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THE ABILITY OF PRO FORMA EARNINGS TO IMPROVE PREDICTABILITY AND
COMPARABILITY

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ABSTRACT

This paper seeks to determine the ability of pro forma earnings to improve predictability and comparability. The primary research question focuses on determining whether pro forma adjustments remove temporary items from reported GAAP as they are meant to do. I find that pro forma adjustments do in fact remove temporary items from reported GAAP and therefore improve their ability to predict future earnings. However, GAAP earnings also add value when predicting future earnings, which shows that these pro forma adjustments remove permanent items at times as well. The secondary research question focuses on determining when pro forma adjustments improve predictability and when they do not. I find that pro forma adjustments improve predictability of future earnings in times when companies are performing poorly, represented in this paper by times in which sales are decreasing or times in which market value is decreasing. However, they fail to improve predictability of future earnings in times when companies are performing well, represented in this paper by times in which sales are increasing or times in which market value is increasing. The tertiary research question focuses on determining how comparable pro forma earnings are when conducting ratio analysis across companies. I find that a measure of operating earnings, which removes extraordinary items, depreciation and amortization, income taxes, and interest and related expenses from GAAP earnings, is generally the best earnings measure to use when focusing on comparability of ratios across companies followed by pro forma earnings and finally GAAP earnings. As expected, because pro forma adjustments are typically made in an effort to report a more accurate EPS value, pro forma earnings are the best measure of earnings to use when focusing on comparability specifically related to earnings per share.

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Chapter 1

Introduction

Many companies report pro forma earnings, claiming that they are a better representation of the actual performance of a company. This behavior suggests that management often feels as though GAAP forces the inclusion or exclusion of items that are not a true representation of a company's performance. Pro forma earnings, sometimes referred to as street earnings, generally adjust for one-time expenses that, in the opinion of a particular company's management, do not reflect the actual performance of a company. Reporting pro forma earnings has become an increasingly popular occurrence, and it has been found that investors prefer these pro forma earnings numbers to reported GAAP earnings (Bradshaw and Sloan, 2002). Companies maintain that they have no intention of misleading investors; they are making these adjustments in an effort to improve the understanding of their performance by excluding unimportant and/or unusual items (Weil, 2001). Robert K. Herdman noted, at the time that he was the SEC Chief Accountant, that pro forma earnings can be a valuable tool to investors as they measure a company's financial performance and health when used properly (Bray, 2001). However, others are skeptical claiming that pro forma earnings may very well mislead investors. SEC officials have warned investors of the potentially misleading pro forma earnings announcements (Weil, 2001). Andrei Shleifer, a Harvard economics professor, reported that the information that investors receive is diminishing in value, with the increasing use of pro forma earnings mentioned as one of the reasons for this occurrence (Derby, 2001). Additionally, it was found that those who predominately rely on pro forma earnings information are less sophisticated

individual investors (Bhattacharya et al., 2007). This elevates the need to understand the value, or potential degradation of value, provided by pro forma earnings as less-sophisticated individual investors would be the group most at risk of being misled by these earnings numbers.

This paper seeks to determine the ability of pro forma earnings to improve predictability and comparability. Predictability and comparability are arguably two of the most important aspects of a financial measure when making investment decisions. Research has shown that stock prices and earnings announcements and performance are closely related (Ball and Brown, 1968). Given this information, it becomes clear that the ability of investors to predict earnings will directly affect their ability to predict stock price, which is of utmost concern to investors. Moreover, research has found that “financial statement comparability lowers the cost of acquiring information, and increases the overall quantity and quality of information available to analysts about the firm” (Franco, Kothari, and Verdi, 2011). Therefore, it is clear that the ability to compare financial information is very valuable to analysts and investors.

The purpose of pro forma adjustments should be to remove temporary items that do not reflect a company’s actual performance. This suggests that the removal of temporary items most relates to the goal of improving predictability. If managers report a pro forma earnings measure that is more aligned with their performance than GAAP earnings, then pro forma earnings should improve predictability when forecasting future earnings. Management is ultimately in the best position to make the distinction between items that are temporary and items that are permanent (Barnea, Ronen, and Sadan, 1975).

The primary research question is as follows: do pro forma adjustments remove temporary items from reported GAAP? The answer to this question can justify the usage of pro forma earnings and lend support to their ability to improve predictability. It has been found that the

items analysts elect to include in pro forma earnings behave like core earnings and can be valued as such while the items analysts exclude behave more like temporary items (Gu and Chen, 2004). While Gu and Chen (2004) found that these exclusions do have predictive value, they also agreed that there is value in reporting an earnings number that excludes them. It has also been found that the exclusions from pro forma earnings are very important and have significant effects on future cash flows (Doyle, Lundholm, and Soliman, 2003). More exclusions lead to lower future cash flows, which investors do not entirely take into account when earnings are announced (Doyle, Lundholm, and Soliman, 2003). Brown and Christensen (2014) found that street cash flow exclusions “are negatively associated with future operating earnings, suggesting that these exclusions are not fully transitory or unimportant in forecasting future performance” (p. 913). They also noted “that street CFO exclusions are less transitory than the implicit accrual component of analysts’ street earnings exclusions” (Brown and Christensen, 2014, p. 913). Though this suggests that exclusions from street earnings are more temporary, and therefore more appropriate to be excluded, than exclusions from street cash flows, I still find it to be important to further research the transience of pro forma adjustments.

If pro forma adjustments do remove temporary items and improve predictability, it becomes important to understand if these adjustments always improve predictability of future earnings or if there are instances in which they do not. The subsequent part of my research addresses this question.

The secondary research question is as follows: when do pro forma adjustments fail to improve predictability? I focus on comparing the ability of pro forma adjustments to improve predictability in times of strong versus poor company performance. I represent strong company

performance by times in which sales are increasing or market value is increasing. I represent poor company performance by times in which sales are decreasing or market value is decreasing.

Finally, the focus of the paper shifts to understanding whether pro forma earnings improve the level of comparability when performing ratio analysis as compared to GAAP earnings. The reason that ratio analysis is important in measuring comparability is that comparing two companies based on total dollar value amounts such as earnings from the companies' reported financial statements can be easily misinterpreted and misconstrued. Companies with the same operations will have the same ratios and companies with different operations will have different ratios, but ultimately the key to comparability is comparing specific measures using a common denominator. For example, if company A and company B both have the exact same net income, but company A earns this level of income with half of the amount of assets as compared to company B, it becomes clear that they are not actually performing equally. In this sense, ratios allow companies to be compared over a common ground.

Theoretically, though pro forma earnings are meant to better reflect the performance of a company, they are reported differently from company to company in that companies may adjust for different items, which may limit their ability to be comparable. However, pro forma adjustments could potentially improve ratio analysis by removing items that are not comparable across companies. To elaborate, if pro forma adjustments remove items from reported GAAP earnings that would otherwise be reported differently across companies or that are truly temporary in nature and would affect some companies and not others, these adjustments could serve beneficial when performing ratio analysis. Due to the lack of oversight over pro forma earnings, I also compute an operating earnings measure for this portion of the research.

Operating earnings can be computed in a consistent manner across companies, which should make them relatively comparable as opposed to pro forma earnings. Operating earnings can also remove temporary items that may not reflect the actual performance of a company and that may be reported by some companies and not others. Removing these items in a consistent manner can serve to improve comparability.

The tertiary research question is as follows: how comparable are GAAP, pro forma, and operating ratios? In their research, which compares operating earnings reported by analysts and managers versus operating earnings that could be derived from a company's financial statements, Brown and Sivakumar (2003) found that operating earnings reported by analysts and managers is more value relevant. They found this to be the case in all of three aspects in which they measured value relevance: ability to predict future earnings, association of earnings levels with stock price levels, and correlation of earnings surprises with abnormal stock returns (Brown and Sivakumar, 2003). I seek to further understand the value of an operating earnings measure derived from a company's financial statements by including such a measure in my research on comparability.

Overall, I find that pro forma adjustments do remove temporary items from reported GAAP earnings and therefore, they improve predictability. However, at times, they remove permanent items as well. Through further research, I find that pro forma adjustments improve predictability of future earnings in times of poor company performance, represented by decreasing sales and decreasing market value. However, they fail to improve predictability of future earnings in times of strong company performance, represented by increasing sales and increasing market value. These results align with the expectation that more pro forma adjustments will occur in times of poor company performance. This is the expectation because managers have a greater incentive to remove expenses through these adjustments, thereby

increasing earnings, in times of poor performance. Finally, I find that when conducting ratio analysis across companies, operating earnings are the most comparable form of earnings, followed by pro forma and then GAAP earnings. The only instance in which this is not the case is when you specifically focus on earnings per share. In this case, pro forma earnings are the most comparable. This can be explained by the fact the focus of pro forma adjustments is report a more accurate earnings number.

Chapter 2

Data Used

Source & Requirements for the Data

To do the research, I pull the necessary data using the Institutional Brokers' Estimate System (I/B/E/S) and Compustat. The primary requirement for the data is that an I/B/E/S actual EPS number is present. The presence of this number also means that there are analyst forecasts present for the company and year that are pulled. The I/B/E/S actual EPS number is a form of analysts' EPS. In calculating these values, analysts exclude certain GAAP items. Under the assumption that these exclusions are mostly motivated by managers' exclusions, the I/B/E/S EPS value is used throughout this research as an approximation for pro forma EPS.

Additionally, the earliest year in which the data is available is 1985 and the most current year in which the data is available is 2015. However, the 2015 data is not complete as the year is not over yet.

The other requirements for the data are related to the Compustat variables that I pull. The data has to have total assets, sales, net income, and the end of fiscal year price in order to be included. These requirements ultimately result in 111,766 rows of data. All of the variables that are pulled or subsequently calculated as well as a brief definition of each variable can be found in Table 1 on the following page:

Table 1: Variable Defintions

Definition of each variable that is pulled or calculated:

#	Variable	Definition
1	Data Date	The day and year that the respective data describes.
2	Company Name	The name of the company being analyzed.
3	North American Industry Classification Code	The particular industry that the respective company is a part of.
4	Sales/Turnover (Net)	The net sales for the respective year.
5	Net Income (Loss)	The total earnings for the respective year.
6	Income before Extraordinary Items	The earnings excluding any extraordinary items for the respective year.
7	Depreciation and Amortization	The depreciation and amortization for the respective year.
8	Income Taxes – Total	The income taxes for the respective year.
9	Interest and Related Expense – Total	The interest and related expenses for the respective year.
10	Assets – Total	The total assets as of the data date.
11	prcc_f	The price per share as of the data date.
12	Common Shares Outstanding	The common shares outstanding as of the data date.
13	Actual Value, from the Details Actual File	The I/B/E/S actual EPS value. This value is used to approximate a pro forma earnings per share measure.
14	Pro Forma Net Income (Loss)	Pro Forma Net Income is calculated by multiplying the actual value by the common shares outstanding.
15	Operating Income (Loss)	Operating Income is calculated by taking income before extraordinary items and adding back the following: depreciation and amortization, income taxes, and interest and related expense.

Using the variables from Table 1, the following ratios are calculated:

Table 2: Ratio Definitions

Definition of each ratio that is calculated for the research:

#	Ratio*	Definition
1	Return on Assets (ROA)	ROA is calculated by dividing income by total assets. ROA measures the efficiency with which a company uses its assets to generate income.
2	Profit Margin (PM)	PM is calculated by dividing income by sales. PM measures the amount of income generated for every dollar of sales.
3	Earnings per Share (EPS)	EPS is calculated by dividing income by common shares outstanding. EPS measures the amount of income generated for each share outstanding.
4	Earnings Yield (EY)	EY is calculated by dividing earnings per share by price per share. EY measures the earnings per share generated for every dollar invested.

* Each ratio is calculated using GAAP income, pro forma income, and operating income.

Data Filters

The data is subsequently filtered to remove any rows of data that would skew the results of the research. After applying the filters listed below, there are 99,899 rows of data remaining of the original 111,766 rows of data. The following filters are applied:

- Return on Assets must be between -100% and 100%
- Profit Margin must be between -100% and 100%
- Earnings per Share must be between -\$1,000 and \$1,000
- Earnings Yield must be between -100% and 100%

Data Summary

The North American Industry Classification Code contains six digits. Each digit breaks down the industries to a greater level of specificity. I broaden the industries by only looking at the first two digits of each industry code in order to reduce the overall number of industries that are tested. Overall, there are 23 industries with a total of 99,899 rows of data spanning from 1985 through 2015. The number of rows of data contained within each two-digit industry code from the filtered data is as follows:

Table 3: Number of Rows of Data within Each Industry

Number of rows of data within each two-digit industry code for the sample of filtered data:

Industry	11	21	22	23	31	32	33	42	44	45	48	
Rows of Data	246	4,068	3,651	1,239	4,016	9,804	24,852	2,976	3,407	1,865	2,724	
Industry	49	51	52	53	54	56	61	62	71	72	81	99
Rows of Data	169	9,643	16,906	2,999	4,008	2,027	421	1,789	516	1,835	359	379

I proceed to summarize the filtered data by calculating the average, maximum, minimum, and standard deviation values for the variables used in the calculation of the ratios as well as the ratios themselves. While many of these values are stated simply to summarize the data being analyzed, there are some key things to note. First, the average pro forma net income of \$219.57 is higher than the average GAAP net income of \$213.37. Additionally, the average operating income of \$571.50 is significantly higher than both GAAP and pro forma net income on average. This demonstrates that my exclusions from operating income, which are depreciation and amortization, income taxes, and interest and related expenses, are much greater in total amount than the average pro forma exclusions. In regards to the ratios, the operating values of each ratio are higher on average due to the high operating income values. The pro forma values for return on assets, profit margin, and earnings yield are all higher on average than the GAAP values of these ratios. However, it is interesting to note that the average GAAP earnings per share value of \$1.20 is higher than the average pro forma earnings per share value of \$1.06. This is likely caused by negative income values which can have a significant effect on the per share income values. The summary values for the data can be found in Table 4 on the following page:

Table 4: Summary of Filtered Data – Average, Max, Min, & Standard Deviation

Average, maximum, minimum, and standard deviation values for each variable used in the calculation of the ratios as well as the ratios themselves:

Variable/Ratio	Average	Max	Min	Std. Deviation
Sales/Turnover (Net)	\$3,305.24	\$483,521.00	\$(15,009.33)	\$14,215.52
Assets – Total	\$9,316.18	\$3,065,552.57	\$1.15	\$75,826.09
Price per Share	\$25.83	\$20,400.00	\$0.03	\$92.95
Net Income (Loss)	\$213.37	\$45,220.00	\$(38,118.50)	\$1,184.09
Pro Forma Net Income (Loss)	\$219.57	\$101,704.26	\$(10,665.06)	\$1,247.15
Operating Income (Loss)	\$571.50	\$95,312.00	\$(21,866.00)	\$2,661.74
GAAP ROA	3.07%	99.26%	-99.42%	10.04%
Pro Forma ROA	3.23%	99.23%	-98.66%	9.38%
Operating ROA	10.70%	99.36%	-88.47%	12.09%
GAAP PM	4.80%	99.85%	-99.90%	15.78%
Pro Forma PM	5.13%	99.86%	-99.98%	14.82%
Operating PM	16.08%	100.00%	-99.91%	19.12%
GAAP EPS	\$1.20	\$420.03	\$(63.04)	\$3.91
Pro Forma EPS	\$1.06	\$420.00	\$(37.09)	\$3.11
Operating EPS	\$3.43	\$647.89	\$(106.83)	\$6.62
GAAP EY	2.41%	87.73%	-99.98%	12.57%
Pro Forma EY	3.07%	100.00%	-100.00%	10.72%
Operating EY	13.49%	99.86%	-98.61%	15.89%

After calculating the above summary values for the overall filtered data, I calculate the average value for each ratio by industry. The operating values for each ratio and for every industry are the highest. The highest value between GAAP and pro forma for each ratio and industry varies. The average ratio values by industry are shown in Table 5 on the following pages:

Table 5: Average Ratios by Industry**Average GAAP, pro forma, and operating ROA for each two-digit industry code:**

Industry Code	GAAP ROA	Pro Forma ROA	Operating ROA
11	4.25%	4.74%	12.00%
21	3.23%	3.38%	14.71%
22	3.20%	2.65%	11.12%
23	3.45%	3.57%	10.33%
31	6.09%	5.06%	15.86%
32	3.96%	3.58%	12.92%
33	2.98%	3.46%	11.02%
42	3.77%	3.63%	11.03%
44	5.42%	4.56%	15.62%
45	3.28%	3.25%	12.12%
48	4.03%	3.22%	13.36%
49	3.96%	4.45%	15.50%
51	0.81%	2.27%	10.07%
52	2.11%	1.86%	4.23%
53	3.30%	3.15%	9.92%
54	2.85%	3.92%	11.23%
56	3.76%	4.53%	12.83%
61	7.31%	7.28%	17.60%
62	2.71%	4.04%	11.85%
71	2.49%	2.89%	12.63%
72	4.08%	3.97%	14.96%
81	4.67%	6.37%	14.57%
99	1.42%	2.66%	8.54%

Average GAAP, pro forma, and operating PM for each two-digit industry code:

Industry Code	GAAP PM	Pro Forma PM	Operating PM
11	7.93%	9.90%	20.62%
21	5.54%	6.95%	35.63%
22	7.94%	6.71%	27.90%
23	2.71%	2.92%	9.50%
31	4.95%	4.28%	13.02%
32	2.17%	2.28%	12.27%
33	2.23%	3.11%	10.37%
42	2.14%	2.11%	6.96%
44	2.71%	2.39%	7.81%
45	1.56%	1.70%	6.72%
48	7.18%	6.37%	22.29%
49	2.79%	3.17%	11.51%
51	0.76%	2.99%	16.07%
52	12.16%	11.22%	22.59%
53	13.65%	12.16%	35.29%
54	2.22%	3.58%	10.81%
56	3.16%	4.16%	12.73%

61	6.96%	7.03%	16.74%
62	2.42%	3.88%	12.33%
71	3.73%	4.60%	20.13%
72	3.68%	3.89%	14.57%
81	3.80%	5.43%	15.19%
99	4.04%	5.25%	15.22%

Average GAAP, pro forma, and operating EPS for each two-digit industry code:

Industry Code	GAAP EPS	Pro Forma EPS	Operating EPS
11	\$1.06	\$1.08	\$2.98
21	\$1.00	\$0.98	\$4.02
22	\$1.97	\$1.64	\$6.99
23	\$1.87	\$1.67	\$4.54
31	\$1.37	\$1.12	\$3.76
32	\$1.39	\$1.21	\$4.10
33	\$0.88	\$0.83	\$2.70
42	\$1.15	\$1.04	\$3.39
44	\$1.07	\$0.93	\$3.49
45	\$0.90	\$0.84	\$3.11
48	\$1.30	\$1.01	\$4.83
49	\$1.44	\$1.47	\$6.29
51	\$0.55	\$0.55	\$2.45
52	\$1.94	\$1.54	\$3.71
53	\$1.10	\$0.94	\$3.64
54	\$0.63	\$0.70	\$1.92
56	\$0.73	\$0.80	\$2.27
61	\$2.86	\$2.37	\$6.39
62	\$0.73	\$0.83	\$2.55
71	\$0.55	\$0.68	\$3.00
72	\$0.86	\$0.81	\$2.94
81	\$0.73	\$1.16	\$2.72
99	\$6.84	\$5.66	\$12.36

Average GAAP, pro forma, and operating EY for each two-digit industry code:

Industry Code	GAAP EY	Pro Forma EY	Operating EY
11	2.89%	4.99%	14.93%
21	1.34%	2.61%	17.59%
22	6.43%	5.57%	25.52%
23	3.71%	4.17%	17.75%
31	3.49%	3.62%	15.88%
32	2.76%	3.14%	13.95%
33	1.02%	2.26%	11.08%
42	3.21%	3.95%	16.05%
44	2.73%	3.27%	16.83%
45	1.46%	2.31%	14.16%

48	3.09%	2.86%	22.61%
49	2.52%	3.64%	21.52%
51	-0.89%	0.55%	9.09%
52	6.00%	5.32%	12.77%
53	2.81%	2.94%	15.41%
54	0.25%	1.94%	8.31%
56	0.98%	2.70%	11.91%
61	1.60%	2.60%	9.36%
62	0.89%	3.46%	13.49%
71	-0.65%	1.71%	17.50%
72	1.36%	2.60%	15.86%
81	2.51%	5.30%	17.12%
99	-0.25%	1.35%	14.04%

Chapter 3

Do Pro Forma Adjustments Remove Temporary Items from GAAP?

Comparison of GAAP and Pro Forma EPS

To begin researching this question, I compare GAAP and pro forma EPS to determine which form of EPS is a better predictor of the future. I run the following regression:

$$EPS_{x,t+1} = \beta EPS_{x,t} + \varepsilon$$

In this regression, “x” represents using a GAAP or pro forma measure of EPS. I run the regression to determine how well GAAP EPS at time t predicts GAAP EPS at time t + 1 versus how well pro forma EPS at time t predicts pro forma EPS at time t + 1. The reasoning behind this regression is to determine whether GAAP or pro forma earnings, represented as per share values in this regression, lend themselves to a higher degree of predictability. If pro forma earnings do remove temporary items from reported GAAP, then pro forma earnings would improve predictability. I expect to find that pro forma earnings do improve predictability compared to reported GAAP. If I do find this to be the case, it can be concluded that pro forma earnings do remove temporary items from reported GAAP. The results of this regression are summarized in Table 6 on the following page:

Table 6: GAAP vs. Pro Forma EPS Predictability Regression Results

Regression results comparing how well GAAP EPS at time t predicts GAAP EPS at time t + 1 versus how well pro forma EPS at time t predicts pro forma EPS at time t + 1:

	Intercept Coefficient	Intercept T-Stat	EPS, t Coefficient	EPS, t T-Stat	Adjusted R ²	Number of Observations
GAAP EPS	0.24	27.54	0.81	359.82	0.61	83,410
Pro Forma EPS	0.13	25.92	0.93	553.36	0.79	83,410

As can be seen from the adjusted R² values above, pro forma EPS predicts future pro forma EPS better than GAAP EPS predicts future GAAP EPS. Pro forma EPS at time t can explain 79% of the variation of pro forma EPS at time t + 1 while GAAP EPS at time t can only explain 61% of the variation of GAAP EPS at time t + 1. This demonstrates that pro forma adjustments do in fact remove temporary items from reported GAAP because they improve predictability. Reported GAAP appears to include noisy numbers that negatively affect its ability to predict next year's earnings per share.

In summary, this regression shows that pro forma earnings improve predictability compared to GAAP earnings, specifically in regards to predicting EPS values at time t + 1. This proves that pro forma adjustments do remove temporary items from reported GAAP earnings.

GAAP and Pro Forma EPS as a Predictor of Future GAAP EPS

If pro forma adjustments do remove temporary items, as is demonstrated from the results from Table 6, then these adjustments will improve the ability of pro forma EPS to predict future GAAP EPS as well. I test the ability of pro forma EPS to predict future GAAP EPS using the following regression:

$$EPS_{GAAP,t+1,t+2,t+3} = \beta EPS_{GAAP,t} + \beta EPS_{Pro\ Forma,t}$$

I run this regression to determine how well GAAP EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$ versus how well pro forma EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$. The reasoning behind this regression is to further understand whether GAAP earnings or pro forma earnings lend themselves to a higher degree of predictability. Similar to the prior regression, if pro forma earnings do remove temporary items from reported GAAP, then pro forma earnings would improve predictability. Once again, I expect to find that pro forma earnings improve predictability. If this is what I find, the conclusion drawn from the results in Table 6 that pro forma earnings remove temporary items from reported GAAP would be further validated. The results of this regression are summarized in Table 7 below:

Table 7: Predictor of Future GAAP EPS Regression Results

Regression results comparing how well GAAP EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$ versus how well pro forma EPS at time t predicts the average GAAP EPS at times $t+1$, $t + 2$, and $t + 3$:

	Coefficient	T-Stat	Adjusted R^2	Number of Observations
Intercept	0.15	15.76		
GAAP EPS, t	0.35	68.38	0.63	60,307
Pro Forma EPS, t	0.40	69.80		

As can be seen from the coefficient values above, pro forma EPS is the best predictor of future GAAP EPS with a coefficient of 0.40. While this is the expected result, these values also show that GAAP EPS still adds value when predicting future GAAP EPS with a coefficient of 0.35. This indicates that pro forma adjustments are not perfect in that GAAP numbers, though noisy, are still valuable when predicting the future.

In summary, this regression shows that pro forma earnings improve predictability compared to GAAP earnings, specifically in regards to predicting the average GAAP EPS value at times $t + 1$, $t + 2$, and $t + 3$. However, GAAP earnings are still very valuable in predicting the average GAAP EPS value at times $t + 1$, $t + 2$, and $t + 3$. This validates that pro forma adjustments do remove temporary items from reported GAAP earnings, but there are instances in which these adjustments are imperfect causing a relatively high level of predictability for GAAP earnings as well.

Correlation of GAAP and Pro Forma EPS to Market Value

The results above show that some pro forma adjustments remove permanent items, rather than just temporary items, thereby reducing their overall value in predicting the future. If this is in fact the case, then I expect a similar result when looking at the correlation between GAAP EPS and market value versus the correlation between pro forma EPS and market value. While pro forma EPS should be more highly correlated with market value when the pro forma adjustments are temporary in nature, GAAP EPS should still be, relatively speaking, highly correlated with market value because of the instances in which pro forma adjustments remove permanent items. Research has shown that the value relevance of earnings has been decreasing primarily due to “the increasing frequency and magnitude of one-time items, the increasing frequency of negative earnings, and changes in average firm size across time” (Collins, Maydew, and Weiss, 1997). However, the results of Bradshaw and Sloan’s (2002) research suggest that pro forma earnings have a higher level of value relevance. This is consistent with the conclusion noted above that pro forma adjustments do remove temporary items. Additionally, as noted

earlier, Brown and Sivakumar (2003) found that operating earnings measures reported by analysts and managers are more value relevant than operating earnings measures derived from a firm's financial statements. To test the correlation of market value to GAAP and pro forma EPS, I perform the following regression:

$$Price/Share_t = \beta EPS_{GAAP,t} + \beta EPS_{Pro\ Forma,t}$$

The primary focus of this regression is to determine the degree of correlation between GAAP EPS at time t and market value at time t, represented by price per share at time t, compared to the degree of correlation between pro forma EPS at time t and market value at time t. The reasoning behind this regression is twofold: to further understand whether pro forma adjustments remove temporary items from reported GAAP, as is supported by the prior regressions, and to further understand whether there are times in which pro forma adjustments remove permanent items as well. The results of this regression are summarized in Table 8 below:

Table 8: Correlation to Market Value Regression Results

Regression results comparing the correlation between GAAP EPS at time t and market value at time t versus the correlation between pro forma EPS at time t and market value at time t:

	Coefficient	T-Stat	Adjusted R ²	Number of Observations
Intercept	-3.63	-19.02		
GAAP EPS, t	4.28	39.40	0.70	99,899
Pro Forma EPS, t	16.16	153.03		

As expected, the result here is similar to the result from the previous regression, which looked at pro forma and GAAP EPS as a predictor of future GAAP EPS. The results above show that pro forma EPS is highly correlated with market value with a coefficient of 16.16. Similar to the prior regression, these results also show that GAAP EPS still adds value when looking at the

correlation to market value with a coefficient of 4.28. This further demonstrates the idea that pro forma adjustments do remove temporary items, but at times, they also remove permanent items.

In summary, this regression shows that pro forma earnings are more value relevant than GAAP earnings, specifically in regards to the correlation of GAAP and pro forma EPS values to market value. However, GAAP earnings are still highly correlated with market value, and therefore, they are value relevant as well. As was the case with the prior regression, this validates that pro forma adjustments do remove temporary items from reported GAAP earnings, but there are instances in which these adjustments are imperfect and remove permanent items as well.

Chapter 4

When Do Pro Forma Adjustments Fail to Improve Predictability?

After coming to the conclusion that pro forma adjustments do remove temporary items, but at times, they remove permanent items as well, the focus shifts to determining when pro forma adjustments improve predictability and when they do not.

Generally, the expectation would be that pro forma adjustments remove more items in times when a company appears to be performing poorly. Pro forma adjustments are often the removal of one-time expenses that, in the company's opinion, do not reflect the actual performance of the company. When these expenses hit the books, they can have a significant effect on GAAP net income. In order for companies to give investors and shareholders, what is in their opinion, a better indication of the company's actual performance, they report pro forma earnings, which exclude these one-time items. This ultimately means that pro forma earnings are often higher than GAAP earnings, which incentivizes managers to make more pro forma adjustments in times of poor performance than in times of strong performance. Even if the adjustments are not for items that are temporary in nature, but rather permanent in nature, the incentives for managers remain the same.

These inherent incentives are the reason for the regression analysis I subsequently perform related to discovering when pro adjustments fail to improve predictability. To begin, I split the sample into observations with strong and poor performance of a company using two variables: sales and market value. I distinguish between instances in which sales are increasing versus decreasing and instances in which market value is increasing versus decreasing.

Predicting Future GAAP EPS When Sales are Increasing Versus Decreasing

To begin this analysis, I seek to determine the ability of GAAP and pro forma EPS to predict future GAAP EPS in instances in which sales are increasing versus instances in which sales are decreasing. To elaborate, I run the same regression twice: once in instances where sales increased from time $t - 1$ to time t and once in instances where sales decreased from time $t - 1$ to time t . The regression that I run is as follows:

$$EPS_{GAAP,t+1,t+2,t+3} = \beta EPS_{GAAP,t} + \beta EPS_{Pro\ Forma,t}$$

This regression measures how well GAAP EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$ versus how well pro forma EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$. The reasoning behind this regression is to determine if there is a difference in the degree of predictability for GAAP and pro forma earnings in times of strong versus poor performance, represented in this regression by increasing sales versus decreasing sales. Specifically, the goal is to discover if pro forma earnings always improve predictability or if there are times in which GAAP earnings lend themselves to a higher degree of predictability. I expect to find that GAAP EPS will be better at predicting future GAAP EPS in times of increasing sales when less pro forma adjustments are likely being made. I also expect that pro forma EPS will be better at predicting future GAAP EPS in times of decreasing sales when more pro forma adjustments are likely being made. The results of this regression are summarized in Tables 9 and 10 on the following page:

Table 9: Predictor of Future GAAP EPS Regression Results - Sales Increasing

Regression results comparing how well GAAP EPS at time t predicts the average GAAP EPS at times t + 1, t + 2, and t + 3 versus how well pro forma EPS at time t predicts the average GAAP EPS at times t+1, t + 2, and t + 3 in times when sales are increasing:

	Coefficient	T-Stat	Adjusted R ²	Number of Observations
Intercept	0.14	12.74		
GAAP EPS, t	0.43	63.44	0.63	40,775
Pro Forma EPS, t	0.24	33.67		

Table 10: Predictor of Future GAAP EPS Regression Results - Sales Decreasing

Regression results comparing how well GAAP EPS at time t predicts the average GAAP EPS at times t + 1, t + 2, and t + 3 versus how well pro forma EPS at time t predicts the average GAAP EPS at times t+1, t + 2, and t + 3 in times when sales are decreasing:

	Coefficient	T-Stat	Adjusted R ²	Number of Observations
Intercept	0.56	21.67		
GAAP EPS, t	0.10	9.92	0.28	11,183
Pro Forma EPS, t	0.40	27.32		

As can be seen from the coefficient values above, in instances in which sales are increasing, GAAP EPS is the best predictor of future GAAP EPS with a coefficient of 0.43. However, in instances in which sales are decreasing, pro forma EPS is the best predictor of future GAAP EPS with a coefficient of 0.40.

These results align with the expectation that less pro forma adjustments are made in times when companies are performing well with sales increasing, which would diminish the ability of pro forma earnings to predict the future. As demonstrated above, this is exactly what occurs. When sales are increasing, GAAP EPS is a much better predictor of the future than pro forma EPS.

However, when companies are performing poorly with sales decreasing, the expectation would be that more pro forma adjustments would be made, which would improve the ability of pro forma earnings to predict the future. Again, as demonstrated above, this is exactly what the data shows. When sales are decreasing, pro forma EPS is a much better predictor of the future than GAAP EPS.

In summary, this regression shows that GAAP earnings are a better predictor of future GAAP earnings in times of strong company performance with increasing sales while pro forma earnings are a better predictor of future GAAP earnings in times of poor company performance with decreasing sales. This demonstrates that pro forma adjustments improve predictability in times of poor performance when sales are decreasing. However, these adjustments fail to improve predictability in times of strong performance when sales are increasing.

Predicting Future GAAP EPS When Market Value is Increasing Versus Decreasing

For this part of the analysis, I seek to determine the ability of GAAP and pro forma EPS to predict future GAAP EPS in instances in which market value is increasing versus instances in which market value is decreasing. Again, I run the same regression twice: once in instances where market value increased from time $t - 1$ to time t and once in instances where market value decreased from time $t - 1$ to time t . The regression that I run is as follows:

$$EPS_{GAAP,t+1,t+2,t+3} = \beta EPS_{GAAP,t} + \beta EPS_{Pro\ Forma,t}$$

This regression is the same as the regression from the previous step of analysis. It measures how well GAAP EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$ versus how well pro forma EPS at time t predicts the average GAAP EPS at times $t + 1$,

$t + 2$, and $t + 3$. The reasoning behind this regression is to determine if there is a difference in the degree of predictability for GAAP and pro forma earnings in times of strong versus poor performance, represented in this regression by increasing market value versus decreasing market value. Specifically, the goal is the same as the prior regression: to discover if pro forma earnings always improve predictability or if there are times in which GAAP earnings lend themselves to a higher degree of predictability. I expect to find that GAAP EPS will be better at predicting future GAAP EPS in times of increasing market value when less pro forma adjustments are likely being made. I also expect that pro forma EPS will be better at predicting future GAAP EPS in times of decreasing market value when more pro forma adjustments are likely being made. The results of this regression are summarized in Tables 11 and 12 below:

Table 11: Predictor of Future GAAP EPS Regression Results - Market Value Increasing

Regression results comparing how well GAAP EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$ versus how well pro forma EPS at time t predicts the average GAAP EPS at times $t+1$, $t + 2$, and $t + 3$ in times when market value is increasing:

	Coefficient	T-Stat	Adjusted R^2	Number of Observations
Intercept	0.12	8.33		
GAAP EPS, t	0.37	51.66	0.68	28,363
Pro Forma EPS, t	0.38	45.20		

Table 12: Predictor of Future GAAP EPS Regression Results - Market Value Decreasing

Regression results comparing how well GAAP EPS at time t predicts the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$ versus how well pro forma EPS at time t predicts the average GAAP EPS at times $t+1$, $t + 2$, and $t + 3$ in times when market value is decreasing:

	Coefficient	T-Stat	Adjusted R^2	Number of Observations
Intercept	0.44	29.38		
GAAP EPS, t	0.10	12.07	0.29	23,595
Pro Forma EPS, t	0.23	24.86		

As can be seen from the coefficient values in Tables 11 and 12, in instances in which market value is increasing, GAAP EPS and pro forma EPS are both good predictors of future GAAP EPS with coefficients of 0.37 and 0.38 respectively. However, in instances in which market value is decreasing, pro forma EPS is the best predictor of future GAAP EPS with a coefficient of 0.23.

Overall, the results align with the notion that more pro forma adjustments are made in times when companies are performing poorly, represented here by a decrease in market value. However, the results are slightly different from my initial expectation in that when market value is increasing, GAAP EPS and pro forma EPS are both good predictors of the future. The reason that pro forma EPS is also a good predictor in this case is likely that the primary focus of pro forma adjustments is to report a more accurate earnings number in the eyes of the company. Additionally, EPS is often the most prominent measure of performance used by analysts when valuing a company. Since “Empirical Evaluation of Accounting Income Numbers” was published in 1968, it has been widely accepted and understood that there is a close relationship between stock prices and earnings announcements and performance (Ball and Brown, 1968). This would ultimately lead to a high degree of predictability between pro forma EPS and market value, regardless of the performance of a company. This is also consistent with the research noted earlier which found that the value relevance of earnings in general has been decreasing while pro forma earnings are comparatively more value relevant than GAAP earnings (Collins, Maydew, and Weiss, 1997; Bradshaw and Sloan, 2002). Based on this research, it would make sense that, even in times when market value is increasing and less pro forma adjustments are being made, there is still a relatively high degree of predictability between pro forma EPS and market value.

When companies are performing poorly with market value decreasing, the expectation is that more pro forma adjustments would be made which would improve their ability to predict the future. This is exactly what we see from the data above. When market value is decreasing, pro forma EPS is a much better predictor of the future than GAAP EPS.

In summary, this regression shows that GAAP earnings and pro forma earnings are both good predictors of future GAAP earnings in times of strong company performance with increasing market value while pro forma earnings are the better predictor of future GAAP earnings in times of poor company performance with decreasing market value. This demonstrates that pro forma adjustments improve predictability in times of poor performance when market value is decreasing. However, these adjustments simply allow for a similar level of predictability compared to GAAP earnings in times of strong performance when market value is increasing.

Chapter 5

How Comparable are GAAP, Pro Forma, and Operating Ratios?

Upon completion of the secondary research question, the focus shifts to determining what other aspects of pro forma earnings can affect their overall value. One of the obvious, yet integral, values of having GAAP in place is that all companies are required to report GAAP earnings in the same way by following the same set of rules and principles. I expect this to allow for a high level of comparability when performing ratio analysis across companies. As discussed earlier, comparability comes down to comparing specific measures on a common ground. Using return on assets as an example, by dividing the earnings from two companies that operate differently by their respective total assets, they can be compared on how efficient they manage their assets to generate income. If companies are forced to report earnings in the same way by following GAAP, these GAAP numbers would arguably lend themselves to a high degree of comparability when performing ratio analysis.

Pro forma earnings, however, are ultimately up to the discretion of each company's management. While these earnings measures may very well be a better indication of a company's actual performance compared to GAAP earnings, there is no regulation over how these earnings measures are calculated. Therefore, company A might exclude significantly more items than company B when reporting pro forma earnings. I expect this to severely limit the level of comparability when performing ratio analysis across companies. However, as noted in the introduction, pro forma adjustments may improve ratio analysis by removing items that are not comparable across companies. If pro forma adjustments remove items that would otherwise be

reported differently across companies or that are truly temporary in nature and would affect some companies and not others, these adjustments could improve ratio analysis.

Comparability of GAAP, Pro Forma, and Operating Ratios

I seek to measure the level of comparability provided by GAAP, pro forma, and operating earnings measures with ratio analysis. As discussed in the introduction, ratio analysis is important in this portion of the research because it allows you to compare values that would otherwise not be comparable, such as earnings, by using a common denominator. In order to test the level of comparability provided by GAAP, pro forma, and operating earnings, the regression from the first section of Chapter 3 is expanded upon. The regression is as follows:

$$Ratio_{x,t+1}^y = \beta Ratio_{x,t}^y + \varepsilon$$

In this regression, “x” represents using a GAAP, pro forma, or operating measure of the ratio being tested. The variable “y” represents using ROA, PM, EPS, or EY. This regression tests how well a GAAP ratio at time t predicts the same GAAP ratio at time t + 1 versus how well a pro forma ratio at time t predicts the same pro forma ratio at time t + 1 versus how well an operating ratio at time t predicts the same operating ratio at time t + 1. The reasoning behind the regression is to determine how well the GAAP, pro forma, and operating measures of each of the ratios being tested predicts the same measure of the ratios in the future. As discussed above, this portion of the research focuses on ratio analysis because ratios allow for a common ground on which companies can be compared. Therefore, the earnings measure used in the calculation of a particular ratio that predicts the value of that same ratio at time t + 1 the best would indicate that this earnings measure is the most comparable across companies. For example, if GAAP ROA

predicts future GAAP ROA better than pro forma ROA or operating ROA predicts future pro forma ROA or operating ROA, then it can be concluded that using GAAP earnings in ratio analysis allows for the greatest level of comparability. My expectation is that the operating form of each ratio will predict the future operating form of each ratio the best, which would indicate that using operating earnings in ratio analysis allows for the greatest level of comparability across companies. I expect this to be the case because operating earnings are essentially a GAAP version of pro forma earnings. While there is no regulation over the reporting of pro forma earnings, operating earnings can be calculated the same way for every company. In this case, operating earnings represents GAAP income before extraordinary items plus depreciation and amortization, income taxes, and interest and related expense. Therefore, operating earnings seeks to exclude items that may not reflect the company's actual performance in a way that is consistent across companies. The results of this regression are summarized in Tables 13, 14, 15, and 16 on the following pages:

Table 13: ROA Comparability Regression Results

Regression results comparing how well GAAP ROA at time t predicts GAAP ROA at time t + 1 versus how well pro forma ROA at time t predicts pro forma ROA at time t + 1 versus how well operating ROA at time t predicts operating ROA at time t + 1:

	Intercept Coefficient	Intercept T-Stat	ROA, t Coefficient	ROA, t T-Stat	Adjusted R ²	Number of Observations
GAAP ROA	0.01	41.40	0.56	191.56	0.31	83,410
Pro Forma ROA	0.01	49.00	0.62	231.12	0.39	83,410
Operating ROA	0.03	74.74	0.69	274.82	0.48	83,410

As can be seen from the adjusted R² values above, operating ROA at time t can explain 48% of the variation in operating ROA at time t + 1. However, pro forma ROA at time t can only

explain 39% of the variation in pro forma ROA at time $t + 1$ and GAAP ROA at time t can only explain 31% of the variation in GAAP ROA at time $t + 1$. This demonstrates that, in the case of return on assets, using operating earnings allows for the highest level of comparability.

While pro forma ROA does appear to be more comparable than GAAP ROA, operating ROA takes the level of comparability one step further by ensuring that the ROA measure across companies is both consistently reported and without the inclusion of items that do not reflect the actual performance of a company. This is consistent with my expectation of the results.

Table 14: PM Comparability Regression Results

Regression results comparing how well GAAP PM at time t predicts GAAP PM at time $t + 1$ versus how well pro forma PM at time t predicts pro forma PM at time $t + 1$ versus how well operating PM at time t predicts operating PM at time $t + 1$:

	Intercept Coefficient	Intercept T-Stat	PM, t Coefficient	PM, t T-Stat	Adjusted R^2	Number of Observations
GAAP PM	0.02	45.96	0.60	214.99	0.36	83,410
Pro Forma PM	0.02	53.72	0.67	271.68	0.47	83,410
Operating PM	0.04	68.52	0.75	325.18	0.56	83,410

As can be seen from the adjusted R^2 values above, operating PM at time t can explain 56% of the variation in operating PM at time $t + 1$. However, pro forma PM at time t can only explain 47% of the variation in pro forma PM at time $t + 1$ and GAAP PM at time t can only explain 36% of the variation in GAAP PM at time $t + 1$. This demonstrates that, in the case of profit margin, using operating earnings allows for the highest level of comparability. This is again consistent with the notion that operating earnings are essentially a more comparable form of pro forma earnings.

Table 15: EPS Comparability Regression Results

Regression results comparing how well GAAP EPS at time t predicts GAAP EPS at time t +1 versus how well pro forma EPS at time t predicts pro forma EPS at time t + 1 versus how well operating EPS at time t predicts operating EPS at time t + 1:

	Intercept Coefficient	Intercept T-Stat	EPS, t Coefficient	EPS, t T-Stat	Adjusted R ²	Number of Observations
GAAP EPS	0.24	27.54	0.81	359.82	0.61	83,410
Pro Forma EPS	0.13	25.92	0.93	553.36	0.79	83,410
Operating EPS	0.34	26.21	0.92	506.50	0.75	83,410

As can be seen from the adjusted R² values above, pro forma EPS at time t can explain 79% of the variation in pro forma EPS at time t + 1 while operating EPS at time t can explain 75% of the variation in operating EPS at time t + 1. GAAP EPS at time t can only explain 61% of the variation in GAAP EPS at time t + 1. This demonstrates that, in the case of earnings per share, using pro forma earnings allows for the highest level of comparability.

The reason that pro forma EPS is the best predictor in this case rather than operating EPS is consistent with the fact that the primary focus of pro forma adjustments is to report a more accurate earnings number. This would lead to a high degree of comparability when predicting future pro forma EPS as this EPS value is the focus of the pro forma adjustments. However, as was the case in the ROA and PM regressions above, operating EPS is still very comparable.

Table 16: EY Comparability Regression Results

Regression results comparing how well GAAP EY at time t predicts GAAP EY at time t +1 versus how well pro forma EY at time t predicts pro forma EY at time t + 1 versus how well operating EY at time t predicts operating EY at time t + 1:

	Intercept Coefficient	Intercept T-Stat	EY, t Coefficient	EY, t T-Stat	Adjusted R ²	Number of Observations
GAAP EY	0.01	32.79	0.37	99.84	0.11	83,410
Pro Forma EY	0.02	47.06	0.49	141.40	0.19	83,410
Operating EY	0.06	89.13	0.59	190.80	0.30	83,410

As can be seen from the adjusted R^2 values in Table 16, operating EY at time t can explain 30% of the variation in operating EY at time $t + 1$. However, pro forma EY at time t can only explain 19% of the variation in pro forma EY at time $t + 1$ and GAAP EY at time t can only explain 11% of the variation in GAAP EY at time $t + 1$. This demonstrates that, in the case of earnings yield, using operating earnings allows for the highest level of comparability. Once again, this is consistent with the idea that operating earnings are essentially a more consistent and comparable form of pro forma earnings.

In summary, this regression shows that the operating measure of ROA, PM, and EY at time t is a better predictor of the operating measure of these ratios at time $t + 1$ as compared to the ability of the GAAP and pro forma measure of these ratios to predict the future GAAP and pro forma measure of the same ratios. It also shows that the pro forma measure of EPS at time t is a better predictor of the pro forma measure of EPS at time $t + 1$ as compared to the ability of the GAAP and operating measures of EPS to predict future GAAP and operating EPS. This ultimately demonstrates that, in general, operating earnings lend themselves to the highest degree of comparability when conducting ratio analysis across companies. However, because the goal of pro forma adjustments is to report a more accurate earnings number, pro forma earnings lends itself to the highest degree of comparability when comparing EPS across companies.

Chapter 6

Conclusion

Through this paper, I analyze pro forma earnings and determine their ability to improve predictability as well as their level of comparability. The primary focus was to determine whether pro forma adjustments remove temporary items from reported GAAP.

To begin the research, I compare the ability of GAAP EPS at time t to predict GAAP EPS at time $t + 1$ versus the ability of pro forma EPS at time t to predict pro forma EPS at time $t + 1$. The results demonstrate that pro forma EPS predicts future pro forma EPS better than GAAP EPS predicts future GAAP EPS. This indicates that pro forma adjustments do improve predictability and therefore, they do remove temporary items from reported GAAP earnings.

I then compare the ability of GAAP EPS at time t to predict average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$ versus the ability of pro forma EPS at time t to predict average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$. The results demonstrate that pro forma EPS predicts future GAAP EPS better than GAAP EPS predicts future GAAP EPS. However, GAAP EPS does add value when predicting future GAAP EPS. This further validates that pro forma adjustments remove temporary items from reported GAAP. However, it also shows that pro forma adjustments remove permanent items at times as well.

I then look at the correlation between GAAP EPS at time t and market value at time t versus the correlation between pro forma EPS at time t and market value at time t . The results here are consistent with the prior test which looks at the ability of GAAP and pro forma EPS to predict future GAAP EPS. These results show that pro forma EPS is more highly correlated with

market value than GAAP EPS. However, GAAP EPS still adds value when looking at correlation to market value. This reiterates and strengthens the results from the prior test. Again, the conclusion here is that pro forma adjustments do remove temporary items from reported GAAP, but at times, they also remove permanent items.

From here, the focus of the paper shifts to determining the instances in which pro forma adjustments fail to improve predictability. In other words, I seek to find when pro forma adjustments remove items that are permanent in nature rather than temporary in nature. To begin, I split the sample into groups of strong and poor company performance. I do this using both sales and market value. When using sales, strong performance is represented by increasing sales and poor performance is represented by decreasing sales. When using market value, strong performance is represented by increasing market value and poor performance is represented by decreasing market value.

The test in this portion of the paper compares the ability of GAAP and pro forma EPS at time t to predict the average GAAP EPS at times $t + 1$, $t + 2$, and $t + 3$. The regression that I use here is performed to compare the results in times when sales are increasing versus times when sales are decreasing. The regression is then performed again to compare the results when market value is increasing versus times when market value is decreasing.

The results demonstrate that GAAP EPS is a better predictor of future GAAP EPS when sales are increasing while pro forma EPS is a better predictor of future GAAP EPS when sales are decreasing. They also demonstrate that GAAP EPS and pro forma EPS are both good predictors of future GAAP EPS when market value is increasing while pro forma EPS is the better predictor of future GAAP EPS when market value is decreasing.

In general, this shows that pro forma adjustments tend to improve predictability in times of poor company performance, represented by decreasing sales and decreasing market value. However, these adjustments fail to improve predictability in times of strong company performance, represented by increasing sales and increasing market value. Pro forma EPS is still a strong predictor of future GAAP EPS when market value is increasing because reporting an accurate EPS value is the primary focus of pro forma adjustments. Additionally, this is consistent with prior research, which has shown that the value relevance of earnings is decreasing overall while the value relevance of pro forma earnings is high relative to GAAP earnings (Collins, Maydew, and Weiss, 1997; Bradshaw and Sloan, 2002).

Finally, the focus of the paper shifts to determining whether GAAP, pro forma, or operating earnings have the highest degree of comparability when conducting ratio analysis. For this portion of the research, I compare the ability of GAAP, pro forma, and operating measures of ROA, PM, EPS, and EY at time t to predict the same ratios at time $t + 1$. Ultimately, the results show that the operating measure of ROA, PM, and EY at time t is the best predictor of these ratios at time $t + 1$. However, though the operating measure of EPS at time t still predicts operating EPS at time $t + 1$ fairly well, the pro forma measure of EPS at time t is the best predictor of pro forma EPS at time $t + 1$. This demonstrates that, in general, the operating measure of earnings is the most comparable form of earnings to use when conducting ratio analysis. The reason that the pro forma measure of earnings is the most comparable measure to use when focusing on EPS is that pro forma adjustments are meant to report a more accurate EPS value. These comparability results are consistent with the idea that operating earnings are essentially a form of pro forma earnings that are consistent and comparable across companies.

Summary of the Overall Results

Do Pro Forma Adjustments Remove Temporary Items from GAAP?

- Pro forma adjustments do remove temporary items from reported GAAP. However, at times, they remove permanent items as well.

When Do Pro Forma Adjustments Fail to Improve Predictability?

- Pro forma adjustments improve predictability of future earnings in times of poor company performance, represented by decreasing sales and decreasing market value. However, they fail to improve predictability of future earnings in times of strong company performance, represented by increasing sales and increasing market value.

How Comparable are GAAP, Pro Forma, and Operating Ratios?

- Operating earnings are the most comparable measure of earnings when performing ratio analysis, specifically analysis of ROA, PM, and EY. Pro forma earnings are the second most comparable form of earnings followed by GAAP earnings. However, when focusing on EPS, pro forma earnings are the most comparable measure of earnings.

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Academic Vita

Michael Interdonato

Education

The Pennsylvania State University

Smeal College of Business and Schreyer Honors College

University Park, PA

Graduation Date: 12/15

- Master of Accounting (MAcc) and Bachelor of Science in Accounting
- Minors in Economics and International Business

Summer Abroad in Italy

The Institute at Palazzo Rucellai

Florence, Italy

5/13 – 6/13

- Studied Italian brands and Italian culture throughout a six week program in pursuit of an International Business Minor
 - Experienced a unique and distinct culture that has produced valued relationships and provided knowledge and insight into Italian business models and practices enhancing my overall business acumen
-

Work Experience

PricewaterhouseCoopers (PwC)

Assurance Intern

Florham Park, NJ

6/15 – 8/15

- Performed year-end tests of controls, primarily revenue related, to determine if existing client controls were operating effectively and to ensure that they would successfully detect and prevent any material misstatement
- Performed quarterly independence procedures in accordance with SEC, PCAOB, and PwC guidelines to ensure that the audit was completed with the highest level of objectivity, integrity, and professional skepticism
- Performed quarterly tie-out procedures by tying the numbers in the client's Form 10-Q to supporting documents to ensure the accuracy and completeness of the financial statements and notes

Unilever

Dove Skin Cleansing Brand Development Finance Intern

Englewood Cliffs, NJ

5/14 – 8/14

- Created a global toolkit for Dove with a focus on SKU level financial data, supply chain contacts, and data sources
- Expanded upon and streamlined the SKU level data available for the US while also obtaining similar data from other countries by contacting and building relationships with regional finance contacts in Brazil, Japan, China, Russia, etc.
- Summarized and compared the data obtained, with a focus on gross margin, to provide insight regarding the company's performance on similar items across countries and the opportunity for gross margin improvement

The Daily Collegian

Account Executive

State College, PA

1/14 – 12/15

- Sold advertising to existing and new clients in a deadline oriented fashion to fund varied student-run publications
 - Expanded upon interpersonal skills through client interactions in person, over the phone, and via email on a daily basis
-

Leadership Experience & Activities

Penn State Interfraternity Council

Administrative Vice President

University Park, PA

12/14 – 12/15

- Governed approximately 50 fraternities and 3,500 individuals through active participation in executive board discussions
- Managed the budget, the approval and payment of all necessary expenditures in a timely manner, and the collection of dues and fines to ensure that the council was run in a smooth and cost efficient manner

Delta Kappa Epsilon – Phi Rho Chapter

Vice President of Finance

State College, PA

12/13 – 12/14

- Managed approximately \$500,000 throughout the 2014 calendar year, prepared the budget utilizing prior fraternity operations as well as income and expenditure projections for the year, and managed all financial obligations
- Interacted and maintained relations with the landlord, third party vendors, service providers, and fraternity members

Global Business Brigades – Penn State Chapter

Member

University Park, PA

8/11 – 5/12

- Educated the Piriati-Embera indigenous community of Panama in business concepts such as saving and record keeping and ensured that these concepts were fully understood to help them in creating sustainable future financial plans
-

Skills & Hobbies

- **Software:** Proficient with Windows and Microsoft Office (Excel, PowerPoint, Word)
- **Personal Qualities:** Strong work ethic, team oriented, strong interpersonal skills, and excellent communication skills
- **Hobbies:** Playing guitar, discovering new music, playing sports, and spending time with family and friends