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## Revenue Recognition – Milestone Method (Topic 605) 2010 Amendment: From the R&D Industry Perspective

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The University of Southern Mississippi

Revenue Recognition – Milestone Method (Topic 605) 2010 Amendment: From the  
R&D Industry Perspective

by

Sofia Tent

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Submitted to the Honors College of  
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of the Requirements for the Degree of  
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**Revenue Recognition – Milestone Method (Topic 605) 2010 Amendment: From the  
R&D Industry Perspective**

**ABSTRACT**

This paper examines the Revenue Recognition – Milestone Method (RRMM), FASB codification amendment of 2010 and its effect on the health of firms heavily dependent on the Research and Development (R&D), as evidenced by the operating profit margin. By utilizing a two-stage OLS model developed by Lev and Sougiannis (1996), this study measures the effect of the adoption of the RRMM on operating profit margin. The sample includes U.S. firms with significant R&D expenses (a R&D expenses/Sales ratio greater than 2%) for the years 2006-2013. Due to the more rapid recognition of income using the RRMM, I expect the operating profit margin to be higher for those firms adopting the RRMM. The evidence suggests that firms who adopt RRMM in the Chemical & Pharmaceutical and Electrical & Electronic R&D industries do experience an increase in operating profit margin when compared to firms who do not adopt the RRMM. These results are robust in light of the financial crisis.

Key Terms: Revenue Recognition, Milestone Method, Financial Crisis and Operating Profit

## Dedication

I would like to dedicate this thesis to my family, who have done so much to support me in obtaining my goals. Thank you all for your never-ending reassurance.

## Acknowledgements

I would like to acknowledge the effort and dedication of my advisor, Dr. Turner, who willingly gave so much of her time to guide me through this thesis. I would not have been able to complete this work without her. Thank you for all your help and advice.

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## **I. Introduction**

The Revenue Recognition –Milestone Method (Topic 605) 2010 Codification amendment affected firms with large Research and Development (R&D) expenses (U.S. firms with an R&D expenses/Sales ratio greater than 2%) by allowing earlier revenue recognition from projects that meet certain criteria. This paper examined how the RRMM affected the Operating Profit Margin (OPM) by using data gathered from Compustat. This study covers the year 2006-2013. I expect a significant rise in OPM in the earlier years for firms with significance investments in R&D due to the more rapid recognition of profit under the RRMM.

Before the RMM amendment, there was little authoritative guidance concerning revenue recognition on projects that incorporate multiple payment streams for one project. The question of when a company can recognize the revenue from these payments became a major issue because of this vague authoritative guidance. A form of proportional performance milestone revenue recognition was being used before the RRMM amendment. However, the legitimacy of this revenue recognition method was being questioned due to the little support in authoritative literature. Revenue and the timing of its recognition are integral parts of evaluating the profitability of any business. “Revenue is almost always the single largest item reported in a company’s income statement” (Zhang, 2005). Revenue and the resultant cash flows are also extremely important to investors. Investors view trends and growth in reported revenue as an indicator of a company’s past and future performance (Zhang, 2005). Generally, based on the time value of money, the sooner a company can recognize revenue the better.

According to the FASB, revenue cannot be recognized until it is realized or realizable and earned (Summers, Sridharan, & McAlum, 2003).

The timing of revenue recognition in the early years is a problem in industries whose projects cover many years. Companies cannot secure credit nor attract investors when there is little to no revenue streams during the early years of a project. How soon a company can recognize revenue is just as important as the revenue itself. “The timing of revenue recognition is important in publicly held companies, especially because of its impact on the market valuation of the firm” (Summers, Sridharan, & McAlum, 2003). If a company’s growth rate in earnings is raised, investors are more likely to assign a higher price to their stocks. More expensive stock earnings will lead to a high market value of the company’s shares (Summers, Sridharan, & McAlum, 2003). To alleviate the problem of revenue recognition for projects that cover many years, the FASB instituted the RRMM, which ties revenue recognition to completion of substantive milestones.

Firms most affected by the RRMM are those that depend heavily on Research and Development (R&D). This is because the projects in the R&D industry can often be divided into substantive milestones (Financial Accounting Standards Board of the Financial Accounting Foundation, 2010). R&D is characterized by innovation.

“Innovation is the process that generates goods and services that are of better quality and lower prices than their predecessors” (Nord, 2011). Innovation can be classified into two distinct classifications. The first is process innovation, which aims to better a productivity or process. The second is product innovation, which endeavors to improve current products or services or fabricate new products or services (Nord, 2011). As stated by Nord, “Firms attempt to innovate by doing research” (Nord, 2011). By meeting

substantive milestones and using the RRMM, firms with high R&D expenses are allowed to recognize revenue throughout the project, not just in the final year.

This study provided empirical evidence on whether or not the 2010 RRMM codification amendment has a significant effect on the operating profit margin (OPM) for firms with high R&D expense when compared to sales. Prior literature has shown a strong correlation of R&D expenditure and positive future cash flow (Cincera & Ravet, 2010). Boujelben and Fedhila (2011) argue that because R&D investments have a long-term effect on OPM, and thus, are the most valuable assets in the American economy. Therefore, whether or not the RRMM is beneficial to the R&D industry is important to the US economy. I add to the literature by being one of the first to examine the effect of RRMM on OPM for those firms who are heavily invested in R&D. I find that adoption of the RRMM is positively associated with OPM for the firms in the Chemical & Pharmaceutical sector (SIC 2800-2899) and Electrical & Electronic (SIC 3600-3699). This effect holds in light of the Financial Crisis of 2008-2009.

The paper is organized as follows: Section II is a review of prior literature; Section III develops the hypothesis; Section IV contains the data and methodology; Section V is the result section; Section VI contains a robustness test for the Financial Crisis; and Section VII contains the conclusions.

## **II. Literature Review**

R&D projects often include payments upon certain milestones. When these milestone events are completed, an entity recognizes the revenue entirely. Previously, although there was no Milestone Method in place prior to 2010 when it was adopted by the FASB, revenue was being recognized based on milestones in practice. In the absence

of authoritative guidance, the milestone recognition process was unregulated and milestones were unstandardized. This created variations in revenue recognition practices based on milestones prior to 2010. Due to the lack of authoritative guidance concerning a Milestone Method, the RRMM amendment has been enacted (Financial Accounting Standards Board of the Financial Accounting Foundation, 2010).

So, whom did the FASB envision would be most affected by the RRMM? R&D vendors that provide R&D deliverables where at least one payment is contingent on completion of future events, is described by the FASB as those firms most affected by the RRMM amendment. This is due to the R&D firm's ability to easily fulfill milestone requirements described by the FASB in the Codification. Furthermore, the FASB decided not to expand the scope of the RRMM amendment to industries outside of R&D due the possibility of the RRMM amendment inadvertently affecting transactions that were not intended to be affected or companies utilizing the RRMM as a revenue management technique (Financial Accounting Standards Board of the Financial Accounting Foundation, 2010). The FASB's decision to limit the RRMM only to R&D Industries limited the ability of non-R&D industries to use revenue recognition methods to manage revenue.

R&D firms are comprised of a mixture of firms that utilize widely varying degrees of R&D in their business practices. This study focuses on the R&D companies in various industries rely heavily on R&D (firms where Sales/Revenues > .02) and who have the option to use the RRMM. It is important to remember that The RRMM is not mandatory or the only acceptable method of revenue recognition for an R&D company (Grant Thornton, 2010). Based on Lev and Sougiannis (1996), we separate R&D

intensive firms into 6 classifications based on 2-digit SIC codes. These are: Chemical & Pharmaceuticals (28); Machinery & Computer Hardware (35); Electrical & Electronic (36); Transportation and Vehicles (37); Scientific Instruments (38); and Other

Prior literature has examined the effect of R&D on earnings management, liquidity and firm value. Altamuro, Beatty and Weber (2002) find evidence of companies managing or “smoothing” their earnings through revenue recognition methods. Cincera and Ravet (2010) study financing constraints particular to R&D investments. “The main finding of this paper is that large European firms are subject to liquidity constraints in the financing of their R&D investments, whereas US ones do not appear to be financially constrained” (Cincera & Ravet, 2010). Vazquez, Juma’h, Cue and Llorens (2013) study how R&D and patents are related to firm performance specific to the Pharmaceutical Industry. They use the operative method to assess patent quality and the relationships between different patents. “The findings confirm the importance of patents relation to firm value and economic performance...” (Vazquez, Juma'h, Cue, & Llorens, 2013). Nord (2011) studies the effect on market value that R&D has concerning the Pharmaceutical Industry, concluding that the more a firm spends on R&D, the higher the market value should be expected. Nord (2011) includes risk as a major factor in decisions and relates that investments should be made wisely and free cash flow should be respected. Paul, et al. (2010) conducted an analysis concerning R&D productivity specific to the Pharmaceutical Industry. They identify the R&D struggles of the Pharmaceutical R&D Industry stating, “The pharmaceutical industry is under growing pressure from a range of environmental issues” (Paul, et al., 2010). They further offer many theories concerning solutions for Pharmaceutical R&D issues including parameters

to reduce medication development costs at certain stages of R&D development (Paul, et al., 2010).

Lev and Sougiannis (1996) provide evidence supporting the idea that R&D has long-term effects on revenue. This study utilized the Operating Income as an indicator of R&D benefits. “Operating income is used as a measure of R&D benefits, since R&D investment and its consequences seem largely unrelated to non-operating items, such as administrative expenses and financing charges” (Lev & Sougiannis, 1996). Results of Lev and Sougiannis’ study show a strong correlation of Stock Price and R&D Expenditure (Lev & Sougiannis, 1996). I use Lev and Sougiannis’ definition of R&D intensive firms as those firms where R&D expenses/sales are equal to or greater than 2%. I use their model that studies the effect of tangible and intangible assets (which includes those created by R&D) on operating margins.

Other prior literature has dealt with the timing issues as they relate to revenue recognition. The timing of revenue recognition is vital. When companies recognize revenue too early, artificially inflating revenue and earnings per share, it gives the company a temporary boost in the stock market, but later causes companies’ standings to plummet because elevated revenue levels cannot be maintained. The artificially inflated revenues and earnings can lead to a false sense of security for investors because unstated losses may follow. In the case of Micro Strategy, the early recognition of revenue over inflated their revenues and caused the company to not report incurring losses. Micro Strategy was disciplined for its unlawful, misappropriated revenue. They had to restate their financial statements for the previous years, pay fines to the SEC for account fraud, issue a public apology and certain employees’ professional licenses were revoked. Even

after all this, Micro Strategy's stock price fell drastically and the company earned a reputation of unethical and a "bad" company (Summers, Sridharan, & McAlum, 2003). According to Zhang (2005), "I find early recognition yields more timely revenue information, as evidenced by higher contemporaneous correlation with information impounded in stock returns." Zhang (2005) also finds in his study that this early revenue recognition diminishes future cash flow realizations and time-series predictability of reported revenue. Then, there is the pressure that the market places on managers to meet or beat earnings forecasts. According to Summers, Sridharan, and McAlum (2003), the pressures by stockholders and increasing competition have encouraged the recognition of revenue before it is proper. I add to the literature in this area because I look at the effect of RRMM, a standard that codifies the timing of revenue recognition based on milestones, thereby causing earlier recognition of revenues for R&D firms.

Prior to the codification of revenue recognition methods for the R&D industry, revenue was recognized using best practices, which led to uncertainty due to the various methods, employed by firms. Srivastava's study (2008) focuses on the optimal level of objectivity and verifiability. Srivastava (2008) argues that conservative standards affect revenue relevance and lax standards affect revenue reliability. Srivastava (2008) finds that highly objective standards reduce the software firms' earnings information relevance by deferring revenues because of multiple-element contracts. Altamuro, Beatty and Weber (2002) find that some firms were using revenue recognition methods to manage their earnings in an improper way. They found that restarting firms were less likely to miss earnings targets, have more incentives to manage earnings and have less auditor evaluations. They also found a reduction in the association of future cash flows and



earnings for restarting firms after the implementation of SAB 101. Overall, Altamuro Beatty and Weber (2002) conclude that SAB 101 did not improve the quality of earnings for restating first and the firms can still manage their earnings through other revenue recognition methods

Huefner and Largay (2008) report on the importance of revenue management. Huefner and Largay (2008) find that Revenue Management (RM) proves more valuable in the future than Cost Management and yields a better bottom line. Their studies show RM has been most successful in industries with high operating leverage. High operating leverage is a result of high fixed cost (costs that do not change no matter how much the company sells) and low variable cost (costs dependent on how much the company sells). Huefner and Largay believe that RM may apply in more of today's business settings (Huefner & Largay III, 2008). I add to the literature by studying the effect of verifiability that has been introduced to the revenue recognition for firms in the R&D industry by RRMM.

### **III. Hypothesis Development**

The increase in recognized revenue resulting from the completion of a milestone will raise the Operating Income (OI) on the Income Statement thus raising the Net Income (NI) on the Income statement and the Retained Earnings (RE) on the Statement of Retained Earnings and the Balance Sheet. The decrease in liability, unearned revenues, will lower the liability stated on the Balance Sheet. This raise in revenue/sales and decrease in liabilities will reflect in the Operating Profit Margin. The Operating Profit Margin (OPM) is defined as:

$$\text{Operating Profit Margin} = \frac{\text{Operating Income}}{\text{Net Sales}}$$

The OI represents the income from normal day-to-day operations. The net sales represent all the sales minus any discounts, allowances for damages or theft, or deductions concerning returns. Thus, the OPM results in a percentage that is the portion of each dollar earned that is profit before interest and taxes. The OPM is an indicator of company's operating efficiency.

Hsu, Chen, Chen and Wang (2013) conducted a study testing the relationship between R&D expenditure and financial indicators that included returns, net sales and operational performance. According to Hsu, Chen, Chen and Wang (2013), R&D expenditures lower operating income. Hsu, Chen, Chen and Wang (2013) relate this theory to the fact R&D expenses are considered operating expenses. Their study states, "Though R&D activity increases net sales, increased operating costs finally result in reduced operating income" (Hsu, Chen, Chen, & Wang, 2013). Hsu, Chen, Chen and Wang (2013) further related this outcome to a lagging R&D contribution stating, "...the contribution of R&D activity to operating income may not materialize for quite some time." This is in agreement with the findings of Sougiannis (1996) and Dugan, McEldowney, Turner and Wheatley (2014) that the indirect effect of R&D (the effect of one dollar of R&D expense on subsequent years' operating income) is much greater than its direct effect (the effect of one dollar of R&D expense in the current year).

Recognizing revenue in the early years of a project as a firm meets certain milestones gives investors a more accurate view of a company's health, its ability to generate cash flows. In addition, creditors can get a clearer picture of a firm's creditworthiness based on more timely recognition of revenues. Therefore, since the RRMM allows for earlier recognition of revenues based on an R&D firm meeting

milestones, I expect to find a positive association between those firms that utilize the RRMM and operating profit margin when compared to R&D firms who are not using the RRMM.

My first empirical hypothesis (in the alternative form) is:

*H1—Firms who rely heavily on R&D and who elect to use the Revenue Recognition Milestone Method (RRMM) will experience a rise in operating profit margin when compared to R&D firms who do not use the RRMM.*

#### **IV. Data and Methodology**

Data was collected from Compustat on U.S. firms with an R&D expenses/Sales ratio greater than 2% (firms with significant R&D expenses). This study covers the years 2006-2013. All companies that do not originally operate and report in the USA were removed, eliminating 7960 observations. Since 2007, foreign public issuers who report their financial statements using IFRS (the European Union, for example) do not have to reconcile their statements to U.S. GAAP. Since the IASB allows capitalization of development costs and U.S. GAAP does not, it is difficult to determine if any rise in OPM is due solely to the use of the RRMM. Next, companies in the financial services industry were removed (SIC codes: 5000-5999) which resulted in the removal of 3392 observations. Prior studies have shown that firms in the financial sector operate significantly different from the rest of the market. I then removed companies that do not have financial statements in December were removed. This is necessary to maintain that the timing for the use of the RRMM is consistent. Another 13438 observations were removed. Next, observations that did not have OI were removed (16765) and observations with Sale numbers of 0 were dropped (2).

As described by Lev and Sougiannis (1996), I define R&D firms as companies with R&D/Net Sales greater than 2%. Another 15,152 observations were removed. Observations that were missing Total Asset and Property, Plant and Equipment amounts were removed. Observations that were missing Inventory, Goodwill, Advertising Expense and Investment in Unconsolidated Subsidiaries were not removed, but replaced with the number 0. In checking a random sample of the firms with missing values for these variables, I discovered that the values were not missing values but were caused because the firm did not engage in these activities and were still be actively in business. I hand-collected information on the method of revenue recognition method and removed any firms who did not clearly indicate which method they were using (elimination of another 75 observations). This leaves me with a sample of 3,208 firm years.

Table 1: Firm Years

Year	# of firms
2006	346
2007	360
2008	361
2009	361
2010	450
2011	455
2012	453
2013	422
Total	3208

Based on Lev and Sougiannis (1996), the firms were separated into two-digit SIC codes which are historically distinct in their use of R&D. Table 2 shows the 6 categories with SIC 99 being assigned to all firms who were not in the other 5 2-digit SIC codes.

Table 2: Lev and Sougiannis 2 Digit SIC Code Industry Groups

R&D Industry	2 Digit SIC code
Chemical & Pharmaceuticals	28
Machinery & Computer Hardware	35
Electrical & Electronic	36
Transportation Vehicles	37
Scientific Instruments	38
Other R&D Industries	99

Because it is expected that operating income will rise as more is spent on R&D, as per Lev and Sougiannis (1996) (LS), I perform a two-stage OLS regression. LS define Industry R&D Expense (IRD) as:

$$(1) \text{IRD} = \frac{\text{Total R\&D Expense for 2 digit SIC} - \text{R\&D Expense for a Company}}{\text{Total Sales Industry} - \text{Sales for the Company}}$$

The IRD value was utilized to create the fitted values. The regression was run separately for each 2-digit SIC code (6 times in total).

$$(2) \text{OI}_t = \alpha_{0t} + \alpha_{1t} \text{IRD} + \varepsilon_t$$

LS then utilize the formula that operating income is dependent on tangible and intangible assets.

$$(3) \text{OI}_t = (\text{TA}, \text{IA})$$

where TA (tangible assets ) are defined as goodwill, total assets, inventory, investment in unconsolidated subsidiaries, property, plant and equipment and IA (intangible assets ) is defined as R&D expenses and advertising expenses. All variable are scaled by sales. I then Add the effect of the RRMM, which is 1 if a company is using the RRMM and) otherwise. My model is:

$$OI_t = \alpha_0 + \alpha_1 AD_t + \alpha_2 RD_t + \alpha_3 Tangible_t + \alpha_4 RRMM_t + \varepsilon_t$$

OI:	Operating income without the effects of R&D and advertising expenses scaled by sales
AD:	Advertising expenses scaled by sales
RD:	Fitted values of RD scaled by sales
Tangible:	Goodwill, total assets, inventory, investment in unconsolidated subsidiaries, property, plant and equipment scaled by sales
RRMM:	1 if company is using the Revenue Recognition – Milestone Method; 0, otherwise.

Because the behavior of these companies is observed across time, I employ a panel data regression. Using a Hausman test, my results indicate a fixed effect model is appropriate and that time-fixed effects are necessary. A fixed effects model eliminates the need for industry indicators and other time-invariant variables. Next, I test for heteroskedasticity and serial correlation (using a Wald and Woolridge test, respectively). The model suffers from both, which is common with panel data and I correct for both by assuming “clustered errors” (Torres-Reyna, 2011).

## **V. Results**

The tables below show the descriptive statistics

Table 3: Industry by 2-Digit SIC Codes

R&D Industry	2 Digit SIC code	# of firms
Chemical & Pharmaceuticals	28	533
Machinery & Computer Hardware	35	323
Electrical & Electronic	36	529
Transportation Vehicles	37	210
Scientific Instruments	38	565
Other R&D Industries	99	1048
	Total	3208

Table 4: SIC 2-Digit Codes by RRMM

SIC 2-Digit Code	RRMM			Total
	0	1	Percentage Adopted RRMM	
28	385	148	27.8%	533
35	305	18	5.6%	323
36	480	49	9.3%	529
37	193	17	8.1%	210
38	507	58	10.3%	565
99	970	78	7.4%	1048
Total	2840	368	11.5%	3208

Table 5: Descriptive Statistics

Variable	# of Firms	Mean	St. Dev.	Minimum	Maximum
OI	3208	0.259	0.155	0.043	0.810
RD	3208	0.108	0.105	0.020	1.185
AD	3208	0.013	0.032	0	.201
Tangible	3208	1.929	1.000	0.327	6.700
RRMM*	3208	0.115	0.319	0	1

\* # of firm years using RRMM = 368; # of firm years not using RRMM = 2,840

where

OI: Operating income without the effects of R&D and advertising expenses scaled by sales

RD: Fitted values of RD scaled by sales

AD: Advertising expenses scaled by sales

Tangible: Goodwill, total assets, inventory, investment in unconsolidated subsidiaries, property, plant and equipment scaled by sales

RRMM: 1 if company is using the Revenue Recognition – Milestone Method; 0, otherwise.

As per LS, I then ran a FE regression for each 2-digit SIC codes. The results of these regression tests are shown below for each two-digit SIC code and variable.



Table 6: Regression Results (N = 3208) Years: 2007-2011

$$OI_t = \alpha_0 + \alpha_1 AD_t + \alpha_2 RD_t + \alpha_3 Tangible_t + \alpha_4 RRMM_t + \varepsilon_t$$

Variable	SIC 28	SIC 35	SIC 36	SIC 37	SIC 38	SIC 99
Constant	0.262***	0.092***	0.129***	0.095***	0.153***	0.193***
AD <sub>t</sub>	0.767*	2.287***	1.587***	0.556	1.322***	1.058***
RD <sub>t</sub>	0.0008***	-0.001***	-0.0001	-0.0007	0.0004	0.0007
Tangible <sub>t</sub>	0.020**	0.055***	0.047***	0.028***	0.034***	0.028***
RRMM <sub>t</sub>	0.198***	-0.006	0.060**	-0.016	0.012	-0.013
N	533	323	529	210	565	1048
Within R <sup>2</sup>	0.1478	0.1979	0.1217	0.0849	0.0823	0.1949
Between R <sup>2</sup>	0.4435	0.0063	0.0380	0.1477	0.0002	0.1673
Overall R <sup>2</sup>	0.1418	0.1919	0.1200	0.0763	0.0811	0.1946

\*, \*\*, \*\*\* Significance at the 0.01, 0.05 and 0.10 respectively

where

OI: Operating income without the effects of R&D and advertising expenses scaled by sales

RD: Fitted values of RD scaled by sales

AD: Advertising expenses scaled by sales

Tangible: Goodwill, total assets, inventory, investment in unconsolidated subsidiaries, property, plant and equipment scaled by sales

RRMM: 1 if company is using the Revenue Recognition – Milestone Method; 0, otherwise.

As expected, the data suggest that advertising expenses are positively significant for all industries but the Transportation Vehicles, where it is not statistically different

from 0. Most industries experience large increases (77%-229%), indicating that advertising has a very significant economic impact on profit margins. R&D expenses have a much smaller impact and are only statistically significant for Chemical and pharmaceutical (SIC 28) and Machinery & computer hardware (SIC 35). This may be because there has not been enough time for the R&D to benefit OPM due to the lag in benefit from R&D described by Lev and Sougiannis (1996). Tangible assets have a statistically significant positive relationship with OPM for all industries. This is because expenditures on such assets should generally add direct value to the business. If they do not, then there is no reason for the expenditure. These results are consistent with prior research.

Next, I examine my variable of interest, RRMM. The results suggest that the Chemical & Pharmaceutical and the Electrical & Electronic R&D industries are positively associated with RRMM: i.e. firms who adopt the RRMM have higher OPM when compared to other R&D firms who do not employ the RRMM, all else equal. As for the other industries, there is not enough evidence to suggest that employing the RRMM has any impact on OPM. This provides empirical evidence the RRMM generally benefitted these two industries and not the others. Given that the Chemical & Pharmaceutical industry had the highest percentile of changing to the RRMM when it became available, the statistically significant association with OPM is not surprising. In the case of the Electrical & Electronic industry, given a relatively low percentage of the companies switched to the RRMM after 2010, the data still suggests a positive significant effect on OPM. This industry is often poised on the cutting edge of the fast-moving technology revolution so this result is once again not surprising. Overall, this means that

for these two industries, the RRMM was significantly different from their previous revenue recognition method concerning R&D. If the adoption of the RRMM did not represent a significant change in revenue recognition for the other industries (i.e. they were utilizing a similar method previously). This explains why the other industries were not significantly impacted by the adoption of the RRMM.

## **VI. Robustness Test- the Financial Crisis of 2008-2009**

The U.S. experienced the financial crisis caused in large part by subprime mortgages. According to the National Bureau of Economic research, the financial crisis lasted from December 2007 and ended in June 2009. The effect of the Financial Crisis of 2008-2009 was a macro economic effect that affected all R&D firms. It is very difficult, if not impossible, to halt R&D projects due to current economic problems. The RRMM was put in place in 2010, a period in which the economy was beginning to recover from the Financial Crisis. Based on these facts, I expect the Financial Crisis will have little to no effect on R&D firms. My second empirical hypothesis (in the alternate form)

*H2—Firms who rely heavily on R&D and who elect to use the Revenue Recognition Milestone Method (RRMM) will experience a rise in operating profit margin when compared to R&D firms who do not use the RRMM in spite of the Financial Crisis.*

I test this hypothesis by removing the years 2008-2009 from the data. I expect the effect of RRMM to be similar to the results achieved when the years of the financial crisis are included. The results are in Table 7.

Table 7: Regression Results (N = 2486) without Financial Crisis

$$OI_t = \alpha_0 + \alpha_1 AD_t + \alpha_2 RD_t + \alpha_3 Tangible_t + \alpha_4 RRMM_t + \varepsilon_t$$

Variable	SIC 28	SIC 35	SIC 36	SIC 37	SIC 38	SIC 99
Constant	0.254***	0.105***	0.125***	0.099***	0.147***	0.193***
AD <sub>t</sub>	0.683	2.535***	1.470**	0.341	1.567***	1.021***
RD <sub>t</sub>	0.0007**	-0.001	-0.0001	-0.002	0.00001	0.0004
Tangible <sub>t</sub>	0.018	0.051***	0.050***	0.030***	0.038***	0.028***
RRMM <sub>t</sub>	0.197***	-0.003	0.058***	-0.0187	0.014	-0.013
N	405	253	414	160	443	811
Within R <sup>2</sup>	0.1813	0.1789	0.1454	0.0958	0.1005	0.1907
Between R <sup>2</sup>	0.6258	0.3791	0.1004	0.3409	0.0010	0.0179
Overall R <sup>2</sup>	0.1879	0.1795	0.1405	0.0966	0.0989	0.1902

\*, \*\*, \*\*\* Significance at the 0.01, 0.05 and 0.10 respectively

where

OI: Operating income without the effects of R&D and advertising expenses scaled by sales

RD: Fitted values of RD scaled by sales

AD: Advertising expenses scaled by sales

Tangible: Goodwill, total assets, inventory, investment in unconsolidated subsidiaries, property, plant and equipment scaled by sales

RRMM: 1 if company is using the Revenue Recognition – Milestone Method; 0, otherwise.

With the exception of advertising expenses, the results with the financial crisis do not differ much from those without the financial crisis. For Chemical and

Pharmaceuticals and Transportation Vehicles, advertising expenses do not appear to have an impact on OPM when the financial crisis is excluded. The variable of interest, RRMM, has no statistically significant change when the years of the Financial Crisis is eliminated. I conclude there is not enough evidence to suggest that the Financial Crisis of 2008-2009 is not driving the results of the association between RRMM and OPM

## **VII. Conclusion**

In conclusion, this paper examines the effect of the Revenue Recognition – Milestone Method (RRMM) that the FASB approved in 2010 to aid R&D in clarifying revenue recognition. Prior to the adoption of the RRMM, revenue recognition was not clearly defined for R&D firms. RRMM codifies revenue recognition for R&D firms only. The FASB wanted R&D firms to be able to recognize revenue as certain milestones were achieved. Its purpose was to clarify when R&D firms could recognize revenue from the earnings process. Earlier recognition allows R&D firms to give a clearer picture of the health of firms, improving stock prices and creditworthiness. By utilizing a two-stage OLS model developed by Lev and Sougiannis (1996), this study measures the effect of the adoption of the RRMM on operating profit margin. The sample includes U.S. firms with significant R&D expenses (a R&D expenses/Sales ratio greater than 2%) for the years 2006-2013. Due to the more rapid recognition of income using the RRMM, the evidence suggests that firms who adopt RRMM in the Chemical & Pharmaceutical and Electrical & Electronic R&D industries do experience an increase in operating profit margin when compared to firms who do not adopt the RRMM. These results are robust in light of the financial crisis.

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