Volume 14, Number 4

Print ISSN: 1096-3685
PDF ISSN: 1528-2635

ACADEMY OF ACCOUNTING AND FINANCIAL STUDIES JOURNAL

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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.

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

Mahmut Yardimcioglu, Karamanoglu Mehmetbey University

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LETTER FROM ALLIED ACADEMIES

It is with the greatest sadness that we inform you of the death of Dr. Denise Woodbury in May, 2010. She has been a tremendous force in the Allied Academies organization and she has been a true friend of the Carlands for many years. She has been a member since 1997 and has served us in many ways. She will be truly missed; yet she leaves a wonderful legacy of caring and hope for all who knew her.

The Carlands have set up a scholarship for Denise through the Carland Foundation for Learning at their website at www.CarlandFoundation.org You are welcome to make a contribution in her memory at that site or to send a check to Carland Foundation for Learning to PO Box 914, Skyland, NC 28776.

Denise will be missed and long remembered by all.

Jim and JoAnn Carland
Trey and Shelby Carland
Jason Carland

FEMALES AND FINANCIAL EXPERTS: BOARD DIVERSITY IN THE ERA OF THE SEC'S AUDIT COMMITTEE REQUIREMENTS

Thomas E. Wilson, Jr., University of Louisiana at Lafayette

ABSTRACT

Although gains have been made in recent years, women are still underrepresented on corporate boards of directors. Recently, however, the SEC has issued rules requiring public firms to disclose the "financial experts" serving on their audit committees. This study examines whether the skills and abilities necessary for service as a financial expert have affect the push for gender diversity in the boardroom. Analysis of a sample of S&P 500 and Russell Microcap firms shows that female participation corporate governance has increased since 2003, but that the growth is attributable to smaller firms. Increases in women representation among large firms appears to have slowed dramatically. Few women were named as audit committee financial experts immediately after implementation of the SEC requirement. By 2009, however, the number and percentage of women financial experts had increased significantly, reaching levels comparable to those for corporate boards as a whole. This study finds that gender diversity is not directly hampered by the specialized skills and experiences required of a financial expert.

INTRODUCTION

The lack of gender diversity in the upper management and boardrooms of U.S. corporations has been often observed (e.g., Bilimoria & Piderit, 1994; Campbell & Minguez-Vera, 2008). Daily and Dalton (2003) memorably summarize the issue:

> *Advocates of the status quo defend the relative lack of diversity on corporate boards as a function of too few women having the requisite qualities and experiences. Careful consideration of these criteria, however, reveals that male board members often fail to meet these criteria as well. Placing unduly restrictive criteria on the search for female board members becomes a self-fulfilling prophecy, a hunt for the mythical unicorn.*
>
> *Unlike the unicorn, the female director does exist, although she is a relatively rare species.*

Recently a greater premium was placed on director "qualities and experiences" by the Sarbanes-Oxley Act of 2002 (SOX). In addition to more familiar sections of the Act dealing with issues such as internal control, Section 407 of SOX required the Securities and Exchange Commission (SEC) to implement a rule requiring firms to disclose whether their audit committees included at least one "financial expert." Although there was no explicit requirement that firms have such an expert, any public company lacking one would be required to explain the reasons why.

This paper examines the issue of board gender diversity in the wake of the SEC's implementation of the financial expert requirement. Has the requirement hampered corporate efforts to increase the role of women on boards and on audit committees? How are smaller firms, where females traditionally are even more underrepresented, responding to the requirements?

The remainder of the paper is divided into five sections. The first section summarizes the representation of women on boards of directors and corporate audit committees. The second section details the SEC's requirements regarding financial experts. The study's methodology is discussed in the third section, followed by the presentation of the results. The paper closes with a summary and discussion of the findings.

GENDER DIVERSITY IN THE BOARDROOM

The relative absence of women on corporate boards of directors has been well documented. The nonprofit organization Catalyst conducts an annual survey of the share of S&P 500 corporate board seats held by women. Their 2008 survey found that 15.2% of all directorships were held by females, a slight increase over the 14.8% found in 2007. The number of S&P 500 firms without a single female director actually increased from 2007 (59 firms) to 2008 (66 firms).

This focus on larger firms in the United States is typical of most literature in the area. For example, Daily, Certo and Dalton (1999) used Fortune 500 firms to examine trends in the number of women directors over a ten year period. Williams (2004) employed a sample of Fortune 500 firms to assess the impact of women directors on corporate philanthropy. Peterson and Philpot's (2007) examination of female director expertise and committee memberships also made use of data from Fortune 500 firms. A study released by the Corporate Women Directors International (2008) employed Fortune 500 firms to assess the interaction between women Chief Executive Officers and female representation on the board of directors.

Williams (2005) was one of the few studies to explicitly include smaller firms in an examination of director characteristics. She employed both S&P 500 firms and a sample of smaller companies in her examination of professional background and demographic traits, including gender, among audit committee financial experts. She found that, immediately after the effective date of the SEC requirement, S&P 500 firms had significantly more female experts than did smaller firms.

SEC FINANCIAL EXPERT REQUIREMENTS

The SEC's response to the SOX requirement is contained in Item 401(h)(2) of Regulation S-K. An audit committee expert is defined as an individual who has:

- *an understanding of generally accepted accounting principles and of financial statements;*
- *an ability to assess the general application of such principles in connection with the accounting for estimates, accruals, and reserves;*
- *experience in preparing, auditing, analyzing, or evaluating financial statements that present a breadth and level of complexity of accounting issues that are generally comparable to the breadth and complexity of issues that can reasonably be expected to be raised by the company's financial statements, or experience actively supervising one or more persons engaged in such activities;*
- *an understanding of internal controls and procedures for financial reporting;*
- *an understanding of audit committee functions.*

The SEC provided guidance as to how individuals could meet these requirements in Item 401(h)(3) of Regulation S-K. A person could become a financial expert by having:

- *education and experience as a principal financial officer, principal accounting officer, controller, public accountant, or auditor, or experience in one or more positions that involve the performance of similar functions;*
- *experience actively supervising a principal financial officer, principal accounting officer, controller, public accountant, auditor, or person performing similar functions;*
- *experience overseeing or assessing the performance of companies or public accountants with respect to the preparation, auditing, or evaluation of financial statements; or*
- *other relevant experience.*

Disclosures regarding financial experts were required for public company annual reports for fiscal years ending on or after July 2003.

METHODOLOGY

A random sample of 100 firms was drawn from firms comprising the S&P 500 as of May 2009. To provide a basis for comparison to this sample of the largest firms in the United States, another random sample of 100 firms was drawn from firms comprising the Russell Microcap Index as of May 2009. The Russell Microcap Index consists of 2,000 of the smallest publicly held companies in the United States.

Proxy statements from the SEC's EDGAR database were examined for each sample firm. Three proxy statements were analyzed for each firm: the last statement issued before the effective date of the SEC's financial expert disclosure requirement, the first statement issued after that effective date, and the most recent statement issued as of May 2009. Most firms in the sample had calendar year financial statements, thus the proxy statements examined were generally issued in the Spring of 2003, 2004, and 2009. For convenience, the period immediately preceding the SEC requirement is hereafter referred to as 2003, the period immediately after the effective date of the requirement is hereafter referred to as 2004, and the most recent period is hereafter referred to as 2009.

For each firm, information about the size of the board of directors and audit committee was collected, as well as the number of females serving on each. The number and gender of identified financial experts was recorded, as was information about individuals added to boards and audit committees in the years after the effective date of the SEC's requirements.

Information about male and female directors was also used to compute the Blau Index for each firm. Commonly used as a heterogeneity measure in diversity research, the Blau Index provides a measure of the evenness of the distribution of board members among gender categories (Campbell & Minguez-Vera, 2007). The index is computed as $1-\Sigma p_i^2$, where p_i is the percentage of board members of each gender. The Index will be 0 for a board of directors or audit committee comprised of all men or all women. Equal numbers of men and women will result in an Index of 0.5. Because of the large number of sample firms with only one named financial expert, the Blau Index is not employed in the analysis of financial expert gender diversity.

RESULTS

Table 1 presents data regarding the number of females serving on corporate boards, on audit committees, and as financial experts for the periods examined. As the Table makes clear, the female presence on boards has increased in recent years, with the number of firms having no female directors declining from 84 in 2003 to 68 in 2004. The percentage of female directors has also increased - from 9.78% to 10.34% to 12.34%. Although the increase in the 2004 over 2003 was small, the increase from 2004 to 2009 was statistically significant. Analysis of the Blau Index reveals a similar pattern. Board diversity increased from 2003 to 2004, and again from 2004 to 2009, with the latter increase being statistically significant.

Table 1							
2003	All Firms		Large Firms		Small Firms		Significance
	Mean	Median	Mean	Median	Mean	Median	t-test
Board of Director Size	9.05		10.44		7.66		8.405
Females on Board	0.89		1.41		0.36		9.262
% Female	0.089		0.1334		0.0447		7.447
Audit Committee Size	3.73		4.21		3.25		7.474
Females on Audit Committee	0.4		0.7		0.09		8.322
% Female	0.0939		0.1602		0.0275		7.608
2004	All Firms		Large Firms		Small Firms		Significance
	Mean	Median	Mean	Median	Mean	Median	t-test
Board of Director Size	9.09		10.47		7.71		8.559
Females on Board	0.94		1.51		0.37		9.645
% Female	0.095		0.142		0.048		7.906
Audit Committee Size	3.82		4.23		3.42		6.109
Females on Audit Committee	0.4		0.69		0.11		7.26
% Female	0.0927		0.1544		0.031		6.69
2009	All Firms		Large Firms		Small Firms		Significance
	Mean	Median	Mean	Median	Mean	Median	t-test
Board of Director Size	9.32		11.02		7.62		10.82
Females on Board	1.15		1.77		0.53		8.754
% Female	0.1115		0.1579		0.065		6.288
Audit Committee Size	3.91		4.45		3.36		8.044
Females on Audit Committee	0.47		0.73		0.22		6.028
% Female	0.1084		0.1528		0.064		4.495

The requirements of financial literacy and financial expertise may have affected the growth among women serving on audit committees among sample firms. Although the number of firms without female audit committee members decreased in each year examined, females as a percentage of total audit committee members actually declined slightly from 2003 to 2004. Although this percentage grew to 12.16% in 2009 and was comparable to the overall board rate of 12.34%, the increase from 2004 was not statistically significant. The results for the Blau Index for audit committees yield similar findings.

Immediately after the implementation of the requirements regarding audit committee financial experts, sample firms identified 323 experts, of which 20 (6.19%) were female. In 2009,

the percentage of female experts had grown to 10.83%, a statistically significant increase, and a level roughly comparable to the percentages for audit committees and for boards as a whole.

Table 1 provides evidence that female representation on corporate boards of directors is increasing. However, on the committee charged with oversight of reliable financial reporting, increases in female membership are not significant at traditional levels. Given this finding, it is somewhat surprising that among designated audit committee financial experts, perhaps the board position with the most rigorous requirements, the percentage of women has been increasing significantly.

As noted earlier, S&P 500 companies have larger boards of directors and larger audit committees than do smaller firms, creating more opportunities for females to serve as directors. Table 2 compares the S&P 500 firms in the sample to those drawn from the Russell Microcap Index.

Table 2

2004	All Firms		Large Firms		Small Firms			
	Mean	Median	Mean	Median	Mean	Median	t-test	Significance
Experts	1.61		1.93		1.3		4.553	
Female Experts	0.1		0.16		0.04		2.872	
% Female	0.0487		0.0673		0.03		1.502	0.135
2009								
Experts	1.98		2.56		1.41		7.404	
Female Experts	0.22		0.33		0.1		3.569	
% Female	0.0905		0.1293		0.0517		2.581	0.011

The differences between large and small firms in the sample are striking. In all years examined, more Microcap firms lacked any female directors than did S&P 500 firms. For all years, the S&P firms had significantly higher percentages of female directors and audit committee members than their Microcap counterparts. Blau Indices for all years were significantly different as well.

Table 3 provides information about trends in women directors, audit committee members, and financial experts for both S&P 500 companies and Microcap firms. Although females are comparatively underrepresented on the boards of smaller firms, their presence has been increasing over time, as Panel B of Table 3 demonstrates. The percentage of female directors serving on Microcap boards and on audit committees was significantly higher in 2009 than in 2004. Board of director and audit committee Blau Indices for Microcaps were also significantly higher in 2009. The percentage of females named as financial experts more than doubled from 2004 to 2009.

Table 3								
	All Firms		Large Firms		Small Firms			
2004	Mean	Median	Mean	Median	Mean	Median	t-test	Significance
New Directors	0.95		0.95		0.94		0.055	ns
New Females	0.12		0.19		0.05		2.457	0.015
% Female	0.1296		0.1872		0.069		2.139	0.035
New Audit Committee	0.33		0.26		0.4		-1.475	0.142
New Females	0.04		0.06		0.01		1.693	0.092
% Female	0.0918		0.1842		0.0333		1.77	0.089
New Experts	0.18		0.13		0.24		-1.74	0.083
New Females	0.02		0.03		0		1.75	0.082
% Female	0.0625		0.2222		0		1.835	0.104
	All Firms		Large Firms		Small Firms			
2009	Mean	Median	Mean	Median	Mean	Median	t-test	Significance
New Directors	3.43		4.15		2.72		4.838	
New Females	0.49		0.64		0.34		3.267	
% Female	0.1368		0.1568		0.1141		1.573	0.118
New Audit Committee	1.36		1.61		1.11		3.522	
New Females	0.24		0.32		0.16		2.48	0.014
% Female	0.1806		0.2093		0.1484		1.179	ns
New Experts	0.73		0.95		0.5		3.901	
New Females	0.11		0.15		0.08		1.481	0.14
% Female	0.1739		0.1819		0.1628		0.268	ns

Panel A of Table 3 presents the results for S&P 500 firms and paints a somewhat different picture. Although the percentage of female directors has increased over the years, that increase is not statistically significant. The 2004 Blau Index for S&P 500 firms was significantly higher than in 2003, but did not increase appreciably from 2004 to 2009. The percentage of females serving on audit committees actually decreased from 2003 to 2009. Only in the case of females named as financial expert did the 2009 results significantly exceed 2004 levels.

Taken together, Table 3 provides evidence that most of the growth in female participation in corporate governance in recent years can be traced to smaller firms. Although the level of female representation is significantly less than for S&P 500 firms, Microcaps have greatly increased their percentage of female directors and audit committee members. Growth among the larger firms,

however, has essentially stagnated. Only among female experts have there been significant increases among both segments of the sample.

One reason for the relative lack of growth in female directors among S&P 500 firms may be that those firms have lower director turnover and thus fewer opportunities to add females to their boards. To investigate the extent to which differing director turnover rates affect the results, an analysis of the new directors among sample firms was conducted. For 2004, a new director is anyone not serving on the firm's board in 2003. For 2009, a new director is anyone not serving on the firm's board in 2004. A similar approach was followed to identify new audit committee members and new financial experts, although existing board members newly assigned to audit committee service were not classified as "new".

Table 4 presents the results for new board and committee members. As the Table makes clear, in 2004, females made up approximately 20% of newly named board members, audit committee members, and financial experts of S&P 500 firms. All of these rates were significantly greater than for the smaller firms in the sample.

Table 4

	All Firms			Large Firms			Small Firms		
	Mean	t-test	sig	Mean	t-test	sig	Mean	t-test	sig
Females on Board 03	0.88			1.41			0.36		
Females on Board 04	0.94	-1.647	0.101	1.51	-1.787	0.077	0.37	-0.276	ns
Females on Board 09	1.15	-3.095	0.002	1.77	-2.118	0.037	0.53	-2.753	0.007
% of Females on BOD 03	0.089			0.1334			0.0447		
% of Females on BOD 04	0.095	-1.921	0.056	0.142	-2.111	0.037	0.048	-0.706	ns
% of Females on BOD 09	0.1115	-2.249	0.026	0.1579	-1.252	0.214	0.065	-2.315	0.023
Females on AC 03	0.4			0.7			0.09		
Females on AC 04	0.4	-0.179	ns	0.69	0.199	ns	0.11	-0.815	ns
Females on AC 09	0.48	-1.615	0.108	0.73	-0.483	ns	0.22	-2.595	0.011
% of Females on AC 03	0.0939			0.1602			0.0275		
% of Females on AC 04	0.0927	0.184	ns	0.1544	0.563	ns	0.031	-0.472	ns
% of Females on AC 09	0.1084	-1.422	0.157	0.1528	0.086	ns	0.064	-2.712	0.008
Female Experts 04	0.1			0.16			0.04		
Female Experts 09	0.22	-3.612		0.33	-2.985		0.1	-2.16	0.033
% of Female Experts 04	0.0487			0.0673			0.03		
% of Female Experts 09	0.0905	-2.482	0.014	0.1293	-2.209	0.029	0.0517	-1.165	ns

In 2009, however, the percentage of newly named females dropped across the board for the S&P 500 firms, while the Microcap sample segment greatly increased the percentage females among

newcomers to their boards. By 2009, there was no significant difference between the sample groups in the proportion of females among newly named directors.

SUMMARY AND CONCLUSIONS

This study provides evidence about the representation of women on corporate boards if directors in the wake of the SEC requirements regarding audit committee financial experts. Analysis of a sample drawn from both the largest and smallest publicly held firms in the United States yielded several findings of interest.

First is the observation that the percentages of director positions held by women has been increasing steadily over time. There are more women serving on boards and more firms have at least one female director. Women directors possess the "qualities and experiences" required to serve on audit committees, as the proportion of female audit committee members is comparable to that of directors as a whole. However, increases in the level of audit committee participation by women over time are not statistically significant.

Significant differences were observed between the S&P 500 and Microcap firms in the sample. In all years examined, larger firms had significantly higher levels of women on their boards, audit committees, and serving as financial experts than did their smaller counterparts. However, the gap appears to be narrowing as among S&P 500 firms, increases in the percentage of women directors over time are not statistically significant, while growth in female audit committee membership seems to have essentially halted. By contrast, Microcap firms are significantly increasing the gender diversity of their boards of directors and audit committees.

Immediately following implementation of the SEC rules, few women directors were named by the firms as audit committee financial experts. This underrepresentation led researchers such as Williams (2005) to call for examination of the "paucity of female experts." However by 2009, the number of female financial experts had grown dramatically, with the percentage of female experts approaching the overall percentage of female directors.

The evidence indicates that the specialized knowledge and skills required of audit committee financial experts do not act as a bar to women. Women financial experts are greatly outnumbered by men, but, to echo Daily and Dalton (2004), as a species they do not appear appreciably rarer than other varieties of female director.

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TRANSPARENCY IN FINANCIAL REPORTING: A LOOK AT RULES-BASED VERSUS PRINCIPLES-BASED STANDARDS

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ABSTRACT

The presentation of pro forma or "as if" data allows managers greater flexibility in reporting and, if done in the spirit of truthful reporting, the ability to more clearly present their firm's performance. It parallels the idea of a principles-based standard, wherein managers are given the responsibility and flexibility to report an event in a manner that reflects its true effect on firm value. In general, IFRS is considered to be more principles-based than U.S. GAAP, which is perceived to be more rules-based. Thus, the shift to IFRS will offer new challenges to U.S. financial reporting in that more flexibility and responsibility will be imparted to management. Previously, this flexibility was only allowed under a pro forma reporting format. We discuss the shift from rules-based to principles-based accounting standards from a theoretical viewpoint, considering recent corporate trends and how this change could be either positive or negative. Additionally, we report the results of a study of student subjects where we address their perceptions regarding whether rules-based versus principles-based accounting standards would be preferable to different external stakeholders.

INTRODUCTION

Transparency in financial reporting has always been considered positive from the standpoint of financial statement users, but not necessarily something for which management has striven. Rather, corporate managers often envision a major part of their role as "marketing" the company, particularly in regard to raising capital and maintaining equity growth. Management can even seem obsessed with painting the company in "a good light."

Such an obsession by management has many times led to unwarranted surprises for external users of financial statements. This is especially problematic when companies report high-dollar earnings and substantial market share growth one moment only to file for bankruptcy in the next moment. No doubt, dubious information reported by management immediately preceding such bankruptcies were anything but transparent to financial statement users.

To gain insights into such lapses in transparency, we first discuss a seemingly innocent but often deceptive practice – pro-forma reporting. Thereafter, we provide some thoughts regarding financial reporting under U.S. Generally Accepted Accounting Principles (GAAP) as well as International Financial Reporting Standards (IFRS). Next, we draw parallels between the coming adoption of IFRS and past pro forma reporting controversies. Lastly, we follow our theoretical discussions with a study of student subjects where we address their perceptions regarding whether rules-based versus principles-based accounting standards would be preferable to different external stakeholders.

PRO FORMA REPORTING

Pro forma reporting has historically been considered a means to facilitate the comparison of "apples with apples" or a means to "right a wrong" with respect to the disclosure of transactions and events which, without special treatment, might mislead investors and other stakeholders. Derived from a Latin phrase with the connotation "as if," pro forma information has traditionally been associated with reporting infrequent events such as a change in accounting principle, a change in normal operations or change in the entity (e.g., when one company acquires another company). In such instances, pro forma information assists financial statement users by illustrating the financial position, results of operations, and/or cash flows had certain transactions or events not occurred, occurred earlier, or occurred differently. Financial analysts and other financial statement users desire maximum "visibility" in order to estimate future company earnings.

At best, pro forma information cuts through some of the fog and haziness caused by one-time transactions and events, such as the expansion of a new product line or the elimination of a weak segment. At worst, pro forma reporting misleads financial statement users through somewhat dubious one-time charges or credits related to events that have not occurred and may never occur. For example, one company reported pro forma amounts including a large gain on sale of a subsidiary, while excluding an even larger expense for the amortization of purchased intangibles and other items such as research and development charges. Similarly, another company reported a multi-billion dollar pro forma net income (after selectively excluding various charges), while the actual net loss for the year exceeded one billion.

In certain situations the desire to undertake aggressive pro forma practices may appear justifiable to some degree. For example, managers argue that there are deficiencies in GAAP such as unrecorded assets like certain patents, trademarks, copyrights, trade secrets, and human resources. Additionally, managers also bemoan the silence of GAAP regarding non-financial factors such as product development efficiency, customer satisfaction, market share, and many other similar measures. Admittedly, while some companies may have legitimate arguments regarding such deficiencies, others simply want to trim bad numbers from their financial statements. Such a selective slicing and dicing of negative amounts may "numerically" meet Wall Street expectations, but it does not meet the "spirit" of Wall Street expectations and, as a consequence, results in a loss

of credibility. Of course, inappropriate pro forma practices may merely represent the manifestation of management's frustration with slumping stock prices–and disappearing bonuses. In response to these and other concerns, the Financial Accounting Standards Board (FASB) became involved in a project that encompasses issues relating to the appropriateness of pro forma practices within the broader context of financial performance measures.

FASB's PROJECT ON REPORTING FINANCIAL PERFORMANCE

Several years ago, FASB became engaged in a project entitled *Reporting Information About the Financial Performance of Business Enterprises: Focusing on the Form and Content of Financial Statements* (FASB, 2001). Understandably, the issue of reporting on financial performance is of major significance and is much broader than simply an examination of pro forma reporting abuses found in some earnings releases. FASB's project attempted to offer standard definitions for some commonly used terms. For example, Senior FASB Project Manager Ronald J. Bossio, CPA indicates that with respect to the "EBITDA" (earnings before interest, taxes, depreciation, and amortization) calculation, a manufacturing firm may or may not include depreciation in its production costs (and thus, cost of goods sold). Additionally, he indicates that a common definition sponsored by FASB would make it difficult for companies to use their own variation.

Generally speaking, FASB's project was undertaken to respond to the following threats to financial statement transparency:

- *No common definitions of the elements of financial performance and inconsistent practices regarding the presentation of financial performance,*
- *Increased pro forma reporting and other evidence suggesting that the use of and reliance on net income as an indicator of performance is decreasing, and*
- *No consensus or common definitions for the key financial measures or indicators of financial performance that financial statements or financial reporting should provide.*

Table 1 specifies the major questions asked by FASB concerning financial statement transparency. The primary focus of these questions concerned what financial measures are being used by investors, creditors, analysts and others. Additionally, the FASB also considered whether changes to existing standards are needed to require the display of line items to support the presentation of new financial measures. Further, the FASB attempted coordination with the International Accounting Standards Board (IASB) and the UK's Accounting Standards Board (ASB), seeing a great benefit of sharing information given that the IASB and the ASB added a

similar focus to their agendas. Hence, FASB asked their staff to use IASB and ASB papers as a basis of FASB discussions.

Table 1: Key Issues Concerning Financial Statement Transparency	
1	What are the key financial measures (or indicators) that investors, creditors, and others use to assess and compare the performance of different enterprises in making rational investment decisions?
2	Are changes to existing standards needed to require the classification and display of specified line items, including their summarization and display of new financial measures in financial statements? For example, if EBITDA were identified as a key performance indicator, should companies be required to present EBITDA as a separate line item that is calculated in a consistent manner? If specified items of operating cash flow inflows or outflows were identified as key performance indicators, should companies be required to use the direct method of reporting operating cash flows?
3	Is it possible and desirable to distinguish between the effects of core (operating) and noncore (nonoperating) activities? If so, how should companies present core and noncore activities? For example, would such a classification scheme require new standards for the disaggregation of the components of net periodic pension expense or to allocate or classify items such as income tax expenses (benefits), holding gains and losses on financial instruments, restructuring charges, asset impairments, and extraordinary and unusual items.
4	Are there key measures of components of earnings that have complementary key measures of cash flows, and, if so, should consistent classification schemes be required for income statements and statements of cash flows?
5	If a financial instrument is recognized and measured at fair value, to what extent is the amount of interest or other items of income or expense contributing to the total change in fair value of the instrument a major factor in evaluating financial performance? Should companies separately display certain or all of the components of the change in value in an income statement?
6	Do alternative means of presenting a measure of comprehensive income affect a user's understanding of that measure and the weight given to that measure?
Source:	*Reporting Information about The Financial Performance of Business Enterprises: Focusing on the Form and Content of Financial Statements* (FASB, 2001)

FASB's research initially centered on interviewing investors, creditors, and their advisors to obtain opinions concerning key financial measures. Preliminary findings from the interview process were as follows:

- *Users have a strong interest in greater disclosure of information with predictive value.*
- *There is no widespread dissatisfaction with or demand for sweeping change in financial statement display; that is, there is no need to scrap any particular financial statement, add new financial statements, or make other extreme changes in display.*

- *Key financial measures include the following, which are not necessarily well-defined terms or notions: (a) "operating" free cash flow or free cash flow, (b) return on invested capital, and (c) "adjusted," "normalized," or "operating" earnings.*

- *Net income is an important measure that often is used as a starting point for analysis but generally is not the most important measure used in assessing the performance of an enterprise or in assessing its prospects relative to other enterprises in its industry.*

- *There is little demand for or opposition to the presentation of comprehensive income in a single statement provided that the individual items of comprehensive income are transparent -- that is, their amounts are clearly labeled and disclosed.*

- *Many, if not most, users prefer a statement of cash flows that reports operating cash flows under the direct method -- that is, clearly discloses amounts for items such as cash paid to suppliers and employees and cash collected from customers.*

- *Users also have a strong interest in greater disclosure about the major components of an enterprise's capital expenditures that might provide forward-looking information about an enterprise's plans and prospects (for example, amounts of cash outflows for purchases of productive assets to maintain existing capacity and to expand capacity).*

While the FASB expressed a specific concern regarding the increased use of alternative, non-GAAP measures of performance such as EBITDA, the Board had a broader concern in that financial statement users seemed willing to follow management's lead and focus on these somewhat ill-defined, non-GAAP measures. Given that this highly-summarized and selective form of reporting permeated the financial marketplace, FASB wanted to ensure the future relevance of financial reporting by taking an open-minded, closer look at GAAP. Subsequently, FASB joined with the IASB in order to facilitate the convergence of standards; their efforts became a broader project currently called *"Financial Statement Presentation—Joint Project of the IASB and FASB"* (FASB, 2009).

DISCLOSING NON-GAAP MEASURES

Whether included in the supplemental information accompanying the financial statements or included in the pro forma amounts announced in press releases, non-GAAP measures may enhance as well as impair financial statement transparency. Unfortunately, history suggests the latter rather than the former. As early as 1973, the SEC highlighted problems associated with presentations

of non-GAAP measures in Accounting Series Release (ASR) No. 142 *Cautionary Advice Regarding the Use of "Pro Forma" Financial Information* (SEC, 1973). At that time, the Commission warned about potential confusion when using non-GAAP measures stating:

> *. . . If accounting net income computed in conformity with generally accepted accounting principles is not an accurate reflection of economic performance for a company or industry, it is not an appropriate solution to have each company independently decide what the best measure of its performance should be and present that figure to its shareholders as Truth.*

More recently, the SEC provided staff recommendations in the *Division of Corporation Finance: Frequently Requested Accounting and Financial Reporting Interpretations and Guidance* (SEC 2001) that addressed pro forma reporting. Even so, pro forma abuses continued to surface and additional attention on financial reporting was necessary.

Fortunately, the Sarbanes-Oxley Act of 2002 was signed into law with provisions that specifically address pro forma reporting. Section 401 (b) of the Act directed the SEC to adopt rules requiring public disclosure (e.g., earnings releases) such that it does not contain material untrue statements of fact or omit statements that are necessary to avoid misleading the public through non-GAAP financial measures. Additionally, under Section 401(b), publicly held companies were required to not only reconcile any non-GAAP financial measures with the comparable GAAP financial measures, but to disclose the reconciliation in the press release.

Empowered by Section 401 (b) of Sarbanes-Oxley, the SEC adopted new disclosure requirements under Regulation G and made amendments to Item 10 of Regulation S-B and Item 10 of Regulation S-K. Regulation G requires companies making public disclosures or releases of non-GAAP financial measures to include:

- *a presentation of the most directly comparable GAAP financial measure; and*
- *a reconciliation of the disclosed non-GAAP financial measure to the most directly comparable GAAP financial measure.*

Amendments to Item 10 of Regulations S-B and S-K apply to financial measures in filings with the SEC, and under an additional amendment to Form 8-K, public releases became part of the required SEC filings. Companies are required to file such information on Form 8-K within two days of the earnings release or similar public disclosure. Hence, the amendments to Regulations S-B and S-K apply to the earnings releases of public companies and restrict how non-GAAP pro forma amounts are presented. These amendments require registrants using non-GAAP measures to provide:

- *a presentation, with equal or greater prominence, of the most directly comparable financial measure calculated and presented in accordance with GAAP;*

- *a reconciliation . . . which shall be quantitative for historical non-GAAP measures presented, and quantitative, to the extent available without unreasonable efforts, for forward-looking information, or the differences between the non-GAAP financial measure disclosed or released with the most directly comparable financial measure or measures calculated and presented in accordance with GAAP;*

- *a statement disclosing the reasons why the registrant's management believes that presentation of the non-GAAP financial measure provides useful information to investors regarding the registrant's financial condition and results of operations; and*

- *to the extent material, a statement disclosing the additional purposes, if any, for which the registrant's management uses the non-GAAP financial measure that are not otherwise disclosed.*

According to the SEC, these amendments prohibited:

- *excluding charges or liabilities that required, or will require, cash settlement, or would have required cash settlement absent an ability to settle in another manner, from non-GAAP liquidity measures, other than the measures EBIT and EBITDA;*

- *adjusting a non-GAAP performance measure to eliminate or smooth items identified as non-recurring, infrequent or unusual, when (1) the nature of the charge or gain is such that it is reasonably likely to recur within two years, or (2) there was a similar charge or gain within the prior two years;*

- *presenting non-GAAP financial measures on the face of the registrant's financial statements prepared in accordance with GAAP or in the accompanying notes;*

- *presenting non-GAAP financial measures on the face of any pro forma financial information required to be disclosed by Article 11 of Regulation S-X; and*

- *using titles or descriptions or non-GAAP financial measures that are the same as, or confusingly similar to, titles or descriptions used for GAAP financial measures.*

In addition to the Sarbanes-Oxley (Section 401(b)) requirements and the resulting SEC regulations (Regulation G and Item 10 of Regulations S-B and S-K), the Financial Executives International (www.fei.org) and the National Investor Relations Institute (www.niri.org) provide guidance regarding pro forma reporting. Each organization maintains that GAAP information provides a "critical framework" for pro forma results. They also stress the need for reconciliation between pro forma and GAAP results (as required by Regulation G). Further guidance regarding pro forma reporting is found in Standard & Poor's whitepaper, "Measures of Corporate Earnings" (www.standardandpoors.com). The whitepaper discusses S&P's measure of operating earnings, deemed "core earnings."

Quality, transparent reporting should be the goal of all companies and is certainly essential for financial reporting to regain and maintain credibility. Still, the financial marketplace continues to use key financial performance data that are yet to be standardized. Some have voiced legitimate concerns that not every company has the same reporting needs and that a certain amount of flexibility is needed. Nonetheless, as seen from the market's reaction to questionable accounting practices, caution is essential. Until some consensus is reached regarding key performance indicators and these measures gain approval, SEC requirements have limited the manner in which companies disclose non-GAAP performance measures in pro forma reporting. It is prudent for companies to refrain from too much selective reporting–especially what former Chief SEC Accountant Lynn Turner refers to as "EBS" reporting ("Everything but Bad Stuff").

RULES-BASED VERSUS PRINCIPLES-BASED ACCOUNTING STANDARDS: PAST IS PROLOGUE?

Problems faced earlier regarding pro forma reporting may have been largely resolved, but the sentiment of managers has not really changed, as seen when we look at the more recent past. The statement that there is "nothing new under the sun" could not be more appropriate than when considering today's economic crisis, corporate practices such as questionable revenue recognition, and how the convergence of standards-setting will impact financial reporting, perhaps setting the stage for a new approach to the same old fog and haziness that leaves little trace of transparency.

Questions now focus on FASB versus IASB standards. While each Board has issued its share of rules-based standards, it is generally agreed that FASB's previous standards are more aptly described as "rules-based" and IASB's standards tend to be closer to "principles-based." At first blush, the complexities of rules-based standards make principles-based standards seem quite attractive especially in situations where rules-based standards force companies with unusual circumstances to do a poor job of reporting true economic substance. On the other hand, given the flexibility inherent in principles-based standards, such standards may provide opportunities for some managers to reduce financial statement transparency.

One concern with recent changes is what sometimes seems to be a failure to consider the historical development of previous standards. For example, provisions under recently enacted SFAS

No. 154, *Accounting Changes and Error Corrections* (FASB, 2005) routes the cumulative effect of changes in accounting principles through the statement of retained earnings. While it is true that the cumulative effect of a change does not really affect this year's earnings, the reason that Accounting Principles Board (APB) Opinion No. 20 *Accounting Changes* (APB, 1971) forced companies to place the cumulative effect of changes on the face of the income statement in the year of change was to "red flag" the change in a manner that it would not go unnoticed (or to keep the cumulative effect from "escaping" the income statement). Prior to APB No. 20, some companies had a habit of slipping changes in accounting principles onto the statement of retained earnings as a prior period adjustment, thereby, never actually showing the effect of the change on income. Such changes usually occurred at a time when the change was financially beneficial to the company's earnings (see May and Schneider, 1988) Now, under SFAS No. 154, the prior period adjustment is referred to as a retrospective application, but the effect is essentially the same. While previously released financial statements must now be restated under the SFAS No. 154, under APB No. 20 this was considered a poor way to disclose a consistency violation except in special cases. Thus the standard-setting process concerning accounting changes has gone full circle. Perhaps more importantly, is this situation an isolated instance or a foreshadowing of things to come?

While SFAS No. 154 will undoubtedly have some benefits, one must question whether this is an overall improvement. Will companies today not take advantage of a situation that was previously considered a problem? What current guarantees will ensure that companies do not use the new standard as an open avenue to managing earnings? One needs only to look back at recent revenue recognition abuses (e.g. channel stuffing) to understand the lack of integrity of some corporate managers. Abuse of the general principle of revenue recognition led FASB to make rules that would disallow certain practices. This, in turn, led to additional rules to close new loopholes. In other words, a rules-based system is sometimes a natural progression from a principles-based system, particularly when there is a lack of integrity among those responsible for the financial statement transparency of a company, To gain insights into this matter, we conduct a study of student subjects where we address their perceptions regarding whether rules-based versus principles-based accounting standards would be preferable to different external stakeholders.

HYPOTHESES

There are several reasons to believe that corporate managers would prefer principles-based standards over rules-based standards. First, if managers in good faith want to report what they believe to be the financial consequences of longer term transactions or activities, a principles-based standard would allow them the flexibility to do so. Second, if managers believe there are benefits to smoothing earnings or meeting analyst forecasts, the flexibility of principles-based standards will, again, allow them to more easily accomplish these goals. Thirdly, if management compensation is linked to meeting various goals, principles-based standards would seem to facilitate the attainment of these goals – whether in the best interest of the firm or not. Given these arguments, we predict

that those familiar with the accounting environment would believe that managers would prefer principles-based standards over rules-based standards.

Hypothesis 1: *Corporate managers will be perceived to prefer principles-based standards over rules-based standards.*

Investors and potential investors, with the goal of making economically rational resource allocations, would ideally prefer the information contained within a firm's financial statements to be without error or bias, and to facilitate comparisons with other firms. Their interest is in trying to predict the future value of a current or potential equity investment in order to maximize their return on their equity investments. Rules-based standards constrict management's choices of how to report certain activities, thereby potentially hampering an investor's efforts to value a firm if the rules preclude the firm from reporting the "true" effect of a given activity. However, a principles-based system, while allowing for the flexibility to report "truthfully" an event that a rules-based system might have "misreported," also allows for earnings manipulation that might not be "truthful" (i.e. the management of earnings strictly to increase compensation). Significantly, a rules-based system ensures (more often than not) that two firms will report a given event in the same way, allowing for easier comparability. Given this and the potential downside associated with the flexibility of a principles-based system, we predict that investors will be perceived to prefer rules-based systems.

Hypothesis 2: *Investors will be perceived to prefer rules-based standards over principles-based standards.*

Creditors are necessarily interested in assessing a firm's ability to repay debt obligations with a fixed rate or amount of interest. There is no residual interest in the long-term value of the firm, other than in determining its ability to pay long-term debt. Given that creditors have a more limited need to assess the value of a firm (i.e., its ability to make fixed principal and interest payments versus trying to determine the potential for investment income) we predict that rules-based standards would be perceived to be their preference.

Hypothesis 3: *Creditors will be perceived to prefer rules-based standards over principles-based standards.*

Accounting students who have progressed to the junior level and above are likely to be aware of the need for GAAP to satisfy the information needs of various stakeholders (i.e., financial statement users). Through course work, job/internship experience, and familiarity with the convergence between U.S. GAAP and IFRS, they have also been exposed to the conflicting views of various stakeholders with respect to rules-based and principles-based standards. In this knowledge environment, we believe accounting students will be aware of the need for a wide variety of

standards that may include both rules-based and principles-based standards. Thus, we believe students will be neutral with respect to whether they personally believe rules-based or principles-based standards to be preferable. In addition, they are likely to believe that an eventual comprehensive set of standards will contain both types.

Hypothesis 4: *Upper level accounting students will be neutral with respect to whether they perceive rules-based or principles-based standards to be preferable.*

Hypothesis 5: *Upper level accounting students will agree that a mix of rules-based and principles-based standards are likely.*

RESEARCH METHOD

To obtain evidence concerning the above hypotheses, we asked student subjects to read two examples of current accounting standards combined with short explanatory notes as shown in the Appendix. One example was based on Accounting Research Bulletin (ARB) No. 43, *Restatement and Revision of Accounting Research Bulletins* (Committee on Accounting Procedure, 1953) that contains the general guidance for when it is appropriate to recognize revenue. Also contained in the example is reference to SFAS No. 48, *Recognition of Revenue when Right of Return Exists* (FASB, 1981). Thus, the scenario provides both the general principle of when it is appropriate to recognize revenue and specific "rules" to apply in a situation where correct reporting under only a "principle" may be difficult to determine (i.e., if the right of return exists).

The second example is based on SFAS No. 2, *Research and Development* (FASB, 1973). This scenario basically explains the rule for recording all research and development (R&D) costs as expenses, but raises the issue of a principles-based standard that would allow for value-creating R&D to be recorded as an asset and non-value creating R&D to be expensed.

After reading each example, subjects were asked to respond to the five questions shown in Panel C of the Appendix. Three of the items asked them to take the perspective of a corporate manager, investor and creditor (respectively) and then rate the degree to which they believed rule-based versus principles-based standards were preferable. Another item asked them for their personal belief on which type of standard is better. The final item asked them whether they agreed or disagreed with the idea that standards need to be a mixture of rules-based and principles-based standards. Descriptive statistics related to these questions is shown in Table 2.

Thirty-six upper-division and master's level students were recruited to participate in the study. The age of participants ranged from 20 to 29 years of age with an average of 22.5 years. Sixty-six percent were males; 34 percent females. The majority were Undergraduate Accounting and Masters of Accounting students, with the remaining subjects primarily in the Masters of Business Administration program but with backgrounds in accounting.

Approximately half of the subjects were given the R&D example first, while the other half was given the revenue recognition example first to control for and analyze possible order effects. Overall, subjects answered the five questions consistently, regardless of the order of the scenarios. As shown in Table 3, there was a significant positive correlation between the answers given for each perspective (i.e., manager, inventor, or creditor) under the two scenarios. For example, the correlation between subject responses from the manager perspective across the two scenarios was significant (Pearson correlation = .571; p-value < .001, two-tailed). In addition, independent samples t-tests revealed no significant differences in mean responses for any question based on which order they saw the scenarios. Thus, we find no evidence of any "order" effects. In general, we also find that the type of scenario did not affect subjects' responses. The exception was the response related to a manager's perspective, described in the next paragraph. Overall, their beliefs of whether rules-based or principles-based standards did not depend on the context, but there were differences with respect to the perspective (i.e., manager, creditor, or investor) subjects were asked to take. Given the highly significant correlation between subject answers to each respective question across the two scenarios, we summed their responses as shown in the fourth column of Table 2 labeled "Sum of R&D and Revenue Recognition."

Table 2: Descriptive Statistics—Subject's Responses

	R & D Scenario	Revenue Recognition Scenario	Sum of R&D and Revenue Recognition.
Q1: Manager	3.17	2.89	6.06
	{4.00}	{2.00}	{6.00}
	(1.52)	(1.30)	(2.51)
	[4.00]	[2.00]	[4.00, 6.00 and 8.00]
Q2: Investor	2.89	2.67	5.56
	{2.50}	{2.00}	{5.00}
	(1.33)	(1.31)	(2.24)
	[2.00]	[2.00]	[4.00]
Q3: Creditor	2.47	2.61	5.08
	{2.00}	{2.00}	{5.00}
	(1.25)	(1.42)	(2.23)
	[2.00]	[2.00]	[4.00]
Q4: Personal	3.03	2.97	6.00
	{3.00}	{3.00}	{6.00}
	(1.30)	(1.28)	(2.28)
	[4.00]	[4.00]	[8.00]

Table 2: Descriptive Statistics—Subject's Responses			
	R & D Scenario	Revenue Recognition Scenario	Sum of R&D and Revenue Recognition.
Q5: Mixed	3.81	3.83	7.64
	{4.00}	{4.00}	{8.00}
	(.95)	(1.03)	(1.73)
	[4.00]	[4.00]	[8.00]

NOTE: All cells contain mean, {median}, (standard deviation) and [mode]. N = 36 in all cells. The range for all individual responses (except Q5: R & D scenario) was 1 – 5. The range for Q5: R & D was 2 – 5. The range for all summed responses (except Q5) was 2 – 10. The range for Q5 (summed) was 4 – 10. Q1-Q5 refer to questions 1 – 5 shown in Panel C of the Appendix.

Table 3: Question Correlations Across Scenarios					
	Q1: R&D	Q2: R&D	Q3: R&D	Q4: R&D	Q5: R&D
Q1: Revenue Recognition	.571**				
	(<.001)				
Q2: Revenue Recognition	.029	.439**			
	(.868)	(.007)			
Q3: Revenue Recognition	-.128	.083	.395*		
	(.457)	(.632)	(.017)		
Q4: Revenue Recognition	.577**	.099	.276	.570**	
	(<.001)		(.564)	(.103)	(<.001)
Q5: Revenue Recognition	.329*	.258	.240	.175	.521**
	(.050)	(.128)	(.158)	(.308)	(.001)

Cells contain Pearson correlation, (p-value, two-tailed); N= 36
** Correlation is significant at the .01 level
* Correlation is significant at the .05 level
Q1-Q5 refer to questions 1 – 5 shown in Panel C of the Appendix.

The mean summed response to the question of whether rules-based or principles-based standards would be more appropriate from a manager's perspective was 6.06, with a range of 2 to 10. Higher numbers indicate a preference for principles-based; lower numbers, rules-based. Our

prediction for responses from a management perspective was that respondents would prefer principles-based standards over the rules-based standards. However, we found a degree of conflict related to responses across the two scenarios. More specifically, a higher percentage of subjects (i.e., 56 percent) responded that principles-based standards were more appropriate when faced with the R&D scenario than under the revenue recognition scenario (i.e., 39 percent). For the R&D scenario, 14 out of 36 subjects responded with a "1" or "2" (i.e., rules-based is "absolutely" or "somewhat" better than principles based standards) while 20 subjects responded with a "4" or "5" (i.e., principles-based is "somewhat" or "absolutely" better than rules based standards). In contrast, under the revenue recognition scenario, 19 out of 36 subjects responded with a "1" or "2" versus 14 that responded with a "4" or "5". This shows a tendency for subjects to believe that, from a management perspective, rules-based is somewhat better for revenue recognition while principles-based standards are somewhat better with respect to R&D. However, a paired samples t-test revealed only a modest level of significance across the scenarios (t-statistic = 1.25; p-value =.11, one-tailed).

From an investor's perspective, we predicted subjects would prefer rules-based standards. The mean summed response shown in Table 2 is 5.56 and the mode for both scenarios is "2", indicating support for the prediction that rules-based standards would be preferred. Unlike the responses for a management perspective, the majority of subjects responded that they preferred rules-based standards over principles-based standards under both scenarios (i.e., 18 versus 14 under the R&D scenario; and, 21 versus 10 under the revenue recognition scenario). A t-test of whether the summed responses were significantly lower than the midpoint of "6" revealed a modest level of significance (t-statistic = 1.19; p-value = .12, one-tailed). Given the small sample size, we conclude that the results provide modest support for the prediction that rules-based standards were preferred from an investor's perspective.

From a creditor's perspective, we also predicted subjects would prefer rules-based standards. The mean summed response shown in Table 2 is 5.08 and the mode for both scenarios is "2", indicating support for the prediction that rules-based standards would be preferred. Again, the majority of subjects responded that they preferred rules-based standards over principles-based standards under both scenarios (i.e., 21 versus 8 under the R&D scenario; and, 22 versus. 12 under the revenue recognition scenario). A t-test of whether the summed responses were significantly lower than the midpoint of "6" revealed strong support for the prediction (t-statistic = 2.46; p-value = .02, one-tailed). Thus, we conclude that from a creditor's perspective, respondents believed rules-based standards would be preferred.

With respect to subjects' personal beliefs regarding whether rules-based versus principles-based standards are preferable, we made no specific prediction, based on the idea that accounting students would be aware of the pros and cons of both types and would therefore respond that neither type is absolutely preferred to the other. Consistent with this, we predicted that subjects would agree with a proposed mixture of rules-based and principles-based standards (i.e., Question 5 in Panel C of the Appendix).

Our results are consistent with these predictions. With respect to their personal beliefs (i.e., Question 4 in Panel C of the Appendix), the summed mean response was 6.00, which is (obviously) not statistically different than the mid-point prediction of "6" which corresponds to the response that neither rules-based or principles-based standards are preferable.

The mean summed response to Question 5 in Panel C of the Appendix is 7.64, which indicates that subjects in general agreed that a mixed set of standards is needed. A one-sample t-test indicates that this value is significantly greater than the midpoint of "6" (t-statistic = 5.70; p-value <.001, one-tailed).

We also examined whether several control variables were correlated with subject responses. We found no correlation between gender, age, or taking (prior or concurrently) any particular accounting course and the responses to the five questions. However, grade point average was negatively correlated with responses to Question 2 (i.e., the investor's perspective). Thus, higher GPA students tended to believe that rules based standards would be preferable to investors.

CONCLUSION

Study results indicate perceptions that corporate managers prefer principles-based standards, while investors and creditors likely lean toward rules-based standards. When looking at the personal preferences of study participants, perceptions are more in the middle, either suggesting no real preference between the approaches or perhaps a tendency to remain undecided for now. There was an inclination for perceptions to vary between the two scenarios which may show participants are aware that different circumstances may call for different degrees of guidance. Finally, participants believe that new standards will probably garner rules-based as well as principles-based characteristics, not purely one or the other. Looking at the history of standards-setting, that assessment seems appropriate.

Rules-based or principles-based standards alone are not good or bad, and we are not sure that we could prove that one or the other offers a better solution to transparent reporting. Rules-based standards tend to open the door to loopholes that circumvent the spirit of the rules, while tying the hands of auditors who are forced to follow management's "legality." That is, it becomes more difficult to argue with a client who is "following" the letter of the rules. Conversely, principles-based standards may focus on reporting the true economic circumstances while offering so much latitude that auditors are challenged to discover management's misuse of flexible standards. Hence, trying to focus on one or the other will not result in a quick fix of the system. In the end, transparent financial reporting rests with integrity.

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APPENDIX: ACCOUNTING STANDARD SCENARIOS AND QUESTIONS

PANEL A: RESEARCH AND DEVELOPMENT SCENARIO

Example -- SFAS No. 2 *Research and Development* states "Research and development costs shall be charged to expense when incurred. Disclosure in the financial statements is required for the total research and development costs charged to expense in each period for which an income statement is presented."

In essence, as a rules-based standard, research and development (R&D) costs will be reported as an expense on the current period's income statement, even if the R&D results in something of value (e.g., a useful patent) that can be used to significantly increase revenues or reduce costs over a sustained period. In contrast, a principles-based standard would allow for judgment to be used in determining how to report R&D. If there is no value, the R &D cost would be expensed. However, when the R&D results in something valuable, it would be shown on the balance sheet as an asset, up to the amount of the related cost. This would facilitate multiple company comparisons.

PANEL B: REVENUE RECOGNITION SCENARIO

Example – ARB 43, Chapter 1A discusses *Revenue Recognition* noting that "Profit is realized when a sale in the ordinary course of business is effected, unless the circumstances are such that the collection of the sale price is not reasonably assured."

In essence, as a principles-based standard, revenue is recognized when the earnings process is essentially complete and the amount is collected or collectible. However, some rules-based standards have been developed to facilitate revenue recognition in special circumstances to meet the intention of the principles-based standard (e.g., when to recognize revenue when a company sends merchandise to distributors telling them they can return the goods if they cannot be sold in a reasonable time). Some of these rules-based standards were the result of companies having difficulty or failing to stay within the spirit of the principles-based standard. For example, SFAS No. 48, *Recognition of Revenue When Right of Return Exists* notes the following:
"If an enterprise sells its product but gives the buyer the right to return the product, revenue from the sales transaction shall be recognized at time of sale *only* if all of the following conditions are met:

* The seller's price to the buyer is substantially fixed or determinable at the date of sale.
* The buyer has paid the seller, or the buyer is obligated to pay the seller and the obligation is not contingent on resale of the product.
* The buyer's obligation to the seller would not be changed in the event of theft or physical destruction or damage of the product.
* The buyer acquiring the product for resale has economic substance apart from that provided by the seller.
* The seller does not have significant obligations for future performance to directly bring about resale of the product by the buyer.
* The amount of future returns can be reasonably estimated."

PANEL C: QUESTIONS ASKED AFTER EACH SCENARIO

Considering rules-based vs. principles-based standards, provide your preferences regarding the following items, by **placing an X in the box** beneath the answer that you believe is most appropriate:

* When considering rules-based vs. principles-based standards from the standpoint of a **corporate manager** in a company, I believe:

Rules-Based is Absolutely Better Than Principles-Based	Rules-Based is Somewhat Better Than Principles-Based	Neither Rules-Based or Principles-Based is Preferable to the Other	Principles-Based is Somewhat Better Than Rules-Based	Principles-Based is Absolutely Better Than Rules-Based

* When considering rules-based vs. principles-based standards from the standpoint of an **investor** in a company, I believe:

Same scale as in Question 1

* When considering rules-based vs. principles-based standards from the standpoint of a **creditor** of a company, I believe:

Same scale as in Question 1

* Personally, when considering rules-based vs. principles-based standards, I believe:

Same scale as in Question 1

* Some have proposed that standards may need to be a mixture of rules-based and principles-based. Please note below the degree to which you agree or disagree with this idea:

Strongly Disagree	Disagree	Neither Agree Or Disagree	Agree	Strongly Agree

MUTUAL FUND PERFORMANCE PERSISTENCE: STILL TRUE?

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ABSTRACT

The purpose of this paper is to examine the performance persistence of a large sample of mutual funds over time. Specifically do mutual fund managers show positive (negative) performance year after year? Alternatively, is mutual fund performance from one year to the next basically a random event? Our tests show that there is performance persistence in mutual fund returns. This outcome is true for both the lowest performing and highest performing mutual funds. Our tests encompass nine categories of mutual funds, including Aggressive Growth and Growth (AGG), Growth/Income and Equity/Income (GIEI), International Stock (IS), Balanced Funds (AAB), Corporate Bond (CB), Government Bond (GB), Municipal bond (MB), Small Company Equity (SCE), and Specialty Equity (SP) categories. The tests show this result for all fund categories, except GB and CB funds. These results are important for individual investors. Funds that performed poorly during a prior year are likely to continue their poor performance during the next year and likewise a superior performing fund is likely to continue to perform well during the next year.

PURPOSE

The purpose of this paper is to examine the performance persistence of a large sample of mutual funds over time. Specifically do mutual fund managers show positive (negative) performance year after year? Alternatively, is mutual fund performance from one year to the next basically a random event? It's been many years since mutual fund performance persistence has been examined. This paper will examine whether persistence is still valid in mutual fund investing.

MOTIVATION

A number of researchers have examined mutual fund performance persistence, but the results are still inconclusive. Grinblatt and Titman (1992) find that there is positive persistence in mutual fund performance. They find that part of the persistence is due to differences in fees and transaction costs across funds. They conclude that past performance does provide useful information for investors.

Hendricks, Patel, and Zeckhauser (1993) find that the relative performance of growth, no-load mutual funds persists in the short-term, with the strongest results for the one-year horizon. Poor performing funds show significantly worse performance over time, although the better performing funds don't show significant results.

Carhart (1997) shows that common factors and investment expenses almost totally explain persistence in equity mutual funds. He indicates that "hot hands" is explained by the one-year momentum effect of Jegadeesh and Titman (1993). Carhart agrees that the only significant persistence not explained by his common factors is the underperformance of the lowest performing mutual funds. His results do not support the existence of skilled mutual fund managers.

Bollen and Busse (2005) show results that differ somewhat from Carhart. They demonstrate positive short-term performance persistence, from quarter to quarter. But, as with Carhart, the positive performance persistence disappears for longer investment horizons. They conclude that after considering transaction costs and taxes, investors may generate superior returns through a naïve buy-and-hold strategy over following a performance chasing strategy.

Brown and Goetzmann (1995) find that funds in the bottom octile show significant negative persistence, while funds in the top octile show non-significant positive performance persistence. They show that poor performance holds over time, although positive performance is dependent on the time period studied. They hypothesize that the positive performance is due to specific macroeconomic factors over time.

Eser (2008) examines shortcomings in the persistence literature. He finds that much of Carhart's (1997) persistence is due to calendar-related distortions and the use of a short-term momentum factor model. After using a longer-term momentum factor model and masking calendar year-end noise, Eser finds that performance persistence seems to disappear.

Malkiel (1996) notes that over the past 25 years, about 70% of active equity managers have been outperformed by the S&P 500 Stock Index. Gruber (1996) and Bogle (1995) also note similar results. They argue that index funds allow investors to buy securities of many different types with minimal expense and significant tax savings. Bogle (1996) states that "the case for selecting an index fund is compelling due to indexing's inherent cost advantage." Malkiel (1995) concludes by stating that "most investors would be considerably better off by purchasing a low expense index fund than by trying to select an active fund manager who appears to possess a hot hand".

While the literature appeared to support performance persistence in the past, it seems the results are mixed. Our study is intended to extend the previous research by examining a larger sample of mutual funds over a more recent and longer time period. Our sample includes nine mutual fund classification categories over a ten-year investment horizon.

HYPOTHESIS

This study will test the hypothesis that actively managed mutual funds show significant performance persistence over our study period, 1996 through 2005. This analysis includes nine

classes of mutual fund categories, including five categories of equity funds, three categories of bond funds, and one category of balanced funds.

DATA

The mutual fund data used in this study is from the January 2006 Morningstar Principia Pro Plus for Mutual Funds[1]. This database contains historical information on over 20,000 mutual funds through December 31, 2005 year-end. Data and information are provided on investment objective, total return, income and capital gain distributions, annual expense ratios, fund size, load, and turnover.

This study groups the funds into nine broad investment categories: Aggressive Growth and Growth (AGG), Growth/Income and Equity/Income (GIEI), International Stock (IS), Balanced Funds (AAB), Corporate Bond (CB), Government Bond (GB), Municipal bond (MB), Small Company Equity (SCE), and Specialty Equity (SP) categories. The final sample contains 44,560 funds in the categories described above.

METHODOLOGY

The methodology employed to test the hypothesis of significant performance persistence in mutual fund returns involves two methodologies. We first categorize funds as a "winner" or "loser" each year. Winner/Loser (W/L) is determined by comparing each fund's return to the median return for that funds Morningstar category. If a fund's return is greater than or equal to the median, it is classified as a Winner. Funds lower than the median are classified as a Loser. On an annual and overall basis we tabulate the number of funds that are Winner/Winner, Winner/Loser, Loser/Winner, and Loser/Loser. Using this data we compute the nonparametric Odds-Ratio to determine the performance persistence of our sample for each fund category (see Brown and Goetzmann (1995)). Using the Odds-Ratio we compute the Z-statistic and accompanying P-value.[2]. Additionally we compute the nonparametric Chi-Square statistic to determine the P-value as well. The second methodology used categorizes all funds in performance quintiles from year to year. If a fund is a top performing quintile, it is categorized as a 5 and a bottom performing quintile is categorized as a 1. We then pair the prior year quintile rating with the current year quintile rating. We use this to determine those funds that maintained performance (55, 44, 33, 22, and 11) versus those that did not show performance persistence (51, 42, 13, etc.) from one year to the next. Graphs are presented to portray the performance persistence results. All returns are computed on a before-tax and after-tax basis and results are presented separately for each.

RESULTS

Table 1 presents the summary statistics for our sample, including: total return, after-tax return, net assets, turnover, and expense ratio[3]. The total return for our full sample is 7.74% and the highest total return is in the specialty equity (SP) category at 13.34%. The lowest total return is in the government bond category (GB) at 3.49%. The largest funds by net assets are GIEI funds and the smallest are municipal bond funds. Turnover for the full sample is 82.895%, the largest turnover is in the GB category at 180.41%, and the smallest turnover is in the MB category at 37.18%. The mean expense ratio overall is 1.19%, the highest expense ratio is 1.536% in the SP category, and the lowest expense ratio is 0.479% in the GIEI category.

Table 1
Summary Statistics

		Total Return	After-Tax Total Return	Net Assets	Turnover	Expense Ratio
Total	N	44,560	44,560	35,212	41,197	32,859
Sample	Mean	7.736	6.734	877.970	82.895	1.191
	Std	15.829	15.555	3454.020	115.551	0.704
AGG	N	7,070	7,070	5,706	6,527	5,320
	Mean	10.290	8.963	1548.150	93.123	1.372
	Std	22.495	22.059	5021.700	103.639	0.865
GIEI	N	4,420	4,420	3,487	4,034	3,209
	Mean	9.942	8.560	2143.560	59.389	1.086
	Std	15.965	15.564	6867.510	47.650	0.479
IS	N	3,530	3,530	2,927	3,319	2,710
	Mean	10.258	9.288	1088.170	74.838	1.628
	Std	24.544	24.414	3320.380	60.133	0.664
AAB	N	3,120	3,120	2,508	2,845	2,259
	Mean	7.614	6.107	1062.500	89.298	1.294
	Std	12.303	12.037	3347.670	77.414	0.516
CB	N	4,980	4,980	4,067	4,633	3,797
	Mean	5.688	3.849	705.227	144.384	0.968
	Std	7.058	6.987	2201.140	200.562	0.471
GB	N	3,400	3,400	2,726	3,135	2,544
	Mean	5.006	3.493	409.166	180.410	0.999
	Std	4.051	3.875	1170.010	204.635	0.472
MB	N	13,430	13,430	9,973	12,347	9,436
	Mean	4.784	4.738	243.241	37.181	1.009
	Std	3.979	3.979	707.623	42.703	0.416
SCE	N	2,410	2,410	2,024	2,271	1,894
	Mean	12.076	10.686	655.515	87.244	1.415
	Std	23.160	22.861	1776.340	62.399	1.548
SCE	N	2,200	2,200	1,794	2,086	1,690
	Mean	13.344	12.080	568.999	83.168	1.536
	Std	27.697	27.348	1349.960	88.773	0.570

Table 2, Panels A and B present the number and percent of funds that are equal to or above the median return (and after-tax return) (W) and funds that are below the median (L). The columns labeled LL, LW, etc., indicate the fund's performance from the prior year to the current year. For example, LL (WW) indicates a fund's performance was below (equal to or above) the median for the prior year and the current year. As one scans across the rows for LL, LW, WL, and WW in each of the categories, it appears that there is persistence in the LL and WW categories (the number and percentage is higher for LL and WW than for LW and WL). The last two columns of Tables 2 present the Chi-Square statistic and the P-value for each of the categories to test for a significant difference in the four performance categories. All P-values, except one are significant at the 0.001 level, indicating a significant difference between groups (LL, WW, LW, WL). The one category that doesn't show significance is the Government Bond category. The results are similar for after-tax returns, although the non-significant category changes to Corporate Bonds and Government Bonds becomes significant.

Table 2 - Panel A: Number and Percent of Funds Returns Equal to or Above (W) and Below (L) the Median From Prior to Current Year for Before Tax Returns

		LL	LW	WL	WW	Chi-Square Test	P-Value
Total	N	12466	9741	9745	12608		
	Percent	27.98	21.86	21.87	28.29	701.663	0.0001
AGG	N	2054	1472	1472	2072		
	Percent	29.05	20.82	20.82	29.31	197.705	0.0001
GIEI	N	1331	877	875	1337		
	Percent	30.11	19.84	19.8	30.25	189.85	0.0001
IS	N	1014	742	743	1031		
	Percent	28.73	21.02	21.05	29.21	89.003	0.0001
AAB	N	966	589	590	975		
	Percent	30.96	18.88	18.91	31.25	186.156	0.0001
CB	N	1315	1168	1168	1329		
	Percent	26.41	23.45	23.45	26.69	19.128	0.0003
GB	N	830	867	868	835		
	Percent	24.41	25.5	25.53	24.56	10457	0.6924
MB	N	3681	3004	3006	3739		
	Percent	27.41	22.37	22.38	27.84	148.536	0.0001
SCE	N	670	530	530	680		
	Percent	27.8	21.99	21.99	28.22	34.979	0.0001
SP	N	605	492	493	610		
	Percent	27.5	22.36	22.41	27.73	24.0691	0.0001

Table 2 - Panel B: Number and Percent of Funds Returns Equal to or Above (W) and Below (L) the Median From Prior to Current Year for After-Tax Returns							
		LL	LW	WL	WW	Chi-Square Test	P-Value
Total	N	12341	9869	9866	12484		
	Percent	27.7	22.15	22.14	28.02	582.389	0.0001
AGG	N	2070	1456	1456	2088		
	Percent	29.28	20.59	20.59	29.53	219.684	0.0001
GIEI	N	1326	883	883	1328		
	Percent	30	19.98	19.98	30.05	178.405	0.0001
IS	N	1005	752	753	1020		
	Percent	28.47	21.3	21.33	28.9	76.729	0.0001
AAB	N	968	590	590	972		
	Percent	31.03	18.91	18.91	31.15	185.139	0.0001
CB	N	1265	1216	1217	1282		
	Percent	25.4	24.42	24.44	25.74	2.726	0.4358
GB	N	762	932	927	779		
	Percent	22.41	27.41	27.26	22.91	19.927	0.0001
MB	N	3692	2995	2996	3747		
	Percent	27.49	22.3	22.31	27.9	156.572	0.0001
SCE	N	653	547	547	663		
	Percent	27.1	22.7	22.7	27.51	20.533	0.0001
SP	N	600	498	497	605		
	Percent	27.27	22.64	22.59	27.5	20.0691	0.0002

Table 3 presents the results for the non-parametric Odds-Ratio statistic. A significant P-value indicates performance persistence for that fund category. Reviewing the P-values, all fund categories are significant at the 0.001 level, except for GB funds (before-tax) and CB funds (after-tax) which reinforces the results of the Chi-Square test.

Table 3 - Panel A
Non-Parametic Odds-Ratio for Performance Persistence for BT Returns

	Odds Ratio	Std Error	Z-Statistic	P-Value
Total	0.5042	0.0191	26.4000	0.00000
AGG	0.6751	0.0483	13.9905	0.00000
GIEI	0.8411	0.0615	13.6768	0.00000
IS	0.6399	0.0682	9.3842	0.00000
AAB	0.9971	0.0738	13.5014	0.00000
CB	0.2477	0.0568	4.3612	0.00001
GB	-0.0824	0.0686	-1.2005	0.88503
MB	0.4214	0.0347	12.1425	0.00000
SCE	0.4836	0.0821	5.8922	0.00000
SP	0.4197	0.0858	4.8944	0.00000

Table 3 Panel B
Non-Parametic Odds-Ratio for Per Persistence for AT Return

	Odds Ratio	Std Error	Z-Statistic
Total	0.4589	0.0191	24.057
AGG	0.7124	0.0483	14.740
GIEI	0.8147	0.0614	13.264
IS	0.5935	0.0681	8.719
AAB	0.9943	0.0738	13.467
CB	0.0915	0.0567	1.614
GB	-0.3753	0.0689	-5.447
MB	0.4329	0.0347	12.468
SCE	0.3695	0.0818	4.515
SP	0.3830	0.0857	4.470

Figure 1 graphically illustrates these results. Note that for all fund categories, except GB, the percent of funds that are in the LL and WW categories are much higher than the LW and WL categories, which is a strong indicator of persistence in fund returns.

Table 4, Panels A and B present the funds sorted by performance quintiles. If a fund is in a top performing quintile, it is categorized as a 5 and a bottom performing quintile is categorized as a 1. We then pair the prior year quintile rating with the current year quintile rating to determine those funds that maintained performance (55, 44, 33, 22, and 11) versus those that did not show performance persistence (51, 42, 13, etc.) from one year to the next. Number and percent of fund pairs in each quintile are presented for before-tax (Panel A) and after-tax (Panel B) returns. As one scans the results for the pairs, it appears that more funds (number and percentage) are in the persistence categories (11, 22, 33, 44, 55) and fewer funds are in the other categories. Supplementing the data in Table 4 – Panels A and B, we computed the Chi-Square statistic to test for a significant difference between groups (persistence quintile pair categories). All categories, except two, show significance at the 0.001 level. GB were not significant for before-tax returns (P-value of 0.6924) and CB were not significant for after-tax returns (P-value of 0.4358). Refer to Figures 2 and 3 for a graphical representation of these results. Figure 2 graphs all fund categories across the 25 fund pair quintiles. One can see that the persistence quintile pairs have many more funds than the non-persistent pairs. Figure 3 presents a bar graph that shows the 25 quintile pairs for

all funds overall. Once again, this graph demonstrates that the persistence quintile pairs have many more funds than the non-persistent pairs.

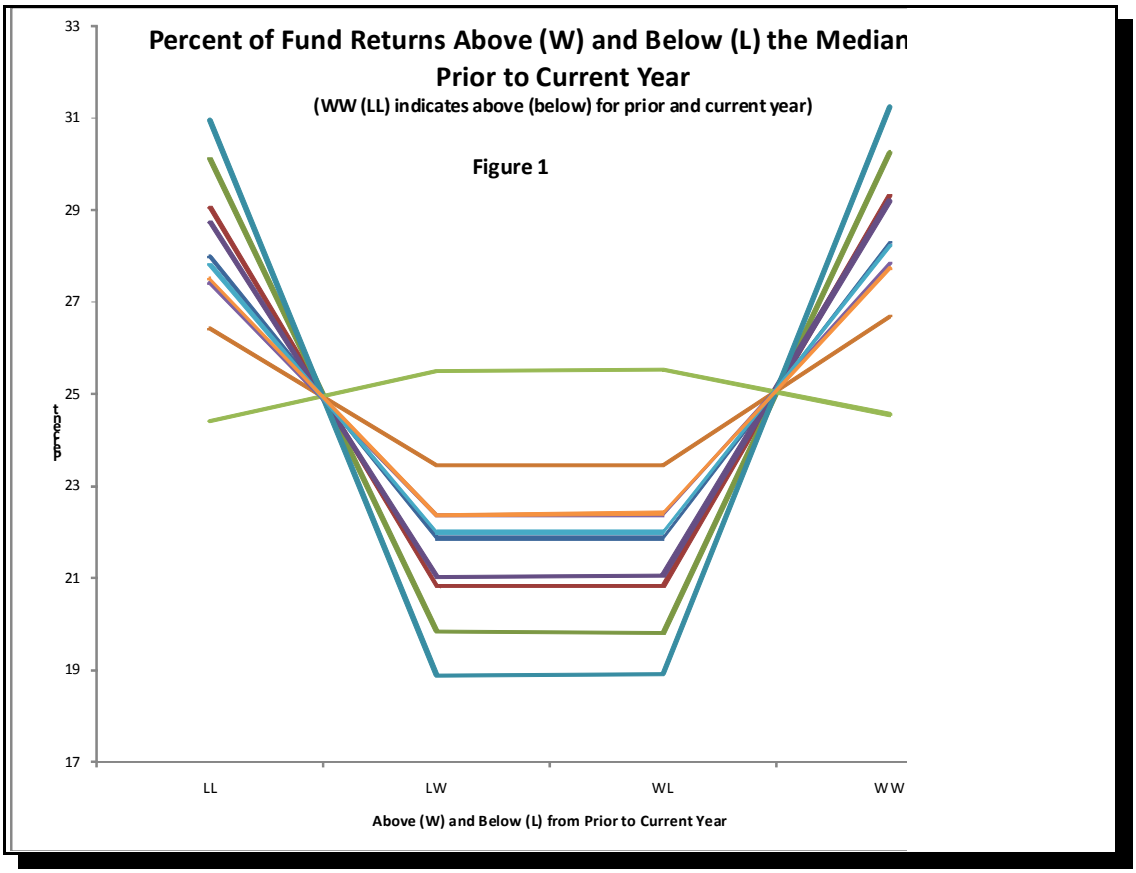
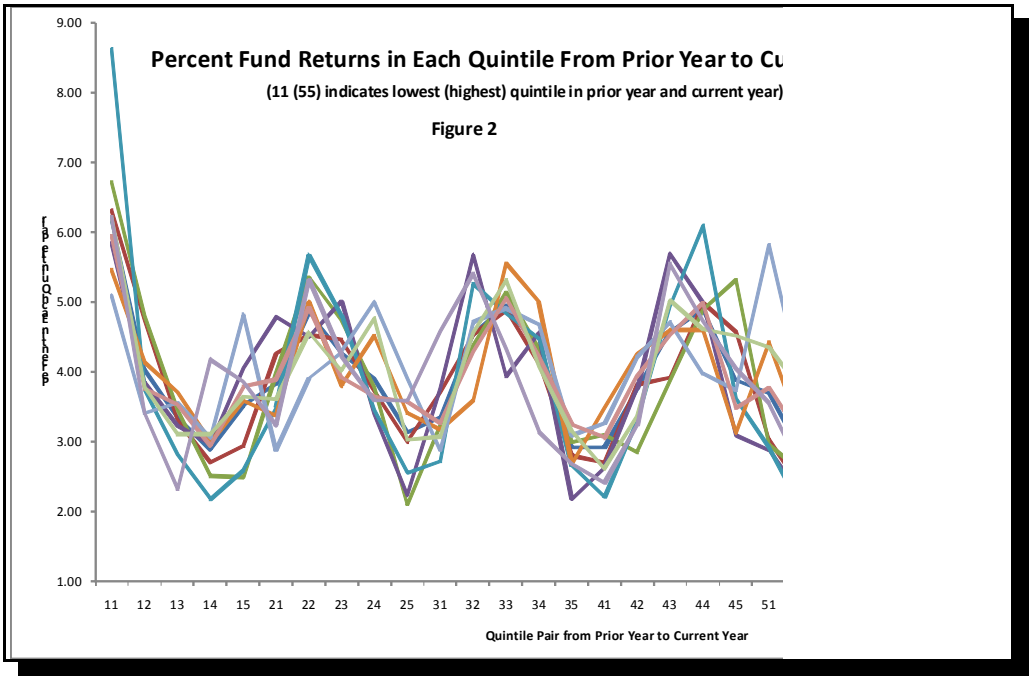


Table 4 - Panel A
Number and Percent of Funds Returns by Quintile Class from Prior Year to Current Year
for Before-Tax Returns (5 is best performing quintile and 1 is the worst performing quintile)

Quintile	Total Sample		AGG		GIB		IS		AAB		CB		GB		MB	
Class	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	
11	2749	6.17	446	6.31	297	6.72	206	5.84	269	8.62	272	5.46	173	5.09	75	
12	1794	4.03	336	4.75	212	4.8	136	3.85	117	3.75	206	4.14	116	3.41	50	
13	1494	3.35	233	3.3	153	3.46	114	3.23	88	2.82	185	3.71	121	3.56	47	
14	1290	2.89	191	2.7	111	2.51	105	2.97	68	2.18	149	2.99	104	3.06	39	
15	1567	3.52	208	2.94	110	2.49	143	4.05	81	2.6	179	3.59	164	4.82	50	
21	1701	3.82	301	4.26	175	3.96	169	4.79	109	3.49	168	3.37	98	2.88	52	
22	2163	4.85	320	4.53	237	5.36	159	4.5	177	5.67	249	5	133	3.91	66	
23	1903	4.27	315	4.46	210	4.75	177	5.01	150	4.81	189	3.8	146	4.29	52	
24	1738	3.9	264	3.73	167	3.78	120	3.4	108	3.46	225	4.52	170	5	45	
25	1399	3.14	212	3	93	2.1	79	2.24	80	2.56	170	3.41	133	3.91	48	
31	1493	3.35	262	3.71	143	3.24	133	3.77	85	2.72	158	3.17	98	2.88	43	
32	2023	4.54	320	4.53	194	4.39	200	5.67	164	5.26	179	3.59	160	4.71	57	
33	2209	4.96	346	4.89	227	5.14	139	3.94	151	4.84	277	5.56	167	4.91	67	
34	1924	4.32	291	4.12	191	4.32	161	4.56	140	4.49	249	5	159	4.68	56	
35	1300	2.92	198	2.8	132	2.99	77	2.18	83	2.66	134	2.69	105	3.09	43	
41	1301	2.92	191	2.7	137	3.1	93	2.63	69	2.21	173	3.47	111	3.26	41	
42	1668	3.74	270	3.82	126	2.85	133	3.77	103	3.3	212	4.26	143	4.21	52	
43	2043	4.58	277	3.92	171	3.87	201	5.69	154	4.94	229	4.6	160	4.71	60	
44	2184	4.9	353	4.99	216	4.89	176	4.99	190	6.09	229	4.6	135	3.97	67	
45	1731	3.88	324	4.58	235	5.32	109	3.09	113	3.62	156	3.13	127	3.74	46	
51	1647	3.7	214	3.03	131	2.96	102	2.89	91	2.92	220	4.42	198	5.82	50	
52	1261	2.83	165	2.33	114	2.58	78	2.21	63	2.02	155	3.11	129	3.79	41	
53	1299	2.92	247	3.49	124	2.81	79	2.24	81	2.6	118	2.37	93	2.74	41	
54	1787	4.01	315	4.46	201	4.55	148	4.19	121	3.88	146	2.93	109	3.21	56	
55	2892	6.49	471	6.66	313	7.08	293	8.3	265	8.49	353	7.09	148	4.35	75	

Table 4 - Panel B
Number and Percent of Funds Returns by Quintile Class from Prior Year to Current Year
for After-Tax Returns (5 is best performing quintile and 1 is the worst performing quintile)

Quintile	Total Sample		AGG		GIB		IS		AAB		CB		GB		MB	
Class	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	Percent	N	
11	2697	6.05	447	6.32	297	6.72	200	5.67	267	8.56	265	5.32	149	4.38	75	
12	1793	4.02	331	4.68	203	4.59	139	3.94	130	4.17	197	3.96	98	2.88	52	
13	1470	3.3	224	3.17	167	3.78	111	3.14	84	2.69	190	3.82	130	3.82	44	
14	1307	2.93	197	2.79	108	2.44	117	3.31	55	1.76	147	2.95	118	3.47	38	
15	1617	3.63	214	3.03	105	2.38	134	3.8	87	2.79	190	3.82	184	5.41	52	
21	1682	3.77	308	4.36	183	4.14	166	4.7	104	3.33	154	3.09	84	2.47	53	
22	2143	4.81	323	4.57	243	5.5	156	4.42	167	5.35	237	4.76	134	3.94	65	
23	1895	4.25	309	4.37	193	4.37	172	4.87	147	4.71	193	3.88	142	4.18	53	
24	1803	4.05	275	3.89	183	4.14	128	3.63	128	4.1	233	4.68	174	5.12	50	
25	1394	3.13	199	2.81	86	1.95	87	2.46	78	2.5	185	3.71	138	4.06	46	
31	1464	3.29	266	3.76	133	3.01	125	3.54	85	2.72	156	3.13	107	3.15	41	
32	1989	4.46	313	4.43	198	4.48	190	5.38	151	4.84	173	3.47	149	4.38	58	
33	2264	5.08	339	4.79	227	5.14	170	4.82	174	5.58	261	5.24	181	5.32	67	
34	1954	4.39	300	4.24	203	4.59	152	4.31	137	4.39	263	5.28	152	4.47	57	
35	1263	2.83	197	2.79	124	2.81	71	2.01	78	2.5	140	2.81	105	3.09	42	
41	1355	3.04	192	2.72	133	3.01	111	3.14	70	2.24	193	3.88	111	3.26	41	
42	1726	3.87	269	3.8	132	2.99	137	3.88	118	3.78	219	4.4	175	5.15	51	
43	2013	4.52	294	4.16	193	4.37	174	4.93	149	4.78	227	4.56	144	4.24	55	
44	2129	4.78	348	4.92	219	4.95	173	4.9	166	5.32	207	4.16	124	3.65	68	
45	1713	3.84	316	4.47	208	4.71	117	3.31	122	3.91	158	3.17	124	3.65	47	
51	1687	3.79	201	2.84	134	3.03	99	2.8	97	3.11	221	4.44	227	6.68	51	
52	1272	2.85	176	2.49	113	2.56	87	2.46	59	1.89	179	3.59	118	3.47	40	
53	1284	2.88	250	3.54	104	2.35	81	2.29	69	2.21	118	2.37	96	2.82	42	
54	1744	3.91	299	4.23	172	3.89	141	3.99	140	4.49	154	3.09	110	3.24	53	
55	2902	6.51	483	6.83	359	8.12	292	8.27	258	8.27	320	6.43	126	3.71	80	


Percent Fund Returns in Each Quintile From Prior Year to Cu
(11 (55) indicates lowest (highest) quintile in prior year and current year)
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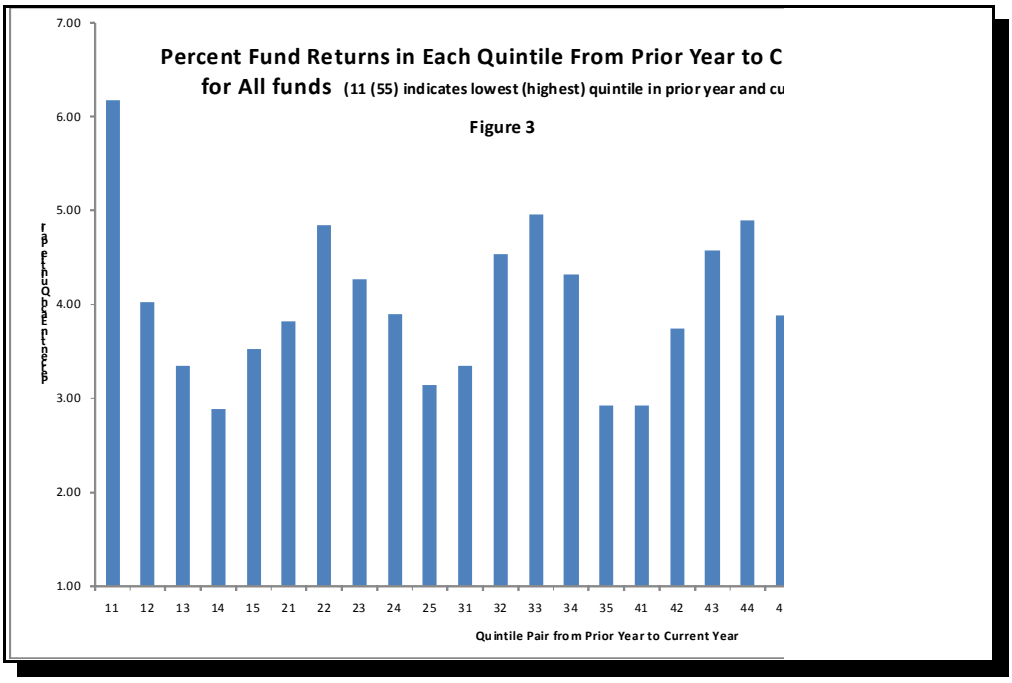
Quintile Pair from Prior Year to Current Year


Percent Fund Returns in Each Quintile From Prior Year to C
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Quintile Pair from Prior Year to Current Year

CONCLUSION

In this paper we examine the performance persistence of a large sample of mutual funds over time. We test 44,560 mutual funds in nine equity and bond fund categories over the time period 1996 through 2005. We utilize the non-parametric Odds-Ratio and Chi-Square tests to examine significance in performance persistence. We find that there is significant performance persistence in mutual fund returns. This outcome is true for both the lowest performing and highest performing mutual funds. The tests demonstrate this result for all fund categories, except government bond and corporate bond funds. These results are very important to individual investors when selecting mutual funds. Investors should be cognizant of previous returns for any funds under consideration. If a fund performed poorly during the past year, it is likely the fund will continue to perform poorly in the next year. Likewise if a fund performed well during the past year, it is likely the fund will perform well during the next year. Note that persistence appears to exist for the best and worst performing fund categories. Therefore, an investor selecting funds in the middle performance categories is not likely to see the same persistence in returns.

As a caveat we understand that there is survivorship bias when performing mutual fund research. A fund must have survived for the full ten-year period to be included in our study, so funds that under-performed and subsequently closed to investors would not be included in this study. This would actually bias against finding significant performance persistence for the worst performing quintile of funds. Additionally our sample period is a ten-year period from 1996 to 2005. We understand that this is a limited period and results could vary for other time periods.

ENDNOTES

[1] See References for version.

[2] The Odds-Ratio is computed using the number of funds in each category as follows: LN[(WW*LL) / (WL*LW)]. The Z-statistic is the Odds-Ratio divided by its standard error. The standard error is computed as follows: $\sigma = \sqrt{\left(\frac{1}{WW}\right) + \left(\frac{1}{WL}\right) + \left(\frac{1}{LW}\right) + \left(\frac{1}{LL}\right)}$.

[3] Since annual total returns (calculated assuming reinvestment of all dividends and capital-gain distributions) are provided by Morningstar, an important variable for individual investors is the after-tax total return. This calculation involved estimating the historical marginal tax rates on ordinary income and capital gains. This paper uses the marginal tax rates provided in Exhibit 1 of Siegel and Montgomery [Winter 1995]. Because tax rates are heterogeneous, they chose an arbitrary single taxpayer earning $75,000 in "earned" (noninvestment) income in 1989 dollars. This level of income was deflated (inflated) by the

Consumer Price Index (CPI) for earlier (later) years. They argue that this investor would be typical of individuals with sizable investment portfolios subject to tax. Since our data starts in 1977, we use the Siegel and Montgomery marginal tax rates on ordinary income and capital gains from 1977 through the end of their study in 1993. For the years 1994 through 2005, we utilize tax code information on the ordinary income and capital gains rates and adjust earned income by the CPI for each year. After-tax returns for a given mutual fund in a given year are computed by adjusting the total return for the taxes that would have been paid on the dollar income and capital-gain distributions for that year. There is a slight upward bias in this after-tax return computation since Morningstar includes both short-term and long-term capital gains in its yearly dollar-per- share capital-gain figure. The short-term capital-gain distributions should be subject to the higher ordinary income tax rates, but it was not possible to make this adjustment. The differences between before- and after-tax returns presented in this article are thus slightly smaller than would actually be expected.

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FACTORS ASSOCIATED IN HOUSING MARKET DYNAMICS: AN EXPLORATORY LONGITUDINAL ANALYSIS

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ABSTRACT

This study reports the differential effect of number of houses sold and number of houses for sale on the housing starts. Cross-correlation analysis reveals that the lead-lag relationship between housing starts and the number of houses sold is positively related. Moreover, the strength of the relationship continues to increase and peaks at around 24-months lag. On the other hand, inverse lead-lag relationship found between housing starts and the number of houses for sale, specifically after nine months delay and the relationship continues to increase negatively as the delay gets extended. This exhibits long-term statistical dependence between these factors. However, the magnitude and the nature of dependency differ between number of houses sold and number of houses for sale. These cross-correlations are not widely known and suggest an additional link between housing starts and unobservable factors that are involved in the housing market dynamics. Regression results also provide confirming evidence of the contrasting effect of number of houses sold and number of houses for sale on the housing starts. Thus, this study provides evidence suggesting number of houses sold and number of houses for sale exhibiting long memory. Additionally, associations between these factors are inversely related with housing starts.

INTRODUCTION

In this study, I propose a hypothetical model to examine the association of various determinants of housing starts as a measure of core housing market to study the housing market dynamics. Although, macroeconomic factors are commonly viewed as important causes of housing market movements, other factors may also be important driver of the housing market. Incorporation of demographic and macroeconomic factors may enhance housing market models' performance. However, long-term momentum may be additionally associated with endogenous factors, such as, number of houses sold and number of houses for sale. This inter-dependent market activity is recursive in nature and creates domino effect (Choudhury & Campbell, 2004) to push the market further upward/downward depending on the market condition. Evidently, there are various interactions between these factors, which may or may not be observable. Some of these unobservable factors are embedded in the number of houses sold and number of houses for sale;

whose developments may be shaped by economic, demographic, and other factors. Capturing these unobserved components effect (indirectly) is the primary goal of this study. In that regard, I propose a multivariate cross-correlation time-series approach. Understanding this complex recursive phenomenon between these factors would assist housing lenders in assessing the risk of default and investment portfolio managers in assessing the direction of market movements. Once the magnitude of the effect of these key determinants inter-dependent association is well understood, government policy makers could induce the market stability by adjusting the market environment accordingly.

To my knowledge, this is the first study to report differential effects of number of houses sold and number of houses for sale on the housing starts. In particular, using cross-correlation analysis, I find the relationship between housing starts and the number of houses sold is positively correlated (as number of houses sold increase, housing starts increase) at least for two years. Moreover, the data show a strong inverse lead-lag relationship between housing starts and the numbers of houses for sale after several months lag (as number of houses for sale increase, housing starts decrease). This exhibits long-term statistical dependence; however, I find the magnitude and the nature of the dependency differs between number of houses sold and number of houses for sale. These cross-correlations are not widely known and suggest an additional link between housing starts and unobservable factors.

Cross-correlation analysis reveals that the association between housing starts and the number of houses sold are strongly positive and immediate, and it continues to persist for over two years. In contrast, the association between housing starts and the number of houses for sale are initially weakly positive, but after six months of delay it becomes negative and the association continues to grow stronger negatively for over two years. In addition to cross-correlation analysis, I perform time-series regression analysis (see, Choudhury, Hubata, & St. Louis, 1999 for more on time-series regression) to identify the influential lag effect on the housing starts. I find statistically significant but inverse association between housing starts with number of houses sold and number of houses for sale. These results suggest the impact of number of houses sold on the housing starts is different both in direction and also in magnitude.

Thus, the objective of this paper is to examine the direction and magnitude of lead-lag association between housing starts with number of houses sold and number of houses for sale. To my knowledge, no research has been done to analyze and test the differential lead-lag effect of number of houses sold and number of houses for sale on the housing starts, which is the core of housing market dynamics. Therefore, this research primarily focuses on identifying the length of lead-lag effect of these factors on the housing starts and also the direction and magnitude of these effects.

LITERATURE REVIEW

The basic dichotomy of housing starts (specifically single-family starts) can be characterized into speculative housing starts for investment purposes (by investors or builders) and owner initiated

custom-built housing starts. Research suggests that, the volatility (or instability) in the housing market is largely attributable to the speculative portion of the housing starts. This segment of the housing market creates its own dynamics with relations to number of houses for sale and therefore with number of houses sold. Thus creating a lead-lag relationship among these factors that persists over several months. These considerations posit lead-lag relations between number of houses sold and number of houses for sale with the housing starts that facilitate a partial explanation of housing market's rapid movements. In a recent report, Congressional Budget Office (CBO) stated that, "Starts of new housing units peaked at an annual rate of just over 2.1 million in the first quarter of 2006, buoyed by low mortgage interest rates, expectations of continued rapid increases in home prices, and lax lending standards. By the second quarter of 2008, lower expectations of home price increases and tighter lending conditions had combined with a glut of vacant units to cut housing starts by more than half, to an annual rate of barely 1.0 million."

Housing market plays a significant role as leading indicator of the economy, and therefore understanding the market dynamics cannot be overemphasized, especially in light of the recent housing market turmoil and its effect on the economy as a whole. Since, the movements in the housing market will likely continue to play an important role in the business and economy (Gupta & Das, 2009; Bernanke and Gertler, 1995), understanding the market mechanism, specifically the lead-lag relationship between factors can offer policy makers a notion about the direction of the overall market trajectory in advance, and thus, provides a better control for designing appropriate policies for market stabilization.

As a result of such importance of the housing market on the economy, a large number of studies on the housing market have been undertaken recently. In recent years, researchers have devoted much of their effort to identify factors that determine the housing market mechanism (Sander & Testa 2009; Lyytikäinen, 2009; Fratantoni & Schuh, 2003; Taylor, 2007; Bradley, Gabriel, & Wohar, 1995; Vargas-Silva, 2008). Many factors have been cited (Ewing & Wang, 2005; Baffoe-Bonnie, 1998; Huang, 1973; Thom, 1985) as sources of housing market dynamics; among these, housing price (Rapach & Strauss, 2009) and housing starts (Lyytikäinen, 2009; Ewing & Wang, 2005; Puri & Lierop, 1988; Huang, 1973) play a very important role. These studies have been primarily designed to examine particular aspects of these markets, such as the relationship between residential construction and credit accessibility (Taylor, 2007; Guttentag, 1961; Alberts, 1962; Thom, 1985; Mayer & Somerville, 1996), magnitude of the demand elasticity with respect to price and income (Sander & Testa 2009; Mankiw & Weil, 1989; Meen, 2000; Reid, 1958; Lee, 1964; Mulligan & Threinen, 2008;), and the determinants of housing starts (Rapach & Strauss, 2009; Addison-Smyth, McQuinn, & O'Reilly, 2008; Dipasquale,1999; Kearl, 1979; Maisel, 1963).

Overall, empirical evidence suggest a contemporaneous positive association between number of houses sold and number of houses for sale with housing starts. However, time-series investigations have delayed autocorrelation effect. Therefore, the purpose of this paper is to understand the cross-correlation dynamics of housing market with particular emphasis placed upon the role of housing starts. Specifically, using the research design discussed in the following section,

the present study attempts to isolate particular lead-lag association between number of houses sold and number of houses for sale with housing starts.

DATA AND RESEARCH METHODOLOGY

The sample period is a time series of monthly data beginning January 1991 and ending April 2009. Limiting the sample period to these years, avoids certain shortcomings of missing data in some factors. Data are collected from the US Census Bureau and Federal Reserve Board. I have selected the new privately owned housing units start (Housing Starts) as my measure of housing market dynamics. Housing starts is most widely used factor in understanding the dynamics of housing market (Ewing & Wang, 2005; Fullerton, Laaksonen, & West, 2001; Mayer & Somerville, 1996; Vargas-Silva, 2008). Home builders would respond to the market demand when constructing new homes and the decision for new starts may depend on the accelerated /decelerated rate the number of houses are being sold and/or increased/decreased number of houses for sale on the market. Consequently, these decisions take time to be implemented and as a result housing starts adjust to these changes after several months delay. Thus, the objective of this paper is to understand the housing market dynamics and their delayed response to housing starts. In addition to these factors, model also incorporated control variables, such as, civilian employment to population ratio and mortgage rate. Mortgage rate is found to be most effective at lag 6 (see, Table 3).

Table 1: Summary Statistics for the Periods: January 1991 - April 2009 (Monthly Data).

Variable	Mean	Std Dev	Minimum	Maximum
Housing Starts	1505	336.556	488	2273
Civilian Employment to Population Ratio	62.81991	0.986	59.7	64.7
Mortgage Rate	7.11489	1.092	4.81	9.64
House Sold	829.83636	231.578	329	1389
House for Sale	354.23636	84.955	261	570

Table 1 shows the distributions of housing starts, houses sold, houses for sale, civilian employment to population ratio, and mortgage rate for the sample period. As observed in Table 1, average number of houses sold exceeded the average number houses for sale approximately by 3:1 margin. Also, the number of houses sold per month shows more variance than the number of houses for sale. Table 1 also presents the summary statistics for mortgage rate and civilian employment to population ratio.

I hypothesize that the number of houses sold and the numbers of houses for sale are inversely associated with housing starts. To test my hypothesis I perform two separate analyses. First, I use the cross-correlation analysis to examine the direction of the association and whether the number

of houses sold and/or the number of houses for sale exhibit any long memory, a term refers to long-term statistical dependence in time series data. Second, I use time-series regression to examine the magnitude and significance of housing starts using other factors over time and to observe any acceleration /deceleration of the momentum of the process. Specifically, I regress the housing starts on the number of houses sold (House Sold) and the number of houses for sale (House for Sale), after controlling for mortgage rate and civilian employment to population ratio. Increase in civilian employment to population ratio indicates increasing capacity of possible homeownership. On the other hand, increase in mortgage rate indicates decreasing capacity of possible homeownership.

In an effort to better disentangle the effects of housing starts momentum from expanding or contracting housing market activity, regression model includes these control variables measuring the market capacities. Additionally, Durbin-Watson statistic of ordinary least squares (OLS) estimates indicated the presence of positive autocorrelation. One major consequence of autocorrelated errors (or residuals) when applying ordinary least squares is the formula variance $[\sigma^2 (X'X)^{-1}]$ of the OLS estimator is seriously underestimated (see Choudhury, 1994), which affects statistical inference. Where X represents the matrix of independent variables and σ^2 is the error variance.

Durbin-Watson statistic is not valid for error processes other than the first order (see Harvey, 1981; pp. 209-210) process. Therefore, I evaluated the autocorrelation function (ACF) and partial autocorrelation function (PACF) of the OLS regression residuals using SAS procedure PROC ARIMA (see SAS/ETS User's Guide, 1993). This allowed the observance of the degree of autocorrelation and the identification of the order of the residuals model that sufficiently described the autocorrelation. After evaluating the ACF and PACF, the residuals model is identified as second order autoregressive model: $(1 - \phi_1 B - \phi_2 B^2)\, \nu_t = \varepsilon_t$ (see Box, Jenkins, & Reinsel, 1994). The final specification of the regression model takes the following form:

$$HStart_t = \beta_0 + \beta_1 CEPR_t + \beta_2 MTG_{t-6} + \beta_3 HS_t + \beta_4 HS_{t-3} + \beta_5 HS_{t-6} + \beta_6 HFS_{t-24} + \nu_t \text{ and}$$
$$\nu_t = \phi_1 \nu_{t-1} + \phi_2 \nu_{t-2} + \varepsilon_t$$

Where: HStart = number of housing starts, CEPR= civilian employment to population ratio, MTG= mortgage rate, HS= number of houses sold, HFS= number of houses for sale, and (t-k) is for k months lag or delay.

Maximum likelihood estimation method is used instead of two step generalized least squares to estimate the regression parameters in the regression model. Maximum likelihood estimation is preferable over two step generalized least squares, because of its capability to estimate both regression and autoregressive parameters simultaneously. Moreover, maximum likelihood estimation accounts for the determinant of the variance-covariance matrix in its objective function (likelihood function). Further discussion on different estimation methods and the likelihood

functions can be found in Choudhury, Hubata & St. Louis (1999); also SAS/ETS User's Guide, 1993 for the expression of the likelihood functions. Likelihood function of the regression model with autocorrelated errors can be expressed as follows:

$$L(\beta,\theta,\sigma^2) = -\frac{n}{2}\ln(\sigma^2) - \frac{1}{2}\ln|\Omega| - \frac{(Y-X\beta)'\Omega^{-1}(Y-X\beta)}{2\sigma^2}$$

where,

Y- vector of response variable (housing starts),
X – matrix of independent variables,
β – vector of regression parameters,
θ – vector of autoregressive parameters,
ó^2 – error variance,
Ω – variance-covariance matrix of autocorrelated errors.

Table 2: Lead-lag correlations (p-values) between Housing Starts, Houses Sold, and Houses for Sale.

Monthly Lags	**Housing Starts**	Monthly Lags	**Housing Starts**
House Sold Lag0	0.94053 (<.0001)	House For Sale Lag0	0.25439 (0.0001)
House Sold Lag1	0.93443 (<.0001)	House For Sale Lag1	0.20766 (0.0021)
House Sold Lag2	0.92492 (<.0001)	House For Sale Lag2	0.15902 (0.0191)
House Sold Lag3	0.91541 (<.0001)	House For Sale Lag3	0.11162 (0.1018)
House Sold Lag4	0.90094 (<.0001)	House For Sale Lag4	0.06570 (0.3377)
House Sold Lag5	0.87385 (<.0001)	House For Sale Lag5	0.02249 (0.7436)
House Sold Lag6	0.85918 (<.0001)	House For Sale Lag6	-0.02319 (0.7364)
House Sold Lag7	0.83502 (<.0001)	House For Sale Lag7	-0.06356 (0.3571)
House Sold Lag8	0.80808 (<.0001)	House For Sale Lag8	-0.10209 (0.1394)
House Sold Lag9	0.78232 (<.0001)	House For Sale Lag9	-0.13989 (0.0429)

Table 2: Lead-lag correlations (p-values) between Housing Starts, Houses Sold, and Houses for Sale.			
Monthly Lags	**Housing Starts**	Monthly Lags	**Housing Starts**
House Sold Lag10	0.75284 (<.0001)	House For Sale Lag10	-0.17521 (0.0112)
House Sold Lag11	0.72523 (<.0001)	House For Sale Lag11	-0.20740 (0.0026)
House Sold Lag12	0.68131 (<.0001)	House For Sale Lag12	-0.23885 (0.0005)
House Sold Lag13	0.64600 (<.0001)	House For Sale Lag13	-0.26970 (<.0001)
House Sold Lag14	0.60894 (<.0001)	House For Sale Lag14	-0.29794 (<.0001)
House Sold Lag15	0.57006 (<.0001)	House For Sale Lag15	-0.32482 (<.0001)
House Sold Lag16	0.53227 (<.0001)	House For Sale Lag16	-0.35392 (<.0001)
House Sold Lag17	0.49198 (<.0001)	House For Sale Lag17	-0.37938 (<.0001)
House Sold Lag18	0.45248 (<.0001)	House For Sale Lag18	-0.40268 (<.0001)
House Sold Lag19	0.41575 (<.0001)	House For Sale Lag19	-0.42520 (<.0001)
House Sold Lag20	0.37478 (<.0001)	House For Sale Lag20	-0.44250 (<.0001)
House Sold Lag21	0.33766 (<.0001)	House For Sale Lag21	-0.46141 (<.0001)
House Sold Lag22	0.30124 (<.0001)	House For Sale Lag22	-0.47432 (<.0001)
House Sold Lag23	0.26239 (0.0002)	House For Sale Lag23	-0.48687 (<.0001)
House Sold Lag24	0.22180 (0.0018)	House For Sale Lag24	-0.49977 (<.0001)

EMPIRICAL ANALYSIS

I report the results of statistical analysis investigating the association between housing starts, number of houses sold, and number of houses for sale. Table 2 presents' lead-lag correlations along with their p-values (in parentheses) for housing starts with number of houses sold and number of houses for sale up to 24 months lag. Strong positive correlations are observed with housing starts

and the number of houses sold. Even though the association remains statistically significant up to 24 months lag, the strength of the association diminishes slowly indicating the impact on housing starts is more pronounced during the recent months than past. In contrast, correlations between housing starts and the number of houses for sale is negative but not immediate, the impact is delayed. Thus, the number of houses for sale show a weak positive correlation initially; however, they exhibit long memory in the opposite direction (after six months delay) and the strength of the relationship continues to increase negatively as the delay (or lag) gets longer. The concept of long memory in a time series is used to indicate statistical dependence in which the autocorrelation function decays at a much slower rate than in the case of short-term statistical dependence. Long-term dependence has only begun to be addressed recently in macroeconomic and financial time series data (Abderrezak, 1998). The negative impacts of number of houses for sale on housing starts become statistically significant after nine months and remain strong over two years. Delayed negative impact is consistent with the idea that more houses for sale in the market increases the supply of houses and consequently impacts the number of new houses to be built. This result is consistent with other research findings in that it suggests protracted upward (or downward) spiral (Taylor, 2007) momentum of the market mechanism known as domino effect (Choudhury & Campbell, 2004).

Table 3: Regression Results for Housing Starts (Maximum Likelihood Estimation).

Independent Variables(monthly)	Maximum Likelihood Estimates of Parameters (corrected for autocorrelation)	Standard Error	t Value	Approx Pr > |t|
Intercept	-974.5772	772.5781	-1.26	0.2087
Civilian Employment to Population Ratio	35.7554	13.4185	2.66	0.0084
Mortgage Rate LAG6	-40.0669	19.1881	-2.09	0.0381
House Sold	0.5751	0.1007	5.71	<.0001
House Sold LAG3	0.3994	0.1076	3.71	0.0003
House Sold LAG6	0.1861	0.1053	1.77	0.0788
House for Sale LAG24	-1.3172	0.1850	-7.12	<.0001
R-Squared	0.9404			
Durbin-Watson	2.0167			

Note: The regression residuals model is identified as, $(1 - \phi_1 B - \phi_2 B^2)v_t = \varepsilon_t$ and the estimated first and second order autoregressive (AR) parameters from SAS are, $(1 + 0.2504\ B\ + 0.1898\ B^2)v_t = \varepsilon_t$

3.40*** 2.56**.

Autoregressive parameter's t-statistics are reported in the parentheses. They are both significant at the one (***) percent and five (**) percent level of significance respectively(

Regression results reported in Table 3 provides confirming evidence of the contrasting effect of number of houses sold and number of houses for sale on the housing starts. Civilian employment to population ratio is positively associated with housing starts; however, mortgage rate (delayed by six months) is negatively associated with the housing starts. Similar results are also reported by other researchers (Mayer & Somerville, 1996). I applied forward, backward, and mixed stepwise methods to select the regression model through the R-squared statistics and significance level as a criterion to add variables into the model or delete variables from the model. All three types of stepwise methods yielded the same result. Moreover, the model resulting from stepwise selection provided the same conclusion that number of houses sold, number of houses for sale, civilian employment to population ratio, and mortgage rate are significant factors in impacting the likelihood of housing starts. Number of houses sold and civilian employment to population ratio have direct impact on the housing starts, as indicated by the positive coefficients that resulted in increasing housing starts. More specifically, one can assert that if the civilian employment to population ratio increases by one percent, housing increases by approximately 35,755 new starts. Contrary to that, number of houses for sale and mortgage rate has opposite (or negative) impact on the housing starts, as indicated by the negative coefficients that resulted in decreasing housing starts. These results suggest if the mortgage rate increases by one percent, new starts on housing decreases by approximately 40,067. After being adjusted for autocorrelation, the Durbin-Watson test-statistic (DW=2.02) indicates that the errors are not correlated. Also, the R-squared statistic of the model is significantly high at 0.94.

CONCLUSION AND DISCUSSION

This paper makes a number of significant contributions to the literature. It provides additional evidence of differential effect of various factors on housing starts. In addition, it also provides evidence suggesting number of houses sold and number of houses for sale display long memory. However, associations between number of houses sold and the numbers of houses for sale with housing starts are inversely related. These results while important are not unexpected given the stormy dynamics of the housing market. The unexpected finding is the initial weakly positive association between housing starts and the number of houses for sale. The association becomes negative after few months delay and continues to rise negatively for over two years.

Considering number of houses sold and number of houses for sale separately from other macroeconomic factors illustrates how state policy makers can benefit from using the results of this study. It is also well known that housing starts is considered to be a important leading indicator, as it is included in the Conference Board's leading economic indicators list. Therefore, understanding the mechanism of lead-lag relationship between factors with housing starts will provide an advantageous position to the policy makers to prepare an appropriate policy design for market stabilization.

Thus, these results add another dimension to the debate concerning the effect of observable and unobservable factors on the housing market activity. Additional theory development is needed,

particularly with regard to the linkage between observable and unobservable factors. To determine whether the negative association between housing starts and the number of houses for sale is stationary, future research could examine these relations over different periods of time.

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HAS THE ADOPTION OF *SFAS 158* CAUSED FIRMS TO UNDERESTIMATE PENSION LIABILITY? A PRELIMINARY STUDY OF THE FINANCIAL REPORTING IMPACT OF *SFAS 158*

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ABSTRACT

SFAS 158 mandates that firms fully recognize the funded status of defined-benefit pension plans on the balance sheet and use the Projected Benefit Obligation to estimate that status. Since implementation of SFAS 158 is likely to cause a significant increase in pension liabilities, firms may have incentives to modify assumptions used in its calculation. In particular, we investigate the rate used to discount future - benefit obligations. We find that after controlling for movement in interest rates, firms use higher discount rates after the enactment of SFAS 158. We also find that the tendency to assume higher discount rates increases with the firms' leverage and decreases with liquidity. Our findings suggest that FASB should consider imposing stricter, bright line standards for discount rate assumptions.

Keywords: defined-benefit plan, projected benefit obligation, funded status, discount rates.

INTRODUCTION

In this study we provide preliminary results about the impact of *SFAS 158* on discount rates used to estimate defined- benefit pension liabilities. Enacted in 2006, *SFAS 158* requires firms to recognize a net asset or a net liability equal to the difference between the Projected Benefit Obligation (PBO) and the fair market value of the fund assets as of the balance sheet date (FASB 2006). The PBO is the actuarial present value of future pension benefits and includes expected future increases in compensation. Prior to *SFAS 158*, *SFAS 87* only required note disclosure. *SFAS 87* also imposed a minimum liability requirement equal to the difference between the Accumulated Benefit Obligation (ABO) and the value of the fund assets. The ABO was calculated as the present value of pension benefits based on current salaries. Future increases in wages were ignored, yielding a minimum liability that was significantly lower than that under the standards of *158* (FASB 1985). Ceteris paribus, using the PBO rather than the ABO to estimate funded status should cause pension

liabilities to increase. In our study we investigate whether firms have changed the way they estimate the PBO. In particular we examine whether firms are using higher discount rates to help reduce the PBO and therefore the recorded pension liability.

The accounting for pension plans has a long and somewhat sordid history. Prior to *SFAS 87*, firms used a noncapitalization approach as plan assets (liabilities) were recognized only if the amounts funded were greater (less) than the pension expenses. The massive liabilities of future pension benefits were largely ignored. Enacted in 1985, *SFAS 87* brought about greater disclosure of pension obligations and a requirement to recognize a minimum pension liability (FASB 1985.) Although *SFAS 87* was a significant change in accounting for defined- benefit pension plans, it was only a small step toward a "full capitalization" approach. The *87* methodology allowed significant off-balance-sheet financing because the 'full' funded status of the pension fund utilizing the PBO only required note disclosure.

In spite of its widely acknowledged reporting deficiencies, *SFAS 87* remained the central accounting standard for defined-benefit pension plans for over 20 years. It is interesting to note the FASB comment found on paragraph 116 which states, "footnote disclosure is not an adequate substitute for recognition (FASB 1985)." It has been conjectured that the creators of *SFAS 87* did not intend its effects to be so permanent (Carpenter and Mahoney 2007).

In 2006 *SFAS 158* was enacted. Prior to *SFAS 158*, the SEC issued a report (June 15, 2005) asserting that pension accounting standards needed greater reporting transparency. In response, on November 10, 2005 the FASB added a comprehensive two-phase project on accounting for defined-benefit pension plans to its agenda. The first phase resulted in an exposure draft which was issued on March 31, 2006. On September 29, 2006, it was adopted with slight modifications as *SFAS 158, Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans, an Amendment of FASB Statements Nos. 87, 88, 106, and 132(R)*. A summary of *SFAS 158* may be observed at http://www.fasb.org/st/summary/stsum158.shtml.

While still incomplete, the 2006 enactment of *SFAS 158* was hailed as a long overdue and significant improvement in accounting for defined-benefit pension plans. Under *SFAS 158*, accruing the status of a plan's fund on the balance sheet is expected to increase reporting transparency. Using PBO to estimate that status is expected to provide a more reliable estimate of the plan's future obligations.

Prior research suggests that markets impound information more easily when information is recognized in the statements rather than disclosed in the notes. A recent study of banks shows that the significance of the relationship between changes in stock prices and fair values of derivative financial instruments increases when values are recognized instead of disclosed (Ahmed 2006). In another study, using survey results from a sample of 400 commercial lenders, Harper et. al. (1991) find that the decisions of lenders are more heavily influenced by liabilities recorded on the balance sheets of loan applicants than by liabilities merely disclosed in the notes. A study by the Divisions of Research & Statistics and Monetary Affairs of the Federal Reserve Board provides empirical evidence that prior to *SFAS 158* investors misvalued defined-benefit pensions inducing sizable errors

in the value of the sponsoring firm. The authors argue that *SFAS 158* should improve the ability of investors to value DBP firms (Coronado et. al. 2008). Other research suggests that using the full funded status of defined-benefit plans may be useful for valuation (Trivedi and Young 2006).

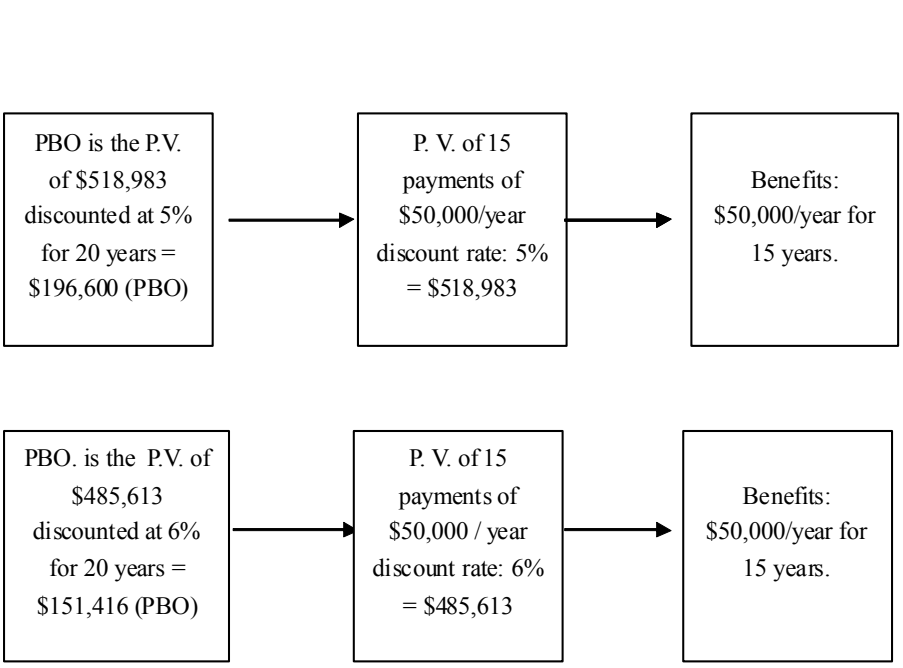
In addition to the FASB initiative, the U.S. Pension Protection Act of 2006 (PPA) mandates that firms with under-funded plans have seven years to eliminate deficiencies (Pension Protection Act 2006). (Plans are required to achieve fully funded status as follows: 92% in 2008, 94% in 2009, 96% in 2010 and 100% in 2011). In addition if the plan's funded status falls below 80 percent the sponsor must accelerate funding. Prior to the President singing the bill into law, the bill passed the senate on August 3 and passed the House on July 28 of 2006.

The rest of the paper is organized as follows: the next section provides motivation and hypotheses. The following section describes our sample and methodology. The paper concludes with results of empirical tests followed by a conclusion.

MOTIVATION AND HYPOTHESES

Liabilities from under-funded pension plans can be substantial and a probable consequence of the new standard is that reported pension liabilities will increase post *SFAS 158* incentives to "manage" liabilities downward. CFO Holly Koeppel of American Electric Power stated in a recent interview that "we have a very large pension plan…..and that in light of the current environment we will begin increased funding in 2010, depending on what happens in the market it could be 2009" (Katz 2008). According to a recent report by Moody's rating agency, 10 percent of non – financial companies will experience liquidity shortfalls in 2009 (Leone 2008). Although funding requirements could be reduced by simply increasing contributions, we expect that after implementation of *SFAS 158* managers may avoid using scarce cash to fund non-value adding pension plans and instead discount estimated future benefits with higher rates. The PPA prescribes that companies use rates on investment grade bonds or better to benchmark discount rates (Pension Protection Act of 2006). GAAP suggests using interest rates on high grade bonds (FASB 2006). The unreported monthly mean (median) difference between Aaa and Baa corporate bonds for the 2000 to 2007 period of this study is a statistically significant .929 (.895) percent. Hence, under current provisions, managers have considerable leeway over the actual rate used. Since the size of the discount rate is inversely related to the level of the PBO and the time periods over which these rates are used to discount future benefits are long, small changes in rate assumptions can have significant effects on pension liabilities. To provide a simple example, the estimated PBO assuming a 5% discount rate and 20 year employment period, followed by a defined- benefit of $50,000 per year for 15 years is $196,600. Using the same assumptions, increasing the discount rate to 6% reduces the PBO to $151,416, a 23% reduction.

Figure I: Effect of Discount Rate Changes on the Projected Benefit Obligation



Assumes that employee works for 20 years after which she retires and receives an ordinary annuity of 15 annual payments at the end of every year for 15 years.

PBO discounted at 5% = $196,600

PBO discounted at 6% = $151,416

Percentage decrease in PBO = 23%

Numerous assumptions are required to estimate pension liabilities (life expectancy, years of service, income levels etc.) and actuaries are utilized to obtain estimates. The ultimate level of the discount rate, however, while addressed in law is an accounting choice and remains within the domain of the manager. Since small changes in discount rates can have a large impact on the magnitude of the PBO, the enactment of *SFAS 158* gives managers incentive to modify assumptions. After controlling for changes in market interest rates we predict an increase in post *SFAS 158* discount rates. In addition, we expect this post *SFAS 158* increase in discount rates to increase with the level of a firm's financial risk as approximated by liquidity and leverage. That is, to comply with legal funding requirements and avoid potential debt covenant violations, managers of firms with low liquidity and / or high debt loads have greater motivation to reduce pension liabilities with higher discount rates. We test these assertions with the following hypotheses:

H1: Rates used to discount a defined-benefit pension plan's estimated future benefit obligation increase after the adaptation of SFAS 158.

H2: The lower a firm's cash to current liabilities ratio, the higher the rate used to discount a defined-benefit pension plan's estimated future benefit obligation and this inverse relationship is reinforced in the post SFAS 158 reporting period.

H3: The lower a firm's current assets to current liabilities ratio, the higher the rate used to discount a defined-benefit pension plan's estimated future benefit obligation and this inverse relationship is reinforced in the post SFAS 158 reporting period.

H4: The higher a firm's long term debt to total assets ratio, the higher the rate used to discount a defined-benefit pension plan's estimated future benefit obligation and this relationship increases in the post SFAS 158 reporting period.

H5: The lower a firm's earnings before interest and taxes to interest paid ratio the higher the rate used to discount a defined-benefit pension plan's estimated future benefit obligation and this inverse relationship is reinforced in the post SFAS 158 reporting period.

SAMPLE AND METHODOLOGY

Our sample consists of firms with defined-benefit pension plans included in the Compustat database for years 2000 to 2007. To reduce the effect that extreme observations might have on our estimates, we winsorize continuously measured variables in the top and bottom one half percent. After eliminating firms with insufficient data to estimate our models we obtain 4,318 usable firm year observations.

Our dependant variable, adjusted pension discount rate ($APDR_{it}$) is regressed on control variables and variables of interest. We control for movement in overall interest rates by measuring $APDR_{it}$ as the difference between the discount rate used by the firm and the rate on AA ten-year term corporate bonds. Two OLS models, a main effects model, and an interaction model are used to test our hypotheses. To assess the effects of Financial Risk (FR_{it}) on $APDR_{it}$ we use four variables; two that yield a proxy for liquidity and two that proxy for leverage. The two liquidity variables are: the ratio of a firm's cash and marketable securities to current liabilities ratio ($CASH_{it}$), and the current assets to current liabilities ratio (CR_{it}). The two leverage variables are: total long term debt to total assets ratio (LEV_{it}) and the earnings before interest and taxes to interest expense

ratio ($TIMES_{it}$). The two liquidity variables may seem similar. Although the current ratio is a widely used measure of liquidity, to mitigate the potential effect of inventory balances on interpretations of our findings and more strictly assess the effects of short term liquidity we also include $CASH_{it}$.

The requirement for balance sheet recognition of plans' funded status begins with fiscal years ending after December 15, 2006. To capture the main effect of *SFAS 158* on the level of the discount rate we, therefore, use a 2007 year dummy equal to one for observations in 2007 and zero otherwise (FASB).

To estimate the effects of short and long term financial risk on discount rate levels conditional on implementation of *SFAS 158*, we interact our FASB year dummy with each of our financial risk measures, i.e. $CASH_{it}$*FASB, CR_{it}*FASB, LEV_{it}*FASB and $TIMES_{it}$*FASB. A significantly positive coefficient for the FASB dummy provides support for H1. A significantly negative (positive) coefficient for variables, $CASH_{it}$, CR_{it}, (LEV_{it}) $EBIT_{it}$ and their corresponding FASB interaction terms provide support for hypotheses H2 – H4, respectively.

We also include variables to control for the potential effects of other factors on our dependent variable and variables of interest. Large firms with greater visibility may have more sophisticated and reliable financial reporting systems. To control for potential size effects on estimates, we include the natural log of each firm's total assets ($SIZE_{it}$). In addition, since younger (older) firms should have shorter (longer) time horizons over which to estimate future benefit obligations, we include the variable, AGE_{it}, and define it as the number of years since the firm's initial public offering.

We test our assertions with the following models:

$$ADPR_{it} = SIZE_{it} + AGE_{it} + FASB + FR_{it} + e_{it} \quad (1)$$

$$APDR_{it} = SIZE_{it} + AGE_{it} + FASB + FR_{it} + FR_{it}* FASB + e_{it} \quad (2)$$

where FR_{it} represents our above described measures of liquidity and leverage: $CASH_{it}$, CR_{it}, LEV_{it}, $TIMES_{it}$ and FR_{it}* FASB represents their corresponding post *SFAS 158* interaction terms.

RESULTS

Table 1 provides descriptive statistics for variables. The mean (median) pension benefit discount rate for the 2000 to 2007 period of our study is 6.00 (6.00). The mean (median) discount rate adjusted for high quality, intermediate term bond rates is -.06 (.16). Mean (median) age of sample firms is 13.90 (11.78). Mean (median) values for the cash to current liabilities, current assets to current liabilities, long term debt to assets and earnings before interest and taxes to interest paid ratios are respectively: .47 (.22), 2.0 (1.63), .129 (.037) and 165.09 (3.97).

Table 1: Descriptive Statistics
(n = 4,318)

	Minimum	Maximum	Mean	Median	Std. Deviation
PDR	1.000	21.00	5.995	6.000	1.510
APDR	-5.622	15.444	-.061	.163	1.414
TA	.103	275,941.000	6574.004	1,221. 638	20284.974
AGE	-.42	58.73	13.901	11.779	9.975
CASH	-.010	11.63	.4684	.2158	.805
CA	.000	99,823.000	2154.621	427.174	6343.77
CL	.297	99,680.000	1669.874	253.875	5438.877
CR	.000	57.832	1.999	1.633	1.738
LTD	.000	55,746.647	1409.641	271.209	4307.814
LEV	.000	2.986	.129	.037	.237
TIMES	-134.285	20099.486	165.0911	3.971	4056.0
FASB	.000	1.00	.116	.000	.320

PDR is pension benefit discount rate.
APDR is the difference between the pension benefit discount rate and the average yearly rate on AA rated bonds.
TA is the firm's end of year total assets.
AGE is the years since firm issued initial public offering.
CASH total cash and marketable securities divided by current liabilities
CA is the firm's current assets.
CL is the firm's current liabilities.
CR is the current assets to current liabilities ratio.
LTD is the firm's long term debt.
LEV is total long term debt divided by total assets, both as of the end of the year.
TIMES is earnings before interest and taxes divided by interest paid.
FASB is a dummy variable equal to one and 0 otherwise for year 2007, the year after FASB pronouncement *SFAS 158*.

Pearson correlations (Table 2) suggest that larger and older firms utilize lower discount rates. Results also show negative and significant correlations between adjusted pension discount rates and measures of liquidity: CASH and CR. In addition, the correlation between our measures of financial leverage: LEV and (TIMES) and the level of the discount rate is also positively (negatively) significant. Finally, univariate results provide preliminary evidence which suggests that discount rates adjusted for market rates increased after *SFAS 158*.

Table 2: Correlations of Pension Benefit Discount and Variables of Interest
(n = 4, 318)

	PD	APDR	TA	AGE	CASH	CR	LEV	TIMES	FASB
PDR	1	.863**	-.215**	-.296**	-.094**	-.056**	.074**	-.064**	-.005
APDR		1	-.207**	-.352**	-.072**	-.052**	0.064**	-.056**	.118**
TA			1	.283**	-.070**	-.118**	-.002**	.004	.004
AGE				1	.011	.011	-.087**	.081**	-.078**
CASH					1	.566**	-.022	.161**	.004
CR						1	-.023	.078	-.007
LEV							1	-.022	.006
TIMES								1	-.007
FASB									1

** Significant at the $p < .01$ level (two-tailed).
PDR is the pension benefit discount rate.
APDR is the difference between the pension benefit discount rate and the average yearly rate on AA rated bonds with a ten year term.
TA is a firm's end of year total assets.
AGE is the years since firm issued initial public offering.
CASH is firm i's total cash and marketable securities divided by current liabilities, both as of the end of the year t.
CR is the current assets to current liabilities ratio.
LEV is total long term debt divided by total assets, both as of the end of the year.
TIMES is earnings before interest and taxes divided by interest paid.
FASB is a dummy variable equal to one and 0 otherwise for year 2007, the year after FASB pronouncement *SFAS 158*.

Results of main effects Equation 1 are provided in Table 3. Regarding control variables and in accordance with Pearson correlations, larger and older firms use lower rates to discount estimated future benefit obligations. Results for variable of interest, FASB, support the assertion that after the enactment of *SFAS 158*, adjusted discount rates increased. In addition, the coefficients for all financial risk measures are significant and in the expected direction. Firms with lower levels of liquidity utilize higher discount rates to estimate current values of PBOs. Similarly, firms with relatively more financial leverage also utilize higher discount rates to estimate current values of PBOs.

Table 3: Results of the Estimation of Equation 1
(n = 4,318)
Equation 1 (Main Effects):
$APDR_{it} = SIZE_{it} + AGE_{it} + FR_{it} + FASB + e_{it}$

	CASH	CR	LEV	TIMES
$SIZE_{it}$	-.071***	-.075***	-.062***	-.050***
AGE_{it}	-.046***	-.046***	-.046***	-.048***
FASB	.437***	.435***	.432***	.436***
$CASH_{it}$	-.140***			
CR_{it}		-.055***		
LEV_{it}			.186***	
$TIMES_{it}$				-.001*
F	181.787	178.970	174.017	164.711
Sig.	.000	.000	.000	.000
Adj. R^2	.143	.142	.138	.146

*, **, ***, Significant at the p = .05, .01, and .001 levels (one-tailed).
$APDR_{it}$ is the difference between the pension benefit discount rate and the average yearly rate on AA rated bonds with a ten year term.
$SIZE_{it}$ is the natural logarithm of total assets for firm i in year t.
AGE_{it} is the number of years since firm issued initial public offering.
FASB is a dummy variable equal to one and 0 otherwise if for year 2007, the year after FASB pronouncement *SFAS 158*.
$CASH_{it}$ is firm i's total cash and marketable securities divided by current liabilities, both as of the end of the year t.
CR_{it} is firm i's total current assets divided by total current liabilities, both as of the end of the year t.
LEV_{it} is firm i's total long term debt divided by total assets, both as of the end of the year t.
$TIMES_{it}$ is earnings before interest and taxes divided by interest paid.

Estimates for interaction model coefficients are shown in Table 4. Of the four financial risk measures only one liquidity interaction, CR_{it}*FASB and one leverage interaction, $TIMES_{it}$*FASB are significant at the 0.05 level. Hence overall results generally support assertions that discount rates increase with lower firm liquidity and increased leverage, but the evidence would be stronger if all 4 financial risk interactions were significant.

Table 4: Results of the Estimation of Equation 2
(n = 4,318)
Equation 2 (Main Effects with Interaction):
$APDR_{it} = SIZE_{it} + AGE_{it} + FR_{it} + FASB + FR_{it}*FASB + e_{it}$

	CASH	CR	LEV	TIMES
$SIZE_{it}$	-.071***	-.075***	-.062***	-.050***
AGE_{it}	-.046***	-.046***	-.046***	-.048***
FASB	.476***	.585***	.456***	.436***
$CASH_{it}$	-.134***			
$CASH_{it}$*FASB	-.081			
CR_{it}		-.051***		
CR_{it}*FASB		-.076*		
LEV_{it}			.211**	
LEV_{it}*FASB			-.185	
$TIMES_{it}$				-.001*
$TIMES_{it}$*FASB				-.016*
F	145.583	143.701	139.909	132.569
Sig.	.000	.000	.000	.000
Adj. R^2	.143	.138	.138	.146

*, **, ***, Significant at the p = .05, .01, and .001 levels (one-tailed).
$APDR_{it}$ is the difference between the pension benefit discount rate and the average yearly rate on AA rated bonds with a ten year term.
$SIZE_{it}$ is the natural logarithm of total assets for firm i in year t.
AGE_{it} is the number of years since firm issued initial public offering.
FASB is a dummy variable equal to one and 0 otherwise if for year 2007, the year after FASB pronouncement *SFAS 158*.
$CASH_{it}$ is firm i's total cash and marketable securities divided by current liabilities, both as of the end of the year t.
$CASH_{it}$*FASB is the interaction term between $CASH_{it}$ and FASB.
CR_{it} is firm i's total current assets divided by total current liabilities, both as of the end of the year t.
CR_{it}*FASB is the interaction term between CR_{it} and FASB.
LEV_{it} is firm i's total long term debt divided by total assets, both as of the end of the year t.
LEV_{it}*FASB is the interaction term between LEV_{it} and FASB.
$TIMES_{it}$ is earnings before interest and taxes divided by interest paid.
$TIMES_{it}$*FASB is the interaction term between $TIMES_{it}$*FASB

CONCLUSION

This study provides a preliminary examination of how newly enacted *SFAS 158* may affect discount rate levels used to estimate projected benefit obligations. Results of this study suggest that

after *SFAS 158* firms use higher discount rates to reduce estimated projected benefit obligations and pension liabilities.

Although empirical outcomes generally support hypotheses, our study has limitations. In light of the recency of *SFAS 158*, available data are limited. Table I shows that out of the entire sample 11.6 percent of the firm year observations occur in 2007, the last and only post *SFAS 158* year. As additional data becomes available future studies should provide additional insight into our results.

In addition, the period of this study does not take into account the recent stock market decline. For firms in our sample, the non – reported mean (median) percentage of plan assets invested into equities is 61.5 (61) percent. Further investigation of the effects of the current market decline on the financial health of defined-benefit plans in juxtaposition with new reporting requirements of *SFAS 158* should provide additional insight. Assuming reductions in plan asset values, challenges associated with inadequate funding of defined-benefit plans should increase.

Nevertheless, current provisions of *SFAS 158* and the PPA allow managers considerable latitude in determining the magnitude of the discount. Given the importance of meeting retirement obligations of millions of employees covered under defined- benefit plans it might be argued that requiring utilization of higher quality AAA bonds to benchmark rates would be more appropriate. Further, rates used to discount future benefit obligations should be static across industries and firms. Hence using a universal rate tied to quality debt instruments would enhance comparability of pension liabilities across firms.

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WHY DO ANALYSTS ISSUE LONG-TERM EARNINGS GROWTH FORECASTS? AN EMPIRICAL ANALYSIS

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ABSTRACT

We examine analysts' motives to issue long-term earning growth (LTG) forecasts. We find that analysts are more likely to issue LTG forecasts when their incentive to please managers is strong. In addition, analysts are more likely to choose firms that they are more optimistic about for LTG coverage. We find mixed evidence regarding whether analysts issue LTG forecasts to signal their ability or to meet investors' informational needs. Augmenting Ljungqvist et al (2006), we show that LTG forecasts are issued less likely to please managers, but more likely to meet investors' information needs in the presence of high institutional ownership.

JEL classifications: G17; G24; G20

Keywords: Analysts, long-term forecasts, institutional investors

INTRODUCTION

While the extant literature (e.g., Chan, Karceski & Lakonishok, 2003) yields overwhelming evidence on the over-optimism and inaccuracy of long-term earnings growth (LTG) forecasts, it remains silent on why analysts issue these forecasts, a question that becomes even more intriguing given the more voluntary nature of LTG forecasts compared with their near-term counterparts. That is, why do some analysts issue for some companies LTG forecasts, which are often deemed as extremely inaccurate and overly optimistic, when they can choose not to? This study offers insights into this question by empirically examining four non-exclusive hypotheses: analysts issue LTG forecasts to signal their ability, to reveal their optimism, to please the management (since these forecasts are overly optimistic), and to satisfy investors' informational needs.

With one-year-ahead annual earnings forecasts as the benchmark sample, we test our hypotheses jointly in a fixed-effect framework with analyst-year (or analyst) effect fixed to ensure that our results are not driven by unobserved analyst-level heterogeneity such as analyst peculiarities.

We document evidence for the manager pleasing and optimism revealing hypothesis, but mixed results for the analyst ability signaling and investor informational needs satisfying motives. Augmenting Ljungqvist et al (2006)'s finding about institutional investors' moderating role in

analyst research, we find that analysts are less (more) likely to issue long-term forecasts for companies with large institutional ownership to please managers (to meet investors' information needs).

Our paper contributes to the literature in several ways. First, our results suggest that LTG forecasts may serve as a manipulative tool for analysts to please managers. Therefore, conflicts of interest may affect not only the quality of analyst research, such as the biases of analyst recommendations as examined by previous literature, but also the type of information included in the analyst reports. This motive may partly explain the documented over-optimism in LTG forecasts.

An examination of the providence of LTG forecasts offers several advantages in the investigation of interest conflicts. For example, due to reputation concerns, analysts are less likely to bias their near-term forecasts or recommendations. However, with accuracy, and thus reputation loss, not a primary concern, the voluntarily provided LTG forecasts provide a cleaner setting to study motives related to conflict of interest. Furthermore, the quality of analyst earnings forecasts and recommendations may depend not only on analyst incentives but also on analyst ability and even factors beyond analysts' control. For example, less able or less fortunate analysts may appear to issue biased recommendation in absence of incentives to please managers. The decision to provide LTG forecasts, however, is not affected by so many complicating influences. Instead, it is totally in analysts' control and involves little analyst ability.

Furthermore, our results augment Ljungqvist et al (2006)'s finding about the role of institutional investors in analyst research. We find evidence that higher institutional ownership reduces the likelihood of analysts issuing LTG forecasts to please mangers. Furthermore, we show that the presence of higher institutional ownership makes analysts more responsive to investors' information needs.

The remainder of the paper proceeds as follows. Section 2 develops hypotheses. Section 3 discusses our data, sample, variables, and summary statistics. Section 4 presents the main results. Section 5 examines the role of institutional investors in analysts' motives of LTG forecast issuance. Section 6 concludes.

HYPOTHESES DEVELOPMENT

There is a growing body of literature on LTG forecasts. La Porta (1996) finds that investment strategies seeking to exploit errors in analysts' forecasts earn superior returns because expectations about future growth in earnings are too extreme. Dechow and Sloan (1997) also document that naive reliance on analysts' forecasts of future earnings growth can explain over half of the higher returns to contrarian investment strategies. Harris (1999) reports three characteristics of LTG forecasts: (1) they are extremely low in accuracy; (2) they are inferior to the forecasts of a naïve model in which earnings are assumed to follow a martingale, and (3) they are significantly over-optimistic, exceeding the actual growth rate by an average of seven percent per annum. Chan, Karceski and

Lakonishok (2003) analyze historical long-term growth rates across a broad cross section of stocks and show that I/B/E/S growth forecasts are overly optimistic and add little predictive power.

In the setting of IPOs, prior literature suggests that conflict of interests plays an important role in the optimism of LTG forecasts. For example, Rajan and Servaes (1997) examine data on analyst following for a sample of initial public offerings completed between 1975 and 1987, and find that analysts are overoptimistic about the earnings potential and long-term growth prospects of recent IPOs. They further document that, in the long run, IPOs have better stock performance when analysts ascribe low growth potential rather than high growth potential. Lin and McNichols (1998) find that lead and co-underwriter analysts' growth forecasts and recommendations are significantly more favorable than those made by unaffiliated analysts, although their earnings forecasts are not generally greater. Purnanandam and Swaminathan (2004) also document that, ex post, the projected high growth of overvalued IPOs fails to materialize, while their profitability declines from pre-IPO levels. Their results suggest that IPO investors are deceived by optimistic growth forecasts and pay insufficient attention to profitability in valuing IPOs.

In this section, we develop four non-exclusive testable hypotheses about the supply of long-term forecasts, which are signaling analyst ability, revealing analyst optimism, pleasing managers, and satisfying investor's informational needs. We also discuss the role of analyst peculiarity in LTG forecast issuance. Finally, we discuss institutional investors' role in analyst LTG forecast issuance.

Signaling Analyst Ability

At first sight, it may seem reasonable that the highly inaccurate and optimistic LTG forecasts are associated with low-quality analysts. However, while LTG forecasts are highly inaccurate and overly optimistic ex post, they may provide useful information to investors when they are published. The huge errors we observe ex post might just reflect the difficulty in projecting earnings growth far into the future.

Besides, analysts don't have to provide LTG forecasts. Since it is a challenging job to forecast the far future, only high-ability analysts are confident enough to issue LTG forecasts. Therefore, we argue that analysts are more likely to issue LTG forecasts when they are of higher ability, or at least, they perceive themselves as of higher ability.

H1: Analysts of higher ability are more likely to issue LTG forecasts.

Revealing Genuine Optimism of Analysts

McNichols and O'Brien (1997) find evidence of self-selection bias in analyst coverage. Specifically, they show that analysts tend to add firms they view favorably and drop firms they view unfavorably. Along the same line of thinking, we argue that there is a self-selection bias in the

providing of LTG forecasts as well. After all, analysts should have stronger incentives to collect long-term company-specific information when they are confident in the company's future.

The documented optimistic nature of LTG forecasts also appears to suggest that analysts who are more optimistic about the company are more likely to issue long-term forecasts. Thus, we expect analysts to be more likely to issue LTG forecasts when they are more optimistic about the company's future.

H2: Analysts are more likely to issue LTG forecasts for companies they are more optimistic about.

Pleasing Management

In practice, sell-side analysts often find themselves serving two masters. On the one hand, they serve investors, and thus aim at providing accurate and reliable research. On the other hand, their incentives to please the managers often obscure their goal of "objectivity", making the company they cover their other master. At the very least, analysts are often afraid to offend managers by providing unfavorable opinions partially because managers may withhold information from those analysts they are unhappy with (e.g., Lim, 2001).

In addition to informational concerns, analysts face an even higher stake when the company they cover is also an investment banking customer of the investment bank the analysts are affiliated with. There is a growing body of literature examining the role interest conflict plays in various aspects of analyst research. Dugar and Nathan (1995) show that analysts whose employers have an investment banking relationship with a company issue more favorable recommendations. Lin and McNichols (1998) find that lead and co-underwriter analysts' growth forecasts and recommendations are significantly more favorable than those made by unaffiliated analysts, although their earnings forecasts are not generally greater. Michaely and Womack (1999) document that stocks that underwriter analysts recommend perform more poorly than 'buy' recommendations by unaffiliated brokers prior to, at the time of, and subsequent to the recommendation date, and further show that the market does not recognize the full extent of this bias. Agrawal and Chen (2005a) find that potential investment banking relationship has no effect on quarterly earnings forecasts, but is positively associated with more optimistic long-term growth forecasts. Agrawal and Chen (2005b) show that analyst recommendation levels are positively associated with the magnitude of conflicts they face, but investors recognize analysts' conflicts and properly discount analysts' opinions. O'Brien, McNichols and Lin (2005) find that affiliated analysts are slower to downgrade from the "Buy" and "Hold" recommendations and significantly faster to upgrade from the "Hold" recommendations. James and Karceski (2006) document that underwriter-affiliated analysts provide protection in the form of "booster shots" of stronger coverage if the IPO firm experiences poor aftermarket stock performance. Ljungqvist et al (2006) confirm the positive relation between investment banking and brokerage pressure and analyst recommendations, and further show that

both bank reputation and institutional investors serve as moderating forces that temper analyst optimism.

Regarding LTG forecasts, prior literature also finds substantial evidence that investment banking relationship contributes to the extreme optimism in long-term earnings growth forecasts (e.g., Rajan & Servaes, 1997; Purnanandam & Swaminathan, 2004). Agrawal and Chen (2005a) suggest that analysts do not respond to conflicts by biasing short-term (quarterly EPS) forecasts, but appear to succumb to conflicts when making LTG forecasts. After all, in the case of LTG forecasts, which are often neglected by investors who put heavy weight on analyst near-term forecasts and recommendations, there is only one master left: the company they cover. Furthermore, given that LTG forecast are relatively difficult to verify ex post, the reputation loss associated with an inaccurate LTG forecast is minimal.

One may argue that analysts should be indifferent to LTG forecast issuance because these forecasts are generally ignored by investors and thus do not benefit managers at the cost of investors. However, conflict of interest, although behavior-altering, does not necessarily affect the interest of the third party. Instead, it is rational for analysts to respond to conflict of interest in a way less harmful to investors. The voting behavior of mutual fund managers documented by Davis and Kim (2006) may lend support to this view. Specifically, Davis and Kim (2006) find that mutual fund managers appear to side with management especially when there is no clear evidence that the measure being voted on have an impact on shareholder wealth. Therefore, we argue that, due to the general ignorance by investors, LTG forecasts may be subject to analyst manipulation to please the companies they cover.

H3: The supply of (optimistic) LTG forecasts is positively related to analysts' incentive to please managers.

Satisfying Investor Information Need

Defond and Hung (2003) document that financial analysts respond to market-based incentives to provide investors with value-relevant information. In particular, they find that analysts tend to forecast cash flows for firms whose accounting, operating and financing characteristics suggest that cash flows are useful in interpreting earnings and assessing firm viability. Along the same line, we expect that analysts provide LTG forecasts for firms whose long-term prospects are especially important for the valuation of their stocks. Therefore, we expect companies with large growth options to be more likely to receive LTG forecasts.

H4.1: Companies with larger growth options are more likely to receive LTG forecasts.

Meanwhile, Ljungqvist et al (2006) suggest that institutional investors serve as the ultimate arbiters of an analyst's reputation. Furthermore, institutional investors tend to be sophisticated users of the information analysts provide, who are therefore more likely to demand long-term information in their decision process. Consequently, analysts should be more likely to supply detailed research including a firm's long-term prospects when they know that the report is more likely to be read by institutional investors. Therefore, we expect companies with higher institutional investor ownership to be more likely to receive LTG forecasts.

H4.2: Companies with higher institutional investor ownership are more likely to receive LTG forecasts.

Analyst Peculiarity

In addition to the four hypotheses we develop above, it is possible that the issuance of LTG forecasts depends on the peculiarities of analysts, such as their working habits and tastes. If this is true, we should find no systematic pattern in the issuance of LTG forecasts. In addition, we should find little variation in the issuance decision of a particular analyst covering several companies.

Institutional Investors' Role in Analysts' Motives to Issue LTG Forecasts

Ljungqvist et al (2006) document the role of institutional investors in moderating conflicts of interest in analyst research. They argue that driven by their career concerns, analysts are less likely to succumb to investment banking pressure in stocks that are highly visible to their institutional investor constituency.

In addition, underlying our hypotheses, we assume that long-term forecasts can be manipulated because the little attention they receive from investors. However, unlike individual investors, who may be more focused on analyst recommendations and near-term earnings forecasts while totally neglecting long-term forecasts, institutional investors read analyst reports thoroughly and put more weights on the contents instead. Consistently, Mikhail, Walther, and Willis (2006) find evidence that large investors are more sophisticated processors of information, while small investors are more easily misled by analyst research. Therefore, we expect analysts less likely to issue LTG forecasts to please managers for companies heavily owned by institutional investors. For the same reason, we also expect the presence of institutional investors to enhance analysts' incentives to issue LTG forecasts when long-term information is valuable to investors.

Overall, we hypothesize that the presence of institutional investors is negatively (positively) relate to analysts' manager-pleasing (investor information needs satisfying) motives to issue LTG forecasts.

H5: Analysts are less (more) likely to issue LTG forecasts to companies with large institutional ownership to please managers (to meet investors' information needs).

DATA, SAMPLE, VARIABLES, AND SUMMARY STATISTICS

Data and Sample

As in Defond and Hung (2003), we collect one-year-ahead annual earnings forecasts (FY1) as our benchmark sample to control for other factors that affect the availability of LTG forecasts. The LTG forecasts, as collected by I/B/E/S, usually cover a five-year period that begins on the first day of the current ical year.

We collect the one-year-ahead annual earnings forecasts in the I/B/E/S detail history file from year 1991 to 2003. We identify each analyst-firm-(forecast) year combination and check whether there is any LTG forecast associated with these analyst-firm-year combinations. LTG forecasts are the long-term earnings growth forecasts as collected by I/B/E/S, which usually covers a five-year period that begins on the first day of the current fiscal year. Note that instead of using the year for which a forecast is made, we use the year during which a forecast is made. For example, the time stamp for a one-year-ahead forecast that is made in 2000 but for the Dec. 2001 fiscal quarter will be 2000 instead of 2001. We do so because we expect the decision to supply the forecasts are more economically related to the factors prevalent during the time the estimations are made

Table 1 reports the number and proportion of firm-analyst pairs, analysts, and firms associated with LTG forecasts by year. We observe significant variations in the size of the benchmark sample over the sample period. However, the proportions of analyst-firm associated with LTG forecasts demonstrate only small variations over years except for year 2003, which is associated with the lowest proportion of LTG forecast coverage. Specifically, the proportion of firm-analyst pairs that are associated with LTG forecasts is in the 42-47 percent range over period 1991-2002. Analysts who issue LTG forecasts account for around 58 percent of all the analysts who issue one-year-ahead earnings forecasts each year. The number of firms receiving analyst one-year-ahead forecasts peaked in 1996 with 1,149 firms covered, but dropped dramatically thereafter. In 2003, only 280 firms receive one-year-ahead forecasts from any analysts. The proportion of firms receiving LTG forecasts also seems to decrease over time.

Table 1: The Distribution of Long-term Forecasts by Calendar Year

	Analyst-firm pairs			Analysts			Firms		
	FY1	LTG	Proportion (%)	FY1	LTG	Proportion (%)	FY1	LTG	Proportion (%)
	(1)	(2)	(3)=(2)/(1)	(4)	(5)	(6)=(5)/(4)	(7)	(8)	(9)=(8)/(7)
1991	7572	3278	43.29	350	189	54.00	480	393	81.88
1992	6940	3072	44.27	287	181	63.07	651	551	84.64
1993	10546	4394	41.67	431	250	58.00	663	535	80.69
1994	11366	4930	43.37	536	335	62.50	795	650	81.76
1995	13109	5498	41.94	600	364	60.67	928	684	73.71
1996	14567	6730	46.20	795	479	60.25	1163	867	74.55
1997	15312	7207	47.07	826	497	60.17	1057	705	66.70
1998	15482	6579	42.49	971	527	54.27	952	605	63.55
1999	15086	6686	44.32	947	531	56.07	692	500	72.25
2000	14985	6359	42.44	1081	648	59.94	686	471	68.66
2001	13274	6243	47.03	1132	684	60.42	280	206	73.57
2002	14331	6486	45.26	1575	926	58.79	329	220	66.87
2003	13285	4714	35.48	1758	879	50.00	391	166	42.46
Mean	12758	5552	43	868	499	58	697	504	72
Median	13285	6243	43	826	497	60	686	535	74

Table 1 presents the distribution of analyst-firm pairs that are associated with LTG forecasts, analysts who issue LTG forecasts, and firms who receive LTG forecasts by calendar year, respectively. We collect the one-year-ahead annual earnings forecasts (FY1) in the I/B/E/S detail history file from year 1991 to 2003. We identify each analyst-firm-year combination and check whether there are long horizon earnings growth forecasts (LTG), as reported in I/B/E/S, associated with these analyst-firm-year combinations.

Variables

LTG Issuance: LTG is a dummy variable that equals one if the observation is associated with long-term earnings growth forecasts (LTG) as reported in I/B/E/S, and zero otherwise.

Analyst Ability

We adopt three sets of analyst ability measures. The first is analyst experience, which is adopted by many prior studies as proxies for analyst ability and skill. For example, Clement (1999) finds that forecast accuracy is positively associated with analysts' experience. Mikhail, Walther and

Willis (2003) find that analysts underreact to prior earnings information less as their experience increases, suggesting one reason why analysts become more accurate with experience. Following prior literature, we introduce two experience measures. The general experience of the analysts (Exp1) is defined as the number of years the analysts have issued earnings forecasts of any type for any company since 1983, when the sample period of I/B/E/S starts. Analysts' firm-specific experience (Exp2) equals the number of years the analysts have issued earnings forecasts of any type for the company since 1983. Second, we use the accuracy of the analyst's previous near-term forecasts as a proxy for analyst ability. Prior studies generally suggest persistence in analysts' stock picking and earnings forecasting ability. For example, Sinha, Brown and Das (1997) document persistence in earnings forecast accuracy, that is, superior earnings forecasters in one period tends to be superior the next period. Mikhail, Walther and Willis (2004) find that analysts whose recommendation revisions earned the most (least) excess returns in the past continue to outperform (underperform) in the future. Therefore, we adopt the accuracy of the analysts' past near term earnings forecasts for the same company to proxy for analyst quality. We define net forecast error (NFE) as 100 times the absolute value of the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. Past_NFE equals NFE_{t-1}, that is, the net forecast error of the most recent near-term earnings forecasts made during the previous year (When we use the average NFE over the three-year period prior to the year under consideration as an alternative measure, the sample size is reduced, but the main results remain largely unchanged). We expect a positive (negative) relation between the experience variables (Past_NFE) with the likelihood of long-term forecast issuance. Finally, analysts affiliated with prestigious brokers tend to be of higher quality, as suggested by prior studies (e.g., Clement (1999)). We use the analysts' brokerage house affiliation as the other proxy for analyst ability. We collect the broker names that appear as top 15 in "the leader list" of the Institutional Investor magazine (II) from year 1990 to year 2002. If a broker appears as top 15 on "the leader list" of Institutional Investor in year t, the broker is defined as high status broker for year t+1. The dummy variable *Top15* takes on value one for analysts affiliated with the high status brokers and zero otherwise.

Analyst Optimism

We adopt the optimism in analysts' near-term forecasts to measure analyst optimism about the company. Given the management's incentive to manage market expectations and to beat analyst forecasts, analysts who are optimistic to please managers should be forced to restrict or even discontinue their optimism in near-term forecasts, and therefore, we argue that the optimism in near-term forecasts should mostly capture the analysts' genuine optimism. Specifically, we use the forecast bias the analysts reveal in their past near-term forecasts to measure the analysts' optimism towards the company. Forecast Bias (FB) is 100 times the difference between the actual earnings and the analyst forecasts divided by the company's stock price at the end of the previous fiscal year.

A negative (positive) FB indicates that the forecast overestimate (underestimate) the actual earnings, and that it is optimistic (pessimistic). We define FB_{t-1} as the past near-term forecast accuracy, i.e., *Past_FB* (When we use the average FB over the three-year period prior to the year under consideration as an alternative measure, the sample size is reduced, but the main results remain largely unchanged). We expect the estimated coefficient to be negative. That is, increased analyst optimism, as measured by a more negative value of forecast bias, is associated with higher likelihood of long-term forecast issuance.

Management Pleasing Incentives

We adopt the existence of equity underwriting relationship as a proxy for analysts' incentive to please the managers, and hypothesize that analysts are more likely to issue long-term forecasts for firms who are also their investment banking customers. We extract all the new common stock issues in the U.S. market from 1989 to 2004 from the Securities Data Company (SDC) new issues database. We hand match the underwriters in the SDC database with the brokers in the I/B/E/S database. To enhance the quality of our match, we obtain the starting and ending dates of the appearance of the underwriter in the SDC database, and compare them with the starting and ending dates of the appearance of the broker in the IBES database. We also check the merger and acquisition history of the investment banks from the investment bank's website as well as by Google searching. We also double check the matching with the investment bank M&A and name changes data complied by Cheolwoo Lee, who generously provides us with the data. We are able to get a one-to-one match for most of the SDC underwriters. For underwriters/brokers that have experienced mergers or acquisitions, we assume that the surviving investment banks/brokers inherit the investment banking business and research coverage from both the acquirer and the target to assure continuity if the target broker coverage stops at the year of the merger. We assume that there is an investment banking relationship between the broker and the firm from one year before the issuing of the new common stock to one year after. We define IB as a dummy variable that equals one if the analyst is affiliated with the investment bank that serves as a book runner for the company's new common stock issues, and zero otherwise. Considering that it is possible for analysts to issue LTG forecasts for IPO firms because investors are in greater needs for long-term information of these companies, we introduce an IPO dummy. Specifically, IPO equals one for company i in year t if the company has an initial public offering as indicated by the IPO flag in SDC for year t and t-1, and zero otherwise.

Firm Growth Options

We adopt a firm's capital expenditure and R&D expenditure to measure the firm's growth options. Specifically, *GrowthExp* equals the sum of the company's R&D (Compustat item 46) expenditure and capital expenditure (Compustat item 30) scaled by the company's total assets

(Compustat annual item 6) of the most recent fiscal year. That is, *GrowthExp* measures how much the company invests for the future. We expect *GrowthExp* to be positively associated with the issuance of LTG forecasts. We also include three control variables relating to a company's growth options. Hitech is a dummy variable that equals one for firms with Compustat SIC code 3570-3577 (computer hardware), or 7371-7379 (computer software), or 2833-2836 (pharmaceutical), and zero otherwise. B/M is the ratio of the company's book value to market value at the end of the most recent fiscal year. We obtain a company's book value (Compustat item 60) and market value (Compustat annual item 199*25) from the Compustat database. Log(size) is the natural log of market value of equity (Compustat annual item 199*25) in millions of dollars for the most recent fiscal year.

Institutional Ownership

We collect the institution ownership information from the Thomson Financial Ownership database. *Institution* equals the total number of shares held by institutions who report their equity ownership in the quarterly 13f filings to the SEC divided by the total number of shares outstanding at the end of the previous calendar year. For firms with the institutional investor holdings data missing, we assume that these firms are 100% individually-owned and set *Institution* to zero. Ljungqvist et al (2005) suggest that it is possible that these companies are randomly missing. As a robustness check, we later delete observations with missing institutional ownership and our results are unchanged.

Summary Statistics

To be included in our sample, an observation needs to have all the above-mentioned variables available. We also delete 2,417 observations with negative book value and 69 observations with institutional holdings available but number of shares outstanding missing. Our final sample includes 170,139 one-year-ahead analyst-firm-year combinations.

Table 2 presents summary statistics. For the combined sample, 30.7 percent of the firm-analyst-year combinations are associated with LTG forecasts. On average, the analysts have issued forecasts for any company for approximately seven and a half years, and issued forecasts for a particular company for more than four years. 35.2 percent of the sample is associated with analysts hired by brokers who appear as top 15 in "the leader list" of the Institutional Investor magazine (II) from year 1990 to year 2002. The net forecast error of the most recent one-year-ahead forecasts the previous year is 67 cents for a stock priced at 100 dollars. The mean past forecast bias is negative, indicating that the forecasts are optimistic, but the median is positive. On average, R&D and capital expenditures account for 10.1 percent of total assets. 13.8 percent of sample is associated with high technology companies. The mean percentage of institutional ownership is 52.6 percent.

Table 2: Summary Statistics

Variable	Mean	Std. Dev.	10%	25%	Median	75%	90%
LTG	0.307	0.461	0	0	0	1	1
Exp1	7.46	4.67	2	4	7	11	14
Exp2	4.06	3.29	1	2	3	5	9
Top15	0.352	0.475	0	0	0	1	1
Past_nfe	0.667	3.322	0.008	0.054	0.164	0.485	1.320
Past_fb	-0.082	3.387	-0.625	-0.099	0.036	0.213	0.643
IB	0.009	0.097	0	0	0	0	0
IPO	0.001	0.027	0	0	0	0	0
GrowthExp	0.101	0.010	0	0.032	0.078	0.143	0.220
Hitech	0.138	0.345	0	0	0	0	1
Log(size)	7.407	1.831	5.033	6.127	7.383	8.645	9.794
B/M	22.996	2395.12	0.142	0.253	0.424	0.642	0.909
Institution	0.526	0.227	0.210	0.380	0.551	0.687	0.793
Sample size	170139						

Table 2 reports the summary statistics of our sample, which includes 170,139 analyst-firm-year observations over the period 1991-2003. LTG is a dummy variable that equals one if the observation is associated with long-term earnings growth forecasts (LTG) as reported in I/B/E/S, and zero otherwise. The general experience of the analysts (Exp1) is defined as the number of years the analysts have issued earnings forecasts of any type for any company since 1983, when the sample period of I/B/E/S starts. Analysts' firm-specific experience (Exp2) equals the number of years the analysts have issued earnings forecasts of any type for the company since 1983. We define net forecast error (NFE) as 100 times the absolute value of the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. Past_NFE equals NFE^{t-1}, that is, the net forecast error of the most recent near-term earnings forecasts made during the previous year. Forecast Bias (FB) is 100 times the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. We define FB^{t-1} as the past near-term forecast accuracy (Past_FB). We define IB as a dummy variable that equals one if the analyst is affiliated with the investment bank that serves as a book runner for the company's new common stock issues, and zero otherwise. IPO equals one for company i in year t if the company has an initial public offering as indicated by the IPO flag in SDC for year t and t-1, and zero otherwise. Hitech is a dummy variable that equals one for firms with Compustat SIC code 3570-3577 (computer hardware), or 7371-7379 (computer software), or 2833-2836 (pharmaceutical), and zero otherwise. B/M is the ratio of the company's book value to market value at the end of the most recent fiscal year. GrowthExp equals the sum of the company's R&D expenditure and capital expenditure scaled by the company's total assets of the most recent fiscal year. Log(size) is the natural log of market value of equity in millions of dollars of the most recent fiscal year. Institution equals the total number of shares held by institutions who report their equity ownership in quarterly 13f filings to the SEC divided by the total number of shares outstanding at the end of the previous year.

WHY DO ANALYSTS ISSUE LTG FORECASTS?

Univariate Tests

We first conduct a series of univariate tests and report our results in Table 3. We find that high-status broker affiliated analysts with more experience who issue more accurate near-term forecasts in the past for the company are more likely to issue LTG forecasts. We also find that analysts who are less optimistic about the company are more likely to issue LTG forecasts. In addition, *IB* is significantly higher for the group with LTG forecasts. Firms with more growth options (only median) and more stocks held by institutional investors are more likely to receive LTG forecasts.

Overall, our univariate results largely support the analyst ability signaling, management pleasing, and investor informational need satisfying hypotheses, but contradict the analyst optimism revealing hypothesis.

Table 3: Why Do Analysts Issue LTG Forecasts? Univariate tests

Variable	LTG=0		LTG=1		Dif	T	Dif	Z
	Mean (1)	Median (2)	Mean (3)	Median (4)	(1)-(3)		(2)-(4)	
LTG	0.000	0	1.000	1				
Exp1	7.389	7	7.618	7	-0.229	-9.34	0	-6.10
Exp2	4.048	3	4.088	3	-0.04	-2.34	0	1.05
Top15	0.328	0	0.406	0	-0.078	-31.55	0	-31.46
Past_nfe	0.744	0.185	0.492	0.127	0.252	14.44	0.058	43.21
Past_fb	-0.101	0.036	-0.039	0.034	-0.062	-3.49	0.002	-1.83
IB	0.008	0	0.012	0	-0.004	-8.05	0	-8.05
IPO	0.001	0	0.001	0	0	-0.64	0	-0.64
GrowthExp	0.101	0.077	0.101	0.081	0	0.25	-0.004	-9.24
Hitech	0.130	0	0.157	0	-0.027	-15.17	0	-15.16
Bm	22.168	0.443	24.863	0.382	-2.695	-0.21	0.061	39.41
Logsize	7.305	7.285	7.635	7.610	-0.33	-34.42	-0.325	-33.11
Institution	0.517	0.544	0.546	0.567	-0.029	-23.81	-0.023	-22.81
Sample size	117882		52257					

Table 3 presents the results from a series of univariate tests. We report the mean and median value for each subsample. Columns labeled as "Dif." contain the difference of mean (medain) between two subsamples. We report the t-statistics for means and an approximate z-statistic for a sum of ranks test under the hypothesis that the distributions are equal. LTG is a dummy variable that equals one if the observation is associated with long-term earnings growth forecasts (LTG) as reported in I/B/E/S, and zero otherwise. The general experience of the analysts (Exp1) is defined as the number of years the analysts

Table 3: Why Do Analysts Issue LTG Forecasts? Univariate tests

have issued earnings forecasts of any type for any company since 1983, when the sample period of I/B/E/S starts. Analysts' firm-specific experience (Exp2) equals the number of years the analysts have issued earnings forecasts of any type for the company since 1983. We define net forecast error (NFE) as 100 times the absolute value of the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. Past_NFE equals NFE^{t-1}, that is, the net forecast error of the most recent near-term earnings forecasts made during the previous year. Forecast Bias (FB) is 100 times the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. We define FB^{t-1} as the past near-term forecast accuracy (Past_FB). We define IB as a dummy variable that equals one if the analyst is affiliated with the investment bank that serves as a book runner for the company's new common stock issues, and zero otherwise. IPO equals one for company i in year t if the company has an initial public offering as indicated by the IPO flag in SDC for year t and t-1, and zero otherwise. Hitech is a dummy variable that equals one for firms with Compustat SIC code 3570-3577 (computer hardware), or 7371-7379 (computer software), or 2833-2836 (pharmaceutical), and zero otherwise. B/M is the ratio of the company's book value to market value at the end of the most recent fiscal year. GrowthExp equals the sum of the company's R&D expenditure and capital expenditure scaled by the company's total assets of the most recent fiscal year. Log(size) is the natural log of market value of equity in millions of dollars of the most recent fiscal year. Institution equals the total number of shares held by institutions who report their equity ownership in quarterly 13f filings to the SEC divided by the total number of shares outstanding at the end of the previous year.

Multivariate Tests

We expect LTG issuance decisions to be partly driven by analyst peculiarities such as their working habits or tastes, and thus focus on the controlling of analyst-level heterogeneities. We estimate a fixed-effect model with analyst-year effect fixed (). That is, we focus on analysts' decision to issue long-term forecasts among all the companies they cover in a given year. As a robustness check, we re-estimate a fixed-effect and a random effect model with only analyst effect, which allow us to include independent variables that are invariant within analyst-year groups such as Exp1 and Top15. To account for yearly variations, we also include year dummies.

Table 4. Why Do Analysts Issue LTG Forecasts? Multivariate Tests

		1		2		3	
	Predicted Sign	Coef.	Z	Coef.	Z	Coef.	Z
Exp1	+			-0.059	-1.44	0.005	1.95
Exp2	+	-0.009	-2.86	-0.011	-4.24	-0.012	-4.44
Top15	+			0.076	2.77	0.114	5.39
Past_nfe	-	-0.024	-4.83	-0.022	-5.48	-0.028	-6.88
Past_fb	-	-0.008	-1.65	-0.012	-3.14	-0.014	-3.62
IB	+	0.376	5.23	0.318	5.29	0.333	5.55

Table 4. Why Do Analysts Issue LTG Forecasts? Multivariate Tests

		1		2		3	
	Predicted Sign	Coef.	Z	Coef.	Z	Coef.	Z
IPO	+	-0.098	-0.34	0.134	0.59	0.185	0.83
Hitech	+	0.053	1.48	0.053	1.82	0.158	6.12
GrowthExp	+	-0.377	-3.47	-0.107	-1.23	-0.055	-0.65
Bm	-	0.000	2.18	0.000	2.26	0.000	2.09
Logsize	+	0.136	23.82	0.104	22.95	0.096	22.13
Institution	+	0.276	6.86	0.217	6.66	0.281	8.88
						-2.160	-41.56
Model		Analyst-year Fixed effect		Analyst fixed effect (with year dummies)		Analyst random effect (with year dummies)	
Log -likelihood		-37060		-70519		-86610	
# of obs.		89915		140689		170139	

Table 4 present our results with LTG as dependent variable estimated from the fixed-effect model with analyst-year effect fixed (Column 1), the fixed-effect model with analyst effect fixed including yearly dummies (Column 2), and the random effect model including analyst effect with yearly dummies (Column 3). We omit the estimated coefficients for the yearly dummies in Column 2 and 3. LTG is a dummy variable that equals one if the observation is associated with long-term earnings growth forecasts (LTG) as reported in I/B/E/S, and zero otherwise. The general experience of the analysts (Exp1) is defined as the number of years the analysts have issued earnings forecasts of any type for any company since 1983, when the sample period of I/B/E/S starts. Analysts' firm-specific experience (Exp2) equals the number of years the analysts have issued earnings forecasts of any type for the company since 1983. We define net forecast error (NFE) as 100 times the absolute value of the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. Past_NFE equals NFE^{t-1}, that is, the net forecast error of the most recent near-term earnings forecasts made during the previous year. Forecast Bias (FB) is 100 times the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. We define FB^{t-1} as the past near-term forecast accuracy (Past_FB). We define IB as a dummy variable that equals one if the analyst is affiliated with the investment bank that serves as a book runner for the company's new common stock issues, and zero otherwise. IPO equals one for company i in year t if the company has an initial public offering as indicated by the IPO flag in SDC for year t and t-1, and zero otherwise. Hitech is a dummy variable that equals one for firms with Compustat SIC code 3570-3577 (computer hardware), or 7371-7379 (computer software), or 2833-2836 (pharmaceutical), and zero otherwise. B/M is the ratio of the company's book value to market value at the end of the most recent fiscal year. GrowthExp equals the sum of the company's R&D expenditure and capital expenditure scaled by the company's total assets of the most recent fiscal year. Log(size) is the natural log of market value of equity in millions of dollars of the most recent fiscal year. Institution equals the total number of shares held by institutions who report their equity ownership in quarterly 13f filings to the SEC divided by the total number of shares outstanding at the end of the previous year. For each model, we report the estimated coefficient, the z statistics, the log-likelihood, and the sample size.

In column 1 of Table 4, we report the estimation results with analyst-year effect fixed. 16,197 analyst-year pairs (80,224 observations) are dropped due to all positive or all negative outcomes, but still 11,300 analyst-year pairs (89,915 observations) remain, indicating that a given analyst may issue LTG forecasts for only a subset of companies she covers in a given year. Therefore, the issuance decision of LTG forecasts goes beyond analyst peculiarity.

Although LTG forecasts are documented as extremely inaccurate and overly optimistic, analysts are more likely to choose the companies they had more accurate past near-term forecasts for LTG coverage. However, analysts are less likely to issue LTG forecasts as they gain more firm-specific experience for the company. This result may be driven by analyst picking firms newly added to coverage for LTG forecasts.

We also find the estimated coefficient of Past_FB to be significantly negative, indicating that analysts may be more likely to issue LTG forecasts for companies they are more optimistic about.

We document strong support for the manager pleasing hypothesis. Investment banking tie (IB) is significantly positive at the one percent level. The evidence regarding the investor informational need satisfying hypothesis is, however, mixed. Analysts are more likely to pick companies with higher institutional ownership. However, companies with larger growth expenditures are less likely chosen for LTG coverage after controlling for other firm characteristics such as size and B/M.

In Column 2 and 3, we report the estimation results from a fixed-effect model with analyst effect fixed, and a random effect model including analyst effect. For both models, we include year dummies, but do not report the estimated coefficients to conserve space. Overall, the results are similar. We find support for the management pleasing and optimism revealing motives, but mixed evidence regarding the analyst ability signaling and investor informational needs satisfying motives. For example, we find that analysts who have more general experience (only according to the random-effect model), who are able to issue more accurate near-term forecasts in the past, and who are affiliated with high status brokers are more likely to issue LTG forecasts, but again analysts seem to drop LTG coverage as they gain more firm-specific experience. Regarding the investor information needs satisfying hypothesis, we find that the coefficient of *Institution* is significantly positive as expected, but the coefficient of *Growth_Exp* is insignificant.

Taken together, we find evidence for the manger pleasing and analyst optimism revealing motives, but mixed evidence for investor informational needs satisfying and analyst ability signaling motives.

INSTITUTIONAL INVESTORS' ROLE IN ANALYSTS' MOTIVES TO ISSUE LTG FORECASTS

We introduce two explanatory variables: the interactive term between *Institution* and *GrowthExp,* and the interactive term between *Institution* and *IB*. We expect the estimated coefficient

of *Institution*GrowthExp* to be positive and the estimated coefficient of *Institution*IB* to be negative.

In Table 5, we find that companies with higher institutional ownership are less likely to be chosen for LTG forecast coverage because of investment banking ties. In addition, we show that institutional investors' role goes beyond that. The coefficient of the interactive term between institutional ownership and growth expenditure is significantly positive, indicating that analysts are more likely to issue LTG forecasts for companies with higher R&D and capital expenditures given the presence of higher institutional ownership.

Table 5: The Role of Institutional Investors in Analysts' Motive to Issue Long-term Forecasts

	Predicted	1		2		3	
	Sign	Coef.	Z	Coef.	Z	Coef.	Z
Exp1	+			-0.058	-1.43	0.005	1.94
Exp2	+	-0.009	-2.86	-0.011	-4.25	-0.012	-4.45
Top15	+			0.076	2.77	0.114	5.3
Past_nfe	-	-0.024	-4.84	-0.022	-5.5	-0.028	-6.9
Past_fb	-	-0.008	-1.67	-0.012	-3.16	-0.014	-3.65
IB	+	0.702	4.14	0.664	4.77	0.711	5.12
IPO	+	-0.072	-0.25	0.151	0.67	0.202	0.9
Hitech	+	0.052	1.45	0.052	1.79	0.157	6.05
GrowthExp	+	-0.914	-4.41	-0.473	-2.83	-0.335	-2.08
Bm	-	0.000	2.19	0.000	2.28	0.000	2.11
Logsize	+	0.136	23.75	0.104	22.91	0.096	22.08
Institution	+	0.171	3.13	0.148	3.35	0.230	5.33
*Institution*IB*	-	-0.633	-2.11	-0.688	-2.74	-0.757	-3.01
Institution GrowthExp*	+	1.128	3.08	0.765	2.59	0.596	2.07
constant						-2.135	-39.27
Model		Analyst-year Fixed effect		Analyst fixed effect(with year dummies)		Analyst random effect (with year dummies)	
Log-likelihood		-37053		-70512		-86610	
# of obs.		89915		140689		170139	

We test the effect of institutional investors on analyst motives. LTG is a dummy variable that equals one if the observation is associated with long-term earnings growth forecasts (LTG) as reported in I/B/E/S, and zero otherwise. The general experience of the analysts (Exp1) is defined as the number of years the analysts have issued earnings forecasts of any type for any company since 1983, when the sample period of I/B/E/S starts. Analysts' firm-specific experience (Exp2) equals the number of years the analysts have issued earnings forecasts of any type for the company

Table 5: The Role of Institutional Investors in Analysts' Motive to Issue Long-term Forecasts

since 1983. We define net forecast error (NFE) as 100 times the absolute value of the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. Past_NFE equals NFE^{t-1}, that is, the net forecast error of the most recent near-term earnings forecasts made during the previous year. Forecast Bias (FB) is 100 times the difference between the actual earnings and the analyst forecasts divided by the company's stock price the company's stock price at the end of the previous fiscal year. We define FB^{t-1} as the past near-term forecast accuracy (Past_FB). We define IB as a dummy variable that equals one if the analyst is affiliated with the investment bank that serves as a book runner for the company's new common stock issues, and zero otherwise. IPO equals one for company i in year t if the company has an initial public offering as indicated by the IPO flag in SDC for year t and t-1, and zero otherwise. Hitech is a dummy variable that equals one for firms with Compustat SIC code 3570-3577 (computer hardware), or 7371-7379 (computer software), or 2833-2836 (pharmaceutical), and zero otherwise. B/M is the ratio of the company's book value to market value at the end of the most recent fiscal year. GrowthExp equals the sum of the company's R&D expenditure and capital expenditure scaled by the company's total assets of the most recent fiscal year. Log(size) is the natural log of market value of equity in millions of dollars of the most recent fiscal year. Institution equals the total number of shares held by institutions who report their equity ownership in quarterly 13f filings to the SEC divided by the total number of shares outstanding at the end of the previous year. For each model, we report the estimated coefficient, the z statistics, the log-likelihood, and the sample size.

To summarize, our results confirm the important role institutional investors play in analyst research. We find that institutional ownership is positively associated with LTG issuance for the right reason (investor informational needs satisfying), but negatively associated with LTG issuance for the wrong reason (manager pleasing).

CONCLUSION

This paper examines analysts' motives to issue LTG forecasts. We develop four non-exclusive hypotheses, which are that analysts issue early forecasts to signal their ability, to reveal their optimism, to please the management (since these forecasts are overly optimistic), and to satisfy investors' informational needs. With one-year-ahead annual earnings forecasts as our benchmark sample, we test our hypotheses using a fixed-effect logit model with the analyst-year effect fixed, which ensures that our results are not driven by analyst peculiarities such as their working habits that equally affect analysts' decision to issue long-term forecasts for all the companies they cover.

We find support for the manager pleasing and analyst optimism revealing hypothesis, but mixed results for the ability signaling and investor informational needs satisfying motives. In addition, we examine institutional investors' role in determining analysts' motives to issue long-term forecasts. We find that analysts are less (more) likely to issue long-term forecasts to companies with large institutional ownership to please managers (to meet investors' information needs).

This paper contributes to the literature in several ways. First, an examination of the providence of long-term forecasts offers several advantages in investigating conflicts of interests, and we show that long-term forecasts may serve as a manipulative tool for analysts to please

managers. In addition, our results augment Ljungqvist et al (2006)'s finding about the role of institutional investors in analyst research.

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MINORITY STOCKHOLDER INFORMATION RELEVANCE: WEALTH EFFECTS AND/OR MONITORING?

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ABSTRACT

Noncontrolling interests (NCI) are created from investment decisions that may have implications for stock prices and diversification. This study examines minority interest financial statement information to determine if majority shareholders' prices are affected wealth sharing and/or monitoring effects from minority interests. Analyses indicate that disaggregating the equity interest data into majority and minority shareholder interest information provides increased explanatory value about stock market prices. The results are influenced by investors' differing reactions to profits/losses and unexpected positive/negative earnings. Findings also indicate that the impact of NCIs' wealth effects differs according to firm size.

INTRODUCTION

In FASB 160 which becomes effective on January 1, 2009, the Financial Accounting Standards Board (FASB 2007) mandates a presentation of NCI information separately on the income statement and within stockholders' equity on the balance sheet. Is FASB's approach relevant for investors (Rapoport, 2009)? The relevance of accounting information for investors is a fundamental precept of FASB's Statement of Financial Concepts No. 2 (1980), but relevance is not guaranteed for any specific standard. Only an empirical investigation will provide evidence about the relevance of NCI information for the stock market. Therefore, this research examines the testable proposition: Does disaggregated majority and minority shareholder interests' data provide incremental monitoring/wealth-sharing information to investors above and beyond ignoring the NCI financial statement numbers? In order to get a good assessment of the investor response to NCI information, this analysis also examines a complementary question: Does the presence of NCIs impact investor reactions according to the level of income (profits/losses and unexpected positive/negative income)? This study provides a benchmark of information content about a period prior to the adoption of FASB 160 so that accountants can have a comparative sense about the expectations of investors with respect to NCI data in the financial statements.

The consolidation process is a key accounting activity in many large firms, but there is limited empirical analysis of what investors think about this process (Clark 1993). In the current

study, there are millions of dollars and numerous firms (approximately a fifth of this study's NYSE and AMEX sample) involved. In order to examine the relevance of NCIs, it will be necessary to utilize a valuation model that facilitates the analysis of distinct NCI incremental information. This approach gives an opportunity to examine shareholder monitoring and wealth-sharing in the accounting context that firms with NCIs provide as contrasted with Graham and Lefanowicz (1999) who focused only on balance sheet wealth effects. Thus, as the current study expands the knowledge of shareholder governance of an issue, the findings will also contribute knowledge about price-earnings relations because most researchers pool earnings data to estimate the cross-sectional impact on the stock market presuming a homogeneous relation (Collins, Pincus and Xie 1999) (CPX). Improving the ability to explain the relevance of NCI to investors and the academic community is another motivating factor. This research specifically arose from a classroom question for which there was no empirical evidence (*ex ante* the current study) about the relative importance of NCIs under different firm conditions.

The empirical results indicate that NCI information is relevant to investors both from a monitoring and wealth-sharing perspective. The results contribute knowledge by showing that NCIs do provide incrementally higher monitoring value on income information, but not for the largest firms. In addition, the wealth-sharing and monitoring effects are different depending upon whether the firm experienced a profit or loss. A separate analysis on the impact of unexpected earnings also has differentiable implications from NCIs. The differential findings are consistent with utility and prospect theory. Thus, a theoretical foundation and testing are given for an aspect of shareholder partnering and the study provides a useful contribution toward the knowledge of modern corporation combination issues.

The paper organization is as follows: The next section presents theory and gives a literature review. The following section describes the sample description and gives simple statistics comparing firms with and without NCIs. The next section contains the empirical analysis. The final section presents the conclusions.

THEORY AND LITERATURE REVIEW

Theoretically, the potential difference between firms with NCIs and those without can be distinguished by considering a two-firm example comparison. Investors in the capital markets are presumed to gravitate to the most efficient portfolio frontier tradeoff between return and risk (i.e., *ceteris paribus*, investors desire higher returns and lower risk). A mapping of firm financial information (e.g., NCI data) should exist into stock returns (Demski and Sappington 1990). If two separate firms differ only by the virtue that one has NCIs and the other does not, would these firms reside on the same position on a portfolio frontier or would they be separate?

The theoretical answer can be found by examining the rights of stockholders. By definition, the NCI shareholders share a firm's financial risk with the majority holdings, and therefore, this separate NCI group provides additional monitoring value (by their very existence) in reducing the

majority holdings' agency cost of equity. Thus, for the two hypothetical firm investment alternatives, majority shareholders in a company who have a NCI should see a higher response to earnings than a firm wholly owned by one group of equity holders. However, NCIs are not costless because "there is no free lunch." So, firms with NCIs should also exhibit wealth-sharing effects. Graham and Leganowicz (1999) perform empirical analyses comparing the book-to-market values of majority versus minority holdings. They conclude that the subsidiary holdings are more valuable to majority shareholders than to minority shareholders. The present study is different than theirs in its empirical design and sensitivity analyses of factors such as size.

There is another line of research which is applicable to NCIs and this literature concerns the agency analysis of large shareholders' effects on a firm. One can make the proposition that NCIs will behave as a large shareholder for governance purposes. Two papers (Butz 1994 and Shleifer and Vishny 1986) argue that large shareholders exert significant influence through the threat of a takeover. Bethel et al. (1998) find that large block purchases by "activist" investors result in improved corporate and share price performance. Huddart (1993) suggests that the presence of a large shareholder will increase monitoring, and that the large shareholder will shoulder proportionately higher risk (idiosyncratic, which is not measured by beta). The analogous proposition is that NCIs would function like a large shareholder giving increased monitoring. Clearly, a large shareholder will be acting in their own interests to maximize their shareholder wealth by demanding monitoring. To the extent of minority shareholders' influence on a parent firm through the requirement of monitoring subsidiary information, minority shareholders will act like a large shareholder. However, because no previous empirical evidence about minority shareholder effects exists in this context, the implications of these assertions are propositions that need to be tested.

To check the basis of the theory, conversations with security analysts were held and they indicated several other motivations for NCI shareholders. Minority shares may exist because of: founder/management who kept these shares; investors who thought the shares were a good investment according to inside information or other informed trader data; or investors who simply could not sell during the acquisition due to tax/pension considerations. Intel was given as an example of a firm in 1999 that has investments in 350 companies around the world. Analyst comments indicated that Intel gets to know another company by having a board member and Intel uses these investments for excess cash. Also, risk-sharing was mentioned as a factor because one semiconductor factory is extremely expensive (on the order of billions of dollars). For each type of NCI holder, one of the basic shareholder rights (discussed in any introductory financial accounting text) is the access to timely financial statements. Similar to any other stockholder, NCI shareholders (like any other stock investor) will have a wealth-based utility motivation (and the reason for litigating (Lappen 1989) if necessary) to demand detailed subsidiary monitoring information. Particularly in the high-tech industries, the parent (or majority partner) will have an incentive to respond to minority shareholders to the extent they generate knowledge-based value-added effects. Hypothetically, this subsidiary financial statement data will be disseminated through

price discovery to affect parent share prices. Thus, parent firms with NCIs will have price discovery activity generated from subsidiary data that should identify a more significant price/earnings relation compared to firms without NCIs in any subsidiary. For purposes of example, Ford and Hertz are household names that have a parent / NCI relation of the type just described. During 1999, Ford re-organized the ownership relation with Hertz in class A and class B stock whereby Ford owns 95 percent of Hertz (and controls all board seats) but has slightly less than 50 percent of Hertz's class A stock traded publicly on the NYSE exchange.

In addition to the previous arguments, there is another reason why NCI information should influence stock returns. A well-established principle (Lipe 1986) indicates that the decomposition of earnings provides superior information to the market above and beyond total earnings. NCI income is part of the entire firm's income and it can be hypothesized that the market is influenced by the complete entity's ability to generate future value (i.e., NCIs are only one way of financing a business subsidiary). While it is mathematically possible that NCIs would get a simple fractional apportionment of income, this situation is highly unlikely because companies acquire subsidiaries where the NCIs exist only in that entity and definitely *not* in the parent. In fact, the descriptive statistics support this contention with a low majority/NCI correlation, and therefore the possibility of any spurious effect is not likely.

In summary, there are theoretical and anecdotal reasons (risk reduction, agency theory, price discovery and data decomposition) why the presence of NCIs should improve parent company monitoring, but there also may be wealth-sharing effects. In order to empirically test these propositions, the analysis uses a comprehensive research design based upon Collins, Pincus and Xie (1999) which was based Ohlson's (1995) framework that incorporates earnings and balance sheet information to explain firm value. The empirical analyses are in the section following the next one.

SAMPLE DESCRIPTION

Research Insight (RI) active and research (to minimize survivorship bias) files provide the accounting data for the study. The sample includes only those observations for which all variables (e.g., NCI) have data from the period 1988 to 1994. This period is relatively stable which is an important control feature that market swings, merger and acquisition activity, etc. do not impact upon firm valuations affecting statistical analyses. The observations must be traded on the New York or American Exchange which minimizes the variability of information dissemination. There are 49,354 observations with positive common shareholders' equity at the beginning of the period. Each observation had to have non-negative values for the RI stockholders' equity and NCI data because firm distress (signified by negative equity) is not a characteristic that is appropriate for this study. After all of the RI eliminations for the existence of variables and CPX's restriction of a minimum of 10,000 shares, 27,882 observations remained. Upon computing Beta, 24,066 were valid because observations were dropped due to incomplete return information for calculation purposes. Beta was calculated with the market model using CRSP monthly stock returns. The beta variable

was calculated with the market model over a 60-month estimation period with its ending point nine months before year-end.

The sample was further restricted to firms according to their two-digit Standard Industry Code (SIC) from four industry groupings (construction 15-17, industrial 20-39, transportation/communication 40-48, and wholesalers 50-51). The reason for this SIC restriction is that other economic sectors' (e.g., financial) balance sheets have drastically different accounts and consolidation accounting. These procedures result in a final sample of 8,117 firm-year observations. Table 1 provides descriptive information about the variables in two panels according to whether or not the observation had NCI information at the beginning of the year. Table 1 has no indication of outliers as the simple correlation data have no significant univariate associations between the independent variables and the dependent variable.

Table 1: Descriptive Statistics of Firms With and Without Minority Interests

Panel A: Observations Without Minority Interests (n = 6460)

Variable	Mean	Std. Dev.	Minimum	Maximum
P_t	12.411	13.691	0.031	286
BETA	0.96	0.458	-1.479	8.009
X_t	0.37	2.364	-81.039	24.12
BV_{t-1}	7.137	9.247	0.002	204.54

Panel B: Observations Without Minority Interests (n = 6460)
Pearson Correlations Between Variables

Variable	P_t	BETA	X_t	
BETA	-0.087*			
X_t	0.338*	-0.075*		
BV_{t-1}	0.743*	-0.109*	0.177*	

Panel C: Observations With Minority Interests (n = 1657)

Variable	Mean	Std. Dev.	Minimum	Maximum
P_t	23.018	22.359	0.125	204.208
BETA	0.884	0.417	-1.373	3.049
X_t	0.466	7.778	-197.542	18.78
BV_{t-1}	12.986	20.295	0.005	427.939
BVM_{t-1}	1.254	3.122	0	33.338

Table 1: Descriptive Statistics of Firms With and Without Minority Interests

Panel D: Observations With Minority Interests (n = 1657)
Pearson Correlations Between Variables

Variable	P_t	BETA	X_t	BV_{t-1}
BETA	-0.300*			
X_t	0.01	-0.059#		
BV_{t-1}	0.626*	-0.153*	-0.566*	
BVM_{t-1}	0.452*	-0.114*	0.022	0.376*

* signifies (α=.01); # signifies (α=.05); & signifies (α=.1)
P_t = stock price (dollars) per share plus dividends per share at time t,
BETA = systematic market risk,
X_t = accounting income (dollars) per share at time t,
BV_{t-1} = majority shareholders' book value (dollars) per share at time t-1, and
BVM_{t-1} = minority shareholders' book value (dollars) per share at time t-1.

How significant are the differences between firms that have NCIs versus those that do not? Table 2 presents a series of t tests on the means of key variables comparing firms with and without NCIs. As might be expected, firms with NCIs are significantly larger than those without any. However, the market does view the risk (ie., Beta, systematic risk) of firms with NCIs as lower than firms that do not have minority shareholders. Therefore, this study's analyses control for risk in case NCIs are a risk surrogate.

Table 2: Tests of Means of Observations With and Without Minority Interests (All variance conditions are unequal α=.05)

Variable	Mean Without Minority Interests (n=6460)	Mean With Minority Interests (n=1657)	T Statistic for Mean Differences
P_t	12.41	23.02	18.44*
BETA	0.96	0.884	6.43*
NI_t	34.75	231.3	10.84*
BV_{t-1}	7.137	12.99	11.43*
MKTV	729.7	5100	16.07*

Table 3 presents a distribution of NCIs as a percentage of total stockholder equity at the beginning of the year. Table 3 also presents a distribution statistic for firms which only have NCIs. Three-quarters (74.2%) of the firms that have NCIs fall into the zero-to-ten percent bracket of NCIs as a percentage of total equity. This point should be kept in mind as the strength of the results is considered. There is one other issue of interest in Table 3 concerning the last category of 25 firms

which have a ratio of greater than 50 percent. This phenomena can occur when a small firm with an acquisition program acquires a larger firm (if the bigger company shareholders will allow it). Although unusual, these observations are not arbitrarily excluded because the objective of the analysis is to examine the extent of NCIs in wealth-sharing and monitoring.

Table 3: Distribution of the Ratio
(Minority Interests /(Minority Interests + Majority Equity))

Range of Ratio	Frequency	Percentage (All Observations)	Percentage (With Minority Interests)
No Minority Interests	6460	79.6	Not Applicable
0+ to 10 percent	1229	15.1	74.2
10 to 20 percent	257	3.2	15.5
20 to 30 percent	81	1.0	4.9
30 to 40 percent	39	0.5	2.4
40 to 50 percent	26	0.3	1.6
above 50 percent	25	0.3	1.5

EMPIRICAL ANALYSES

Full Sample

Equation (1) provides the research design to test the NCI wealth-sharing and monitoring issues. The formula is based upon the principle of testing incremental information to equation (3) of Collins, Pincus and Xie (1999). Several modifications are made to fit this study's objectives, testing the influence of NCIs. To examine the monitoring issue, the variable Xm_t measures the incremental earnings response effect when NCIs are present. This variable is X_t when NCIs exist and zero otherwise. To assess wealth-sharing effects, the analysis includes the variable BVM_{t-1} which represents beginning of the period minority shareholder(s)' interest. The coefficient β_5 will measure the extent of wealth-sharing effects, if any do exist. Because NCI information could surrogate for risk, this research design also includes market systematic risk BETA as a control variable. The expected sign is negative based on theory from Collins and Kothari (1989) who identify factors in the relation between stock returns and firm earnings data. Equation (1) is:

$$P_t = \beta_0 + \beta_1 BETA + \beta_2 X_t + \beta_3 Xm_t + \beta_4 BV_{t-1} + \beta_5 BVM_{t-1} + \varepsilon_t \quad (1)$$

where

P_t	= stock price per share plus dividends per share at time t,
β_0	= intercept,
BETA	= systematic market risk,
X_t	= accounting income per share (majority interests) at time t,
Xm_t	= incremental variable of X_t when NCIs are present and 0 otherwise,
BV_{t-1}	= majority shareholders' book value per share at time t-1,
BVM_{t-1}	= minority shareholders' book value per share at time t-1,
ε_t	= error term at time t and
$\beta_1,\beta_2,\beta_3,\beta_4,\beta_5$	= regression coefficients.

Three hypotheses of equation (1) will be tested for the full sample. One is:

H1a: The presence of NCIs incrementally improves the response to earnings, (ie., β_3 is positive and significant).

An analogy from the literature (Butz 1994; Shleifer and Vishny 1986; Huddart 1993) suggests that larger levels of NCI should impact on the earnings-return relation because of an improvement in monitoring. Thus, the expected result is a finding supporting H1a.

The second and third hypotheses test the proposition that majority investors believe NCIs have wealth-sharing characteristics. There is no prior empirical evidence on this point and two possibilities exist to be tested. First, people generally react negatively when they have to share financial assets. Thus, hypothesis H2a tests the negative alternative. On the other hand, NCIs might be viewed as additional partners who add resources/synergy that help a firm's economies of scale, etc. Hypothesis H3a captures this second possibility. There is also a question of sensitivity to the presence of NCI investment. β_5 should be relatively lower in value than β_4 if parent company shareholders discount the existence of NCIs. However, if NCIs are perceived as a "superior" partner then β_5 should be equivalent or higher in value than β_4.

H2a: The presence of NCI book value will detract from the price of majority owned stock, (i.e., β_5 should be negative and significant).

H3a: NCI book value represents additional capital for the majority owned stockholders' purposes and will be reflected positively in the price, (i.e., β_5 should be positive and significant).

The results of the analysis of equation (1) support the rejection of both null hypotheses one and three (See Table Four). Thus, NCIs appear provide additional monitoring value, but do not seem to detract from firm value in negative wealth-sharing. No statistical difference exists between β_5 and β_4 and therefore parent company shareholders appear to regard NCIs as an additional "equal" partner. The adjusted R square of .62 compares favorably with Collins, Pincus and Xie (1999). The Beta coefficient is negative as predicted and is significant.

Some concern might be present that cross-sectional dependency (Bernard 1987) exists (ie., all the variables move together creating a false indication of significance). Therefore, another regression is performed with the basic set of variables from equation (1) that incorporates a set of yearly indicators. These results are also shown in Table Four. Even after controlling for individual year effects, the main conclusions of NCI monitoring and wealth-sharing hold at similar significance levels. An additional validity factor is indicated because 1990 has a negative coefficient of a market reduction whereas the other year coefficients are positive for bull market conditions. Multicollinearity, another potential problem, was examined with variance inflation factors (Kennedy 1998). None of the factors are above the benchmark of ten (Kennedy 1998) and therefore this information is not reported.

Table 4: Full Sample (n=8117) Regression Analyses

Variable	Parameter Estimate	T-Statistic	Parameter Estimate	T-Statistic
Intercept	6.461	22.38*	5.072	11.50*
BETA	-1.162	-4.58*	-0.863	-3.39*
X_t	2.257	22.18*	1.208	22.48*
Xm_t	0.341	5.15*	0.341	5.17*
BV_{t-1}	1.016	94.67*	1.022	95.56*
BVM_{t-1}	0.966	11.88*	0.95	11.75*
Y89			0.034	0.94
Y90			-0.808	-1.77&
Y91			0.909	2.01*
Y92			1.786	4.04*
Y93			2.324	5.34*
Y94			2.12	4.91*
Adj. R-sq	0.617		0.621	
F Value	2611.585*		1209.591*	
Overall				
F Value	0.347		0.712	
$BV_{t-1} = BVM_{t-1}$				

There is one other sensitivity matter with regards to CPX's selection of dependent variable with the dividend that requires discussion. CPX's basic theoretical logic is correct up to the point where the authors ignored the implied tax effect on the value of dividends, which was originally reported empirically by Elton and Gruber (1970). Almost thirty years later, Erickson and Maydew (1998) indicate that a consensus on this issue has not been reached. They do find implicit taxes present for preferred stocks, but not for common stocks. Routine dividends are probably already discounted in the stock price, in part, because of a practice called "dividend capture" where companies invest in other companies to get dividends as means of temporarily putting excess cash to work. Theoretically, dividends are also presumed to signal a firm's future prospects (Miller and Rock 1985). The complete extent of these countervailing impacts is unknown. An exploration of this issue was done by regressing the fiscal year-end price (3 months preceding CPX) without the dividend for an expectation perspective. The regression findings are similar to Table Four and are not included here.

NCI Impact on Profit/Loss Effects

Collins, Pincus and Xie (1999) report that their research framework has different results depending on whether the firm experienced a profit or loss. In particular, CPX find that including book value is significant for loss firms. What are the implications for the presence of NCIs upon majority shareholder investors' reactions to differential profit/loss situations? Here, the study breaks new ground with a little prior theoretical guidance. Some inference can be made from Kahneman and Tversky's (1979) prospect theory about how individuals view gains and losses.

For profit observations, the monitoring proposition indicates that equation (1)'s results should be as proposed in hypothesis 1a (i.e., the incremental coefficient β_3 will be positive and significant). In other words, NCIs' presence should make majority shareholders more responsive to firm profits (significant incremental monitoring). However, the NCI monitoring effect in a loss situation is somewhat problematical because the parent company management might take a "big bath" if the parent firm was to incur any loss at all. For obvious reasons (litigation), any "big bath" would concern specific parent company accounts that NCI would not have privy.

Wealth-sharing hypotheses 2a (negative NCI implications) and 3a (positive consequences) will be tested again. Prospect theory suggests that investors are likely to sell their shares when the firm reports profits, but NCIs will reduce their upside winnings' potential. Therefore, the minority book value variable is less likely to influence investors in profit situations than it is in loss cases. Interpretations of utility theory generally postulate that investors are risk averse (Friedman and Savage 1948). Thus, the presence of NCI book value should have a beneficial effect. The reason is that someone else is supporting them (majority shareholders) in bad times and may serve as another deep pocket if bankruptcy occurs. With regards to the presence of NCI equity, majority shareholders will feel encouraged by the existence of NCIs and tend to price these stocks incrementally higher. On the other hand, prospect theory (Weber and Camerer 1998) argues that

investors will hold onto investments in the presence of losses and tend to become more risk-seeking. Thus, the Beta coefficient should exhibit increased risk-taking investor behavior for losses.

For losses and profits, the results support the rejection of the null hypotheses one. The presence of NCI information provides additional monitoring value. The null hypothesis three can be rejected for losses. In fact, the NCI book value coefficient is significantly higher than majority interest book value according to an F test (α=.01). On the other hand, when firms show the profits, the NCI book value coefficient is significantly lower than the majority shareholders book value coefficient, which is a rejection of hypothesis two. The combined effect of the profit and loss results indicate that prospect theory is an appropriate explanation of investor behavior concerning NCIs. While the significance of the book value coefficients is as previously predicted by prospect theory, the Beta coefficient is markedly so. Thus, the positive coefficient on Beta for losses also argues strongly in favor of prospect theory's application in this situation.

Table 5: Regression Analyses of Actual Profit/Loss Observations

	Actual Profit Observations		Actual Loss Observations	
Variable	Parameter Estimate	T-Statistic	Parameter Estimate	T-Statistic
β_0	6.345	19.40*	2.463	6.11*
BETA	-1.645	-5.55*	0.68	2.08#
X_t	3.916	29.12*	-0.138	-2.58*
Xm_t	1.734	10.47*	0.798	13.80*
BV_{t-1}	0.813	51.41*	0.624	36.96*
BVM_{t-1}	0.09	0.94	2.423	17.10*
Adj. R-sq	0.689		0.563	
F Value	2717.187*		507.414*	
Overall F Value	49.738*		155.394*	
$BV_{t-1} = BVM_{t-1}$				
Observations	6150		1967	

Finally, the coefficients were cross-checked against Collins, Pincus and Xie (1999) results. After combining the majority and minority shareholder regression coefficients under the condition that firms have NCIs, the relative difference between profits (5.650 = 3.916 + 1.734) and losses (.660 = -.138 + .798) of the income regression coefficient is similar to what CPX find. Likewise, majority interest book value coefficients also are approximately the same magnitude of the previous CPX findings. The Table 5 regressions were also run with the year indicator variables as in Table 4, but the basic conclusions remain the same and for sake of simplicity are not reported.

NCI Impact Upon Unexpected Gains and Losses

Does it matter to investors that gains/losses are unexpected? As before, the monitoring effect should be significant because the presence of NCIs should increase verification validity. Thus, hypothesis 1a should test out as before. However, if investors were surprised by firm performance would they attribute some of the results to their NCI partners equity? This result is not theoretically predictable.

Table 6 presents regression statistics for unexpected gains and losses. As predicted, the monitoring effect is significant for both unexpected gains and losses. In this case, the wealth-sharing effect has a coefficient $?_5$ which is positive and significant for unexpected gains and losses. The F tests on coefficients for profits and losses once again support prospect theory.

Table 6: Regression Analyses of Unexpected Gain/Loss Observations

	Unexpected Gain Observations		Unexpected Loss Observations	
Variable	Parameter Estimate	T-Statistic	Parameter Estimate	T-Statistic
$0	5.852	15.96*	5.497	12.54*
BETA	-0.328	-1.01	-1.584	-4.23*
X_t	1.392	16.49*	0.787	11.20*
Xm_t	1.283	11.21*	0.36	4.40*
BV_{t-1}	1.101	78.58*	0.988	66.71*
BVM_{t-1}	0.294	2.37#	1.057	9.98*
Adj. R-sq	0.635		0.646	
F Value	1643.246*		1238.293*	
Overall F Value	37.556*		0.384	
$BV_{t-1} = BVM_{t-1}$				
Observations	4727		3390	

Does Size Matter for the NCI Impact

The descriptive statistics in Table 3 clearly show that firms with NCIs are larger and less risky. Thus, size should be controlled in this study for validity and sensitivity purposes. However, the typical procedure to control for size by inserting another independent variable is *not* appropriate because the NCI variables would correlate with size and prove nothing. Therefore, a stratification of the sample by market value size is examined. In this way, all of the coefficients of equation (1) can be compared according to size groupings. The limitation of this approach is that the

comparisons are going to be judgmental and not statistical. The full sample is divided into three groups which should be enough to capture differences, but not too many to be subject to other potentially confounding factors.

The results are given in Table 7. Size does indeed appear to be an important factor in investors' perceptions about NCI implications. For the largest firms, this is the only time in the study that the NCI income monitoring variable does not have significance at any conventional level. Why would this result happen? The answer is probably that the largest firms are closely monitored and NCIs don't provide additional monitoring value. This conjecture is consistent with the F test finding that NCI book value and majority shareholder book value have a similar impact on the market which is probably extremely efficient for larger firms. Further research beyond this analysis might shed light on the finding. Once again, for the largest firms, the NCI equity appears to have positive value.

Table 7: Regression Analyses of Size Strata

	Bottom Third Parameter		Middle Third Parameter		Top Third Parameter	
Variable	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
β_0	1.981	12.67*	6.725	20.30*	18.557	25.17*
BETA	0.077	0.55	-1.219	-4.39*	-6.395	-9.77*
X_t	0.22	7.32*	0.798	12.16*	1.791	13.24*
Xm_t	0.333	9.62*	0.275	2.56*	-0.129	-0.76
BV_{t-1}	0.56	48.96*	0.803	72.97*	0.958	44.07*
BVM_{t-1}	-0.068	-0.45	-0.377	-3.14*	0.779	6.72*
Adj. R-sq	0.5601		0.7269		0.6043	
F Value	689.579*		1440.831*		827.093*	
Overall F Value	16.482*		91.962*		2.001	
$BV_{t-1} = BVM_{t-1}$						
Obs.	2705		2706		2706	

* signifies (α=.01); # signifies (α=.05); & signifies (α=.1)

$$P_t = \beta_0 + \beta_1 \text{ BETA} + \beta_2 X_t + \beta_3 Xm_t + \beta_4 BV_{t-1} + \beta_5 BVM_{t-1} + \varepsilon_t \quad (1)$$

where

P_t = stock price (dollars) per share plus dividends per share at time t,
BETA = systematic market risk,
X_t = accounting income (dollars) per share at time t,
Xm_t = incremental variable of X_t when minority interests are present and 0 otherwise,
BV_{t-1} = majority shareholders' book value (dollars) per share at time t-1,
BVM_{t-1} = minority shareholders' book value (dollars) per share at time t-1,
ε_t = error term at time t,
β_0 = intercept, and
$\beta_1,\beta_2,\beta_3,\beta_4,\beta_5$ = regression coefficients.

In the middle and lowest size strata, the NCIs provide incrementally significant income monitoring value. This finding follows from the consequence that smaller firms are not followed by analysts as heavily and thus, other monitoring factors are beneficial for these firms. Also in Table 8, the NCI book value coefficient is negative for the lower two size strata and significant for the middle strata. It appears that NCIs provide useful additional resources to the largest firms, but smaller firms accept wealth-sharing with NCIs. Alternatively, the case may be that the largest firms keep NCIs if they are useful and eliminate them when they are detrimental. Larger firms would have the financial power and market presence to refinance themselves more easily. Remember from the descriptive statistic discussion point, this step would be facilitated by the fact that most of the NCIs are a less-than-ten-percent fraction of total equity. On the other hand, smaller firms may be locked into having NCIs that majority shareholder investors may not understand and consequently downgrade the market price. This proposition is supported by F tests of NCI book value and majority shareholder book value coefficients that are only significant for the smaller two thirds of the sample.

CONCLUSION

This study's results indicate that NCI disclosure as a component of the financial statement has decision usefulness in evaluating for the stock market price-earnings relation. In other words, NCIs data has relevance. Thus, this study's findings support the FASB No 160 position for disaggregated NCI disclosure. Also, the results support the rejection the proprietary or proportional consolidation theory because minority information is shown to have informational value to stockholders.

Firms should show a noncontrolling interest in a subsidiary in the consolidated balance sheet as a separate component of equity. This presentation format should provide meaningful information, primarily for the parent company shareholders. This research also indicates that firm size is an important factor which affects the characteristics of the subsidiary NCI "partnership" with majority shareholders.

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CODE COMPREHENSION AND AGGRESSIVENESS AMONG CORPORATE TAX EXECUTIVES: THE IMPACT OF CERTIFICATION AND LICENSURE

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ABSTRACT

Research has shown that corporate tax executive certification and licensure (credentials) are important indicators of tax resource allocation within a corporation. This study investigates the overall impact of corporate tax executive credentials on job performance. We measure tax executive job performance in the following ways: understanding of tax guidance, perception of time constraints imposed by tax code changes, and reported aggressiveness of the corporate tax return. Corporate tax noncompliance can result from aggressive positions taken on a tax return or from the misunderstanding of relevant tax guidance, including the Internal Revenue Code, tax regulations, and tax law. Therefore, it is important to identify the differentiating factors related to corporate tax aggressiveness and comprehension of tax guidance by corporate tax professionals. Two hundred twenty-three experienced corporate tax executives responded to a detailed questionnaire regarding corporate tax compliance. Results of the study indicate that tax executive credentials significantly impact understanding of the tax code, perceptions of tax laws and regulations, and aggressive filing. Specifically, tax executives without credentials are more likely to report difficulty with tax code readability and more likely to report aggressive filing behavior.

INTRODUCTION

The ability of corporate tax executives to perform their job functions and to make appropriate filing decisions is dependent on their understanding of relevant tax guidance and their intent to comply with the tax code. Corporate tax compliance has been the subject of recent accounting and taxation research studies, and researchers have identified several factors that may impact compliance (Shevlin, 2007; Weisbach & Plesko, 2007). Researchers have also noted that individual characteristics have the ability to impact performance (Keller, 2007). It is important for regulators, researchers, and tax executives to understand the perceptions of corporate tax executives regarding tax codes and regulations as well as the individual characteristics of corporate tax executives that may impact performance.

The study's purposes are to explore the perceptions of corporate tax executives regarding the Internal Revenue Code, to examine individual characteristics that may impact understanding of the Internal Revenue Code among corporate tax executives, and to determine if certain characteristics may also result in the filing of corporate tax returns that are considered aggressive. Based on the findings of recent research, this study examines the impact of a specific individual characteristic—corporate tax executive certification and licensure (credentials)—on code comprehension and aggressiveness (Epps, Cleaveland & Bradley, 2009). Data for the study is obtained from a detailed questionnaire that elicits information from corporate tax executives. The questionnaire gathers information on the perceptions of corporate tax executives regarding the Internal Revenue Code and its sentence structure, vocabulary, cross references, frequency of changes, timetables for compliance, the tax law treatment for specific items and aggressiveness of filed corporate returns.

We find that corporate tax executives perceive the Internal Revenue Code to be difficult to understand due to its sentence structure, cross references, and specified tax treatment for certain transactions. Tax executives also perceive that the timetables for compliance with new regulations is unreasonable. We then separate the tax executives with certification and/or licensure (credentials) from those without such credentials. Tax executive credentials were found to significantly impact both code comprehension and reported aggressiveness in the filing of the corporate return. We also test for competing factors that may drive code comprehension, and we find that both credential groups are similar in their knowledge of the tax function, influence over tax decisions, and educational achievement.

The remainder of the paper is organized as follows. The next section reviews the literature related to code comprehension and aggressive filing decisions. This section also presents the hypotheses. The third section describes the study methodology and summarizes the demographic characteristics of the study respondents. The fourth section discusses the results of the study, and the final section provides a summary and conclusion.

LITERATURE REVIEW AND HYPOTHESES

The revenue generated through the tax system is used to finance social and economic government programs. Without tax compliance, the tax system simply does not work, and the government does not generate the expected tax revenues (Ayers, Jackson & Hite, 1989; Hanlon, Mills & Slemrod, 2005). Tax noncompliance can be intentional or unintentional. Company size, industry regulation, firm profitability, risk seeking behavior, and executive compensation are some of the determinants of intentional tax noncompliance. Complexity of tax authority, the compliance burden of filing various forms, carelessness, and education are factors which have been shown to influence unintentional tax noncompliance (Rego & Wilson 2008, Rice 1992).

Research has also shown that aggressiveness in tax reporting can vary according to the clarity of the tax guidance, the aggressiveness of the client, and the tax preparer's experience.

(Ayers, Jackson & Hite, 1989; Cloyd & Spilker, 1999; Helleloid, 1989). Tax professionals are also more likely to take aggressive tax positions when the tax guidance provided is ambiguous. The assumption is that because it is a subjective area, there is room for interpretation (Ayers, Jackson & Hite, 1989; Klepper, Mazur & Nagin, 1991).

Cloyd (1997) finds that when tax professionals are held accountable, the effort that they put forth in researching a tax issue increases, regardless of their level of tax knowledge. However, the manner in which tax professionals perform tax research and their susceptibility to confirmation bias varies according to their tax training (Cloyd & Spilker, 2000). Further, Eriksen and Fallen (1996) find that as tax knowledge increases, perceptions of the fairness of the tax system and the seriousness of tax evasion also increase.

Although the Internal Revenue Code is the basis of tax law in the U.S., it is not the only form of tax guidance. For example, tax regulations and prior court holdings may also influence tax executive's decisions. This guidance can be unclear or ambiguous as to the exact tax treatment. Because the certification and licensure requirements of tax executives include additional study that aims to improve the preparer's expertise, it is likely that credentialed tax executives have an increased understanding of the tax code. The first hypothesis investigates the relationship between the credentials of tax executives and their comprehension of tax guidance:

H1: Tax executives with credentials are less likely to report that tax guidance is difficult to understand.

Often the U.S. tax system is referred to as "burdensome." This can be due to tedious filing requirements, frequent changes in the tax rules, or unrealistic timetables (Slemrod, 1998; Slemrod & Bakija, 1994). Tax executives with credentials are likely to have had additional training. This training may have given them the skills need to quickly adapt to changing rules and the forms necessary for complying with the change. The second hypothesis focuses on the relationship between tax executive credentials and perceptions of the timing of new tax laws:

H2: Tax executives with credentials are less likely to express dissatisfaction with the timing of new tax laws and the timing of required compliance with new tax laws.

Research has shown that tax practitioners often interpret ambiguous tax treatment in their favor (Klepper, Mazur & Nagin, 1991). In a study examining the impact of certification credentials on tax compliance decision-making, Cuccia (1994) finds that the amount of time that certified accountants spend researching ambiguous tax issues differs from the amount of time that commercial tax preparers spend on researching the ambiguous tax issues. Further, when given a numerical threshold for applying a standard, tax practitioners are more lenient when evaluating evidential support (Cuccia, Hackinbrack & Nelson, 1995). Thus, clarifying ambiguous standards

may not reduce aggressiveness. The third hypothesis focuses on the relationship between tax executive credentials and aggressive filing of the corporate tax return.

H3: Tax executives without certification or licensure are more likely to report aggressive filing decisions than tax executives with at least one credential.

METHODOLOGY

Questionnaire Design

A questionnaire was developed to examine the corporate tax environment. The first part of the questionnaire asked for opinions about factors potentially related to code comprehension and the preparation of the federal corporate tax return (Bradley, 1994). While not the focus of this paper, other sections of the questionnaire solicited opinions regarding the impact of recent legislative and procedural updates and the level of compliance of the most recent corporate tax return. The final part of the questionnaire requested demographic and descriptive information. The questionnaire was pilot tested with accounting and taxation professors, which resulted in minor modifications to the questions to ensure optimal comprehension by recipients.

The Tailored Design Method for mail surveys was utilized in determining the randomized selection of questionnaire recipients and points of contact with recipients (Dillman, 2007). The method prescribes sampling procedures to represent the population of interest and several points of contact with questionnaire recipients, including a mailed prenotice letter, a personalized questionnaire cover letter, a reminder postcard, and a personalized replacement questionnaire cover letter. The wording of notices and cover letters mailed to recipients is included in Appendix A.

Respondents

Eight hundred one corporate tax executives were sent mail questionnaires requesting participation. Two hundred twenty-three completed questionnaires were returned, resulting in a response rate of 27.8 percent. Table 2 summarizes characteristics of the respondents based on gender, age range, education level, professional certification/licensure, and years of tax experience. The majority of respondents who provided demographic information were male (76.9 percent), and the modal respondent age range was 46-50 years (21.3 percent). The majority of respondents have completed a master's degree in accounting or taxation (52.3 percent), and 14.9 percent of respondents have a juris doctorate. One hundred seventy-nine respondents (80.3 percent) are certified public accountants. Of the respondents, 64.4 percent have more than twenty years of professional tax experience.

To ensure that questionnaire respondents held positions of influence over the tax compliance function at their respective corporations, the following two questions were asked in the questionnaire:

How familiar are you with your corporation's federal income tax compliance function? [answer choices from 1(not familiar) to 7(very familiar)]

How much influence do you have on your corporation's federal income tax reporting decisions? [answer choices from 1(not influential) to 7(very influential)]

Eighty-nine point two (89.2) percent of respondents answered "6" or "7" regarding familiarity with the tax compliance function, and 86.6 percent answered "6" or "7" regarding influence over corporate federal income tax reporting decisions. Thus, our respondent pool is very experienced and appropriate for the completion of the questionnaire and the identification of corporate tax environment fit measures.

Table 1. Respondent Characteristics

		Frequency	Percent
Gender	Female	51	23.1
	Male	170	76.9
Age Range	Under 30	1	0.5
	31—35	6	2.7
	36—40	17	7.7
	41—45	44	19.9
	46—50	47	21.3
	51—55	44	19.9
	56—60	39	17.6
	61—65	18	8.1
	Over 65	5	2.3
Education Level (Degrees Obtained)	Bachelor's Degree	220	98.7
	Master of Taxation or Accounting	116	52.0
	Other Master's Degree	44	19.7
	Juris Doctorate	33	14.9
	Other Degree	2	0.9

Table 1. Respondent Characteristics			
		Frequency	Percent
Professional Certification or Licensure	CPA	179	80.3
	CMA	6	2.7
	CIA	3	1.3
	Licensed Attorney	32	14.3
	Other	8	3.6
	No Certification	26	11.7
Years of Tax Experience (Mean = 24.7)	0—10	6	2.7
	11—20	73	32.9
	21—30	100	45.0
	31—40	42	18.9
	Greater than 40	1	0.5
Corporation	Publicly Held	150	67.6
	Privately Held	72	32.4

RESULTS

Perceptions of Internal Revenue Code

Table 2 reports the mean responses for all respondents to the ten questionnaire items that measure understanding of the tax code and the timing of tax laws. The scale for each item was from 1 = strongly disagree to 7 = strongly agree, and multi-directional questionnaire items were utilized (Dillman, 2007). In the area of comprehension of tax guidance, questions were asked regarding code sentence structure, readability, and cross references. In general, corporate tax executives agreed that both the sentence structure and the vocabulary of the Internal Revenue Code make it difficult to read. Tax executives also find that cross references to other code sections increase the comprehension difficulty. Changes in tax laws are also seen as problematic by corporate tax executives. Tax executives find that tax law changes occur too frequently and that administrative requirements are excessive. Other general findings include an agreement that too many changes occur at once and that timetables for compliance with new regulations are unreasonable.

Table 2. Descriptive Statistics for Tax Executive Perceptions of the Internal Revenue Code
N = 222
Scale: 1 = strong disagreement; 7 = strong agreement

Item:	Tax executive responses:	
	Mean	Standard Deviation
Tax Law changes occur too frequently.	5.18	1.24
The sentence structure of the Internal Revenue Code makes it difficult to read.	5.50	1.35
The vocabulary of the Internal Revenue Code makes it difficult to read.	4.89	1.60
In the Internal Revenue Code, the cross references to other code sections make it difficult to understand.	5.47	1.36
Tax regulations that affect my company are generally clear and unambiguous.	2.82	1.27
Tax law does not impose an excessive amount of administrative requirements.	2.34	1.53
Over the past decade, technical errors have contributed to uncertainty in the tax law.	4.42	1.18
Major tax acts tend to make too many changes in the tax law at one time.	4.70	1.44
The Internal Revenue Service imposes unreasonable timetables for compliance with new regulations.	4.58	1.34
Sometimes, the tax law treatment for transactions in which my corporation engages is not clear cut.	5.40	1.19

In order to examine the impact of tax executive credentials on code comprehension, timing, and aggressive filing, responses to related questionnaire items were examined for respondents with no certification or licensure (credential) and for respondents with at least one credential. As noted in Table 1, the most common credentials among respondent tax executives are Certified Public Accountant and Licensed Attorney. Individual questionnaire items were utilized to test hypotheses related to code comprehension, timing of tax acts, and aggressive filing behavior.

Code Comprehension

Two questionnaire items resulted in significantly different responses between tax executives with credentials and tax executives without credentials. In the area of sentence structure, the mean response to the item "The sentence structure of the Internal Revenue Code makes it difficult to read" was higher for tax executives without credentials (5.84) than tax executives with credentials (5.45) ($p = .05$). However, tax executives with at least one credential had stronger agreement with the item "Sometimes, the tax law treatment for transactions in which my corporation engages is not clear cut" ($p = .05$). These results, which partially support H1, indicate that the credentials of certification and/or licensure may provide increased understanding of the tax code as a whole, yet it may also

increase knowledge of code details that may affect the specific transactions applicable to corporate economic events.

Timing of Tax Laws

Corporate tax executives without credentials had a moderately significant stronger agreement with the questionnaire item "The Internal Revenue Service imposes unreasonable timetables for compliance with new regulations" (4.92 vs. 4.54, p = .10). Thus, while most corporate tax executives believe that the timing of new tax regulations is too frequent, tax executives without credentials are more likely to report unreasonable timetables. There is moderate support for H2, Table 3 summarizes the significant indicators of code comprehension and timing by tax executive credential status.

Table 3. Significant Indicators of Code Comprehension by Taxpayer Executive Credentials
Scale: 1 = strong disagreement; 7 = strong agreement

Category:	Item:	Mean Response: no certification or licensure (n=25)	Mean Response: at least one certification or licensure (n=197)	*p*
Sentence Structure	The sentence structure of the Internal Revenue Code makes it difficult to read.	5.84	5.45	.05
Timetables	The Internal Revenue Service imposes unreasonable timetables for compliance with new regulations.	4.92	4.54	.10
Specific Transactions	Sometimes, the tax law treatment for transactions in which my corporation engages is not clear cut.	4.96	5.46	.05

Aggressive Filing

The questionnaire item "I would characterize the last federal income tax return filed by my corporation as aggressive" was utilized to test for the impact of tax executive credentials on aggressive filing behavior. As shown in Table 4, tax executives without credentials were significantly more likely to agree with this statement. This indicates that aggressive filing behavior is more likely among corporate tax executives without credentials, and H3 is supported.

Table 4. Reported Aggressive filing by Taxpayer Executive Credentials
Scale: 1 = strong disagreement; 7 = strong agreement

Category:	Item:	Mean Response: no certification or licensure (n=25)	Mean Response: at least one certification or licensure (n=197)	*p*
Aggressive Filing	I would characterize the last federal income tax return filed by my corporation as aggressive.	3.16	2.62	.05

Competing Explanations

To ensure that other differences between non-credentialed respondents and credentialed respondents were not driving the results, additional analysis examined the two groups in terms of experience, influence over the tax function, age, education, and public vs. private corporation status. Experience with the federal corporate tax compliance function was measured in two ways. First, the years of tax experience of respondents with no credentials was compared with the years of experience of respondents with at least one credential. The mean years of reported tax experience was 29 years for respondents with no credentials and 24.1 years for respondents with at least one credential ($p = .002$). Additionally, responses to the question "How familiar are you with your corporation's federal income tax compliance function?" were compared [answer choices from 1(not familiar) to 7(very familiar)]. There was no significant difference between the mean response of tax executives without credentials (6.68) and the mean response of tax executives with at least one credential (6.51). Thus, while tax executives without certification or licensure have more years of tax experience, both groups report very strong familiarity with the federal corporate tax reporting function.

Similarly, both groups reported very strong influence over the corporate tax decision-making in their organizations. Responses to the question "How much influence do you have on your corporation's federal income tax reporting decisions?" were compared [answer choices from 1(not influential) to 7(very influential)]. There was no significant difference between the mean response of tax executives without credentials (6.48) and the mean response of tax executives with at least one credential (6.43).

There was a significant difference between the age ranges of tax executives without certification or licensure and tax executives with at least one certification ($p = .002$). As reported in Table 5, the modal age range for respondents without credentials was 56 – 65 years, while the modal age range for respondents with at least one credential was 46 – 55 years.

Table 5. Comparison of Respondent Age Ranges by Taxpayer Executive Credentials		
Age Range:	Percentage: no certification or licensure (n = 25)	Percentage: at least one certification or licensure (n = 197)
<25 – 45 years	16.0	32.7
46 – 55 years	24.0	43.4
56 – 65 years	52.0	22.4
>65 years	2.0	1.5

Both groups of respondents report similar levels of educational achievement and similar percentages of employment in public vs. private corporations. Almost all respondents have obtained a bachelor's degree (96.0% for respondents without certification or licensure, 99.5% for respondents with at least one credential), and the rate of Master of Accounting or Master of Taxation degree completion was 52% for both groups. There was no significant difference in the percentage of respondents employed by publicly-traded corporations for respondents without certification or licensure (72%) and respondents with at least one credential (67%). Based on the results of analysis of the work experience, education, and influence of tax executives with and without credentials, the significant code comprehension and filing aggressiveness differences between the two groups are unlikely to be a result of competing explanations.

SUMMARY AND CONCLUSION

This study has examined the perceptions of corporate tax executives regarding tax guidance. These perceptions are important, as the ability of corporate tax executives to comprehend the tax code and to effectively implement changes in the code are important indicators of tax compliance. Results of the study indicate that corporate tax executives as a whole find difficulties with the readability of the Internal Revenue Code, specifically its sentence structure, vocabulary, and cross references. Regulators should examine the wording of new tax regulations and the manner in which code sections are cross referenced. The timing of updates to the tax code also presents difficulties to corporate tax executives. The findings of this study suggest that the existing efforts to simplify the tax code are warranted.

According to Black and Black (2004), obtaining a degree in accounting may not be adequate training for a tax preparer; he or she also needs to be trained in "tax law and tax procedures, a disciplined, analytical approach to tax problems and their numerous ramifications." Likewise, a law degree is not adequate training for a tax practitioner; the computations involved in calculating the tax issues often will not have been taught. This study presents an analysis of the performance effects on tax executives of obtaining additional training via relevant certification and licensure. The finding that tax executives without such credentials have more difficulty with the sentence structure and timetables of tax regulations is important, as the qualifications for corporate tax executives vary

widely in practice. The finding that corporate tax executives without credentials report significantly more aggressive filing behavior provides needed information to regulators, professional organizations, and others who make decisions regarding corporate taxation. More research is needed on additional individual characteristics that impact the performance of corporate tax executives and the resulting effect on corporate tax compliance.

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APPENDIX A

Dear Tax Executive,

A few days from now, you will receive in the mail a request to fill out a questionnaire for an important tax compliance research project being conducted by XXXXX.

I am writing in advance because we have found that many people like to know ahead of time that they will be contacted. The study is an important one that will help government officials as well as corporations to understand the factors that positively and negatively impact tax compliance.

Thank you for your time and consideration. It is only with the assistance of professionals like you that our research can be successful.

Sincerely,

Recipient Name
Recipient Title
Address 1
Address 2
Address 3

Dear Mr./Ms. Recipient:

The tax compliance burden of corporations continues to be a matter of concern for policymakers and corporate tax professionals. I am writing to ask your help in a study of corporate tax executives being conducted at XXXXX. The study is part of an effort to learn the factors that either facilitate or impede a corporation's ability to comply with tax provisions. We believe that this information is vital to effective tax reform. The results of the research will be made available to the AICPA, TEI, the ABA and other interested groups.

You are one of a small number of corporate tax executives selected to give opinions on this subject. We are asking you to take a few minutes to complete the enclosed questionnaire. To ensure that the results truly represent the consensus of the tax professional community, it is important that each questionnaire be completed and returned. The questionnaire solicits your opinions only and does not require you to gather any additional information from your records.

Your answers are completely confidential and will be reported only as summaries in which no individual's answers can be identified. The questionnaire has an identification number for mailing purposes only, enabling us to check your name off of the mailing list when your questionnaire is returned. Your name will never be placed on the questionnaire itself.

In addition to me, the investigators on this research project are XXXXX, at XXXXX and XXXXX at XXXXX. If you have any questions or comments, please feel free to contact me at XXXXX or XXXXX.

Thank you for helping with this important study. We appreciate your time and effort.

Sincerely,

XXXXX
Project Director

The purpose of this research has been explained and your participation is entirely voluntary. The research entails no known risks and your identity will be known only to the researchers. Your responses are not being recorded in any individually identifiable form. Therefore, confidentiality will be maintained. By completing this survey, you are agreeing to participate in this research project.

Research at XXXXX that involves human participants is carried out under the oversight of an Institutional Review Board. Questions or problems regarding these activities should be addressed to XXXXX, Chairperson of the Institutional Review Board, XXXXX.

Dear Mr/Ms. First Last,

A few days ago, I sent you the Survey of Corporate Tax Professionals being conducted by XXXXX.

If you have already completed and returned it, I thank you very much. The study will help government officials as well as corporations to make important decisions about such issues as code interpretation and the impact of recent legislation. The information you provide is very important to the accuracy and success of the survey.

If you have not yet had time to complete the questionnaire, please do so as soon as possible. If you need another copy of the questionnaire or have any questions about the survey, please contact me at XXXXX or XXXXX. I will be happy to talk with you.

Sincerely,

Recipient Name
Recipient Title
Address 1
Address 2
Address 3

Dear Mr./Ms. Recipient:

About three weeks ago, I sent a questionnaire to you that asked for your opinions about corporate tax compliance. To the best of our knowledge, it's not yet been returned.

The opinions of people who have already responded include a wide variety of factors that impact a corporation's ability to comply with tax provisions. Many have commented on the impact of recent legislation. We think that the results are going to be very useful to policy makers.

We are writing again because of the importance that your questionnaire has for helping to get accurate results. It is only by hearing from nearly everyone who received a questionnaire that we can be sure that the results truly represent the consensus of the tax professional community.

A few people have written to say that someone else in their organization would be more appropriate to complete the questionnaire. If you feel that you are not familiar enough with the Federal income tax compliance function to complete the questionnaire, please forward the questionnaire to a more appropriate individual in your company.

Our survey procedures protect your confidentiality. A questionnaire identification number is printed on the back cover of the questionnaire so that we can check your name off of the mailing list when it is returned. The list of names is then destroyed so that individual names can never be connected to the results in any way. Protecting the confidentiality of respondents is very important to us, as well as the university.

We hope that you will fill out and return the questionnaire soon, but if for any reason you prefer not to answer it, please let us know by returning a note in the enclosed stamped envelope. If you have any questions, please feel free to contact me at XXXXX or XXXXX.

Thank you for helping with this important study. We appreciate your time and effort.

Sincerely,

XXXXX
Project Director

STOCK SPLITS AND WHEN-ISSUED TRADING: A TEST OF THE SIGNALING THEORY

Kevin L. Kemerer, Barry University

ABSTRACT

This study investigates empirically the presence/absence of when-issued trading in a sample of firms announcing stock splits in 2005 and 2006. The findings indicate that the operational performance of when-issued traded and non-when-issued traded firms differs prior to and after the stock split announcement. When-issued traded firms outperform when-issued traded firms with respect to EPS and ROTC after the stock split announcement suggesting that the existence of when-issued trading might be useful in identifying the better performing firms. Thus, the firms trying to mimic the signal of those firms with better future expectations may be recognized by investors and the opportunity to trade those shares on a when-issued basis may be foregone.

INTRODUCTION

"When, as and if issued" (when-issued) trading is the trading in securities of certain unissued, but authorized, stock distributions. When-issued trading often exists because investors decide to sell the post stock split shares before they are issued. However, casual observation reveals that there are instances of stock splits that are not preceded by when-issued trading activity, although such trading is permitted. The relationship between when-issued trading and stock splits is not clear; thus, this relationship is the subject of this examination.

When-issued trading associated with stock splits appears to be a response by investors to the stock split announcement. After the announcement, investors may trade the securities of the stock-splitting firm on a "when-issued" basis or the "regular way".

For example, a shareholder owns one share of a firm's stock that is being traded at $50. If a two-for-one stock split is declared, the shareholder may 1) trade, on a when-issued basis, the two shares that will be issued, theoretically for $25 each (2x$25=$50), or 2) trade the original share on a "regular way" basis for $50. "Regular way" trading involves the purchase and sale of shares of stock under a contract that is settled on the fifth business day after the date of the trade. Contracts for the purchase and sale of shares on a when-issued basis are made in the same manner as regular way contracts, except that when-issued contracts are settled ordinarily by delivery and payment of the shares on the sixth business day after mailing of the newly issued shares.

How investors choose whether to trade on a regular or when-issued basis is unknown, but this differential reaction to stock split announcements might be evidence that investors do not interpret

stock split announcements in a homogeneous fashion. The fact that investors choose not to trade some future distributions "when issued" suggests that investors recognize something different about these firms as compared to those firms whose securities are traded when-issued. This differential reaction may be important in addressing questions concerning stock splits, such as why they exist and why positive abnormal returns typically are associated with stock split announcements.

The current study investigates the differential reaction to stock split announcements demonstrated by the absence of when-issued trading in some cases. The operational performance and other characteristics of when-issued traded and non-when-issued traded firms are compared. The findings indicate that the operational performance of when-issued traded and non-when-issued traded firms does differ somewhat prior to and after the stock split announcement.

WHEN-ISSUED TRADING

When-issued trading occurs when two parties reach a contractual agreement for the sale and purchase of shares that will be issued in the future (when-issued shares). The New York Stock Exchange (NYSE) justifies when-issued trading as follows:

> *In the case of a stock distribution which is substantial, both in percentage and in number of shares, the Exchange considers it desirable from the standpoint of public interest to afford shareholders who will receive the distribution the facilities of the Exchange market for their shares at the earliest possible moment.* (NYSE Listed Company Manual, Section 7, Listing Applications, page 7-16.)

When-issued trading also exists on the American Stock Exchange and the Over-The-Counter markets. Although trading on these exchanges is subject to the rules of different regulatory bodies, the regulation of when-issued trading is essentially the same. Therefore, the remaining discussion of the regulation of when-issued trading will be limited to the NYSE.

The NYSE will permit when-issued trading when the percentage of additional stock to be distributed is greater than or equal to 25% of the currently outstanding number of shares. Technically, firms announcing any future stock distribution must file an application with the exchange in order for shares that will be distributed to be legally traded on the exchange. In other words, all shares traded on the exchange must be registered with the exchange. Thus, several events may qualify a firm for when-issued trading, including (1) stock splits, (2) large stock dividends, and (3) even shares to be distributed in mergers and acquisitions

Kemerer (2003) reported results from a preliminary examination of the underlying distributions leading to when-issued trading revealed that only 14 of the 283 instances (5%) of when-issued trading activity on the NYSE that occurred between January 1, 1984, and December 31, 1985, arose from merger activity. The remaining 269 (95%) instances of when-issued trading in the pilot study were associated with stock splits. The dominance of stock splits as the event most often

leading to when-issued trading is likely a result of the near certainty associated with the eventual distribution of the securities.

Prior research has focused on the differential pricing of when-issued securities. Choi and Strong (1983) and Lamoureux and Wansley (1987) compared the prices of when-issued shares of stock-splitting NYSE listed firms, after being adjusted for the size of the stock split, to the prices of the underlying common shares on each day that a firm's shares were traded on a when-issued basis. Both report that the when-issued securities tend to sell for a statistically significant premium relative to the underlying common shares on every trading day of the period of when-issued trading. Choi and Strong (1983) found that the pricing differential could not be explained by differences in the length of time over which the two types of trading are settled. Lamoureux and Wansley (1987) attempted, and failed, to explain that the premium price differential was a result of either nonsynchronous trading or an excessively thin market for these peculiar securities.

STOCK SPLITS

Stock splits, recognized in academia as cosmetic changes effected through simple accounting procedures, should not affect the future cash flows of the firm directly. Following this line of reasoning, stock splits should not change the total market value of the firm, nor should there be an abnormal stock price reaction to the announcement of the split. Empirical research by Fama, Fisher, Jensen and Roll (FFJR, 1969), Bar-Yosef and Brown (1977), Charest (1978) and Grinblatt, Masulis and Titman (GMT, 1984), however, has shown that a positive abnormal price reaction to stock split announcements exists.

Unfortunately, research has failed to explain the significant stock price revaluations and abnormal return variances around the announcement dates and the split ex-dates (the dates on which the split occurs). In an effort to explain both why stock splits exist and the abnormal stock price behavior surrounding their announcement, researchers have predominantly applied signaling theory and the optimal trading price range hypothesis. The focus of this research paper is on Signaling Theory and whether the presence or absence of when-issued trading might provide evidence that some stock-splitting firms are not above-average performing companies but were merely trying to mimic the signal supposedly sent by splitting firms that above-average performance is expected to continue into the future.

Signaling Theory

Ross (1977), Leland and Pyle (1977), and Bhattacharya (1979) suggest that managers possess more information than investors and have an incentive to convey favorable information to investors. These adaptations of the Spence (1973) Signaling model also suggest that low-value firms are unlikely to imitate the financial decisions of high-value firms because they would incur prohibitive costs.

If managers utilize stock splits as Signaling devices to convey favorable information, what information are they conveying? Researchers (e.g., GMT 1984) have proposed that management is sending a signal conveying information about management's expectation concerning future earnings and cash dividends.

FFJR (1969) advanced the "dividend hypothesis" suggesting the announcement of the split was viewed favorably by market participants because the participants experienced changes in expectations of future cash dividends. They interpreted the typically favorable reaction of investors to splits as investor anticipation of an increase in total cash dividends. In fact, 70% of their sample experienced an increase in total cash dividends within one year after the effective split date.

Lakonishok and Lev (1987) found that splitting firms experienced a statistically significant higher growth rate in total cash dividends prior to and after the split than a control group of non-splitting firms. Their evidence implies that firms splitting their stock tend to increase total cash dividends at a faster rate than "average" firms. A positive reaction to the announcements of stock splits could be interpreted as an increase in investor expectations with respect to future cash dividends, thus, supporting the dividend hypothesis.

Their findings also indicate that splitting firms enjoyed statistically significant higher earnings growth prior to the split relative to a control group of similar but non-splitting firms. The superior earnings performance growth continued for one year after the split, although the difference was somewhat smaller.

In the FFJR (1969) study, not all of the firms paid cash dividends. Thus, the abnormal returns could not be attributed solely to changes in future cash dividend expectations. Lakonishok and Lev (1987) also failed to determine that the positive abnormal reaction was related solely to cash dividends or earnings.

Asquith, Healy, and Palepu (AHP, 1989) examined whether the new information conveyed in stock split announcements is related to earnings performance or to post-split cash dividends. Their sample consisted of noncash-dividend-paying firms, identified as having not paid cash dividends prior to or at the time of the stock split. They set out to test three potential sources of information conveyed by stock splits. First, stock splits might provide positive information reflecting anticipated improved future earnings performance. Second, splits could be announced to confirm management expectations that prior earnings growth was permanent rather than temporary. Finally, stock splits may signal anticipated dividend increases. Actually, they tested whether splits may signal anticipated dividend initiation, because their sample consists of firms that did not pay cash dividends prior to the split.

Results of tests of the first potential source of information conveyed by splits, anticipated future earnings performance, suggest that split announcement returns are unrelated to post-split earnings, even though there is a significant earnings increase in the first year after the split.

In their conclusions, AHP assert that the abnormal returns about the stock split announcement dates are not related to dividend increases. As stated above, though, this is not what they actually

tested. The results of their test can only be used to generalize that splits do not convey information about cash dividend initiation by firms announcing splits.

The results of these studies do not provide enough evidence to conclude that the information conveyed through stock splits is related to future earnings expectations. Nor can these results be interpreted to confirm that splits convey information solely about future cash dividends. In fact, one could contend that splits may convey both types of information, dependent upon firm-specific characteristics, such as cash-dividend policy. Another case can be made that information may be conveyed about both earnings and dividends simultaneously because the two are not independent of each other. As noted by GMT (1984) dividend policy tends to lag behind earnings trends, thus they are related.

The validity of Signaling theory as an explanation of stock splits is questionable. For a Signaling device to be valid under Signaling theory there must be an apparent cost associated with sending false signals. In other words, a firm with below-average expected performance must incur a cost for imitating the actions of an above-average firm. Stock splits do not have apparent costs associated with sending false signals.

RESEARCH DESIGN AND QUESTIONS

The aforementioned studies tend to measure stock price reaction and performance measures using the mean response as a measure of the typical stock-splitting firm. As a result, these studies tend to view stock-splitting firms as a homogenous group. The differential response to stock split announcements displayed in the presence/absence of when-issued trading suggests that this view may be inappropriate. Indeed, firms that declare stock splits may not be homogeneous. Stock splitting firms may differ operationally or in other respects. Also, their reasons for splitting may be different.

To gain further insight into this peculiarity, data were gathered relative to operational measures and other characteristics of when-issued and non-when-issued traded stock-splitting firms. Specifically, earnings per share, dividends per share, and returns on total capital were obtained from ValueLine. These indicators of corporate performance were analyzed to determine if differences exist between when-issued traded and non-when-issued traded firms.

Sample Selection Requirements

A sample of stock-splitting firms was gathered using the following selection procedures. First, stock splits were identified through a search of the stock split announcements available through http:biz.yahoo.com. Only firms with stock split announcements between January 1, 2005 and December 31, 2006 were included. There were 553 such firms announcing stock splits. Next, all firms for which reports from ValueLine were not available were eliminated resulting in only 263 split announcements remaining in the sample.

When-Issued and Non-When-Issued Subsamples

The overall sample was divided into a when-issued traded subsample and a non-when-issued traded subsample. To accomplish this, the New York Stock Exchange Daily Stock Price Record, the American Stock Exchange Daily Stock Price Record, and the NASDAQ Daily Stock Price Record were reviewed for the period under examination to detect which firms were traded on a when-issued basis. There were 92 firms listed on the NASDAQ that had been identified as announcing a stock split in 2005 and 2006. None of these issues experienced when-issued trading and no mention in NASDAQ trading rules could be found allowing when-issued trading. Therefore all 92 NASDAQ firms were removed from the sample leaving 164 firms in the sample. Another 6 firms could not be found in either the New York Exchange or American Stock Exchange Daily Stock Price Records and were eliminated resulting in a final sample of 158 firms announcing stock splits in the years 2005 and 2006 for which ValueLine reports were available.

Sample Description

This section contains a description of the sample. First, the manner in which the final sample was obtained is presented. Second, a description of the sample by subsample (when-issued versus non-when-issued), split factor, year of the split, and stock exchange is provided.

The final sample consisted of 158 instances of stock splits that met the sample selection criteria. Of the 158 sample splits, 94 were those of stock-splitting firms whose shares were traded on a when-issued basis. There was no when-issued trading activity in the other 64 cases. Table 1 provides a description of the sample by subsample, year of the stock split, stock exchange, and size of the split. The size of the split is indicated by split factor, which is the multiple required to adjust the number of pre-split shares to the number of post-split shares. For example, a split factor of 2 indicates a 2 for 1 split.

Across the two years and within subsamples, there was little change. Analysis of the non-when-issued subsample reveals the average split factor was 1.86 for the 43 occurrences in 2005 and 1.82 for the 21 occurrences in 2006. It is interesting to note that the number of instances of stock splits without when-issued trading decreased by nearly 51% from 2005 to 2006 while the number of stock splits with when-issued traded shares decreased by only 32% (from 56 to 38).

Of the 94 occurrences of stock splits that were associated with when-issued trading, 56 were in 2005 and the other 38 occurred in 2006. The average split factors were 1.89 and 1.97, respectively. Overall, the when-issued subsample split factor averaged 1.93 compared to an average split factor of 1.85 for the non-when-issued traded subsample.

With respect to stock exchanges, 100% of the 158 splits were effected by firms on the NYSE of which 94 or 59% experienced when-issued trading. In Kemerer (2003) approximately 98% (220) of the 225 NYSE stock-splitting firms were traded on a when-issued basis. This alone causes one to wonder whether there is some underlying difference that would cause only 59% of stock-splitting

firms to experience when-issued trading compared to the 98% of a sample of 1984 and 1985 stock-splitting firms.

Table 1: Data Description By Subsample, Split Factor, Year								
Panel A: When-Issued Firms (WI)								
	1.33	1.5	1.67	1.80	2.0	3.0	Sum	Mean
2005	0	12	0	0	44	0	56	1.890
2006	1	8	1	0	24	4	38	1.970
Total	1	20	1	0	68	4	94	1.930
Panel B: Non-When-Issued Firms (Non-WI)								
	1.33	1.5	1.67	1.80	2.0	3.0	Sum	Mean
2005	3	10	0	0	29	1	43	1.860
2006	0	7	0	1	13	0	21	1.820
Total	3	17	0	1	42	1	64	1.850
Panel C: Total Sample (Sum of Totals from Panel A & B)								
	1.33	1.5	1.67	1.80	2.0	3.0	Sum	Mean
Total	4	37	1	1	110	5	158	1.890

EMPIRICAL RESULTS OF FIRM PERFORMANCE INDICATORS

Earnings Per Share

Table 2(a) presents summary statistics on the earnings per share for the total sample of 158 stock splits. Stock-splitting firms, in general, experienced increasing earnings per share from three years prior to the stock split announcement up to one year after the stock split announcement with a decline in the second year after the announcement. It is interesting to observe some stock-splitting firms had negative EPS two years prior to the split announcement and some also experienced negative EPS two year after the split announcement.

Table 2(b) presents the median annual earnings per share for the when-issued (WI) and non-when-issued (Non-WI) subsamples. When firms are grouped into when-issued and non-when-issued traded subsamples the overall trend in EPS is similar to that of the total sample. But is there a difference in the dollar amount per share for the two subsamples? The EPS of the Non-WI subsample was higher than that of the WI sample prior to the split but in the year of and the two years after the split announcement the WI sample EPS was larger. Because the data was not normally distributed

the Mann-Whiney U test was used to test to see whether the two subsamples, WI and Non-WI are statistically different. The only significant difference occurs two years after the announcement and was significant at the 10% level.

Table 2(a): Summary Statistics on Annual Preannouncement (-) and ostannouncement Earnings Per Share: Total Sample

Year relative to stock split announcement	Mean	Std. Dev.	Minimum 0%	Q1 25%	Median 50%	Q3 75%	Maximum 100%
-2	1.297	0.821	-0.180	0.680	1.210	1.720	4.400
-1	1.749	1.121	0.200	0.990	1.505	2.330	5.790
0	2.361	1.641	0.220	1.410	1.925	2.783	9.530
+1	2.602	1.640	0.290	1.578	2.225	3.293	9.990
+2	2.179	3.044	-18.330	1.303	2.050	3.383	9.350

Table 2(b): Median Annual Earnings Per Share: By Subsample

Year relative to stock split announcement	WI	Non-WI	P-value
-2	1.110	1.340	0.310
-1	1.485	1.545	0.944
0	2.040	1.825	0.408
+1	2.270	1.955	0.370
+2	2.260	1.910	0.096**

Note: * Significant at alpha = 0.05 level.
** Significant at alpha = 0.10 level.

Table 3(a) presents summary statistics on the earnings per share growth rates for the total sample. The mean EPS growth rate increases up to the stock split announcement but declines afterwards. On the other hand, the median EPS growth rate declined over all four periods. Again, as with EPS the data is not normally distributed and when testing the subsamples the nonparametric Mann-Whitney U is used.

Table 3(b) presents the median annual earnings per share growth rates for the when-issued (WI) and non-when-issued (Non-WI) subsamples. The growth rate of EPS is significantly different two years prior to the announcement as well as the year prior to the year of the stock split announcement. After the announcement, however, there is no difference in the rate of growth in EPS.

In review, the EPS of the two subsamples does not differ prior to the split announcement. The rate of growth of EPS prior to the stock split announcement does differ statistically prior to the split announcement with the WI subsample experiencing statistically significant higher rates of growth. Then EPS two years after the stock split announcement the WI subsample group experiences a statistically significant higher EPS.

Although the difference in earnings growth rates might explain or contribute to an explanation as to the existence of when-issued trading, the existence of when-issued trading is not a result of a signal of superior earning growth performance in the two years after the stock split announcement. Instead, the existence of when-issued trading might be related to the market anticipating the statistically significant difference in EPS two years after the announcement.

Table 3(a): Summary Statistics on Annual Preannouncement (-) and Postannouncement Earnings Growth Rates: Total Sample

Period (months)	Mean	Std. Dev.	Minimum 0%	Q1 25%	Median 50%	Q3 75%	Maximum 100%
-24 to -12	0.388	0.868	-7.944	0.143	0.289	0.533	3.111
-12 to 0	0.420	0.499	-0.778	0.156	0.299	0.511	3.250
0 to +12	0.202	0.585	-0.706	0.000	0.173	0.299	6.227
+12 to +24	-0.135	0.966	-6.805	-0.164	0.073	0.182	1.626

Table 3(b): Median Annual Earnings Growth Rates: By Subsample

Period (Months)	WI	Non-WI	P-value
-24 to -12	0.342	0.189	.001*
-12 to 0	0.343	0.273	.099**
0 to +12	0.152	0.183	.959
+12 to +24	0.113	0.035	.121

Note: * Significant at alpha = 0.05 level.
** Significant at alpha = 0.10 level.

Dividends

Tables 4(a) and 5(a) present summary statistics on dividends and dividend growth rates, respectively, for the total sample of 158 stock splits. Both the mean and median dividends per share increase each period beginning 3 years prior to split announcement up to two years post the announcement. The dividends growth rate peaks in the year of the announcement and then decreases from that point.

Table 4(b) presents the median annual dividends per share for the when-issued (WI) and non-when-issued (Non-WI) subsamples. There is a consistent statistically significant difference in the amount of dividends per share between the WI and Non-WI subsamples with the Non-WI sample dividends per share exceeding that of the WI sample. The results from testing for a difference in the dividends per share growth rates of the subsamples, shown in table 5(b), yield no significant results.

Table 4(a): Summary Statistics on Annual Preannouncement (-) and Postannouncement Dividends Per Share: Total Sample

Year relative to stock split announcement	Period (months)	Mean	Std. Dev.	Minimum 0%	Q1 25%	Median 50%	Q3 75%	Maximum 100%
-2	-36 to -24	0.243	0.321	0.000	0.000	0.150	0.363	1.900
-1	-24 to -12	0.294	0.369	0.000	0.000	0.170	0.423	2.100
0	-12 to 0	0.358	0.438	0.000	0.058	0.230	0.465	2.750
+1	0 to +12	0.433	0.504	0.000	0.080	0.300	0.550	3.200
+2	+12 to +24	0.476	0.519	0.000	0.080	0.360	0.600	3.400

Table 4(b): Median Annual Dividends Per Share: By Subsample

Year relative to stock split announcement	Period (Months)	WI	Non-WI	P-value
-2	-36 to -24	0.115	0.160	.074**
-1	-24 to -12	0.155	0.205	.048*
0	-12 to 0	0.200	0.315	.022*
+1	0 to +12	0.280	0.400	.026*
+2	+12 to +24	0.300	0.450	.029*

Note: * Significant at alpha = 0.05 level.
** Significant at alpha = 0.10 level.

Table 5(a): Summary Statistics on Annual Preannouncement (-) and Postannouncement Dividends Growth Rates: Total Sample							
Period (months)	Mean	Std. Dev.	Minimum 0%	Q1 25%	Median 50%	Q3 75%	Maximum 100%
-24 to -12	0.301	0.549	0.000	0.052	0.143	0.333	4.000
-12 to 0	0.341	0.544	-0.262	0.090	0.197	0.384	3.750
0 to +12	0.307	0.447	-0.188	0.081	0.167	0.346	3.000
+12 to +24	0.148	0.197	-0.500	0.000	0.124	0.266	0.600

Table 5(b): Median Annual Dividends Growth Rates: By Subsample			
Period (Months)	WI	Non-WI	P-value
-24 to -12	0.115	0.155	0.266
-12 to 0	0.200	0.171	0.974
0 to +12	0.179	0.151	0.381
+12 to +24	0.137	0.100	0.785
Note: There were no statistical differences at the alpha = 0.10 level.			

Return on Total Capital

Table 6(a) presents summary statistics on the return on total capital for the total sample of 158 stock splits. Stock-splitting firms, in general, experienced increasing returns on total capital three years prior to the stock split announcement up to the year of the stock split announcement and then experience a decline through the next two years.

Table 6(b) presents the median return on total capital for the when-issued (WI) and non-when-issued (Non-WI) subsamples. When firms are grouped into when-issued and non-when-issued traded subsamples the overall trend in EPS is similar to that of the total sample with an ex exception for the WI subsample. Whereas the overall sample median peaked in the year of the announcement the WI subsample return on total capital peaked in the year after the split announcement.

Table 6(a): Summary Statistics on Annual Preannouncement (-) and Postannouncement Return on Total Capital: Total Sample

Year relative to stock split announcement	Period (months)	Mean	Std. Dev.	Minimum 0%	Q1 25%	Median 50%	Q3 75%	Maximum 100%
-2	-36 to -24	0.126	0.079	0.008	0.076	0.107	0.148	0.546
-1	-24 to -12	0.146	0.086	0.033	0.083	0.136	0.177	0.474
0	-12 to 0	0.171	0.122	0.038	0.097	0.140	0.200	0.928
+1	0 to +12	0.157	0.091	0.024	0.100	0.136	0.183	0.562
+2	+12 to +24	0.132	0.080	0.000	0.082	0.116	0.168	0.418

Table 6(b): Median Annual Return on Total Capital: By Subsample

Year relative to stock split announcement	Period (Months)	WI	Non-WI	P-value
-2	-36 to -24	0.104	0.108	0.976
-1	-24 to -12	0.142	0.123	0.141
0	-12 to 0	0.145	0.129	0.093**
+1	0 to +12	0.146	0.122	0.033*
+2	+12 to +24	0.137	0.105	0.031*

Note: * Significant at alpha = 0.05 level.
** Significant at alpha = 0.10 level.

The return on total capital of the WI subsample is significantly higher than that of the WI sample starting in the year of the stock split announcement up to two years after the announcement.

Table 7(a) presents summary statistics on the return on total capital growth rates for the total sample. The mean and median returns on total capital growth rate decreases over the entire sample period.

Table 7(b) presents the median return on total capital growth rates for the when-issued (WI) and non-when-issued (Non-WI) subsamples. The growth rate of return on total capital is significantly different two years prior to the announcement only.

Table 7(a): Summary Statistics on Annual Preannouncement (-) and Postannouncement Return on Total Capital Growth Rates: Total Sample

Period (months)	Mean	Std. Dev.	Minimum 0%	Q1 25%	Median 50%	Q3 75%	Maximum 100%
-24 to -12	0.253	0.699	-0.575	-0.026	0.126	0.333	7.125
-12 to 0	0.176	0.345	-0.621	-0.021	0.122	0.295	1.600
0 to +12	-0.003	0.287	-0.671	-0.158	0.000	0.151	0.990
+12 to +24	-0.139	0.362	-1.000	-0.291	-0.083	0.042	1.348

Table 7(b): Median Annual Return on Total Capital Growth Rates: By Subsample

Period (Months)	WI	Non-WI	P-value
-24 to -12	0.165	0.059	0.010*
-12 to 0	0.124	0.115	0.582
0 to +12	-0.006	0.000	0.501
+12 to +24	-0.094	-0.060	0.859

Note: * Significant at alpha = 0.05 level.
** Significant at alpha = 0.10 level.

CONCLUDING REMARKS

Although research has indicated that stock-splitting tend to outperform non-splitting firms and has shown the market reacts positively to these announcements there has been inadequate evidence that the positive reaction is related to any future earnings or increased dividends. Signaling theory suggests firms may attempt to send a signal via stock split announcements that they expect to continue to outperform non-stock-splitting firms. The problem is that firms may either try to mimic that signal in an attempt to generate higher stock prices or because they truly expect to outperform non-splitting firms but fail to achieve those expectations. Whatever the case, there is generally considered to be no cost of sending a false signal in the case of stock split. However, the existence of when-issued trading or the lack of it, appears to provide evidence that market is able to distinguish between those that will continue to outperform versus those firms that might be sending false signals about future performance illustrated by the EPS two years after the split announcement for the WI subsample was significantly higher than the Non-WI subsample and the WI subsample's superior return on total capital in the year of the split announcement through two years post the announcement. What is not clear is the clearly superior level of dividends per share for the non-WI subsample.

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