An Examination of the Factors Leading to
Financial Restatements

By Georgios Bardis

David E. Vance, Thesis Advisor

Dr. Sungsoo Kim, Second Reader
1. Introduction

The efficiency of capital markets depends on accurate information about company performance (Vance, 2005). Financial restatements are evidence that companies have provided inaccurate information to investors, creditors and regulators. In 2004, Compustat reported financial information on 5,869 companies with revenue in excess of $20 million, of which 158, or about 2.69%, subsequently restated their financial results. While 2.69% may see to be an immaterial amount, the growth in the incidence of restatements is not, as evidenced by the Huron Consulting Group (2004), a company that tracks amended 10-K filings. From 2000 to 2004 Huron has detected over a 250% increase in amended 10-K filings, which usually contain financial restatements (see page 15).

This paper will examine some of the factors that lead to the restatement of financial statements. While concern for auditor independence has led to the passage of Sarbanes Oxley in 2002, which limits the types of fees independent auditors may collect from audit clients, current research casts doubt on the assumption that non-audit fees increase the chances of restatement (Kinney, 2004 and Raghunandan, 2003). Sarbanes Oxley section 404 also mandated stronger internal controls which may also reduce the number of accounting errors that lead to restatements. Compliance Week (May 10, 2005), a corporate governance and compliance issue newsletter, recently reported that the most common Internal Control weakness disclosure in April 2005 was for lease accounting. Our research has found that, from a similar time period, the leading cause of restatements was lease accounting (26%). A number of restatements are driven by changes in, or clarification of, Financial Accounting Standards Board (FASB)
pronouncements. Other restatements appear to be the result of failure to competently apply basic accounting principals to ordinary situations. On the other hand, many restatements occur in areas where accounting rules have become extremely complex, and that complexity has increased the likelihood of errors.

This investigation will explore whether firm characteristics such as size, profitability and staffing levels lead to restatements. The novel contribution of this paper is to investigate the role of complexity in the context of other potential restatement causes. This paper will also classify restatements into different causes. Some researchers classify the reasons for restatements into errors, irregularities and changes in estimates (Akhilgbe, 2005). Where errors are simply considered mistakes and irregularities are intentional inaccuracies which lawyers would call fraud. Changes in accounting estimates are generally the result of new information which change the perception of some previously reported item, for example a change in the life of an asset (Frischer, 2003). In order to obtain a more specific cause to restatements, this paper will classify restatements by accounting topics provided by the Financial Accounting Standards Board (FASB) Current Text 2005.

2. Literature search

Akhilgbe (2005) found that the most common reason for financial restatements was revenue recognition followed by cost issues and loan loss provisions. Revenue recognition also happens to be the most common enforcement issue by the Securities and Exchange Commission (SEC). Huron Consulting, which classified amended 10-K’s into one of five accounting issues, found that revenue recognition was the leading cause (the
other issues being: Equity, Reserves, accruals and contingencies, Capitalization of assets and Inventory).

2.1 Company characteristics and restatements

Intuitively, a company’s size can have an effect on the amount of accounting errors that occur. The Huron Consulting group found that for amended 10-K’s filed in 2004, companies under $100 million in revenue (the smallest category of firms) accounted for 39% of restatements. The largest category of companies (revenue over $1 billion) accounted for just 19%. Please note that while Huron studied amended 10-K’s (which may or may not contain financial restatements), this study deals solely with financial restatements, that is, any mistake on a company’s Balance Sheet, Statement of Cash Flow, Statement of Retained Earnings and Income Statement. Richardson, Tuna and Wu (2003) studied firm size and restatements, but only as a proxy to measure the correlation of restatements to high earnings expectations from analysts (the research operated under the assumption that larger firms receive more attention from market analysts). Other researchers aimed their studies on more specific company characteristics that are directly related to the auditing of financial statements. Abbott (2004) studied audit committee characteristics and its affects on restatements.

2.2 Fraud as a source of accounting error

PriceWaterhouseCooper (2000) found that half of the 201 shareholder class action lawsuits contained allegations of fraud, indicating a lack of investor confidence in the honesty of corporate executives. Restatements with fraud result in large civil penalties,
as evidenced by Xerox, which was fined $10 million for financial reporting violations, the highest fine ever for a public company. Xerox would later have to restate four years of financial statements in order to settle the case (WSJ, April 2, 2002). However, civil penalties may only amount to a pittance compared to the effects on stock price. Restatements involving fraud lead to increased negative reactions from the stock market when compared to restatements without fraud (Palmrose et al., 2003). Restatements based on fraud can cause a "widespread loss of investor confidence in the accuracy and reliability of financial reporting (which) can have a destabilizing effect on the financial markets and the US economy" (Akhigbe, 2005) as evidenced by the market-shaking cases of Enron, WorldCom, Adelphia and Tyco.

2.3 Capital market pressures as a cause for restatements

Richardson, Tuna and Wu (2003) found evidence that suggests restating companies attempt "to maintain a string of consecutive positive earnings growth and consecutive positive quarterly earnings surprises". Their data, based on a sample of companies from 1988-2000, represents a time period before Sarbanes-Oxley, a piece of legislation designed to control earnings management by making CEO's personally liable for the veracity of their firm's financial statements. A steep rise in financial restatements since the introduction of Sarbanes-Oxley leads to one of two conclusions: either Sarbanes-Oxley is failing to thwart restatements because its preventive measures are ineffective, or perhaps market pressure to meet financial benchmarks was never the cause of restatements as some research would suggest.
Richardson, Tuna and Wu (2002), also published research with evidence proposing that companies with high levels of outstanding debt and high earnings expectations restate more. The data for this research was based on a sample of firms from 1971 to 2000. Both studies come to the conclusion that market expectations force companies to “adopt aggressive accounting policies” and therefore are more susceptible to restatements. However, research into companies restating post Sarbanes-Oxley is needed in order for the results to be relevant for today’s accounting environment.

2.4 Change in accounting method requiring restatements

In 2004, FASB invited comments on its recently published *Accounting and Error corrections – a Replacement of ABP Opinion No.20 and FASB Statement No.3*, which aims at updating the rules regarding error correction in accounting. In order to avert the negative consequences involved with making a restatement, a number of respondents to FASB’s publication have called to reclassify these retroactive restatements as “retrospective applications” rather than as “restatements”. “Retrospective applications” are seen as a positive action that increases comparability and transparency of financial statements which will make trend analysis of financial information more useful. Because of the positive effects of “retrospective applications”, companies have an aversion to classify them as a “restatement” which carries negative consequences to stock price (Palmrose et al., 2003). Changes in accounting method (for instance, changing from FIFO to LIFO) may not be seen as damaging to a company’s financial situation, but rather as a “technicality”, which the market may be more forgiving to (Akigbe, 2005).
2.5 Complexity as a source of accounting error

Lawrence Smith, Chairman of the Emerging Issues Task Force and Director of Technical Application & Implementation, sums up a major source of complexity with the following fact: current GAAP accounting is derived from over 2,000 pronouncements from three different organizations: the Financial Accounting Standards Board (FASB), the Security and Exchange Commission (SEC) and the American Institute of Certified Public Accountants (AICPA). Smith cites revenue recognition as a more specific example, which is addressed by 180 different pieces of accounting literature. Essentially, numerous rules, from multiple sources, equals increased complexity. Another factor is a lack of a central source (or “one-stop-shop” as Smith says) for accounting practitioners to access all relevant accounting standards. Lastly, Smith maintains that FASB’s lack of control over accounting standards will inhibit its ability to solve the complexity problem.

The idea of accounting simplicity (vs. complexity) has been an important issue to FASB for the last few years. In the 2001 annual Financial Accounting Standards Advisory Council (FASAC) Survey, constituents were asked to prioritize the activities of FASB. Responses to the survey included relief from “standards overload”, increases in the level of detail and complexity in accounting standards, an increase in both interpretive and implementation accounting standards from other standard-setting bodies (SEC, AICPA), difficulty in retrieving pertinent accounting literature, and “disclosure overload”. Many respondents expressed the need for some type of project to solve these issues.

On January 9, 2002, in response to this survey, FASB initiated the “Codification and Simplification” project intended to improve the usability and effectiveness of
accounting literature. FASB's immediate goal is to include references to all relevant U.S. accounting literature (including SEC and AICPA pronouncements) in its Current Text, which is a categorized compilation of all FASB accounting standards. Eventually, FASB wishes to create a searchable database containing FASB, EITF, AICPA, and SEC accounting literature. As of this writing, the present Current Text (2005 edition) does not contain references to non-FASB standards and no database exists for practitioners to search. FASB is also evaluating the feasibility of changing to a “Principals-based” system of setting standards. This system emphasizes accounting for the “substance” of transactions, rather than placing importance on the form, and would signal the end of detailed technical guidance from FASB.

The FASB board is also reviewing the complexity of the GAAP hierarchy and plans to reduce this complexity through codification. The FASB board maintains that a “single authoritative codification of GAAP will obviate the need to determine the relative authority of accounting literature, since the literature will be either (1) included in the codification and, therefore, authoritative or (2) excluded from the codification and, therefore, non-authoritative.” Currently, authoritative literature is ranked by the so-called “House of GAAP”, which ranks different types of pronouncements from various organizations into four distinct categories of authority (see page 16).

No empirical research has been conducted on the relationship between accounting complexity and financial restatements. Abdolmohammam (1987) analyzed the effect task complexity and auditor experience had on auditing decisions but failed to connect this with financial restatements. However, some publications and experts see the effect complexity is having on the industry. The CPA Journal (2003, Vol. 73) reported that
revenue recognition was the leading cause of financial restatements. Revenue recognition, as stated above, is considered a complex area given the sheer amount of accounting standards associated with it. Linn (2005) states that accounting for derivative transactions is a major source of restatements and theorizes it is due to the complex nature of derivative transactions. A search on the FASB website (www.fasb.org) for "complexity" returns 123 results, many of which discuss the complexity of individual accounting issues such as deferred tax, warrants, hedge activities, share-based payment to employees, derivatives and revenue recognition.

3. Hypothesis formulation

Due to the skill and knowledge intensive requirements of accounting, it is thought that larger companies have the resources and staff to better account for transactions. Whereas smaller firms, with less monetary resources, cannot afford the high costs of maintaining a large, well trained accounting staff, despite the fact this smaller firm may deal with similar transactions as a large firm. With this reasoning, the first hypothesis of this study was formulated: **H1: Small Companies are more likely to make restatements than large companies.** For this hypothesis, company size will be measured in three ways: revenue, assets, and market capitalization.

Using similar reasoning as above, the next logical hypothesis would be to test whether the profitability of a company affects the veracity of its financial statements: **H2: Unprofitable companies restate financials more frequently than profitable companies.** This hypothesis will be tested in two ways; operating income scaled by revenue and operating income scaled by assets.
The last hypothesis in terms of company characteristics deals with the staffing levels of a company. Companies with a sufficient amount of employees should be able to account for its transaction cycle properly, whereas an understaffed company will not have the human capital to record all transactions correctly. Therefore the next hypothesis is:

**H3: Companies with a relatively low number of employees tend to restate their financials more frequently than companies with a relatively high number of employees.** This hypothesis will be in tested two ways. The first is by comparing the number of employees it takes to generate $1 million in sales. The second is to compare the number of employees it takes to generate $1 million in operating income.

While analyzing the causes to financial statements, it seemed that perhaps the complexity of the accounting subjects may be the cause to many restatements. In some cases, it takes over a thousand pages of literature to explain one accounting topic. All of the pages must be read in order to guarantee that every exception and minute rule is followed to conform with GAAP. This reasoning lead to the last hypothesis: **H4: The more complex an accounting subject, the greater the chance of a restatement occurring.**

4. Data sources & methodology

The first objective of the study was to compile a list of companies that restated their 2004 financial statements. The *LexisNexis* database was searched for press releases using the key words “restatement” or “restate” in the years 2005. Once this list was created, each company’s press release was analyzed to ascertain the cause of the restatement. In some cases there were more than one cause to each restatement, and in
other cases a company restated financial data on more than one occasion for 2004. The FASB Current Text 2005 breaks down all FASB accounting standards into 95 different accounting topics. Using these topics as a standardized list for restatement causes, each company's restatement cause was classified into one of these 95 accounting subjects.

Next, the financial data of these restating companies were compiled from the Compustat database. Financial data was also collected for all public companies in the Compustat database with revenue over $20 million. This data was needed in order to perform a binomial test called the Difference of Two Proportions (Hayslett, 1968). This test was used to examine the hypothesis of different company characteristics (see page 17). Using the data for all the public companies in the Compustat database with revenue over $20 million, the median value for any company characteristic is determined. Then the population of companies that restated with above the median average is compared with the population of companies that restated with below that median average. For example, the median value for revenue was found to be 239.4 (in millions). Of the 158 different companies that restated, 96 had revenue above this median while 62 had revenue below this median. By comparing these two proportions, a z-value of 2.748 was calculated with a corresponding p-value of .006.

In order to study accounting complexity, a method of quantifying complexity had to be created first. In this study, complexity is measured by adding the number of pages it takes to explain the accounting rules. First, the number of pages in FASB’s Current Text 2005 was counted for each accounting topic. However, each accounting topic in the Current Text 2005 is referenced to Statements of Financial Accounting Standards as well as Emerging Issues Task Force (EITF’s) abstracts. These referenced documents were
also counted and included in the measurement of complexity. The following equation describes the calculation of accounting complexity:

\[ \text{Accounting Topic Complexity} = \text{Number of pages from Current Text 2005} + \text{number of pages of referenced Statements of Financial Accounting Standards} + \text{number of pages of EITF’s} \]

After calculating the complexity for all accounting subjects, a regression analysis was done to compare the independent variable (complexity) to the dependent variable (number of restatement causes).

5. Data analysis

Of the seven different tests for company characteristics, three were found to be statistically significant. The first, company size as measured by revenue, had a p-value of .006. This means that companies with greater than median revenue restate more. The second, company profitability as scaled by operating income over revenue, had a p-value of .0002. This indicates that companies with a lower than median operating income over revenue restate more. Lastly, staffing levels as scaled by employees per $1 million in operating income had a corresponding p-value of .0002, which means that companies with a higher than median employee to $1 million ratio restate more. Based on these results, relatively large, unprofitable, and over staffed companies tend to restate more. It seems that larger, more inefficient companies have a greater chance to restate their financial statements.
Based on this study, the top ten restatement reasons were: Leases (26%), Revenue Recognition (17%), Income Taxes (11%), Derivative Instruments and Hedging Activities (5%), Inventory (5%), Debt (4%), Computer Software to be Sold, Leased, or Otherwise Marketed (3%), Insurance Industry (3%), Accounting Changes and Error Corrections (3%), and lastly 31 “other reasons” (23%). Remarkably, only 6 accounting subjects accounted for 172 restatements causes, or 6% of accounting subjects accounted for 68% of restatement causes.

The regression analysis for complexity found a statistically significant correlation between complexity and the number of restatements causes. This relationship has a statistically significant p-value of .0012. However, the adjusted R square value is a somewhat low at .098. Interestingly, the ten most complex subjects account for 112 (44%) of restatement causes. Also, most accounting subjects that caused no restatement causes were predominantly from the low complexity (below 400 complexity) range.

6. Conclusion

The results of this study seem to support that the inefficiency of companies and the complexity of accounting are the catalysts to financial restatements. Further research could be conducted to see if complexity is only a catalyst of restatements for inefficient companies, or can cause restatements for any company. In either case, FASB has the power to reduce restatements by simplifying accounting rules and making them more accessible.
REFERENCES


Amended 10-K’s, which usually contain financial restatements, have been on the rise, even after Sarbanes-Oxley. From 2000 to 2004, there has been over a 250% increase.
<table>
<thead>
<tr>
<th>Category</th>
<th>FASB Standards and Interpretations</th>
<th>APB Opinions</th>
<th>AICPA Accounting Research Bulletins</th>
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</thead>
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<td>FASB Technical Bulletins</td>
<td>AICPA Industry Audit and Accounting Guides</td>
<td>AICPA Statements Of Position</td>
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<td><strong>Category C</strong></td>
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<td>AICPA AcSEC Practice Bulletins</td>
<td>Widely recognized and prevalent accounting practice</td>
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<tr>
<td><strong>Category D</strong> (Least authoritative)</td>
<td>AICPA Accounting Interpretations</td>
<td>FASB Implementation Guides (Q &amp; A)</td>
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The House of GAAP and the authoritative publications listed in it.
## Difference of Two Proportions

Dollars in millions

<table>
<thead>
<tr>
<th></th>
<th>Size Characteristics</th>
<th>Operating Performance</th>
<th>Staffing Levels</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>Revenue</td>
<td>Assets</td>
<td>Market Cap</td>
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<td>n</td>
<td></td>
<td></td>
</tr>
<tr>
<td>n</td>
<td>5,268</td>
<td>5,268</td>
<td>5,268</td>
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<td>Median</td>
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<td>Mean</td>
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<td>Std. Dev.</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>r</td>
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<td>158</td>
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<tr>
<td>p</td>
<td>0.029992</td>
<td>0.029992</td>
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<td><strong>Restatements Above Median</strong></td>
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</tr>
<tr>
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<td>pa</td>
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<td>0.031891</td>
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<tr>
<td>n</td>
<td>62</td>
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<table>
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<th>z-value</th>
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<td>2.748</td>
<td>0.006</td>
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<td>0.807</td>
<td>0.4192</td>
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<tr>
<td>1.292</td>
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<tr>
<td>-3.722</td>
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<tr>
<td>0.0000</td>
<td>1.0000</td>
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<tr>
<td>1.877</td>
<td>0.0605</td>
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<tr>
<td>3.680</td>
<td>0.0002</td>
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Where

\[
Z = \frac{(p_1 - p_2)}{\sqrt{\frac{p_1q_1}{n_1} + \frac{p_2q_2}{n_2}}}
\]

\(n_1\) and \(n_2\) = number of public companies that have the required financial data and have greater than $20 million in sales

\(p_1\) = the number of companies that restated with above median characteristic / \(n\)

\(p_2\) = the number of companies that restated with below median characteristics / \(n\)

\(q_1 = 1 - p_1\)

Here is the data for each characteristic test performed and the formula used to calculate the z-values. Columns highlighted in red are characteristics found to be statistically significant (note the corresponding p-values).
Restatements Causes: Top Ten Reasons

6 Accounting Subjects accounted for 172 of the restatement reasons
6% of Accounting Subjects accounted 68% of the restatement reasons

- Accounting Changes and Error Corrections
- Insurance Industry
- Computer Software to be Sold, Leased, or Otherwise Marketed
- Debt: Convertible Debt, Conversion of Convertible Debt, and Debt with Stock Purchase Warrants
- Inventories
- Derivative Instruments and Hedging Activities
- Income Taxes
- Revenue Recognition
- Leases
- Other

158 restatements, 252 reasons. Some companies had more than one accounting problem.
Each dot represents an accounting topic. The y-axis measures the amount of restatements attributed to that accounting topic, while the x-axis measures the topic's complexity. Notice that most of the accounting topics that cause zero restatements are concentrated below the 400 complexity level. Also notice that above the 1000 level of complexity a large amount of restatements are caused by a small amount of topics.
PowerPoint Presentation
From a Lecture Given by Georgios Bardis
On May 2, 2006
An Examination of the Factors Leading to Financial Restatements

A Honors Thesis by: Georgios Bardis

The Big Picture

- The efficiency of capital markets depends on the veracity of financial statements (Vance 2005), restatements negate this efficiency.
- In other words, "widespread loss of investor confidence in the accuracy and reliability of financial reporting can have a destabilizing effect on the financial markets and the U.S. economy" (Akigbe, 2005)
- Restatements are damaging to a company's image and stock price (Akigbe 2005)

The Big Picture

- Restatements are becoming more prevalent.

The Big Picture

- Are the specific causes to restatements something that companies can plan against?
- Or, are the causes for restatements out of the control of companies?

Overview of the study

- I analyzed press releases found on the LexisNexis database from 158 companies that restated in 2004 and found 252 causes.
- I compared the financial data of these 158 companies to the financial data of all public companies in the Compustat database with revenue over $20 million.
- Compared the complexity of different accounting topics

Methodology: Database

- LexisNexis press releases of restatements
- Accounting Complexity Topic: AuditScope Outliers of restatements
- Compustat Financial data: Outliers of restating companies
- Restatement Analysis Database
Three Findings

- Restatements are associated with certain company characteristics
- A small number of accounting topics account for a large percentage of restatements
- Accounting topics that are more complex seem to be the cause of more restatements

Difference of Two Proportions

<table>
<thead>
<tr>
<th></th>
<th>Restatements</th>
<th>Operating Performance</th>
<th>Staffing Levels</th>
</tr>
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<tbody>
<tr>
<td>All Companies</td>
<td>0.324</td>
<td>0.507</td>
<td>0.412</td>
</tr>
<tr>
<td>Size</td>
<td>0.284</td>
<td>0.541</td>
<td>0.406</td>
</tr>
<tr>
<td>Market Capitalization</td>
<td>0.387</td>
<td>0.538</td>
<td>0.454</td>
</tr>
<tr>
<td>Operating Income scaled by revenue</td>
<td>0.377</td>
<td>0.528</td>
<td>0.451</td>
</tr>
<tr>
<td>Operating Income scaled by Assets</td>
<td>0.437</td>
<td>0.567</td>
<td>0.481</td>
</tr>
</tbody>
</table>

Where:

- \( Z = \frac{\sqrt{n_1} \cdot \sqrt{n_2} \cdot p_1 \cdot (1 - p_1) - \sqrt{n_1} \cdot \sqrt{n_2} \cdot p_2 \cdot (1 - p_2)}{|\hat{p}_1 - \hat{p}_2|}

Statistically Significant Company Characteristics

- Company Size in terms of Sales
  - Companies with greater than median revenue restate more
- Company Profitability in terms of Operating Income over Revenue
  - Companies with a lower than median Opm/cRev ratio restate more
- Do companies have enough employees?
  - Companies with a higher than median Emp/$M Oplnc restate more

Accounting Topics

- From the search I mentioned earlier, I analyzed press releases from LexisNexis
- Our “Accounting Subjects” were derived from subject headings of FASB’s 2005 Accounting Standards Current Text
- Classified each company’s restatement reason into one of 95 different accounting subjects

Restatements Causes: Top Ten Reasons

- 6% of Accounting Subjects accounted for 17% of the restatement reasons
- 9% of Accounting Subjects accounted for 68% of the restatement reasons

156 restatements, 252 reasons. Some companies had more than one accounting problem.
Complexity and GAAP

- While analyzing the data, it seemed that:
  - complexity of accounting subjects were the catalyst for restatements
  - In some cases, "epidemic restatements" were caused because companies relied on less authoritative Generally Accepted Accounting Principles (GAAP).

Accounting Complexity: A Novel Approach

- Current GAAP = 2,000 pronouncements/ 3 Organizations: Financial Accounting Standards Board (FASB), Securities Exchange Commission (SEC), American Institute of Certified Public Accountants (AICPA)
- FASB's "Codification and Simplification" Project
- However, no empirical research has been done to measure the effects of accounting complexity

Less Authoritative GAAP?

<table>
<thead>
<tr>
<th>House of GAAP</th>
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<tbody>
<tr>
<td>Category A (Most Authoritative)</td>
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<tr>
<td>Category B</td>
</tr>
<tr>
<td>Category C</td>
</tr>
<tr>
<td>Category D (Least Authoritative)</td>
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</tbody>
</table>

How to measure complexity

Complexity = amount of pages it takes to explain a topic
So:
FASB standards Current Text 2005 + FASB Statements + Emerging Issues Task Force (EITF's) = Accounting Subject Complexity

Complexity Results

Regression Analysis

<table>
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<th>SUMMARY OUTPUT</th>
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<tr>
<td>Regression Statistics</td>
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<tr>
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<td>Adjusted R Square</td>
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<td>F Statistic</td>
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<td>Significance F</td>
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<td>Observations</td>
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Coefficient Standard Error | t Stat | P-value | Lower | Upper |
<table>
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<th></th>
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<tbody>
<tr>
<td>Complexity</td>
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Graph showing frequency distribution of complexity.
### Complexity Results

<table>
<thead>
<tr>
<th>Complexity (# of pages)</th>
<th># of Accounting Topics</th>
<th># of Restatements</th>
<th>Restatements to Topics ratio</th>
</tr>
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<tr>
<td>0-500</td>
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<td>1.75</td>
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<td>501-1000</td>
<td>21</td>
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<td>10</td>
<td>112</td>
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</tr>
</tbody>
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### Recommendations

- Better trained and supervised accounting staffs
- A serious effort to simplify the accounting rules
  - Simpler rules
  - "right or wrong" standards
- "One-stop-shop" for accounting rules
- Faster GAAP rule making would remove the current ambiguity in accounting rules

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**Thank You**

Any Questions?