Designing Discipline:

How does the market react to accounting restatements in industries with significant intangible value?

by

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Abstract:

Mandatory financial reporting for public companies is intended to increase transparency for shareholders. If a business can raise capital from the public, it was decided that the public had a right to information about the operations of the business they were investing in. However, the creation of mandatory financial reporting was not an absolute solution. Since then, there have been multiple instances of accounting mistakes and fraud that require an accounting restatement. Such market events yield a market response measured by stock price changes. Market responses are commonly researched, but they have not been considered among different industries. This study intends to address a current gap in research by examining the financial market reaction to significant market events among firms with notable intangible value. I accomplish this with an event study following accounting restatement dates. This thesis examines the hypothesis that the financial market is significantly less reactive to restatements in industries with significant intangible value. I use statistical analysis tools including a two-sample t-test, a regression model, a correlation analysis, and a quintile analysis. The research results do not yield a significant difference to support the hypothesis, but compelling motivation for future research was uncovered.

Key Words: Creative industry, intangible assets, accounting restatements, market events

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1. Introduction

Significant negative financial market events such as restatements make great news headlines, but they are much more than that. They have the potential to result in large monetary losses, startling changes in unemployment rates, significant swings in public opinion, and some form of a policy response in effort to prevent a future reoccurrence. However, all market events do not happen under the same conditions. Many different types of companies can be involved. The company involved in the event could be more traditional with tangible assets generating value, or it could have a significant amount of value captured by intangible assets not well represented on the financial statements. Current research does not differentiate the former and their respective market events from the latter. The accounting functions and subsequent errors of firms with intangible value offerings are also especially unique and under-researched.

Companies with notable intangible assets include companies with value derived from human capital, research and development activities, or developed brand images. These items are not usually listed on the balance sheet as an asset, but they are each a source of potential value generation for a company. For example, software development firms derive value from their research and development success and their employees involved in the research and development process. However, both of these value sources are generally expensed, and neither is considered an asset to the company per Generally Accepted Accounting Principles. Therefore, financial statement requirements are not representing the value generation sources of software development firms as accurately as they represent other companies with value generated from more traditional, tangible sources.

The accounting function of firms engaged in creative business ventures can be challenging to implement and understand. Researchers have historically been interested in how

accounting impacts these firms in particular. Scholars have previously considered what effect accounting has on creative functions like design, and whether the effect of accounting is noticed by the firm's employees. Researchers have uncovered the influence of figures like revenue, transportation expense, and inventory holding costs on the creative design activities of a company. Additionally, scholarly discussion is often consumed with understanding financial market responses to significant events like bankruptcy, landmark policy, or accounting restatements for public companies. This thesis contributes a combination of two current research ideas that have not yet been considered together by asking the following research question:

Does the financial market react differently to significant market events like accounting restatements in industries where value is intangible when compared to a sample of public firms with more tangible value?

I answer the above research question using an event-study approach. I analyze whether equity market investors respond to restatement announcements by firms in creative industries differently from restatement announcements by firms in traditional industries. I define event window as three days following the accounting restatement dates found in the United States Government Accountability Office's Financial Restatement database. Then, I collect financial market metrics for each restatement from Wharton Research Data Services. I analyze the collected results with a two-sample t-test to explore the possibility of a significant difference in financial market responses to restatements between firms in each sector.

I predict that abnormal returns following accounting restatement events will be less negative for companies with higher levels of intangible assets not reflected on their financial statements than it is for companies with more tangible assets. My prediction is based on the increased uncertainty that investors in companies with significant amounts of intangible assets

are already accustomed to and compensated for. I use the sample median market to book ratio to distinguish the two sectors. Investors assess the value of a company, and market to book ratio compares the investors' assessment to the company's book value. The perceived value in excess of book value is the intangible value. The average abnormal return after an accounting restatement event is -0.037 for the "Intangible Value-Based Sample", and -0.033 for the "Market Sample". The mean difference was not large enough to be statistically significant. The variables I considered did not yield a significant difference in abnormal returns, but compelling motivation for future research was uncovered.

The results of this study have implications for investors seeking an effective analysis of their investments, as well as policy makers who want to ensure that all publicly traded firms have a material incentive to operate legally and on the behalf of their stakeholders. One possible reason for the different treatment of accounting restatements among intangible and tangible companies is that the current state of accounting is less equipped to represent the intangible value associated with certain firms. This greater degree of uncertainty is a risk that investors of those firms are already compensated for through the stock price. Such relationships are important for policy makers to understand if they are to be successful in encouraging fair business practices. They are also important for investors to know so they can make wise trading decisions. By filling the gap that currently exists in research, this thesis aids stakeholders of public firms with notable intangible asset value in understanding a characteristic about intangible value-based firms that is unique from other firms in the general market place.

2. Literature Review

Three key themes emerged in past relevant research: the impact of specific accounting figures on the operations of creative-based firms, the effect of accounting events like restatements on value for equity investors, and the role of the equity investors who desire the firm's interests to be aligned with theirs and who subsequently react to news relevant to the firm. First, I examine information about the role and impact of the accounting function at firms competing in a creativity-based industry. I review what accounting figures are most important to finance and accounting professionals in management and capital investment positions. Then, I consider the implication of these figures on creative art ventures like fashion and apparel design with a case study of the retail fashion environment. Once I understand current research regarding the tension between the financial discipline and creative pursuits, I consider research about the tools employed by firms to align the incentives of the creative design functions with the incentives of equity investors. Finally, I examine the current state of research concerning how the financial market responds to significant market events.

2.1 The Impact of Accounting on Creative Arts

Public accounting is considered to be one of the most standardized processes in the business environment. The Financial Accounting Standards Board prescribes Generally Accepted Accounting Principles for public firms to abide by. To ensure compliance, every public firm must also have their financial statements and internal controls audited by an independent auditor. Accounting is referred to as the language of business, and there seems to be little room for creativity. In fact, creative accounting is commonly accepted as a synonym for fraudulent activity. However, firms engaged in creative pursuits still need accounting, so a clear disconnect that extends beyond semantics emerges. Jeacle (2015) explores the complex dynamic between

accounting constructs and a creative firm competing in the retail fashion environment. This research found that accounting has a notable influence on the retailer even though the retailer is engaged in a more creative pursuit. Researchers found that the governance function of accounting is most critical of transportation costs, sales revenues, and inventory holding costs associated with the designed fashion apparel. Because retailers make crucial decisions about their business strategy and operations with these figures in mind, Jeacle (2015) finds that the figures ultimately impact "the very foundations of fashion" in the retail environment (p. 323). When a fashion retailer makes decisions about their product offerings based on the accounting figures driving their business, those accounting figures are indirectly dictating what apparel pieces are available for purchase from a fashion retailer and, therefore, what is considered to be the fashion of that moment. Although the business decisions of retailers are driven by certain accounting figures, it remains to be seen whether external parties like the financial market respond to firms in creative industries like retail fashion uniquely based on their respective accounting figures.

Carter (2012) similarly explores how retail fashion employees perceive the role of accounting figures in their workplace. Although the accounting values often have an informal role or indirect influence, they also universally govern what is considered appealing. This is a more direct impact of accounting on the creative pursuit of a company, and it arises from the fact that creative firms are still competing in a price-competitive marketplace. Specifically, the intangible properties that dictate what is considered a beautiful garment ultimately translate to a speculation of the sales potential, which is measured with the accounting figure *sales revenues* (Carter, 2012). Therefore, accounting figures have permeated a fundamental decision made in the design process of a creative firm. Although research has shown that accounting can fuel

creative decisions instead of deterring them as previously thought, it has yet to be seen whether equity investors recognize the importance of how a creative firm uses accounting to make decisions. The use of specific accounting figures drive how a firm makes decisions, and this is something that an equity investor should be interested in. In conclusion, case studies have shown that accounting impacts the decisions of fashion and apparel retailers and, therefore, the apparel offered to consumers. However, the financial market's perception of accounting's application to firms engaged in creative pursuits is largely unknown.

2.2 The Effect of Accounting Restatements on Value for Equity Investors

Because accounting restatements yield a market response demonstrated by a change in stock price, they directly impact the value generated for the firm's equity investors. Not only does this effect produce a measurable financial impact, but the impact is also noteworthy. According to the former SEC Chairmen who was concerned about this loss of value, "countless investors have suffered significant losses as market capitalizations have dropped by billions of dollars due to restatements of audited financial statements'' (Levitt, 2000). Because of the magnitude of value change involved, accounting restatement events are worth researching in an attempt to further understand them. Palmrose (2004) agrees that restatements are "economically significant events" that have "significant variation in the market response" to be explored (p. 62). Skinner (1997) explains that these accounting restatements occur when financial statements "are later discovered to have been false and misleading from the outset, and the issuer knows or should know that persons are continuing to rely on all or any material portion of the statements" (p. 252). In this situation, management has a clear duty to correct the issue with an accounting restatement to protect the stakeholders relying on the financial statements.

When considering the value change drivers after an accounting restatement, Palmrose, Richardson, and Scholz (2004) found that restatements driven by fraudulent activities or auditors' suggestion produce a more negative return than otherwise because of "both diminished company prospects and increased risk/uncertainty" (p. 60). Additionally, accounting restatements associated with "larger restatements of previously reported income and those affecting multiple accounts" produce increased negative returns for a firm (p. 60). Finally, the financial market reaction is more negative when the accounting restatement contains incomplete information. The researchers found that the strength of these negative associations is driven by the fact that "these factors can increase the risk associated with equity investments including whether the company will survive" (p. 63). In conclusion, the researchers considered what influences the magnitude of the financial market's reaction to an accounting restatement, and they found that the previously stated factors had a significant negative correlation to the market response reflected in price change. However, it has yet to be considered if the market's reaction to an accounting restatement is different depending on the type of firm subject to the restatement.

2.3 The Role of the Equity Investor: Aligning Incentives and Understanding Reactions

The identified disconnect between the accounting function and creative pursuits is more than a necessary evil. Busco, Frigo, Giovannoni, and Maraghini (2012) identified the disconnect as a source of tension between creativity and control at its most basic level. Creative endeavors are at the core of the relevant firms' value offering, but these endeavors need to be translated into and controlled with accounting figures. This is especially true for public companies that need to file public financial statements with the SEC. Researchers explored this area of tension, and they found that firms who profit from creative activities have multiple tools at their disposal to align the incentives of creative professionals with the financial well-being of the firm. The tools that

the researchers discovered include, but are not limited to, the balanced scorecard, strategy maps, and personalized frameworks (Busco et al., 2012). However, these tools are developed for a firm to respond to internally, so external users of financial statements do not have access to them when making their investing decisions in the financial market. Therefore, the researchers' findings demonstrate that firms engaged in creative activities respond to the information provided by their uniquely designed tools, but any potential differences in how equity investors respond remains unexplored.

Researchers have also examined responses to financial market events like accounting restatements across dimensions other than industry. For example, market events were considered by comparing responses to the event among states. Gantt, Generas, and Lamberton (2007) sought to explore how states with different political climates responded to the implementation of the Sarbanes-Oxley. The researchers found that while all states that were examined went "beyond a 'wait-and-see' stance and implemented specific changes" to their accounting regulations and controls, that is where the similarity across states ended (p. 26). Researchers discovered that there was neither a uniform national response nor a dichotomy of responses determined by ideology. Instead, a "great deal of variance" was uncovered in each state's respective response (p. 26). The researchers considered responses to a market event among different states, but this thesis will consider responses to a market event among different industries including industries with more creative ventures signaled by intangible assets.

Current research seeks to identify the accounting constructs most influential to companies engaged in creative pursuits such as retail fashion firms. Scholars have also explored how select accounting figures influence the decision-making of firms in creative-based industries. Further, researchers have considered what factors influence the magnitude of a market response measured

by a change in stock price. Finally, research explores the tools used by managers to align creative and financial goals for investors, and how the responses to events highly relevant to the financial market, like the passage of the Sarbanes-Oxley Act, vary across dimensions like state lines. My thesis addresses the gap found between the tension of creativity and control incentives, the determinants of the magnitude of market reactions to accounting restatements, and the financial market's reaction to the information available to it. The current study examines this gap by exploring how equity investors respond to accounting restatements differently depending on the industry that each firm competes in. More specifically, I consider whether the financial market response to restatements is different for firms competing in creative-based industries defined by intangible value sources.

3. Hypothesis and Research Design

In this section, I explain my hypothesis motivated by the scholarly literature previously discussed. I also consider the data collection methods that I use for this hypothesis in depth. Finally, I outline my strategy for analyzing the posed research question.

3.1 Hypothesis

Past research considers how accounting figures influence the decisions of those employed in industries with significant intangible value such as retail fashion. These industries are unique because their value proposition for customers is based on value that is not accurately reflected on standard financial statements. Carter (2012) found that accounting influences the foundation of fashion so significantly that it dictates what garments ultimately make it to the marketplace. However, the specific application of accounting to these industries is not as directly or widely understood. For example, the success of intangible value-based companies relies heavily on the

skills and abilities of the innovators and designers employed by the company. Despite this, human capital cannot be reported on an SEC financial statement, so a major source of these companies' wealth generation remains unaccounted for. Because equity investors for these companies are already accustomed to and compensated for this lack of information that ultimately causes uncertainty, I predict that they will be less reactive to market events like accounting restatements that produce uncertainty, as well. As a result, my thesis hypothesizes that:

H1: The stock market reaction to accounting restatements in industries with significant intangible value is less negative than it is in more traditional industries.

3.2 Data

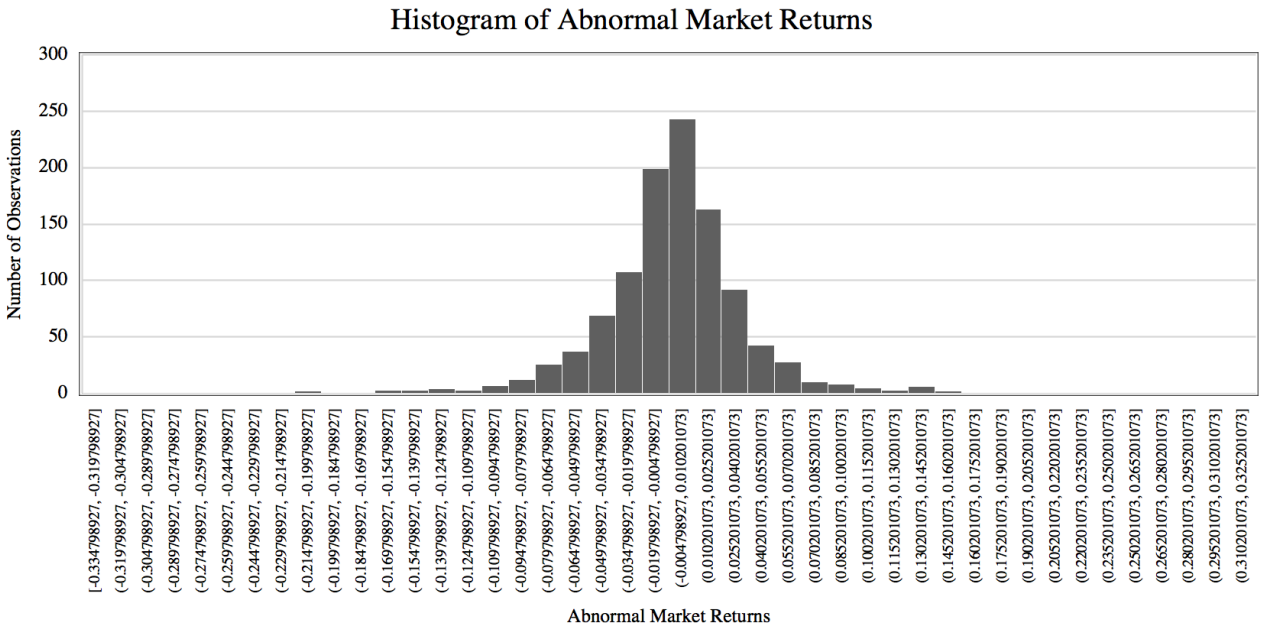
Data for this thesis comes from two main sources. First, the dates of financial statement restatements for public companies are from the United States Government Accountability Office's Financial Restatement Database. The identified restatements were made by companies operating with both an intangible asset-heavy strategy and companies operating in a more traditional way with tangible assets on their financial statements. The analysis includes a sample space of 267 accounting restatement events for 241 unique companies between October 1, 2005 and June 30, 2006. These restatements may have been reported in numerous ways. Restatements are disclosed by amending financial statements, by sharing a press release with the public, or by filing a Form 8-K with the SEC. Regardless of formal disclosure method, the Government Accountability Office records and compiles the total amount.

Next, I evaluate the hypothesis of this thesis with historical stock market data from Wharton Research Data Services. The net stock price adjustment over the three-day event

window was extracted from the database. This information is necessary to investigate my hypothesis on a quantitative level.

3.3 Research Design

Figure 1: Distribution of Abnormal Market Returns



The dependent variable for this study is the stock price adjustment of the companies being evaluated relative to the expected return. Figure 1 displays the abnormal returns of stock prices for the companies in the sample. I calculate the abnormal return as the difference between the stock's actual return and the market return during the event window three days after the restatement. The distribution of the abnormal returns is approximately normal. This distribution is important because it is ideal to analyze with statistical methods.

One of the independent variables in this thesis is the market to book ratio of each company within the sample. My research relies on the market to book ratio to indicate the amount of intangible asset value attributable to each company. The market to book ratio compares a company's current market price to its net asset value. Therefore, a relatively high

market to book ratio indicates that investors think the value of a company significantly exceeds the value represented on its financial statements. This additional value is considered to be the intangible value of a company. For the two-sample t-test analysis, the market to book ratios of the sample are used to create the dummy variable that establishes the "intangible value-based sample" and "market sample" groups discussed later.

I also added the natural log of market capitalization for each company as an independent variable to control for company size. Stock market reactions to events for smaller firms are relatively larger than market reactions for larger firms (El-Gazzar, 1998). This is attributed to the fact that more is known about larger firms. The larger pool of investors collectively incentivizes the larger company to disclose information more strongly than the fewer investors in smaller firms (Palmrose et al., 2004). Because of the size disparity between investor pools, more is known by investors about larger companies. This additional wealth of knowledge decreases the risk associated with unknown information about a company. Decreased risk allows the financial market to ultimately be less volatile when a market event such as an accounting restatement occurs. Therefore, I am controlling for size in my regression.

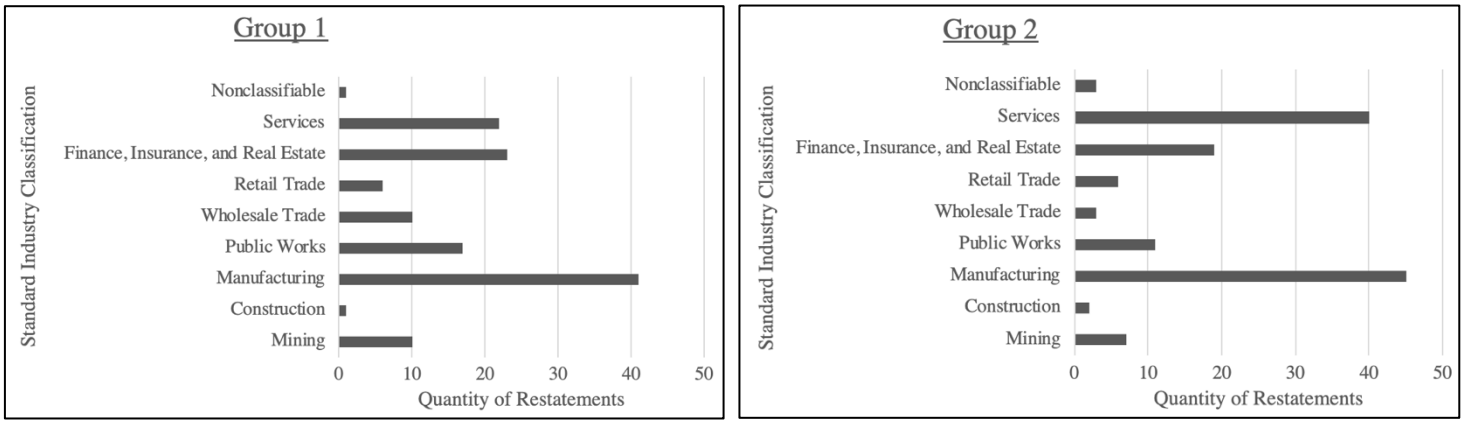
Finally, the expected return that would have occurred without the accounting restatement event is naturally controlled for with the event study design. This control is important to my research because it isolates the abnormal return while also considering the expected return as a base.

Table 1: Outlining the Distinction Between the Groups of Financial Market Data

Group	Industry of Companies	Company Examples
1	Intangible Value-Based Sample	Software, Technology Development, Retail, Telecommunications
2	Market Sample	Petroleum and Oil, Insurance, Energy, Automotive, Finance

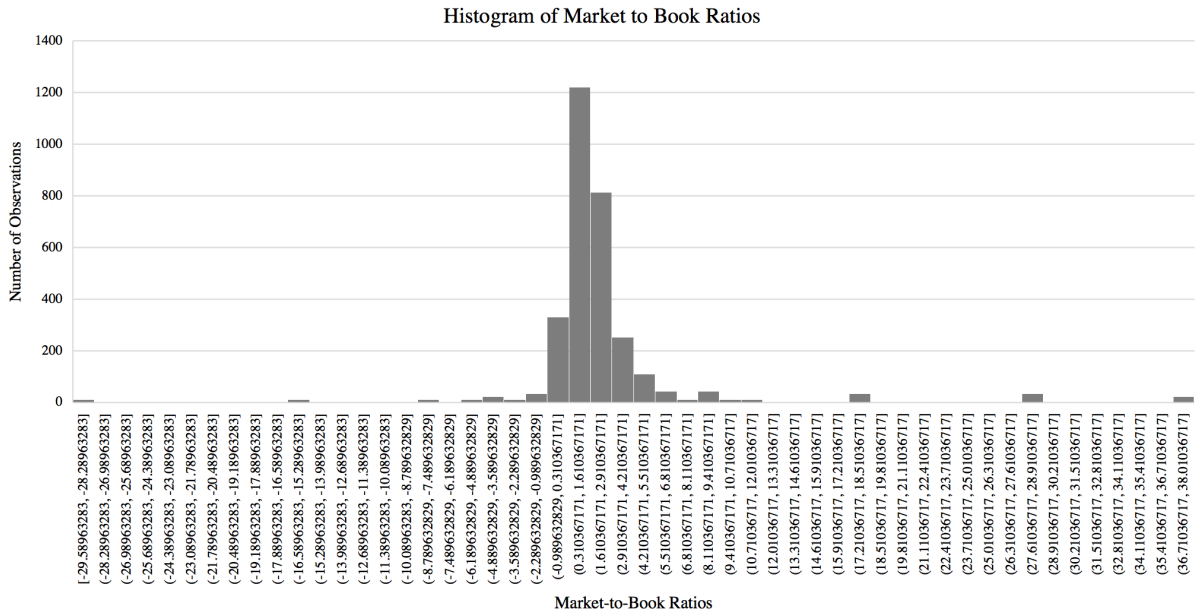
The data is specific to two types of firms, as described in Table 1 above. Stock market data from public companies who operate in an industry with notable intangible assets is first considered. This category includes companies where the value perceived by investors is from sources such as human capital, research and development, or intellectual property. In this thesis, intangible value is represented by the market to book ratio of each company. The market to book ratio captures the value of intangible assets based on the viewpoint of the financial market. Industries in this category include, but are not limited to, manufacturing, finance, insurance, and real estate, and services as displayed in Figure 2. The second type is from a sample of public companies with more tangible value. It includes public companies from various industries like manufacturing, services, and finance, insurance, and real estate. Although the same three industries dominate both groups, differences such as the increased significance of public works, wholesale trade, and finance, insurance, and real estate in Group 1 are notable. Figure 2 offers more detailed display of the companies included in each group by Standard Industry Classification.

Figure 2: Standard Industry Classification by Dummy Variable



My analysis includes a sample space of 267 accounting restatement events for 241 unique companies between October 1, 2005 and June 30, 2006. When I consider the market to book ratios of all the companies in the sample, I find the median average to be 1.57. I use the median as a reasonable cut-off point to classify each restating company as either "Intangible Value-Based Sample" or "Market Sample." Per Figure 3, other measures of central tendency would be affected by the right skew of the data distribution.

Figure 3: Distribution of Market to Book Ratios



I distinguish the two previously described samples in Table Two. The dummy variable for companies with significant intangible assets contains companies with market to book ratios above 1.57. Conversely, companies with a market to book ratio under 1.57 are in the sample of companies where value is not largely derived from intangible assets. Each grouping contains comparable number of restatement events and is assigned a dummy variable for the regression analysis as denoted in Table Two.

Table 2: Dummy Variable Assignments

Group Number	Market-to-Book Ratio	Dummy Variable	Number of Companies
1 – Intangible Value	≥1.57	1	136
2 – Tangible Value	<1.57	0	131

Each accounting restatement event is specifically identified for the purposes of this research. The two-sample t-test compares Group 1 and Group 2 of the companies. I designate these groups by considering the market-to-book ratios of the companies in the sample, and then I partition them with a dummy variable as shown in Table Two.

In addition, I perform a regression analysis. A regression analysis is an advantageous study design because the firms in the sample space of this thesis have differences across multiple dimensions, and a regression analysis can account for these differences. I effectively isolate the various effects that are influential within the event window so that the predictive effect of interest is considered. The equation considered for each restatement event in my regression analysis is as follows:

*Abnormal Returns = Y-Intercept + (Market to Book Ratio * Coefficient) +*

*(Company Size * Coefficient)*

I also perform a correlation analysis. The correlation analysis indicates the strength and direction of the relationships between variables. These insights are necessary to understand what any identified significant statistical relationships reveal about the data set. For example, understanding whether a statistically significant relationship has a positive or negative direction is essential to understanding the implications of the relationship. Further, the strength reveals the magnitude that is expected from the relationship. Both strength and direction demonstrate the nature of a statistical relationship. The correlation analysis is instrumental in understanding the measured influence of one variable on another.

Finally, I consider the abnormal return distribution with quintiles. This analysis is advantageous because it offers a more illustrative understanding of variations throughout the sample than the dummy variable. The dummy variable designates two groupings, but this analysis contributes additional understanding of the abnormal return variation throughout the range of the sample. The groupings are more detailed with the market to book ratios organized by quintile. This is especially beneficial because the sample of market to book ratios is relatively diverse as illustrated in Figure Three.

This data analysis method ensures that the research question is effectively evaluated from the available historical financial market data and the provided dates of accounting restatements. The statistical tools indicate whether the financial market is significantly less reactive to the identified accounting restatement events in this study based on the discovered abnormal changes in stock prices related to the targeted events.

3.4 Strengths and Limitations

Evaluating the hypothesis of this thesis with an event study is associated with some limitations. One limitation of this study design is its reliance on the assumption that discounted

cash flows accurately represent firm value. The stock price is being measured because it represents the expected future cash flows produced by each individual stock's portion of the corporation being analyzed. These future cash flows are determined by future expected earnings from both fluctuations in stock price and from paid dividends. A decrease in the value of expected future cash flows can be caused by either of two variables, though. First, a decrease in future expected earnings from stock price and dividends decreases the value of expected future cash flows. Second, value is adversely affected by increasing levels of risk for a corporation's investors because additional risk encourages investors to consider the value of an investment with a larger discount rate (Palmrose, 2004). My study design relies on the stock price accurately reflecting the value of each company being analyzed.

Another limitation of the event study design stems from the possibility that the market anticipates significant events in some situations. If public skepticism about the accuracy of a financial statement exists, for example, the market may immediately react assuming a restatement will be issued. This situation causes a portion of the financial market's response to that event to be outside of the identified event window. Similarly, varying levels of information released by companies can cause an anticipatory market reaction before the event window begins. For instance, a company may indicate that a restatement is possible or probable before it is formally released. The company may also indicate the prospective effect of the restatement with widely varying levels of information and specificity offered to their investors. In these instances, the resulting data from the conducted event study would likely be skewed because of the financial market's anticipation of the event.

However, an event study is still a strong study design choice. Ahern (2009) explains that event studies are useful because they allow abnormal stock market returns to be considered in

their most relevant context. This is especially necessary and valuable to evaluating the hypothesis of this thesis. My hypothesis focuses on accounting restatement events which, naturally, produce abnormal price changes. Therefore, the event study design strength is key to evaluating the hypothesis of this thesis.

4. Results

I analyzed the data set using the various statistical methods previously described. Although the hypothesis of this study was not confirmed through the statistical analysis, it did offer some valuable insights.

4.1 An Analysis of Abnormal Returns by Quintile

I conducted an analysis of abnormal returns by quintile to achieve a more illustrative view of the relationship, as Table Three displays.

Table 3: Average Market Returns and Market to Book Ratios by Quintile

Quintiles	Average Market to Book Ratio	Average Abnormal Return	Difference from Total Average Abnormal Return
0-20%	-1.0912279	-0.0403683	-0.0055171
20-40%	1.0855736	-0.0295823	0.0052689
40-60%	1.6342180	-0.0302121	0.0046392
60-80%	2.3715049	-0.0292672	0.0055841
80-100%	8.3869360	-0.0453797	-0.0105285

The total range of market to book ratios for the sample studied in this thesis is 9.478. Based on the right skew of this data, the quintiles are organized in the ascending fashion depicted in Table Three. The most negative average abnormal return is produced by the last quintile (80-100%). The second most negative average abnormal return is produced by the first quintile (0-

20%). The last and first quintiles are also the only ones with an average abnormal return that is less than the total sample average abnormal return.

The third quintile's (40-60%) average abnormal return is nearest to the sample's average abnormal return, followed by the second quintile (20-40%). Finally, the last quintile (80-100%) has the greatest average abnormal return variation from the sample at -0.01. These sequences do not demonstrate a clear or predictable relationship.

This data analysis does not confirm the hypothesis of this thesis because the quintiles containing firms with lower market to book ratios in this sample do not definitively tend to have more negative returns. This is further complicated by the larger variation from average from the more extreme first and last quintiles. Although they are not in support of the hypothesis, the quintile analysis findings demonstrate notable abnormal return variation patterns within the sample of this thesis.

4.2 A Correlation Analysis of the Restatement Variables

Table Four displays the correlation calculations for the abnormal returns and market to book ratios of the companies in the sample space. These coefficients represent the degree to which the relationships between variables are predictive.

Table 4: Correlation Coefficients for Relevant Variables

	Market to Book Ratio	*Abnormal Returns*
Market to Book Ratio	1	
Abnormal Returns	-0.032460701	1

I find that market to book ratio and abnormal returns have a weak predictive relationship. As market to book ratio increases, the abnormal return of a company following the restatement decreases. This predictive relationship is relatively weak, though, at only -0.032 per Table Four. It cannot be relied on as significantly predictive in relation to my hypothesis.

4.3 Two-Sample T-Test of Hypothesis

I conduct a two-sample t-test assuming unequal variances to test the hypothesis (H1) of this thesis. The evidence from the two-sample t-test is not convincing enough to reject the null hypothesis. The t Critical one-tail value of 1.65 is larger than the negative value of t Critical two-tail, -1.97, and smaller that the positive value of t Critical two-tail, 1.97 as displayed in Table Five. This result is not persuasive enough to confirm this thesis' hypothesis.

Table 5: Two-Sample T-Test Results

t-Test: Two-Sample Assuming Unequal Variances		
	Group 1	*Group 2*
Mean	-0.0370858	-0.0325314
Variance	0.01024187	0.00575851
Observations	136	131
Hypothesized Mean Difference	0	
df	250	
t Stat	-0.4170387	
P(T<=t) one-tail	0.33850401	
t Critical one-tail	1.65097149	
P(T<=t) two-tail	0.67700801	
t Critical two-tail	1.96949839	

4.4 Regression Statistics for the Relevant Restatement Variables

For the regression calculation, I use the market to book ratio and the natural log of market capitalization for each company as the independent variables. The net stock price abnormal return within the event window is the dependent variable.

The regression statistics in Table Six suggest a weak linear relationship. The R value is approximately 0.252. It demonstrates a particularly weak positive linear relationship between the independent variables and the dependent variable. The R square value is the coefficient of determination. It shows how many values in the data set fall on the calculated regression line.

Therefore, only 6.35% of data values fit the generated linear model. This casts doubt on the predictive value of the linear model. Unfortunately, the adjusted R square value does not provide stronger evidence, either. The standard error represents the precision or accuracy of the model. It demonstrates that data points are generally $0.09 worth of abnormal returns away from the best-fit regression line generated by my regression analysis.

Table 6: Regression Statistics Output

Regression Statistics	
Multiple R	0.25194616
R Square	0.06347687
Adjusted R Square	0.05638199
Standard Error	0.08697939
Observations	267

Regression coefficients for the data set are provided in Table Seven. These values display the unique contribution of each independent dummy variable to the behavior of the dependent variable, abnormal returns. The market to book ratio coefficient suggests a negative relationship to abnormal market returns. However, the related p-value of 0.583 shows that in this relationship, the market to book ratio is not a statistically significant predictor of abnormal returns. The natural log of market capitalization represents the company size. The company size coefficient suggests a positive relationship with abnormal returns. This value is statistically significant at the .99 level. The window from the lower 95% to the upper 95% is a confidence interval for abnormal market returns. Since the data is not significant for market to book ratio, the confidence interval does not add value because there is no statistically significant relationship to express confidence for. However, I can be 95% confident that the statistically significant coefficient of company size is between 0.006 and 0.017.

Table 7: Regression Coefficients Output

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*
Intercept	-0.1009215	0.017098518	-5.9023553	1.0966E-08	-0.134588344	-0.067254707
Company Size	0.01151941	0.002746089	4.19484205	3.732E-05	0.006112387	0.016926433
Mkt-to-Book Ratio	-0.0005442	0.000989945	-0.549742	0.5829611	-0.002493407	0.001404978

5. Discussion and Concluding Remarks

In this section, I discuss future research opportunities that were revealed within the results of this thesis. There is promising potential to analyze the behavior of investors in response to similar restatement events among varying types of firms.

5.1 Future Research

The results of this thesis suggest that the relatively extreme market to book ratios of companies are worth considering as the focus of future research. The results of the quintile analysis in Table 3 illustrate that the last and first quintiles organized by market to book ratio experience the most variation from the mean average abnormal return of the entire sample. Although this variance did not lend itself to a statistically significant linear relationship, it is an interesting dynamic worth considering in future research. Seemingly extreme market to book ratios should not be simply dismissed as outliers. There is the potential to consider whether the more variant market to book ratios are reflective of valuation confusion among investors in the financial market. Investors can express their unsure feelings about the valuation of a stock through increased trading volumes. Therefore, trading volume is a variable that could offer more insights into that possibility than stock price, alone, can provide.

Finally, similar research questions may be analyzed in the future while utilizing a different indicator to represent the intangible value assigned to each company. Intangible assets are difficult to measure for valuation purposes because they are not valued and reported per

Generally Accepted Accounting Principles. I used market to book ratio as the market's assigned value for intangible assets, but there are other options for approaching this question. A case study design could offer future researchers the ability to focus on companies that offer access to intangible asset valuation information. Inquiry with institutional investors in these restatement event situations could also provide insights on investor behavior.

5.2 Conclusion

The primary goal of this thesis is to explore if the financial market reacts differently to accounting events such as financial statement restatements for companies engaged in creative pursuits that possess significant unreported intangible assets. The motivation for this thesis was an existing gap in accounting literature. Researchers have previously considered the effect of accounting on companies that compete in creative industries. The financial markets' response to numerous major accounting events is also a commonly studied topic by researchers. However, my thesis sought to bridge the gap by studying whether financial market responses vary by the level of creative activity demonstrated by intangible assets associated with a company.

To analyze this research question, multiple statistical analyses were performed. I performed a two-sample t-test to test the significance of my thesis' hypothesis. The results were insignificant. I also used a regression analysis that revealed a weak positive linear relationship between the dependent variable, market to book ratio, and the independent variable, abnormal return. I used a correlation test to consider the predictive relationship between market to book ratio and abnormal returns. My results showed that as the market to book ratio increases, the abnormal return of a company following the restatement decreases. However, the coefficient was weak and statistically insignificant. Finally, my quintile analysis allowed consideration of the

distribution of market to book ratios beyond the dummy variable. This analysis did not yield clear or predictive results, but it could serve to motivate future insightful research.

Market to book ratio proved to be a statistically insignificant predictor of abnormal returns among companies in my sample undergoing an accounting restatement. Although this thesis did not yield statistically significant results, it offered insights that can motivate future research about the effect of accounting restatements among different types of firms on investor behavior.

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