5% rate of salary growth yields a 7.16% required return, while a 2.5% growth rate requires 7.88%.) Craig and Toolson (2008) include a number of different scenarios in comparing defined benefit and defined contribution programs. They point out that the defined benefit payout varies between 1.5% per year of service up to 2.5% per year. This suggests that a thirty-year career would translate into a retirement benefit that could vary from 45% of the final salary to 75%. The other critical variable is the level of the participant's retirement contribution, and whether the employer makes a contribution as well. Finally, since defined benefit programs favor those who remain at an institution for long periods, the choice between the two programs often depends on long-term plans and expectations of tenure. Given the number of variables involved, they do come to a general conclusion that a defined benefit plan is better if you intend to remain at the institution, the more generous the credit per year of service, and the lower the total contribution to the participant's retirement fund. Conversely, if you expect to move frequently, the service credit is only 1.5% per year, and/or the total retirement contribution is generous, then the defined contribution plan is optimal.

This study differs from earlier studies in several significant ways. First, it explicitly examines the value that results from some of the characteristics specific to the Georgia Teachers Retirement System. For instance, Georgia allows for the purchase of service credit for military service and public education performed in another state. Indeed, it is possible to purchase up to three years of service credit not earned. This service credit is referred to as "air time," since it comes out of "thin air." Finally, Georgia also credits unused sick leave as service credit (Member's Guide).

The focus on a single state, Georgia, makes this study much less general than previous studies. However, other state retirement systems have benefits and features (crediting sick leave, purchase credit, etc.) similar to those in Georgia's TRSGA. The lack of generality in this study provides the framework to evaluate an individual's position in another defined benefit plan encompassing many different methods to accumulate retirement credit. This study also demonstrates how the specific features should be included and valued in the analysis comparing defined benefit and defined contribution programs.

Finally, this study expands the literature by focusing on a single state and its two competing systems. The conclusions of any general comparison of a defined benefit program and a defined contribution program are driven by the assumptions made regarding the two programs. This study makes no assumptions with regard to contributions or payout. The actual rates are used in the analysis. Using these actual rates allows someone to evaluate the price of portability.

COMPARISON OF THE TWO RETIREMENT SYSTEMS

Prior to 1990, the Teachers Retirement System of Georgia (TRSGA) was the only retirement system open to faculty members in the Georgia state university system. Members contributed 6% of their salary to TRSGA. (The member's contribution was decreased to 5% in 1994 without any change in benefits. The system required ten (10) years to vest. The basic benefits formula was:

Monthly payment = 2% x number of years of service x average monthly salary of highest 24 consecutive months.

Benefits can be paid after 30 years of service (regardless of age) or at age 60, with at least 10 years of service (required to vest). Thus, someone who retired with 30 years service and an average monthly income of $5000 per month (averaged from their highest 24 months) would be eligible for $3000 per month, regardless of age (Member's Guide). (Monthly benefit = 2% x 30 years x $5000 = $3000.)

In 1990, the University System of Georgia introduced an optional retirement plan which allowed faculty members to contribute 6% of their salary into a private retirement system (such as TIAA-CREF, VALIC, etc.) instead of TRSGA. Currently, both TRSGA and ORP participants contribute 5% of their salary to retirement. The state originally contributed 4% of salary into the ORP participant's retirement fund. The state's contribution has increased and has been 8.14% for the past several years. Thus, a member of the ORP has 13.14% (5% + 8.14%) of their salary going into their retirement fund.

Faculty members at the time were required to make an irrevocable decision as to which retirement system they wanted to participate in. Obviously, those close to retirement age or 30 years of service remained in TRSGA. Those faculty members that were not yet vested and expected to leave the state system opted for ORP. For those in between the two extremes and/or uncertain of their future plans, the decision was not as easy. Indeed, new hires today must make this irrevocable decision during their new faculty indoctrination. They have even less certainty regarding their long-term prospects in the Georgia system. Most public higher education systems require a similar, irrevocable decision by the participant at the beginning of their employment. Florida is the exception to the rule. A defined contribution plan was introduced in 2002 and state employees were given the option of the new system or the traditional defined benefit plan. However, those who opted out of the defined benefit plan were given the right to convert back to the defined benefit at any point prior to retirement (Milevsky and Promislow; 2004).

A direct comparison between these two systems is more difficult because it is not simply a case of comparing cash flows. As stated before, vesting periods and portability differ greatly. TRSGA also allows the "purchase of creditable service" for years served in another state university system. Prior military service years may also be purchased. Another distinction, with significant financial impact, is that earned sick leave was allowed to count as service time in TRSGA due to an amendment in state regulations in 1994. Finally, TRSGA participants close to retirement may purchase what is known as "air time," which is service credit for periods not actually worked. The participant effectively funds the year of retirement income that would be received a year earlier than if you actually worked the year. The tax code permits the transfer of pre-tax funds from a 403b account to purchase an "air year. "This is especially beneficial for someone who wants to accelerate their retirement but has no out-of-state service years to be purchased.

SCENARIO COMPARISONS

In each of the following scenarios, several assumptions remain constant. The employee's contribution is 5%, and the state contribution to ORP remains at 8.14%. The initial salary is $40,000 per year and raises are 2.5% annually. In addition, TRSGA continues to give a 3% cost of living adjustment to TRSGA retirees.

Internal Rate of Return (IRR) for TRSGA Participant

For the TRSGA member, their initial salary of $40,000 grows to $79,860 in year 29 and $81,856 in year 30. The average salary for their high two year period is $80,858. Their initial annual retirement income is 60% of $80,858, or $48,515, and this amount is expected to grow at 3% per year. They have contributed 5% of their salary each year. Retirement contributions and retirement income amounts are shown in Table 1. Retirement income is guaranteed for as long as the retiree lives. If you die in the first two years after retirement, you have not withdrawn all of your contribution. The undisbursed balance plus interest is passed to your estate. However, if you survive for 5 years, the internal rate of return on your funds (5% of your salary) invested in retirement is 6.07%. At 10 years, the IRR is 8.96%. Survive 20 years into retirement, and your IRR is 10.75%, and a 30-year retirement yields an 11.29% return on the TRSGA member's investment. (Internal rate of return analysis is featured in many finance textbooks. For instance, see Brealey, Myers and Marcus, 2009, Brigham and Daves, 2007, or Ross, Westerfield and Jaffe, 2008.)

An ORP participant will make an initial deposit of $5256 ($40,000 x (5% + 8.14%)) into their retirement account. This deposit will increase by 2.5% annually with the pay increases. The deposit stream for thirty years is shown in Table 1. For the ORP participant to withdraw an equal annual amount to the TRSGA member in retirement, the required return on the ORP investment depends on the years in retirement. Since the ORP participant's account receives 13.14% of the faculty member's salary, the required returns for an equivalent payout is less than the IRR of TRSGA for equivalent retirement periods. Table 1 shows that the ORP account needs to earn only 0.54% to fund a 5-year retirement. The 10-year retirement must earn 4.41%, while 6.92% is required to fund a 20-year retirement. The ORP account must earn 7.71% to match TRSGA's 30-year retirement payout. Thus, the required rates of return to make ORP produce an equivalent retirement payout to TRSGA are quite reasonable to expect. It should be noted that while the ORP required return of 7.71% is only 2.71 percentage points higher than the assumed 5% risk-free rate, it does represent a return 54% above the risk-free rate of 5%.

Table 1: Internal Rate of Return on TRSGA and Defined Contribution Retirements

Year Worked	Defined Benefit Deposit	Defined Contribution Deposit	Years Retired	Retirement Payout	Defined Benefit IRR	Defined Contribution IRR
1	$2,000	$5,256	1st	$(47,331. 54)	< 0%	< 0%
2	$2,050	$5387	2nd	$(48,751. 49)	0. 63%	< 0%
3	$2,101	$5,522	3rd	$(50,214. 03)	3. 27%	< 0%
4	$2,154	$5,660	4th	$(51,720. 45)	4. 91%	< 0%
5	$2,208	$5,802	5th	$(53,272. 07)	6. 07%	0. 54%
6	$2,263	$5,947	6th	$(54,870. 23)	6. 93%	1. 69%
7	$2,319	$6,095	7th	$(56,516. 33)	7. 61%	2. 59%
8	$2,377	$6,248	8th	$(58,211. 82)	8. 15%	3. 31%
9	$2,437	$6,404	9th	$(59,958. 18)	8. 59%	3. 91%
10	$2,498	$6,564	10th	$(61,756. 92)	8. 96%	4. 41%
11	$2,560	$6,728	11th	$(63,609. 63)	9. 28%	4. 83%
12	$2,624	$6,896	12th	$(65,517. 92)	9. 54%	5. 20%
13	$2,690	$7,069	13th	$(67,483. 46)	9. 77%	5. 51%
14	$2,757	$7,245	14th	$(69,507. 96)	9. 97%	5. 79%
15	$2,826	$7,427	15th	$(71,593. 20)	10.15%	6. 04%
16	$2,897	$7,612	16th	$(73,741. 00)	10.30%	6. 25%
17	$2,969	$7,803	17th	$(75,953. 23)	10.43%	6. 45%
18	$3,043	$7,998	18th	$(78,231. 82)	10.55%	6. 62%
19	$3,119	$8,198	19th	$(80,578. 78)	10.66%	6. 78%
20	$3,197	$8,403	20th	$(82,996. 14)	10.75%	6. 92%
21	$3,277	$8,613	21st	$(85,486. 03)	10.83%	7. 05%
22	$3,359	$8,828	22nd	$(88,050. 61)	10.91%	7. 16%
23	$3,443	$9,049	23rd	$(90,692. 13)	10.97%	7. 27%
24	$3,529	$9,275	24th	$(93,412. 89)	11.03%	7. 36%
25	$3,617	$9,507	25th	$(96,215. 28)	11.09%	7. 45%
26	$3,708	$9,744	26th	$(99,101. 73)	11.13%	7. 53%
27	$3,801	$9,988	27th	$ (102,074. 79)	11.18%	7. 61%
28	$3,896	$10,238	28th	$ (105,137. 03)	11.22%	7. 67%
29	$3,993	$10,494	29th	$ (108,291. 14)	11.25%	7. 74%
30	$4,093	$10,756	30th	$ (111,539. 87)	11.29%	7. 79%

The significant internal rates of return reflect only the defined benefit participant's contribution to the retirement system. The state is also making a contribution, but that amount does not belong to the participant should they leave they system. If you assume that the state's contribution to an employee's retirement is 8.14%, regardless of the retirement system, then the defined benefit participant earns what the ORP participant earns. However, several key differences between the systems remain. First, the ORP participant has a portable retirement, but it is possible to outlive the retirement fund if returns are too low and/or the annual payout is too high. The TRSGA participant has a retirement portfolio that is free of investment risk and will continue to pay as long as the retiree lives, but the retirement lacks portability.

Maintaining Equivalent Risk

Another, and perhaps better, way to compare the two retirement systems is to keep the risk and return equivalent. Since the TRSGA is backed by the State of Georgia, then a nearly risk-free rate of interest would be the appropriate discount rate to present value the future TRSGA retirement benefits. For the TRSGA member, the initial salary of $40,000 grows to $79,860 in year 29 and $81,856 in year 30. The average salary for their high two year period is $80,858. Their first retirement check is 60% of $80,858, or $48,515. Assuming a 30-year retirement and a 5% discount rate, the present value of this growing annuity ($48,515 the first year and growing at 3% annually) is $1,063,393 at the time of retirement. (See Ross, Westerfield and Jaffee (2008) for a discussion of present value and future value of growing annuities.)

If the ORP member invests in similar, risk-free portfolio earning 5%, they will accumulate $497,922 in 30 years. This is less than half of the amount needed to fund a 30-year retirement payout equivalent to TRSGA. To accumulate $1,063,393 in 30 years, the ORP participant's initial deposit must be $11,225.28, over twice as much as the $5256 that is currently deposited into their account. Thus, to achieve the same future value at an equivalent risk-free return requires an ORP participant's contribution to be an additional $5969.28 ($11,225.28-$5256), or an additional 14.9% of the initial $40,000 salary. The ORP participant's total contribution would be $7969.28 ($2000+$5256), which is 19.9% of their salary.

If the TRSGA member works 30 years and draw retirement for 20 years, the present value of the TRSGA retirement annuity is only $774,516, since the retirement checks stop after 20 years. (You died!) For the ORP retirement fund in a risk-free (5%) portfolio to reach that level in 30 years requires an initial investment of $8704.87. Subtracting the normal contribution of $5256, an additional $3448.87, or an additional 8.6% of your salary, is required to produce a retirement equivalent to TRSGA. The total contribution into the retirement fund is 21.74% of the salary, with 13.6% (5% + 8. 6%) coming from the ORP participant. As expected, a shorter retirement requires a smaller contribution. Table 2 displays the ORP contribution required to match the TRSGA payout if risk-free investments are used.

Table 2: Required Deposits to Defined Contribution Plan if Investing in Risk-Free Assets

Retired for N years	Present Value of retirement	Initial Amt Saved Required	Additional $ Amount	Additional$ as a % of income
5	$222,388	$2,499	$ (2,757)	-6. 9%
10	$424,380	$4,770	$(486)	-1. 2%
15	$607,871	$6,832	$1,576	3. 9%
20	$774,516	$8,705	$3,449	8. 6%
25	$925,913	$10,406	$5,150	12. 9%
30	$1,063,393	$11,225	$5,969	14. 9%

Double Dipping

One aspect of the TRSGA retirement system is that the member is eligible to draw a retirement benefit of 60% of your salary after 30 years of creditable service. For some, the prospect of retiring before the Social Security minimum age of 62, or even before you can use an IRA without penalty (59½), or even younger, is especially appealing. But many faculty members enjoy the academic life and would prefer to continue teaching even after they are eligible to receive retirement benefits. If you are eligible in TRSGA to receive 60% for NOT working, then continuing to work beyond 30 years implies you are actually earning only the 40% differential between your salary and the retirement benefit you could receive. ORP imposes no such penalty for continuing to work, since your ORP retirement account continues to grow as you continue to work and make contributions.

However, once you are eligible to receive benefits, if you retire and accept a comparable position at any position outside of the University System of Georgia, then you would see your income increase by 60% (the amount of the retirement payment). While the salary from the new position is not retirement income, per se, it does represent additional cash flow made possible by the retirement from TRSGA. Assume you accrue thirty years of service in TRSGA and opt to take your retirement but continue to work in a new position for an additional ten years. Further assume that your new position maintains your former salary and the 2.5% salary growth. Finally, assume you continue to save 5% of your salary, with a match from your new employer of 8.14% (to match the Georgia ORP). You save ALL of your retirement income received during those final ten years of employment to supplement your ultimate retirement, which will begin in ten years. (This maintains equal incomes for the ORP participant and the TRSGA member at the new job.) Finally, assume these savings will be invested at the risk-free rate of 5%.

Table 3: Double Dipping

Work 30 years, retire from TRSGA and work another 10 years. Contribute 5% + 8.14% to a 403.b these 10 years, earning a risk-free rate of 5%.

YR	Earned income	Retirement savings	TRSGA benefit (saved)	Total Saved (earns 5%)	
31	$ 83,902. 70	$11,024.81	$47,332. 00		
32	$86,000.27	$11,300.44	$48,751. 96	$121,327.05	
33	$88,150.27	$11,582.95	$50,214.52	$189,190.87	
34	$ 90,354.03	$11,872.52	$51,720. 95	$262,243.89	
35	$ 92,612.88	$12,169.33	$53,272. 58	$340,798.00	
36	$ 94,928.20	$12,473.57	$54,870.76	$425,182.22	
37	$ 97,301.41	$12,785.41	$56,516.88	$515,743.62	
38	$ 99,733.94	$13,105.04	$58,212.39	$612,848.23	
39	$102,227.29	$13,432.67	$59,958.76	$716,882.07	
40	$104,782.98	$13,768.48	$61,757.52	$828,252.18	
	Earned Income = $0 (Retired)		TRSGA benefit	403. b payout	Total retirement income
41	0		$63,610. 25	$ 51,879.94	$115,490.19
42	0		$65,518. 56	$ 53,436.34	$118,954.90
43	0		$67,484. 11	$ 55,039.43	$122,523.54
44	0		$69,508. 64	$ 56,690.61	$126,199.25
45	0		$71,593. 90	$ 58,391.33	$129,985.23
46	0		$73,741. 71	$ 60,143.07	$133,884.78
47	0		$75,953. 97	$ 61,947.36	$137,901.33
48	0		$78,232. 58	$ 63,805.78	$142,038.37
49	0		$80,579. 56	$ 65,719.96	$146,299.52
50	0		$82,996. 95	$ 67,691.55	$150,688.50
51	0		$85,486. 86	$ 69,722.30	$155,209.16
52	0		$88,051. 46	$ 71,813.97	$159,865.43
53	0		$90,693. 01	$ 73,968.39	$164,661.40
54	0		$93,413. 80	$ 76,187.44	$169,601.24
55	0		$96,216. 21	$ 78,473.06	$174,689.27
56	0		$99,102. 70	$ 80,827.26	$179,929.95
57	0		$ 102,075. 78	$ 83,252.07	$185,327.85
58	0		$ 105,138. 05	$ 85,749.64	$190,887.69
59	0		$ 108,292. 19	$ 88,322.13	$196,614.32
60	0		$ 111,540. 96	$ 90,971.79	$202,512.75

Saving 5% of your growing income for the ten years of the "second career" (the first deposit is $11,024.81, 13.14% of $83,902.70), and the deposits earning 5%, will yield an additional $153,822.60 in a retirement fund at the end of the ten year period. (This is the future value of an annuity growing at 2.5% earning 5% for ten years when the initial payment is $11,024.81.) The deferred (unspent and saved) retirement annuity, with a first payment of $47,332, will yield $674,430 at the end of the ten years. (Again, this is the future value of an annuity growing at 3% earning 5% for ten years when the initial payment is $47,332.) The sum of these two amounts, $828,252, would produce a 20-year growing annuity (growing at 3%) with an initial payment of $51,879.94 to supplement the TRSGA retirement payment. Thus, the retirement payment in year 41 (the first year of complete retirement) rises from $63,610 from TRSGA to $115,490 from both sources. Your earned salary in year 40 was $104,783, so your initial retirement check is 110% of your final earned salary. (This additional retirement payment will cease after 20 years, as the $828,252 fund will be exhausted.) Although the additional payment will end at some point in the future, the TRSGA retirement benefit will pay as long as the member lives.

The ORP participant, working the additional 10 years, continues to have their retirement account grow with contributions of 13.14% of their salary. Assuming their retirement fund earns 7.5% during their 40-year, they will accumulate $1,614,556 in the account. If they continue to earn 7.5% and have an initial payout $115,490 that grows at 3% per year, then the retirement fund would pay out a retirement annuity for 23 years (see Table 4). If the ORP account is in a risk-free investment earning 5%, then the fund accumulates only $915,579 and will pay out an amount equivalent to TRSGA for only eight years. In order for the ORP participant to have a retirement similar to a TRSGA participant that "double dips," the ORP account needs to average a 7.25% annual return over the 60 year period (40 work years and 20 years retired). After 20 years, the TRSGA participant's supplemental 403.b account is exhausted, but the basic TRSGA benefit continues. The ORP participant, on the other hand, has exhausted their retirement fund and has outlived their savings.

Table 4: Years to exhaust ORP fund matching TRSGA payout at various rates of return

$1,614,556 Balance at retirement				$915,579 Balance at retirement				$1,521,979 Balance at retirement			
YR	Nest egg i = 7.5%	Annual Payout	End-of-year Balance	YR	Nest egg i = 5%	Annual Payout	End-of-year Balance	YR	Nest egg i = 7.25%	Annual Payout	End-of-year Balance
41	$1,735,648	$115,490	$1,620,158	41	$961,358	$115,490	$845,868	41	$1,632,322	$115,419	$1,516,903
42	$1,741,669	$118,955	$1,622,714	42	$888,161	$118,955	$769,206	42	$1,626,879	$118,882	$1,507,997
43	$1,744,418	$122,524	$1,621,894	43	$807,667	$122,524	$685,143	43	$1,617,327	$122,448	$1,494,879
44	$1,743,537	$126,199	$1,617,337	44	$719,400	$126,199	$593,201	44	$1,603,257	$126,122	$1,477,136
45	$1,738,638	$129,985	$1,608,652	45	$622,861	$129,985	$492,876	45	$1,584,228	$129,905	$1,454,323
46	$1,729,301	$133,885	$1,595,417	46	$517,520	$133,885	$383,635	46	$1,559,761	$133,802	$1,425,959
47	$1,715,073	$137,901	$1,577,171	47	$402,816	$137,901	$264,915	47	$1,529,341	$137,817	$1,391,524

Table 4: Years to exhaust ORP fund matching TRSGA payout at various rates of return

$1,614,556 Balance at retirement				$915,579 Balance at retirement				$1,521,979 Balance at retirement			
Y R	Nest egg i = 7.5%	Annual Payout	End-of-year Balance	Y R	Nest egg i = 5%	Annual Payout	End-of-year Balance	Y R	Nest egg i = 7.25%	Annual Payout	End-of-year Balance
48	$1,695,459	$142,038	$1,553,421	48	$278,161	$142,038	$136,123	48	$1,492,409	$141,951	$1,350,458
49	$1,669,927	$146,300	$1,523,628	49	$142,929	$146,300	$(3,371)	49	$1,448,367	$146,210	$1,302,157
50	$1,637,900	$150,689	$1,487,212					50	$1,396,563	$150,596	$1,245,968
51	$1,598,752	$155,209	$1,443,543					51	$1,336,300	$155,114	$1,181,187
52	$1,551,809	$159,865	$1,391,944					52	$1,266,823	$159,767	$1,107,055
53	$1,496,339	$164,661	$1,331,678					53	$1,187,317	$164,560	$1,022,757
54	$1,431,554	$169,601	$1,261,953					54	$1,096,907	$169,497	$927,410
55	$1,356,599	$174,689	$1,181,910					55	$994,647	$174,582	$820,065
56	$1,270,553	$179,930	$1,090,623					56	$879,520	$179,819	$699,700
57	$1,172,420	$185,328	$987,092					57	$750,429	$185,214	$565,215
58	$1,061,124	$190,888	$870,236					58	$606,193	$190,770	$415,422
59	$935,504	$196,614	$738,889					59	$445,541	$196,493	$249,047
60	$794,306	$202,513	$591,793					60	$267,103	$202,388	$64,715
61	$636,178	$208,588	$427,590					61	$69,439	$208,460	$(139,021)
62	$459,659	$214,846	$244,813								
63	$263,174	$221,291	$41,883								
64	$45,024	$227,930	$(182,905)								

ADDITIONAL CONDSIDERATIONS

For faculty who select the TRSGA option and remain healthy and are not forced to consume sick leave are allowed to count this year towards years of service. This allows a faculty member in TRSGA to enjoy full retirement with 29 years of service and not be required to work the full 30 years. Retiring after 29 years of active service and one year of sick leave credit means the member's "high 24 month period" will be years 28 and 29, or an annual income of $77,912 and$78,859.80, respectively. The average salary is $78,885.90, which implies an annual retirement income of $47,331.54 (60% of $78,885.90). Retiring a year early gives you an additional year of retirement. The present value of the growing retirement annuity for 31 years discounted at the 5% risk-free rate is $1,062,791.

Recall the present value of the growing retirement annuity for 30 years, after having worked for 30 years was $1,063,393 at the time of retirement. It appears that applying sick leave towards retirement reduces the value of the retirement annuity by $602 ($1,063,393 - $1,062,791). However, working 30 years makes the retirement begin a year later. The present value of the 30-year retirement in year 29 is $1,012,755. Thus, the value of a year of sick leave applied towards retirement in this scenario is $50,036. This sick leave value increases as you add the value of an additional year of leisure in retirement or an additional year of salary in another job as you "double dip." In the example above, a year's sick leave credit means you could work 11 years in a new job while drawing retirement from your previous job and still retire completely at the same age.

HEDGING YOUR "BET"

The biggest question new faculty members have regarding the selection of retirement plans is the uncertainty concerning future employment in the system. The retirement system selection must be made now, but a tenure decision is years away. Is there a way to hedge some of this risk away? One way to reduce the retirement risk would be to opt into the TRSGA system, but save an additional amount (in a 403-b, for instance) if you are denied tenure in the future. This is not an insignificant amount, as was shown in Scenario 1. You are saving an additional 16% of your salary. However, this additional saving is required only until your tenure decision is known (or becomes apparent). If the decision is positive, you will have a tidy sum in your 403-b awaiting you in retirement, even if you stop contributing once tenured. If the tenure decision is negative, you withdraw your TRSGA retirement contributions and move them into your 403-b.

This situation ignores those faculty members that may leave the system after being tenured and vested. However, the assumption has to be that if you voluntarily leave one job for another, then the new situation must be better than the current one. People generally do not move unless the new salary and benefits package represents an improvement. How a move effects your retirement plan is part of this package, so if tenured vested faculty are observed to move, then the assumption must be that their financial situation has improved.

RELEVANCE & LIMITATIONS

From one perspective, this study is may seem limited in scope to the case of public universities in one state, Georgia and therefore the findings may not be directly applicable in other contexts. However, this study contributes to the literature by illustrating how different retirement systems might be financially compared. Obviously, any Georgia public university faculty member that participates in TRSGA would find this study helpful if they were to contemplate taking another job outside of the system, as well as anyone evaluating an offer from a Georgia public university. This study gives them a benchmark as to the value of their derived benefit retirement.

There has also been some discussion in the 2009 Georgia legislative session about permitting faculty members in the optional retirement system to move into TRSGA. (The bills, House Bill 740 and Senate Bill 257, both died in committee this year and cannot be considered again in the 2009-2010 biennium session.) This study provides a compelling argument for those tenured faculty members who would be immediately vested (ten or more years of service) in TRSGA if allowed to convert the state system.

From a broader perspective, the study provides a framework to compare any defined benefit plan with the competing defined contribution plan. Critical variables to consider include the payout formula and years to vest in the defined benefit plan and the employer's contribution to the defined contribution plan. Private university and non-Georgia system faculty could make good use of this study if they were considering a new position that includes a defined benefit plan. This study shows the value of the retirement portion of their compensation package, which should be considered when evaluating a job offer.

Finally, benefit managers would benefit from understanding the concepts presented in this analysis. Too often, new faculty members select their retirement program with only the most cursory explanation of each. Implicit in a recommendation of one plan over another is an assumption about market returns on investment, probability of remaining at the institution long enough to vest and/or earn retirement benefits, and even assumptions about life expectancy, to name a few. For the faculty member to make an informed decision about retirement, they must understand the implications of any assumptions being made.

CONCLUSION

Careers and retirement options are both economically significant and risky decisions. In this case of one state, Georgia, the defined benefit TRSGA plan is economically superior to the optional retirement plan for the faculty member that remains in the University of Georgia system until retirement. The potential to apply sick leave towards retirement service only enhances the superiority of the TRSGA plan. Finally, while the financial benefit of maintaining the university system health insurance was not explicitly evaluated, it is an additional (and considerable) benefit of TRSGA.

However, for some faculty the portable nature of the ORP plan has an option value that may is worthwhile. What this study develops is a framework to estimate a value of the portability option. Different people will continue to come to different conclusions when evaluating which retirement plan to select, even if their cash flow estimates are the same. The different conclusions result from different expectations on their future employment, as well as their tolerance for risk. Both plans will remain popular with their proponents, suggesting they are satisfied with their choice. The key is that the decision be an informed one, since it is irrevocable in many situations.

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DO FIRMS MANIPULATE EARNINGS WHEN ENTERING THE BOND MARKET?

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ABSTRACT

This paper examines whether firms issuing bonds engage in earnings management via either accrual-based or real activities. Based on a sample of bond issuers from 1992 through 2002, we document that bond issuers increase their accruals prior to the issuance then decrease their accruals subsequent to the issuance year. In addition, we also find some evidence that bond issuers engage in real earnings management. Overall, the findings in this study suggest that firms issuing bonds not only manipulate earnings using accruals but also use real operating decisions.

INTRODUCTION

Substantial evidence indicates that managers engage in earnings management. As evidenced by extensive corporate scandals, including Enron, WorldCom and Xerox, it is common knowledge among investors, analysts and regulators that earnings management exists. Previous studies show that managers engage in earnings management to meet or beat analyst forecasts, avoid losses and maintain earnings growth targets (Burgstahler and Dichev, 1997; Degeorge et al., 1999). In addition, a number of studies have documented that executives manipulate earnings around firm-specific events such as initial public offerings (Teoh et al., 1998a), seasoned equity offerings (Teoh et al., 1998b), violation of debt covenants (DeFond and Jiambalvo, 1994; Dichev and Skinner, 2002) and acquisition of other firms (Louis, 2004). However, there is little evidence regarding whether and how firms manipulate earnings when entering the bond market. The purpose of this paper is to investigate whether firms manage earnings through either income increasing discretionary (or abnormal) accruals or real operating decisions during the period in which the debt is issued.

The incentives for earnings management arise because pricing and non-pricing terms such as amount, maturity, collateral and covenants in explicit contracts written between lenders and corporate borrowers are affected by reported earnings. As Leftwich (1983) points out, the conflict of interest between bondholders and shareholders actually is a negative-sum game because it affects the firm's financing, production and investment decisions. Therefore, managers of the firm, who act in the best interest of shareholders, have incentives to mitigate agency cost arising from debt contracting to maximize the firm value.

Even though the literature has long recognized that managers can take accounting actions or real economic actions to meet earnings benchmarks or certain earnings threshold, real earnings management has not received as much attention in the archival literature relative to the attention given to accrual-based earnings management. Recent studies (Graham et al., 2005; Gunny, 2005; Roychowdhury, 2006; Cohen et al., 2008; Cohen and Zarowin, 2008; Chen et al., 2008; Kim and Sohn, 2009) have documented that firms not only use accruals to manipulate earnings but also conduct earnings management through real activities. Therefore, it is important to examine whether management of the firms that issue debt also engage in real economic actions to window-dress financial reports when entering the bond market.

In this study, we use discretionary total accruals (DTACC) as a proxy for accrual-based earnings management (Jones, 1991; Kothari et al., 2004; Teoh et al., 1998a; Teoh et al., 1998b) and abnormal cash flows from operations (CFO), abnormal discretionary expenses and abnormal production costs as proxies for real earnings management (Roychowdhury, 2006; Cohen et al., 2008). We perform cross-sectional regression for every industry and year to estimate the discretionary total accruals, abnormal CFO, abnormal discretionary expenses and abnormal production costs. Then, we test whether these dependent variables (discretionary total accruals, abnormal CFO, abnormal discretionary expenses, abnormal production costs) of issuing firms are higher or lower during the year of the issuance compared to performance matched firms after controlling for other influencing factors.

Using data on a sample of public bond issuers from 1992 through 2002, we find evidence that discretionary total accruals increase prior to the issuance and decline afterwards. In addition, we also find some evidence that the sample firms are engaging in real earnings management but not as strong as accruals. These results suggest that bond issuers prefer to manipulate earnings via accruals compared to real activities.

This paper contributes to the literature on earnings management in several ways. We extend ongoing research investigating the motivations, characteristics and consequences of earnings management. Existing earnings management research predominantly examines incentives of managers related to stock market performance. For example, Teoh et al. (1998) investigate managers' motivations to issue stocks at a higher price to the market. In addition, Cheng and Warfield (2005) test managers' incentives to manipulate earnings when their equity incentives, such as stock-based compensation and stock ownership, are relatively high. We contribute to the literature by documenting incentives for managers related to the debt market. In addition, we use both accrual-based and real activities to measure earnings management. It is important to test both of these measures since recent evidence suggests that managers use both accruals and real operating decisions to manage earnings. Most of the prior studies on earnings management investigate only discretionary accruals; however, as Graham et al. (2005) pointed out, managers engage in real earnings management more frequently than accrual-based manipulation.

The remainder of this paper is organized as follows. In section 2, we develop hypotheses. Section 3 describes details of the sample selection procedures, and section 4 presents the research design. Empirical results are presented in section 5. Finally, we conclude in section 6.

HYPOTHESES DEVELOPMENT

Prior empirical studies on earnings management show that managers manipulate earnings prior to certain economic events such as initial public offering (IPO), seasoned equity offering (SEO), violation of debt covenants and acquisition of other firms. For example, Teoh et al. (1998b) find that firms that conduct seasoned equity offerings manage earnings through accounting accruals and that subsequent earnings and stock return underperformance are correlated with the level of earnings management during the equity issue period. Teoh et al. (1998a) also find evidence showing earnings management before initial public offerings. Louis (2004) finds strong evidence suggesting that acquiring firms overstate their earnings in the quarter preceding a stock swap announcement. In addition, Dichev and Skinner (2002) test a “debt covenant” hypothesis – the idea that managers make accounting choices to reduce the likelihood that their firms will violate accounting-based debt covenants.

Leftwich (1983) pointed out that the conflict of interest between debtholders and shareholders actually is a negative-sum game because it affects the firm’s financing, production and investment decisions, and shareholders will support restrictions on such decisions when the restrictions “lead to the highest firm value.” Thus, since managers are acting in the best interest of shareholders, managers have incentive to lower the agency cost of debt as much as possible when negotiating debt contract. In addition, if the firm performance is not good prior to debt issuance, the firm might not be able to issue the amount of funds it needs. Performance of the firm not only affects the amount of funds it borrows but also affects various contract terms such as maturity or collateral. Surprisingly, most earnings management studies on debt focus on detecting the violation of debt covenants. To our knowledge, there is no study that tests the association between earnings management and the bond market.

Following previous earnings management studies (Teoh et al., 1998a, 1998b; Louis, 2004; Cheng and Warfield, 2005) and given shareholders’ incentive to mitigate agency cost of debt, we examine whether the issuing firms exhibit unexpected high levels of discretionary accruals compared to their performance matched non-issuing firms. Thus, our first hypothesis related to accrual-based earnings management is as follows (in the alternative form):

H1: Firms that issue bonds are likely to manipulate earnings through income increasing accruals compared to non-issuing firms, ceteris paribus, during the year of bond issuance.

Managers not only use accruals as an earnings management tool but also engage in real operating decisions to manage earnings. Graham et al. (2006) surveyed financial executives from a large number of public U.S. firms and find that financial executives are willing to make small or moderate economic sacrifices in representing the economic value of the firm in order to obtain credibility in the market. They also find that real earnings management is preferred to accrual-based earnings management, which contradicts researchers' assumptions about the higher likelihood of earnings management via accruals. Dechow and Skinner (2000) posit that real earnings management methods used by managers are (1) acceleration of sales, (2) alterations in shipment schedules and (3) delay of research and development (R&D) and maintenance expenditures. Other evidence also indicates that managers engage in real transactions to manipulate earnings. Dechow and Sloan (1991) examine whether CEOs in the final years of their tenure manage discretionary investment to enhance short-term performance and find evidence that the growth in R&D expenditures is reduced over this horizon, but the reduction in R&D expenditures is mitigated through CEO stock ownership. Roychowdhury (2006) provides evidence that firms reporting small positive profits and small positive forecast errors manage earnings through real activities. Therefore, merely testing accrual-based earnings management is sufficient.

The advantage of using real earnings management instead of accrual-based earnings management is that investors are able to second-guess the firm's accounting policies; however, they cannot readily challenge real economic actions that are taken in the ordinary course of business. Thus, while it is more difficult to manage earning via real actions rather than accruals, executives do use real earnings management as documented in prior literature (Dechow and Skinner, 2000; Graham et al., 2005). Therefore, to provide a more complete study of the earnings management during the issuance of bonds, we also examine real earnings management activities over the sample period.

Following Roychowdhury (2006), we use abnormal cash flow from operations (CFO), abnormal discretionary expenses and abnormal production costs as proxy measures for real earnings management (sales manipulation, reduction of discretionary expenditure, and overproduction, respectively). Thus, the next hypotheses regarding the detection of real earnings management are as follows (in the alternative form):

H2: *After controlling for sales levels, firms that issue bonds are likely to exhibit low abnormal CFO, ceteris paribus, during the year of debt issue.*

H3: *After controlling for sales levels, firms that issue bonds are likely to exhibit low abnormal discretionary expenses, ceteris paribus, during the year of debt issue.*

H4: *After controlling for sales levels, firms that issue bonds are likely to exhibit high abnormal production costs, ceteris paribus, during the year of debt issue.*

SAMPLE SELECTION

Our initial sample consists of U.S. public companies that issued bonds between January 1992 and December 2002. We use Securities Data Company (SDC) New Issues database to obtain information on bond issuers. For firms with multiple issuances in a given year, we only include the largest offering amount to avoid overlapping data following Khurana and Raman (2003). We exclude firms in financial industries because these firms are closely regulated and have unique disclosure requirements which make it difficult to manage earnings. In addition, issuing bonds is more like a day-to-day operation rather than a financing activity for financial firms.

We restrict the sample to all non-financial firms with available data and require at least ten observations in each two-digit SIC industry classification per year. For inclusion in the final sample, we also require sufficient data to compute accrual-based measures (i.e., discretionary accruals) and real earnings management proxies (i.e., abnormal CFO, abnormal discretionary expenses, and abnormal production costs). These requirements result in 5,696 bond issues for 420 firms over the period between 1992 and 2002.

RESEARCH DESIGN

Accrual-Based Measure

Different measures have been used in prior studies to proxy for earnings management. One of the most common metrics used to detect earnings management is the magnitude of discretionary (or abnormal or unexpected) accruals, which measures the discretion used by managers to achieve their financial reporting goals. Following previous research (Jones, 1991; Sloan, 1996; Teoh et al., 1998), we run the following regression for a given year using non-issuers in the same two-digit SIC code as the issuer in order to estimate normal accruals:

$$\frac{TAC_{i,t}}{TA_{i,t-1}} = \alpha_0\left(\frac{1}{TA_{i,t-1}}\right) + \alpha_1\left(\frac{\Delta REV_{i,t} - \Delta REC_{i,t}}{TA_{i,t-1}}\right) + \alpha_2\left(\frac{PPE_{i,t}}{TA_{i,t-1}}\right) + \varepsilon_{i,t} \qquad (1)$$

where $TAC_{i,t}$ is total accruals in year *t* for firm *i*, $\Delta REV_{i,t}$ is change in sales revenue from year *t*-1 to year *t* for firm *i*, $\Delta REC_{i,t}$ is change in accounts receivable from year *t*-1 to year *t* for firm *i*, $PPE_{i,t}$ is property, plant, and equipment in year *t* for firm *i*, $TA_{i,t-1}$ is total assets in year *t*-1 for firm *i*, and $\varepsilon_{i,t}$ is the error term in year *t* for firm *i*. Specifically, total accruals is the change in noncash current assets minus the change in operating current liabilities minus depreciation, amortization, and depletion:

$$TAC_t = \Delta\text{ [current assets (\#4) – cash (\#1)] - }\Delta\text{ [current liabilities (\#5) – current maturity of long term debt (\#44)] - }DEP_t\text{ (\#14)} \quad (2)$$

where numbers in parentheses are Compustat item numbers. Discretionary total accruals (*DTACC*) are defined as the difference between realized total accruals and normal accruals.

Real Activities Measure

We rely on prior studies to develop proxies for real earnings management. Following Roychowdhury (2006) and Cohen et al. (2008), we focus on three manipulation methods and their impact on the abnormal levels of CFO, discretionary expenses and production costs. Sales manipulation occurs when managers attempt to temporarily increase sales through temporary price discounts or lenient credit terms. The additional sales will boost current earnings but will result in lower cash flows given sales level. Discretionary expense includes advertising expense, selling, general and administrative (SG&A) expense, and research and development (R&D) expense. Reducing such expenses will immediately boost current earnings. Overproduction occurs when managers produce more units so that fixed overhead costs could be spread over a large number of units to lower fixed cost per unit.

Following Dechow et al. (1998), Roychowdhury (2006), and Cohen et al. (2008), we estimate abnormal cash flows from operations, abnormal discretionary expenses, and abnormal production costs by running the following cross-sectional regression for every industry and year:

$$\frac{CFO_t}{TA_{t-1}} = \beta_0 + \beta_1\left(\frac{1}{TA_{t-1}}\right) + \beta_2\left(\frac{REV_t}{TA_{t-1}}\right) + \beta_3\left(\frac{\Delta REV_{t-1}}{TA_{t-1}}\right) + \varepsilon_t \quad (3)$$

$$\frac{DISEXP_t}{TA_{t-1}} = \beta_0 + \beta_1\left(\frac{1}{TA_{t-1}}\right) + \beta_2\left(\frac{REV_{t-1}}{TA_{t-1}}\right) + \varepsilon_t \quad (4)$$

$$\frac{PROD_t}{TA_{t-1}} = \beta_0 + \beta_1\left(\frac{1}{TA_{t-1}}\right) + \beta_2\left(\frac{REV_t}{TA_{t-1}}\right) + \beta_3\left(\frac{\Delta REV_t}{TA_{t-1}}\right) + \beta_4\left(\frac{\Delta REV_{t-1}}{TA_{t-1}}\right) + \varepsilon_t \quad (5)$$

where TA_{t-1} is total assets in year t-1, REV_t is sales revenue in year t, and ΔREV_t is change in sales revenue from year t-1 to year t. Specifically, CFO is obtained from Compustat (#308), discretionary expense is computed as research and development (R&D, #46) expense plus advertising (#45) expense plus selling, general and administrative (SG&A, #189) expense. Production cost is computed as cost of goods sold (COGS, #44) plus the change in inventory (#3) level. For every firm year, abnormal CFO is the actual CFO minus the normal CFO, abnormal discretionary expense is the actual discretionary expense minus the normal discretionary expense and abnormal production cost is the actual production cost minus the normal production cost.

Cross-Sectional Regression Analysis

We use the multiple regression model to estimate the impact of bond issues on abnormal (or discretionary) accruals. Specifically, we employ the following regression to test the first hypothesis:

$$DTACC_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \qquad (6)$$

where $ISSUE_{i,t}$ is an indicator variable set equal to one if the firm issued a bond in year t and zero otherwise, $SIZE_{i,t}$ is natural logarithm of market value (in million dollars) at the end of the fiscal year t, $MTB_{i,t}$ is market-to-book ratio at the end of the fiscal year t, $ROA_{i,t}$ is proxy for firm performance at the end of the fiscal year t and $LEV_{i,t}$ is leverage of the firm at the end of fiscal year t. Specifically, market value is computed as price at the end of fiscal year (#199) multiplied by common shares outstanding (#25), market-to-book ratio is computed as market value of equity deflated by book value of equity (#60), $ROA_{i,t}$ is computed as net income before extraordinary items (#18) scaled by total assets (#6) and $LEV_{i,t}$ is computed as sum of long-term debt (#9) and debt in current liabilities (#34) divided by total assets (#6).

In testing all of our hypotheses, we use a matched-sample design where each firm that issued bonds is matched to a control firm that did not issue bonds. Following Kothari et al. (2004), we use two-digit SIC codes and ROA in the same fiscal year to identify potential control firms.

We use discretionary total accruals as a dependent variable rather than using current abnormal accruals because all of the control variables are related not only to the current portion but also to the non-current portion. In addition, Richardson et al. (2005) find that estimation error of accruals is significant for both current and non-current assets and liabilities. Therefore, total accruals should provide a more comprehensive measure of abnormal accruals.

The indicator variable, denoted as *ISSUE*, is set equal to one if a firm issued bonds and zero for performance matched control samples. We expect that this *ISSUE* variable, which is the main variable of interest, will be significantly positive for bond issuers due to managers' aggressive accounting manipulations prior to bond issuance. We use a series of control variables based on the evidence in prior studies: firm size, market-to-book ratio, firm performance and leverage. We use natural log of market value denoted as *SIZE* to proxy for the size of the firm. Positive accounting theory suggests that managers tend to manage earnings to decrease political costs. Prior studies (Cheng and Warfield, 2005; Collins et al., 2007) use firm size to proxy political costs. In addition, Kim et al. (2003) examine the relation of corporate earnings management to firm size. They find that small-sized firms engage in more earnings management to avoid reporting losses than do large-sized firms. Warfield et al. (1995) indicate that riskier and high-growth firms have more abnormal accruals. We use the ratio of the market value of common equity to the book value of common equity, denoted as *MTB*, to proxy for the growth potential. Return on assets (*ROA*) and leverage ratio (*LEV*) are included to control for any potential impact of firm performance and debt possession.

Next, we examine the relation between the real earnings management and the issuance of bonds (second, third, and fourth hypotheses) by estimating the following regression:

$$Y_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \qquad (7)$$

where $Y_{i,t}$ is either abnormal CFO, abnormal discretionary expenses, or abnormal production costs. We expect the abnormal CFO to be significantly negative, abnormal discretionary expenses to be significantly negative, and abnormal production costs to be significantly positive during the year of the bond issuance.

RESULTS

Descriptive Statistics

Table 1, Panel A shows the distribution of bond issues by year. The table indicates that the frequency of bond issues tends to be stable over time. Panel B of Table 1 reports the descriptive statistics for the sample of 5,696 firm-year observations from 1992 to 2002. The average sample firm has a market-to-book ratio (*MTB*; (Compustat #25 * Compustat #199)/Compustat #60) of 2.800, return on asset (*ROA*; Compustat #18/Compustat #6) of 0.0375 and leverage (*LEV*; (Compustat #9 + Compustat #34)/ Compustat #6) of 0.343.

Panel C of Table 1 reports the Pearson correlation coefficients among the variables. *SIZE* is significantly positively correlated with *MTB* and *ROA*. This positive relationship indicates that (at least in our sample) large firms have higher market-to-book ratio and are more profitable. *LEV* is significantly negatively correlated with *SIZE*, *MTB* and *ROA*. This negative relationship indicates that firms with high leverage tend to be small, have a low market-to-book ratio and be less profitable.

Table 1. Characteristics of Bond Issuance between 1992-2002

This table provides the characteristics of the sample. Panel A presents event-year distribution of a sample of bond issues. Panel B presents descriptive statistics. Panel C provides the value of correlation between each of the variables used in subsequent tests. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 5,696 firm-year observations. Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

Panel A. Sample Distribution by Year

	Bond Issues			
Year	Freq.	%	Cumul.	
1992	269	4.72	269	
1993	307	5.39	576	
1994	400	7.02	976	
1995	415	7.29	1,391	
1996	497	8.73	1,888	
1997	629	11.04	2,517	
1998	600	10.53	3,117	
1999	605	10.62	3,722	
2000	623	10.94	4,345	
2001	681	11.96	5,026	
2002	670	11.76	5,696	

Panel B. Descriptive Statistics

Bond Issuer				
Variable	Mean	Median	Std. Dev.	
SIZE	7.8459	7.9119	1.7741	
MTB	2.8006	2.0461	16.7396	
ROA	0.0375	0.0392	0.0785	
LEV	0.3428	0.3350	0.1574	

Panel C. Pearson Correlations Matrix between Independent Variables

	SIZE	MTB	ROA	LEV
SIZE	1			
MTB	0.1128***	1		
ROA	0.1410***	0.0483***	1	
LEV	-0.0521***	-0.0452***	-0.4438***	1

Multiple Regression Results

The results for testing accrual-based earnings management are reported in Table 2. Table 2 presents the results from estimating Equation (6) for a sample of bond issuers, where the sample is combined with performance matched firms. For each sample and control firm, we estimate cross-sectional regressions of discretionary total accruals (*DTACC*) on *ISSUE*, the main variable of interest, and a series of control variables based on the evidence in prior studies: firm size, market-to-book ratio, return on assets and leverage ratio. As mentioned earlier in the paper, the control firms are matched based on same industry (two-digit SIC codes) and similar performance (ROA) following Kothari et al. (2004). The results show that bond issuers have significantly higher levels of discretionary total accruals compared to non-issuers (controlled sample) during the year of issuance. Consistent with the first hypothesis, the coefficient on bond issuers is positive (0.014) and significant at the 5% level ($t = 2.18$). This result suggests that bond issuers do engage in earnings management through income increasing accruals compared to non-issuers.

Table 2. Levels of Discretionary Total Accruals

This table provides the results of multiple regression with the dependent variable Discretionary Total Accruals (*DTACC*). To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$DTACC_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

	DTACC	
	Coefficient	*t*-stat
Intercept	-0.1049	-2.15**
ISSUE	0.0135	2.18**
SIZE	-0.0006	-1.69*
MTB	0.0012	2.26**
ROA	0.0263	2.47**
LEV	0.0687	2.12**
Obs.	11,392	
Adj. R^2	0.03	

The results for testing real earnings management are reported in Table 3, which presents the results from estimating Equation (7). Column 1 of Table 3 provides evidence on Hypothesis 2. When the dependent variable in regression (7) is abnormal CFO, the coefficient on *ISSUE* for bond issuers is negative (-0.003) and significant at the 10% level ($t = -1.74$). This result suggests that bond issuers exhibit lower levels of abnormal CFO compared to performance matched firms which is consistent with the hypothesis. This result also indicates that firms issuing bonds manipulate earnings via real actions, such as using price discounts or lenient credit terms to boost sales.

In the second column of Table 3, abnormal discretionary expense is used as a dependent variable. However, we do not find any evidence that the sample firms that issue bonds are reducing discretionary expense during the issuance year. The coefficient on *ISSUE* for the sample is positive (0.0327) but not statistically significant. This result indicates that bond issuers are not using discretionary expense as an earnings management tool to manipulate their earnings. We conjecture that bond issuers are not using discretionary expense because it is easily detected by creditors.

Table 3. Levels of Real Earnings Management Proxies

This table provides the results of multiple regression with the dependent variable abnormal CFO, abnormal discretionary expense, and abnormal production cost. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$Y_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

	Abnormal CFO		Abnormal Disc. Exp.		Abnormal Prod. Cost	
	Coefficient	*t*-stat	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	0.0277	1.16	-0.0232	-3.62***	-0.0118	-1.77*
ISSUE	-0.0030	-1.74*	0.0327	1.02	0.0208	2.19**
SIZE	0.0051	1.64	-0.0300	-1.76*	0.0040	2.08**
MTB	0.0009	2.08***	-0.0056	-1.79*	-0.0020	-2.47***
ROA	0.0289	3.32***	0.0881	1.75*	-0.0617	-4.64***
LEV	-0.0701	-2.02**	0.0151	1.69*	0.0087	1.72*
Obs.	11,392		11,392		11,392	
Adj. R^2	0.02		0.03		0.03	

Column 3 of Table 3 provides evidence on Hypothesis 4. Bond issuers exhibit high levels of abnormal production costs. The coefficient on *ISSUE* is positive (0.021) and significant at the 5% level. This result indicates that bond issuers engage in earnings management through overproduction in order to report lower cost of goods sold (COGS).

Sensitivity Analysis

To further examine whether the results are indeed driven by income increasing accruals and real actions, we conduct additional tests that examine the pattern surrounding the event period. Specifically, we use changes in dependent variables before and after the issuance by running the following regressions:

$$\Delta DTACC_{i,x} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \tag{8}$$

$$\Delta Y_{i,x} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t} \tag{9}$$

where $\Delta DTACC_{i,x}$ is change in discretionary total accruals, $\Delta Y_{i,x}$ is either change in abnormal CFO, change in abnormal discretionary expenses, or change in abnormal production costs, and *x* indicates the change in time period of either (*t*-1 ~ *t*) or (*t* ~ *t*+1).

Table 4 presents the results for the changes in discretionary accruals prior to and past bond issuance. The coefficient on *ISSUE* is positive (0.013) and significant at the 1% level ($t = 3.13$) for the first column, which indicates that discretionary accruals of bond issuers increase by 0.013 on average from the year prior to issuance to the year of issuance. The second column presents the changes in discretionary total accruals from the year of issuance to the past year. The coefficient on *ISSUE* is negative (-0.042) and significant at the 1% level ($t = -2.96$). When combined with Table 2, these results show that bond issuers manipulate earnings through income increasing accruals and then accruals reverse after the issuance declining to the normal level. This is consistent with our hypothesis that firms issuing bonds have incentives to manipulate earnings via accruals similar to other firm specific events such as IPO and SEO.

Panel A, B, and C of Table 5 present the results of changes in real earnings management proxies surrounding the issue year. In Table 5 Panel A, abnormal CFO of bond issuers shows a decreasing pattern prior to debt issuance followed by an increase after the year of issuance. The coefficient on *ISSUE* is negative (-0.004) for the period from *t*-1 to *t* and significant at the 10% level. In addition, the coefficient on *ISSUE* is positive (0.016) for the period from *t* to *t*+1 and significant at the 10% level.

Table 5 Panel B presents the results of changes in abnormal discretionary expense. The results show that the level of abnormal discretionary expense decreases by (0.029) on average and significant at the 10% level before the bond issue.

Table 4. Changes in Discretionary Total Accruals

This table provides the results of multiple regression with the dependent variable Changes in Discretionary Total Accruals (?*DTACC*) during pre- and post-issue. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$\Delta DTACC_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	0.1054	2.09**	0.0252	6.62***
ISSUE	0.0126	3.13***	-0.0417	-2.96***
SIZE	-0.0015	-2.49**	0.0139	2.86***
MTB	-0.0032	-3.70***	0.0008	2.26**
ROA	-0.0377	-2.09**	-0.0388	-2.84***
LEV	-0.1457	-2.03**	0.0021	1.66*
Obs.	11,392		11,392	
Adj. R^2	0.13		0.10	

Table 5 Panel C presents the results of changes in abnormal production cost. The results show that abnormal production cost of bond issuers increases prior to the issuance, which indicates that firms increase their production level to report lower COGS.

Overall, the results suggest that firms that issue bonds use both accrual-based and real activities to manipulate earnings. However, they tend to manage earnings through income increasing accruals more heavily than compared to taking real actions.

Table 5. Changes in Real Earnings Management Proxies

This table provides the results of multiple regression with the dependent variable Changes in abnormal CFO, abnormal discretionary expense, and abnormal production cost during pre- and post-issue. To be included in this table, a firm-year observation must be accompanied by sufficient data to compute the variables displayed below. Therefore, the statistics for all variables are based on 11,392 firm-year observations (bond issuer and performance-matched sample). Firm-year observations are drawn from the period between 1992 and 2002. ***, **, and * denote two-tailed significance at the 0.01, 0.05, and 0.10 levels, respectively. Variable definitions are as follows: **SIZE**=natural log of market value at the end of the fiscal year. **MTB**=market-to-book ratio; computed as market value of equity divided by total book value of equity at the end of the fiscal year. **ROA**=return on assets; computed as net income before extraordinary items scaled by total assets at the end of the fiscal year. **LEV**=leverage ratio; computed as long-term debt divided by total assets at the end of the fiscal year.

$$\Delta Y_{i,t} = \gamma_0 + \gamma_1 ISSUE_{i,t} + \gamma_2 SIZE_{i,t} + \gamma_3 MTB_{i,t} + \gamma_4 ROA_{i,t} + \gamma_5 LEV_{i,t} + \xi_{i,t}$$

Panel A. Abnormal CFO

	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	-0.0443	-2.23**	0.0185	3.39***
ISSUE	-0.0042	-1.71*	0.0162	1.91*
SIZE	0.0090	2.50**	0.0017	1.76*
MTB	-0.0037	-4.35***	-0.0015	-2.49**
ROA	0.1219	1.99**	0.0519	1.78*
LEV	-0.0268	-1.82*	-0.0770	-2.19**
Obs.	11,392		11,392	
Adj. R^2	0.02		0.03	

Panel B. Abnormal Discretionary Expense

	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	0.0516	2.41**	-0.0535	-1.47
ISSUE	-0.0285	-1.80*	-0.026	-1.09
SIZE	0.0310	1.72*	0.1364	0.08*
MTB	0.0066	1.76*	-0.0199	-1.76*
ROA	-0.0276	-1.65*	0.0427	2.19**
LEV	-0.0110	-1.90*	0.0977	2.49**
Obs.	11,392		11,392	

Table 5. Changes in Real Earnings Management Proxies

Adj. R^2	0.04		0.04	
Panel C. Abnormal Production Cost				
	t-1 to *t*		*t* to *t*+1	
	Coefficient	*t*-stat	Coefficient	*t*-stat
Intercept	-0.0715	-1.31	-0.0822	-0.86
ISSUE	0.0106	1.79*	0.0384	0.71
SIZE	-0.0014	-1.73*	0.0159	2.34**
MTB	0.0005	1.87*	-0.0010	-1.91*
ROA	0.0378	1.90*	-0.0374	-2.19**
LEV	0.1565	2.79***	-0.1239	-2.08**
Obs.	11,392		11,392	
Adj. R^2	0.04		0.03	

CONCLUSION

In this paper, we investigate whether firms that enter the bond market manipulate earnings similar to firms entering the stock market (Teoh et al., 1998a; Teoh et al., 1998b). In addition, we also examine how these firms engage in earnings management (i.e., accrual-based earnings management versus real earnings management). Based on all firm-years with available data over the 1992-2002 period, we find discretionary accruals of bond issuers are significantly higher than non-issuers during the year of issuance. Further analyses show that bond issuers increase their accruals prior to the issuance and then decrease their accruals subsequent to the issue year. In addition, we find some evidence that bond issuers engage in real earnings management. However, the findings suggest that among three methods of real earnings management, sales manipulation is much more prominent compared to other real earnings manipulation methods. Overall, the results provide strong evidence that bond issuers use both accrual-based and real actions to manipulate earnings.

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AN ANALYSIS OF THE CONTENT OF FORM 20-F U.S. GAAP RECONCILIATION BY FOREIGN ENTITIES EMPLOYING IFRS: IS THE SEC IFRS ROADMAP PREMATURE?

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ABSTRACT

In 2007, the Securities and Exchange Commission (SEC) initiated perhaps the most aggressive actions over the past fifty years involving a relaxation of the rule(s) for certain foreign entities traded on United States (U.S.) stock exchanges. Until that time, all foreign entities were required to include a reconciliation to U.S. generally accepted accounting principles (U.S. GAAP) if the financial statements were not prepared in accordance with them. Faced with de-listings by foreign companies and their movement to foreign security exchanges, the SEC eliminated the requirement for firms that prepared their financial statements in accordance with International Financial Reporting Standards (IFRS) published by the International Accounting Standards Board (IASB). Although there was widespread support for this change, there is also criticism, especially concerning the amount of information loss for users of these statements. A second SEC action is the proposal to allow U.S. firms the choice to employ either U.S. GAAP or IFRS. Our study analyzed 2006 financial statements of foreign entities employing IFRS, which was the last year to require the reconciliation. We also analyzed the nature of the largest differences and determined whether there would be convergence between the two accounting systems in the foreseeable future that would eliminate them. Our findings lead us to conclude that before either of the SEC actions are warranted there should be more conformity in the areas of pensions and other post retirement benefits; financial instruments; and impairment, goodwill, and intangibles.

INTRODUCTION

Until recently, all foreign entities that are traded on United States (U.S.) stock exchanges were required to include a reconciliation to U.S. generally accepted accounting principles (U.S. GAAP) if the financial statements were not prepared in accordance with U.S. GAAP. The firms provided this information on the Securities and Exchange Commission (SEC) Form 20-F. This is a very expensive exercise that cost some companies millions of dollars annually (Scannell and Reilly 2007a). This burden, in conjunction with the additional costs associated with Sarbanes-Oxley compliance, has led to many U.S. de-listings by foreign entities (Uhlfelder 2007).

In an effort to combat these de-listings, coupled with concerns that the U.S. financial markets are losing their competitive edge to London and Hong Kong (Scannell and Reilly 2007), the SEC proposed that certain foreign entities be allowed to file financial statements under either U.S. GAAP or under the English language version of International Financial Reporting Standards (IFRS) published by the International Accounting Standards Board (IASB) without reconciliation to U.S. GAAP (SEC 2007). On November 15, 2007, the SEC voted unanimously in favor of the proposal. On December 21, 2007, the SEC issued the final rule which was entered into the Federal Register on January 4, 2008 (SEC 2008a). The rule applies to financial statements ending after November 15, 2007.

The IFRS promulgations to be used in lieu of U.S. GAAP are referred to as “full” IFRS. An analysis of the comment letters by LaFon (2007) to the SEC proposal revealed that most of the commenters endorsed the proposal. A few opposed it, however, with the most vehement opposition originating from the Investors’ Technical Advising Committee (ITAC), a body whose charge is to render technical advice to the Financial Accounting Standards Board (FASB) from an investor’s perspective. In the letter, the Committee stated that it would like to see “concrete evidence” that U.S. GAAP and IFRS standards are “substantially equivalent” before the reconciliation requirement is eliminated. The Committee went on to state, “We suggest that the Commission undertake an evaluation of the IFRS/U.S. GAAP differences commonly found in the reconciliations, and periodically publicly disseminate and report upon such an inventory.” (ITAC 2007, 2)

Given this background, our research, in part, is intended to accomplish this challenge. Another objective is to ascertain if the SEC roadmap for the adoption of IFRS is appropriate. As we will indicate in an ensuing section, the incoming SEC Chairperson is apprehensive about the proposed schedule. Our results should be of interest to financial statement users, especially financial analysts and accounting standard setters. Our paper begins with a discussion of the background of the topic, continues with a literature review and our research questions, and then our methodology, summary and conclusions.

BACKGROUND

The SEC first required listed foreign entities that did not employ U.S. GAAP to submit supplementary information in 1967. The instructions associated with Form 20-F did not specifically require a reconciliation, but rather, the financial statements, audit report, and other schedules that domestic issuers were required to file. Prior to 1967, the foreign entities only had to file a balance sheet and income statement, with no requirement for this information to be certified. In 1982 the Commission implemented the current reconciliation requirement (SEC 2007).

Although the Commission has required this information for the past twenty-five years, the agency has long advocated reducing differences in accounting principles between the U.S. and other countries in an effort to facilitate cross-border capital formation. In 1994, it accepted the cash flow statement prepared in accordance with International Accounting Standard No. 7 (IASB 2004b) without reconciliation.

In 1997, at the direction of Congress, the Commission examined the initiatives undertaken to develop "high-quality, comprehensive global accounting standards." (SEC 2007, 20) Towards that end, the SEC encouraged the International Accounting Standards Committee's (IASC) efforts to develop such standards that could be used for cross-border offerings. These standards would presumably reduce compliance costs and inefficiencies that exist under the current system.

Subsequently, in 2003, under a Congressional mandate contained in the Sarbanes-Oxley Act, the SEC released a study on the feasibility of a principles-based accounting system. Its conclusion was that the optimal approach would be based on objectives associated with a conceptual framework rather than relying solely on either principles or rules. This approach would also be used for the convergence of U.S. and international accounting standards. The FASB and the IASB have since established a formal plan for the convergence of U.S. GAAP and IFRS.

While the preceding discussion is of an optimistic tone, there are both very formidable obstacles and arguments involving both the elimination of the Form 20-F requirement and the acceptance of the international set of accounting standards as a substitute. The ensuing section includes a review of the literature that addresses these concerns and the research questions that they engender.

RELEVANT LITERATURE AND RESEARCH QUESTIONS

In addition to the new 20-F initiative, in 2007 the SEC issued a related recommendation that would allow U.S. companies to utilize IFRS as a basis for their financial reporting. (SEC 2008b) At that time some individuals suggested that allowing U.S. firms a choice between U.S. GAAP and international standards would be the end of U.S. GAAP. The reason given is that international rules are more principles based, and would allow companies more flexibility. In fact, Don Nicolaisen, a former SEC chief accountant responsible for developing the SEC's "road map" for the convergence of global accounting standards, stated that the SEC should eventually abandon U.S. GAAP and require the use of international rules. (Reilly 2007) However, in a recent study of 589 U.S. CFOs, only 14 per cent stated that they are very familiar with IFRS and fewer than 10 per cent stated that they are very likely to file under IFRS if given the choice. (Duke 2007)

John White, the SEC's director of corporate finance, argues that since foreign firms will have their choice of U.S. or IFRS reporting standards, U.S. entities should also be given the option: "We are asking a question. Why shouldn't we let a U.S. company choose?" However, Lynn Turner, form SEC chief accountant, states that this option will only work if the two sets of standards are comparable, and that "holes" currently exist in certain industries, especially insurance. Turner goes on to state that the two sets of accounting standards, "must result in comparable, consistent accounting across the universe of companies that have similar transactions." Arthur Levitt, the former SEC Chairman, is a long time proponent of one set of international standards, and also against the choice option, stating, "The menu, system, I believe, leads to earnings management and that should be avoided." (Greenberg 2007, B3)

On August 27, 2008, the SEC laid out its proposal to eventually require all U.S. companies to use IFRS. The proposal would allow some U.S. large multinationals to use IFRS for the financial statements for the year 2010. The SEC estimates that 110 U.S. companies would qualify (Scannel and Slater 2008, A1). This would represent approximately 2.5 trillion in U.S. market capitalization (Rodriguez, 2009). All U.S. companies would then be required to use IFRS in lieu of U.S. GAAP beginning in 2014. More recently, on November 14, 2008 the SEC released its "Roadmap" involving the use of IFRS and reiterated the 2014 date "…if it is in the public interest and for the protection of investors to do so." (SEC 2008b, 10) The Commission listed six "milestones" that should occur before the mandatory implementation of the IFRS. On February 3, 2009, the SEC extended the comment period which was scheduled to end on February 14, 2009 to April 20, 2009 (SEC, 2009).

Although some U.S. companies gave the proposal a "qualified welcome," there are still reservations and "issues to be worked out," according to one U.S. controller (Scannel and Slater 2008, A1). Barbara Roper, Director of Investor Protection at the Consumer Federation of America, stated that allowing some companies to use IFRS before others would impose a burden on investors to be familiar with both sets of rules. Furthermore, she stated that allowing them to choose which accounting model will establish a situation where "they'll choose the language that paints their financials in the rosiest light." (Scannel and Slater 2008, A12) Recently, Mary Schapiro, newly appointed Chairperson of the SEC indicated that she could delay the roadmap's transition to IFRS. Schapiro is worried about the high cost of the transition, which the SEC estimates to reach up to $32 million for some companies. She is also concerned about the independence of the IASB, and the "looser" nature of the IFRS principles-based standards. "I will take a deep breath and look at this entire area again careful and I will not necessarily feel bound by the existing roadmap that is out for public comment," she informed the U. S. Senate Banking Committee. (WEBCPA, 2009, 1)

In the U.S. there are famous cases where politicians became involved in the accounting standard-setting process to the extent that they succeeded in either aborting the proposed standard (the investment credit) or modifying it to their satisfaction (stock options). This same phenomenon also exists in the issuance of IFRS. Although the IASB promulgates the accounting standards, each country decides how to utilize them. Some countries adopt them verbatim; however, others modify them to some extent. In the case of the European Union (EU), each accounting standard must be approved by the European Parliament. The adopted standards are then referred to as "endorsed IFRS" (ITAC 2007, 3). One drawback of this EU review process is that there can be considerable lag time between the date that the IASB releases the standard and the date that the EU firms are required to use it. A more serious problem is that parliament can change the standard. This was the case of IAS 39 (IASB 2005d), which involved lobbying that extended to the level of the French president. Accordingly, in a “technical sense, Europe does not employ ‘full’ IFRS.” (Hughes 2007a) However, the SEC insists that it will only accept “full” IFRS (SEC 2008a, 993), which could have potentially excluded the European Union countries and create a dispute between the U.S. and the European Union (Hughes 2007). The SEC reiterated its position and stated that the firm must explicitly state that the financial statements are in compliance with IFRS as issued by the IASB. Furthermore the independent auditor must provide an unqualified opinion as to this compliance (SEC 2007, 39; SEC 2008, 993).

As we mentioned previously, the ITAC released a comment letter that was very critical of the SEC proposal (ITAC 2007). Some of the committee’s concerns are listed as verbatim bullet points below.

* We …do not believe there is sufficient current symmetry between the IFRS literature and U.S. Generally Accepted Accounting Principles (GAAP) to warrant the elimination of the required reconciliation.
* While we would agree that progress has been made towards convergence of the two systems, it is not yet at the point where most reconciliations in SEC statements are labeled ‘Not Applicable.
* If such a result were to occur, it would indicate the achievement of convergence- or at least a substantial harmonization, with the exception of items bearing inconsequential significance to investors (p.2).
* We would prefer to see concrete evidence that the two sets of standards are substantially equivalent before the reconciliation is eliminated. We suggest that the Commission undertake an evaluation of the IFRS/U.S. GAAP differences commonly found in the reconciliations, and periodically publicly disseminate and report upon such an inventory. We also suggest the development of a separate inventory of all the differences between the two sets of standards. The reconciliation requirement should be dropped only when the inventory of all identified differences has been satisfactorily resolved. “(p. 2)
* The differences among accounting standards are not our only concern. We are not yet certain that there is consistent auditing and enforcement of the application of IFRS. We understand that the international accounting firms currently assign highly experienced U.S. GAAP-trained practitioners to review the SEC filings of foreign issuers and the accuracy of the reconciliation as a matter of due course. ….we view this process as critical in ensuring consistent application of accounting and auditing disciplines among international peers and the completeness of financial disclosures provided to U.S. investors. (p. 2) (The ITAC then suggested that the SEC compare the differences in the auditing and enforcement procedures between the IFRS and U.S. GAAP.)
* “While we respect the work of the IASB and its staff, we are concerned that the substance of the Proposed Rule is to recognize the IASB as a standard setter for purposes of the U.S. public capital markets, on virtually the same level as the FASB.” (p.2)

Some other points in the letter referred to "the potential to inject a political, Euro-centric bias into standards set by the IASB" (p.3), the need for U.S. investors to learn IFRS, and the hindrance the proposal will have on the convergence process.

More recently, Charles Niemeier, a member of the Public Company Accounting Oversight Board (PCAOB) delivered a rather comprehensive address to the New York Society of CPAs in which he criticized both the elimination of the reconciliation requirement and the proposal to allow U.S. firms to employ IFRS. (Niemeier 2008) Some of his arguments echo the concerns of the IATC regarding the 20-F elimination. Niemeier avers that, based on the evidence he has reviewed, the reconciliation captured "value-relevant information" and that IFRS reporting has not yet resulted in convergence with, or comparability to U.S. GAAP." (Niemeyer 2008, 2) He stated that the move towards IFRS represented a capitulation. He summarized his position by quoting FASB Chairman Bob Herz, who stated, "We do have the best reporting system, but the rest of the world won't accept it." (Niemeier 2008, 2)

Niemeier also discussed (2008, 2) what he referred to as "myths" involving the adoption of IFRS, including that:

* IFRS are superior to U.S. GAAP because they are principles-based.
  Niemeier countered that IFRS are merely "younger" than U.S.GAAP and that over time it is likely to become more "rules-based". Furthermore, he warned that U.S. managers who employ IFRS for their flexibility will not have a defensible position if they mislead investors.
* Switching to IFRS will enhance financial reporting comparability.
  In a similar vein of the "Full IFRS Issue" discussed previously, Niemeier cited the case of certain French companies, who despite being required to employ IFRS, did so "in name only" and continued to use their home country standards for their financial reports, a term referred to by the French as "nostalgic accounting" and encouraged by local regulators.
* IFRS will strengthen investor protection in the U.S.
  Niemeier warned that the IFRS initiative would actually weaken regulatory enforcement by allowing more management discretion. Indeed, the Chairman of the International Accounting Standards Committee Foundation stated that stringent enforcement is unique to the U.S. and that "the SEC realizes that (its) attitude should change."
* The IASB's standard-setting process is protected from political and other influences.
  In this case, Niemeier cited Section 108 of Sarbanes-Oxley (SOX) that requires the SEC to determine that a private accounting standard-setter has satisfied certain criteria before it will recognize its accounting principles as U.S. GAAP. One of these is independent funding through, and the IASB's funding mechanism does not comply with the provisions of Section 108. Furthermore, although Niemeier states that although there is discussion about the structure of the IASB, much of it has "focused mainly on establishing mechanisms to give interested governments influence over the standard-setting." (Niemeier 2008, 3)

In a survey of individual investors, McEnroe and Sullivan (2006) found that over 85 percent agreed that foreign countries should be required to either employ U.S. GAAP or to reconcile to U.S. GAAP in order to be listed on U.S. stock exchanges. The respondents also perceived (80 percent) that if foreign firms were not required to comply with the Sarbanes-Oxley Act or U.S. GAAP to be listed on U.S. exchanges, that U.S. parties would be less inclined to invest their funds in such firms. Last, only 27 percent of the investors agreed that a coded stock symbol indicating compliance with international rather than U.S. GAAP should be sufficient for a foreign firm to be listed on a U.S. exchange.

Ucieda-Blanco and Osma (2004) studied the 20-F reconciliations to U.S. GAAP of firms using IASs over the period from 1995 to 2001. They found there to be an increasing number of adjustments being disclosed, but overall the materiality of the adjustments declined over this period. The most frequent adjustments were in the areas of expense capitalization, business combinations, assets revaluation, employee benefits, and stock compensation, although only asset revaluations and business combinations had a significant percentage of material adjustments. They concluded that although material adjustments still exist, U.S. GAAP and IASs appear to be converging.

In a more recent study, Henry et al. (2007) examined the 20-F reconciliations of 75 firms employing IFRS over the period from 2004-2006. They found evidence of convergence, although goodwill and pensions appeared to be the most dominant reconciliation areas. Their results also indicated that 28 percent of the firms had net income that was higher under IFRS than U.S. GAAP, while most of the firms reported lower stockholders' equity under IFRS as opposed to U.S. GAAP. They concluded that significant differences still exist and that given the potential for allowing U.S. firms to use IFRS, stakeholders should be aware of them.

Jack Ciesielski, an accountant and publisher of the *Analysts' Accounting Observer,* studied 137 foreign firms trading in the U.S. for 2006. He found that 63 percent of the companies had higher earnings under IFRS versus U.S. GAAP and that the median increase was 11.1 percent (Scannell and Slater 2008, A12).

RESEARCH METHOD

The previous two studies that have involved the differences between IFRS net income and shareholders' equity and their U.S. GAAP counterparts examined (1) the size of the gap, (2) whether one measure was systematically larger or smaller that the other, (3) if the gap was narrowing over time, and (4) the "value relevance" of the information provided by the information in the reconciliation using market-based tests. Our study extends the research by (1) determining the most significant adjustments reported for the year 2006, (2) examining the nature of the accounting standards that engendered those adjustments, and (3) projecting whether those adjustments are likely to continue to remain significant in the future.

We selected all the companies listed on the New York Stock Exchange that used an ADR (American Depositary Receipt) for the year ended December, 2006. From that group we selected all the companies that filed a Form 20-F reconciliation between International Financial Reporting Standards and U. S. GAAP. This exercise resulted in a total sample of 57 companies.

For each company, we scheduled all the reconciling items reported between U. S. GAAP and IFRS net income. Based on the similarity among the descriptive titles used by different companies, we combined some of the individual reconciling items. We then ranked the reconciling items based on frequency of occurrence and size of the item compared to the difference between IFRS and U. S. GAAP income. We decided to focus on those items that appeared as reconciling items on 20% or more of the companies selected. This process resulted in an in-depth examination of the following nine reconciling items:

Taxes - Deferred Taxes
Pensions and other post employment benefits
Financial Instruments
Minority Interest
Impairment, Goodwill, Intangibles
Business Combinations
Employee Compensation Costs
Capitalization
Amortization

Table 1 lists the reconciling items and ranks them by frequency of occurrence on 2006 20-F statements.

Table 1: 20-F Items Ranked by Frequency of Occurrence

Data Extracted from 57 Companies Reporting Using 20-F for 2006

	Number of Times Appeared as Reconciling Item	Median Percentage*	Mean Percentage*
Taxes, Deferred Taxes	49	7.1%	4.2%
Pensions and other post-employment benefits	37	-19.8%	-33.1%
Financial Instruments	24	-3.3%	-9.9%
Minority Interest	23	0.2%	7.7%
Impairment**	21	1.0%	33.1%
Business Combination	18	-6.5%	-186.7%
Employee compensation costs	17	-1.8%	-18.7%
Capitalization	15	-7.5%	-29.8%

Table 1: 20-F Items Ranked by Frequency of Occurrence

Amortization	13	-14.8%	-62.1%

* Reconciling item as a percent of the absolute value of the reported difference between income computed under U. S. GAAP and income computed under IFRS.

** The descriptive information in the 20-F statements indicated that sometimes the title impairment dealt with goodwill and intangibles but other times it dealt with other impairments. The level of detail in the 20-F did not permit recategorizing these items. The discussion in the text combines these two items.

We then looked at (1) the explanations in Statement 20-F for the chosen reconciling items and companies, (2) the corresponding IFRS and SFAS standards for the individual reconciling items, and (3) the IASB and FASB agenda projects that are part of the convergence program. Based on this review, we believe that the following describes the most significant reconciling items as or December 2006 and the near term prospects for their reduction or elimination.

Taxes – Deferred Taxes

Reconciling items relating to deferred income tax allocation were the most frequently occurring issue. While the average difference as a percentage of net income was relatively low, in at least one case, the reconciling item was over ten times the net difference in IFRS vs. U. S. GAAP income (with other reconciling items offsetting this huge difference). Both the IASB (IAS 12: IASB 2004c) and the FASB (SFAS 109: FASB 1992) require the recognition of deferred tax assets and deferred tax liabilities resulting from differences in the reporting of income and the valuation of assets for financial and tax reporting.

There are a large number of differences, however, in the implementation of these standards. For example, it appears from an analysis of the 20-F of individual companies that some companies used different rates for computing taxes under IFRS than under U. S. GAAP based on the IFRS rule that "substantially enacted" rates should be used as opposed to the U. S. GAAP rule that an entity should not anticipate changes in future tax rates. Similarly, some companies reported tax differences associated with the fact that while both IFRS and U. S. GAAP call for the tax effects of items that are direct adjustments of stockholders' equity to be reflected in stockholders' equity or comprehensive income, U. S. GAAP requires that tax effects resulting from changes in rates must be reflected in operating income. Other companies reported differences based on different standards that apply as to whether a tax asset should be recognized and the different amounts of taxes that are required to be reported for share-based compensation schemes.

Even though these differences appear on the 20-F of a large number of companies and can be significant dollar amounts, they do not appear to reflect fundamental differences in the underlying companies. Nor do they appear to be the types of items that should be highlighted to users of financial statements. Furthermore, it does not appear likely that a company would choose to use

IFRS or U. S. GAAP to "take advantage" of the differences in reporting for taxes. As a result, there appears to be a substantial opportunity for convergence of the two standards without losing important financial reporting information. The agenda for the convergence project calls for an exposure draft reconsidering IAS 12 (IASB 2004c) to be issued in 2008 and a new statement to be issued in 2009. This appears to be an important project because of the frequency of its occurrence as a reconciling item but it also appears that it is one area where convergence will be easily attained.

Pensions And Other Post Retirement Benefits

The second most frequent reconciling item was associated with pension and other post-retirement benefits. Once again, the general accounting treatment is similar under both accounting regimes (Primarily IAS 19 (IAS 19: IASB 2004d) and SFASs 87, (FASB 1985a), 88, (FASB 1985b), 106, (FASB 1990), 132(R), (FASB 2003), and 158 (FASB 2006c). Both systems generally require that the costs associated with retirement benefits be recognized in the period which those benefits are earned by the employee rather than when they are paid.

Several of the companies that we reviewed had the pension costs associated with years prior to adopting IAS 19 (IASB 2004d). IFRS 1 allows those cost to be charged to equity while U. S. GAAP requires that these costs flow through the income statement. Other firms, however, had significant reconciling items associated with income from pension assets in some countries being directly reported on the income statement of sponsoring companies presumably because the funding vehicle was not sufficiently distinct from the sponsoring company. Other firms were subject to an IFRS limitation on the amount of prepaid pension costs which could be recognized in financial statements. Corresponding limits do not exist under U. S. GAAP.

These differences, while occurring less frequently than those related to deferred taxes, seem to be somewhat more consequential. The dollar amounts can be quite large as a percentage of reported income and, unlike the case of deferred taxes, it is easy to conceive that the management of a company might prefer one set of reporting standards over another to account for these costs. The different treatments provided for these types of cost may well significantly impair the ability of users to compare companies using different accounting standards. Permitting a company to choose its accounting standards might provide more accounting flexibility to management than many financial statement users would be comfortable with.

Post retirement benefits, including pensions, are an agenda item in the IASB/FASB convergence program. The current agenda (FASB 2008b) calls for an exposure draft in 2009 with a final IFRS in 2011. The significant differences in accounting for these costs will presumably continue to exist at least until that time and make the comparability of financial statements prepared under the different regimes quite problematic.

Financial Instruments

Almost half of the companies examined had reconciling items relating to financial instruments. While the average size and the range of differences are not as large as in the case of Pensions and Other Post Retirement Benefits, the textual description of the differences highlights a number of rather significant differences in the two accounting systems. IAS 32 (IASB 2005c) and 39 (IASB 2005d) and IFRS 7 (IASB 2005b) represent the primary guidance for the accounting for financial instruments under IFRS. U. S. GAAP has a number of separate standards dealing with topics related to financial instruments. SFAS 115 (FASB 1993b) and 133 (FASB 1993c) are arguably the primary authority while SFASs 114, (FASB 1993a) 140, (FASB 2000) 155, (FASB 2006a) 157 (FASB 2006b) and 158 (FASB2006c) deal with narrower issues. Both systems generally require fair value accounting but there appear to be quite significant differences permissible in the implementation of the standards.

Examples of significant difference that appeared in the analysis of 20-F include the following. Previously taken write-offs relating to certain investments were partially or fully reversed for a company reporting under IFRS while those reversals are not permitted under U. S. GAAP. Furthermore, certain assets were "derecognized" under IFRS standards whereas those amounts have to be retained on the balance sheet under U. S. GAAP. Some assets were reported as "available for sale" securities under IFRS but were required to be reported using the equity method for U. S. GAAP. Also, derivatives were categorized as hedges under IFRS where they did not qualify as such under U. S. GAAP.

These types of reconciling items represent significant differences in accounting under the two models and it is easy to conceive that management might have a preference for one method over the other. The accounting for financial instruments is similar to the accounting for pension and post retirement costs in the sense that quite significant differences exist and it is at least possible to visualize companies that would, if given the opportunity, choose one set of accounting principles over another in order to change the accounting presentation. Accordingly, this appears to be seems like a very significant area for concern and, while it is on the IAS's research agenda, no target date has been set for an exposure draft or new standard.

Minority Interest

An important reconciling item on the 2006 20-F's was labeled "Minority Interest." Perhaps the preferred term for this issue now is "Non-controlling Interest." Prior to the issuance of SFAS 160 (FASB 2008a) (effective for years beginning on or after December 15, 2008), U. S. GAAP generally treated non-controlling interest as an item separate from equity and income attributable to this interest was expensed in the computation of net income. IAS 27 (IASB 2008b) generally requires that non-controlling interest be included in equity and, therefore, there is no corresponding expense item in the income statement. It appears that almost all of the reconciling items on the 2006 statements were attributable to this issue. SFAS 160 (FASB 2008b) brought U. S. GAAP substantially in line with IFRS on this issue, so while the item was significant in 2006 reconciliations, our opinion is that it is unlikely to remain so in the future.

Impairment, Goodwill And Intangibles

While a number of companies had reconciling items classified as being related to the accounting for impairment and had separate reconciling items related to accounting for goodwill, in many other cases the issues were combined. Therefore, we have chosen to combine them as well. These items showed up on a large number of firms and frequently the amounts, as a percentage of the difference in income, were quite large. The U. S. GAAP rules governing these items are primarily in SFAS 142 (FASB 2001b) and 144 (FASB 2001c). The IAS rules are in IAS 36 (IASB 2004e) and 38 (IASB 2004f) as well as IFRS 3 (IASB 2008a).

With regard to impairment, two major issues appear to account for most of the reconciling items. First, unlike U. S. GAAP, IFRS permit the reversal of impairment losses under certain circumstances. Second, under U. S. GAAP, impairment losses are only triggered if undiscounted projected cash flows from an asset are below its carrying value. A number of firms took impairment losses for IFRS statements that could not be taken on U. S. GAAP statements.

With regard to goodwill and intangibles, the major reconciling items (ignoring impairment issues) appeared to be related to transitional issues. For example, one company converted to IFRS on January 1, 2004 and elected not to reinstate goodwill that had previously been written off under national accounting standards. Under U. S. GAAP that election is not available and the goodwill had to be reinstated. These differences, however, generally had a relatively small impact on the income statement.

The differences in the treatment of impairment of assets and the possible reversal of impairment losses seem to be the most consequential issues in this area. Differences caused by these items can be very large. It follows then that resolving these differences would be important in making the two accounting models more comparable; however, it appears that addressing impairment issues is not part of the IAS current agenda.

Business Combinations

U. S. GAAP (SFAS141: FASB 2001a) and IFRS rules (IFRS 3: IASB 2008a) are both based on the purchase method of accounting. For 2006, nevertheless, there were differences in implementation that resulted in the largest reconciling items between IFRS and U. S. GAAP.

Three items appeared to account for the major differences categorized under business combinations under the 20-F. First, restructuring costs incurred following the acquisition of a company (and therefore categorized under business combinations) are generally recognized earlier under IFRS than under U. S. GAAP. Second, as of 2006, IFRS reported the fair market value of the total net assets acquired in an acquisition while U. S. GAAP reported fair market value in proportion to the share of ownership acquired. Third, contingent consideration was typically treated as part of the purchase price under IFRS whereas under U. S. GAAP a company had to meet more stringent standards before contingent consideration could be included as part of the acquisition price.

Both standard setters have revised their GAAP in this area since 2006 with the new rules generally effective for 2009. These new rules appear to resolve most of the items that caused differences in 2006; therefore it appears that the substantial reconciling items for business combinations that appeared in 2006 are not likely to be significant in the future.

Employee Compensation Costs

Share-based payments are treated under IFRS (IFRS 2: IASB 2004a) in a manner substantially similar to the treatment required under SFAS 123(R) (FASB 2004). The main differences under compensation were related to severance costs and costs related to the discontinuance of benefit plans. The relevant U. S. GAAP rules are mainly in SFASs 88 (FASB 1985b) and 146 (FASB 2002) and the relevant IAS rules are primarily in IAS 19 (IASB 2004d). The general rules governing the recognition of liabilities also appear to have generated some differences.

Examples of typical reported differences include the following. One company recorded a severance pay obligation mandated under Italian law as a defined benefit plan for IFRS reporting but elected to report the present value of the termination obligation for U. S. GAAP. Another company recognized a liability for certain severance costs in 2004 for IFRS statements but that did not meet the standards for recognition until 2005 for U. S. GAAP.

Standing alone, these differences occurred fairly frequently in 2006 and some of the reconciling items were quite significant. When combined with the differing treatment of pensions and other post-retirement benefits, these two represent a very significant difference between U. S. GAAP and IFRS. Presumably these issues will be addressed in the review of IAS 19 (IASB 2004d) mentioned above and in the portion of the Conceptual Framework project dealing with the recognition of liabilities

Capitalization

Differences resulting from different capitalization rules occurred fairly frequently and many of them were quite substantial. The review of the reconciling items in the 20-F suggested that most of the items were associated with the capitalization of interest costs (IAS 23: IASB 2007) and SFAS 34 (FASB 1979) and the treatment of Research and Development Expenses (IAS 38: IASB 2004f) and SFAS 2 (FASB 1974).

In 2007, IAS 23 (IASB 2007) was revised to require the capitalization of interest costs for IFRS in a manner parallel to the rules of SFAS 34 (FASB 1979), so one of the major items for 2006 appears to have been eliminated. The differing treatment of Research and Development

Expenditures does not appear to be on the agenda to be revisited. The 20-F's generally did not disaggregate R &D from other capitalization issues, so it is difficult to tell the size of the related adjustments. Even though it did appear in 2006 reconciliations, the circumstances under which R & D are capitalized for IFRS are quite restrictive, so it is at least arguable that these reconciling items will not be significant in the future.

Amortization

The rules governing the amortization of intangibles under IFRSs 38(IASB 2004f) and IFRS 3 (IASB 2008a) are substantially similar to U. S. GAAP: SFASs 141 (FASB 2001a) and 142 (FASB 2001b). In fact, although this is an item on the convergence agenda of the IAS and is the subject of research activity at the IASB, it does not appear to be a currently active agenda item.

The reconciliation items that appeared in 2006 appear to be primarily related to valuation issues for firms that changed from a national standard to IFRS. These transitions resulted in differing values for intangibles, including goodwill, and some of those differences result in different charges to income in 2006. The fact that the current practice seems to be so similar under the two accounting systems suggests that perhaps no further action should be taken. On the other hand, where these differences do occur, they can be extraordinarily large.

SUMMARY AND CONCLUSIONS

While substantial progress has been made in the convergence of U. S. GAAP with IFRS, some major differences existed in 2006 and appear to remain extant today, a situation which can have a very substantial impact on reporting income statement items. These differences will make comparing financial results for companies reporting under the two different accounting models quite difficult and could encourage some U. S. companies to adopt international standards solely for the different financial accounting alternatives that may be available. Based on our review, it seems that, at a minimum, there should be more conformity in the areas of pensions and other post retirement benefits; financial instruments; and impairment, goodwill, and intangibles before the U. S. companies are allowed to choose between U.S. GAAP and IFRS, as proposed by the SEC beginning in the year 2010. Furthermore, our findings lead us to agree with the Financial Reporting Committee of the American Accounting Association (AAA 2008a) that we do not support the SECs ruling that eliminates the U.S. GAAP-IFRS reconciliation requirement at this time. In addition, our results induce us to disagree with Financial Accounting Standards Committee of the AAA (AAA 2008b) which endorses the SEC proposal that supports the ruling and also recommends that U.S. firms also be allowed to choose between IFRS and U.S. GAAP. Finally, given that substantial differences between IFRS and GAAP remain, we feel that the SEC' roadmap to require all U. S. firms to adopt IFRS by 2014 is unwarranted without substantial progress on convergence in the areas we have noted.

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