Kathryn Zurowski

CFRS 770 Fraud and Forensics in Accounting

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Osiris Therapeutics: Case Study

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Introduction

Osiris Therapeutics is a company which, “researches, develops, manufactures and commercializes regenerative medicine products”. Their business includes both commercial sales of trademarked healthcare solutions and research and development in emerging areas, focusing on Stem Cell research. Their specialization in the field is tissue regeneration products [1]. The company maintains a limited number of products and generates approximately 70% of its revenue from two products. Both Gravix and Stravix are used as skin substitutes for wound repair and recovery [2].

In 2019, Osiris was acquired by the British company, Smith + Nephew as a wholly-owned subsidiary [3]. However, 2019 also brought rulings on cases between the SEC and two former Osiris executives. Two additional executives are still in ongoing litigation, but these rulings represent one more step separating Osiris from the fraud that occurred in fiscal year 2014 and 2015. This research effort provides an analysis of the fraud based on information released from the litigation, the company’s financial statements, and additional company information.

The Fraud

On November 2, 2015, the SEC announced the charges against Osiris via press release on its website. The SEC stated that they were charging Osiris and four executives with violating sections of the Securities Act and the Securities Exchange Act [4]. Shortly following, on November 20*, Osiris announced the fraud investigation to investors in an 8-K statement [5]. At the time of the SEC announcement, Osiris had already settled with the SEC for $1.5 million. This settlement included neither an admission nor guilt from the company nor a denial of the charges [4]. The company made certain to highlight in their release that Osiris "cooperated fully with the SEC during its investigation" [5].

The fraud itself was a coordinated effort across the entire 2014 fiscal year and the first three quarters of 2015 to report artificially inflated revenue in financial statements in order to meet ambitious company goals and make the company appear more profitable. There were three main components of the fraud:

1. Recognizing revenue prematurely (before contract terms were finalized)
2. Recognizing revenue with incorrect, higher prices
3. Recognizing revenue on consignment inventory [6]

These are some of the most common forms of revenue recognition fraud. The give the illusion that the company is bringing in more revenue, and that the revenue earned by the company exceeds the amount goaled for a period.

Before examining the details of how the fraud was conducted at a financial level, it is worth examining some the factors that led to the fraud.

Collusion

In addition to Osiris Therapeutics, the US District Court for the District of Maryland also named four senior executive officers. The four named individuals were Philip R. Jacoby, Jr.; Gregory I.

* It is worth noting that this filing was made 18 days after the SEC announcement, despite the requirement that 8-K's be filed within four days of the significant event. There was no 8-K related to the fraud investigation within the four-day period, not any disclosed reason for the delay.

Law; Lode B. Debrabandere; and Bobby Dwayne Montgomery. These four individuals served as the topmost executives within the company throughout the fraud, including Chief Financial Officer (CFO), Principal Accounting Officer (PAO), Chief Business Officer (CBO), and Chief Executive Officer (CEO). Together these four individuals held immense sway over the financial reporting of the business.

Jacoby served as the CFO of Osiris until he moved to the role of PAO in September 2015. As CFO, Jacoby signed and certified all of the company's financial filings with the SEC, including the 10-K report for 2014 and 10-Q reports for the first two quarters of 2015. All of these reports contained material misstatements [6]. As of the time of this report, Jacoby is still in ongoing litigation with the SEC [7].

Law served as the PAO for Osiris from November 2014 to September 2015. He replaced Jacoby in the position of CFO in September (and Jacoby moved into Law's former position). In the role of CFO, Law signed and certified the 10-Q report for the third quarter of 2015, which contained material misstatements [6]. In September 2019, the SEC dismissed the charges filed against Law [7].

Debrabandere served as Osiris's CEO throughout 2014 and 2015. In addition to his oversight of any SEC filings, Debrabandere "exercised control over the management, general operations, and policies of Osiris, as well as the specific activities upon which Osiris' violations are based" [6]. Litigation is also still ongoing between the SEC and Debrabandere [7].

Montgomery served as the CBO for Osiris between September 2015 to February 2016. Before the position of CBO, Montgomery worked as the company's general manager of orthopedics and sports medicine [6]. Montgomery settled with the SEC for $40,000 in October 2019 [7].

As can be seen above, these individuals had ample access to the company's financial statements, allowing them to misrepresent sales to improve reported revenue. Osiris even states in their annual 10-K report filed on March 20, 2015 (for fiscal year 2014), "Our management, including the Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of our internal control over financial reporting as of December 31, 2014" [8]. While this is standard language related to financial reporting controls, it can be viewed from a new perspective with the knowledge that both the Chief Executive Officer and Chief Financial Officer for the company were involved in the fraud and reporting.

Even with the presence of internal controls, individuals within the company were able to defeat internal controls by collusion. The individuals within the company who perpetrated the crime were able to access the financial statements to make changes, and then others involved in the fraud could corroborate these misstatements.

Company Culture

Fraud often occurs in companies because the company culture either allows or encourages it. As seen in the previous section, multiple members of the executive leadership team were involved in the fraud. While there is limited information available on the internal culture of the company, based on the executive-level positions of the named individuals in the SEC complaint, it can be inferred that the company culture was heavily focused on meeting or surpassing company goals.

The executive compensation statements contained in the company Schedule 14A Proxy statements indicates that the executive compensation is directly related to the company performance. The Executive Compensation section indicates "The objectives of our executive compensation programs are to… Support the achievement of desired company performance" [9]. This also is a standard compensation practice for executives; however, it outlines a direct incentive for executives to boost performance. Table 1 shows the overall compensation for relevant executives for the Fiscal Year 2014 compared to 2013 [9]. Notably, Debrabandere's total compensation package increased by 670% from 2013 to 2014.

Executive	Year	Base Salary	Bonus	Option Awards	Other	Total
Lode Debrabandere	2014	360,000	150,000	1,171,500	24,000	1,705,500
	2013	31,750	50,000	120,000	20,000	221,750
Philip R. Jacoby, Jr.	2014	216,417	25,000	0	2,912	244,329
	2013	207,333	20,000	80,000		307,333
Gregory I. Law	2014	27,605	0	134,800	0	162,405
	2013*					

Table 1. Executive Compensation Statement

The SEC complaint indicates the Debrabandere was the driving force behind the fraud. It asserts "the fraudulent scheme, misstatements, and omissions were driven by Osiris' culture, which was set and communicated by Debrabandere and embraced by Jacoby, Law, and Montgomery" [6]. As the CEO, Debrabandere was able to set the tone of the company culture for the entirety of the company and influence other executive members to "embrace" the culture.

Financial Analysis

In order to examine multiple aspects of the fraud and the way it manipulated the financial statements, this work provides several approaches to financial statement analysis. These methods include Horizontal Analysis, Vertical Analysis, Ratio Analysis, Industry Analysis, Financial Statement Notes Analysis, and Non-Financial Information Analysis.

Note, all financial statements in the section were retrieved from the SEC Edgar database [8, 10]. All numbers are stated in thousands, and all full analysis charts are available in Appendix A.

Horizontal Analysis

Horizontal Analysis compares various company financial measures as changes from one financial period to another. This allows you to see how the business is changing from year to year. If financial measures do not change in sync with how they are calculated, it can be an indicator of fraud. Or, as this analysis explores, whether sharp growth is an indicator of fraud.

While the fraud took place during both fiscal years 2014 and 2015, this Horizontal Analysis will focus on the years 2012-2014. Because the fraud persisted from 2014 into 2015, the most noticeable difference is between 2013 and 2014, i.e., when the fraud began. The period between 2012-2013 is included to provide a baseline for comparison.

It's clear from Horizontal Analysis that Osiris was a company that was growing quickly. Many of their numbers show steep increases both from 2013-2014 and from 2012-2013. This may have been part of the reason the fraud was not immediately visible. As seen in Table 2, Revenue and Profit both rose by more than 100% in both analysis periods. There's no indication of fraud during the 2012 fiscal year though.

	December 31, 2014	% Change	December 31, 2013	% Change	December 31, 2012
Total Revenue	$59,867	146.29%	$24,308	209.70%	7,849
Total Cost of Sales	$13,171	97.88%	$6,656	160.92%	2,551
Profit	$46,696	164.54%	$17,652	233.18%	5,298

Table 2. Income Horizontal Analysis

This quick growth may also help explain part of the driving force in management to perpetrate the fraud. Growth numbers like those from 2012-2013 could push a company to match that growth into the next year. If the numbers within the first quarter were not trending to meet aggressive goals, executive might have recognized that they wouldn't need to manipulate their financial statements to meet the goals.

It is also worth analyzing the sharp increase in Inventory that occurred between 2013 and 2014. This information, and its relationship to total revenue, are available in Table 3.

	December 31, 2014	% Change	December 31, 2013	% Change	December 31, 2012
Product Revenue (Total)	$59,867	146.29%	$24,308	209.70%	7,849
Inventory	$10,924	466.30%	1,929	50.94%	1,278

Table 3. Inventory Analysis

One type of common fraud involves the misstatement of assets/inventory, which one of the violations listed in the SEC complaint. Osiris overvalued inventory and intentionally listed inflated prices for inventory in sales on financial records [6]. This occurred multiple times throughout the fraud period.

One method of detecting inventory manipulation is analyzing the rate of growth for inventory and comparing it to the rate of growth for sales. Like many of Osiris's other financial numbers, the inventory growth rate increased dramatically over both periods. However, unlike many of the other financial growth numbers, the change in inventory increased in 2013-2014, from 50.94% to 466.30%. According to Zach, in *Financial Statement Fraud*, it is an indicator of inventory fraud when inventory increases faster than sales [11]. As seen in Table 3, in the 2013-2014 period, inventory increase was dramatically higher than sales (as was the change growth numbers between 2012-2013 and 2013-2014).

After the discovering the fraud, Osiris filed a 10-K/A with restated financial information for 2014 from an "independent review" [10]. This filing contained the correct financial information from the 2014 fiscal year. Analyzing these statements can assist in understanding how the manipulation affected the Horizontal Analysis. Table 4 shows Horizontal Analysis numbers for the restated financials.

	December 31, 2014	% Change	December 31, 2013	% Change	December 31, 2012
Total Revenue	$50,835	109.13%	24,308	209.70%	7,849
Total Cost of Sales	9,886	48.53%	$6,656	160.92%	2,551
Profit	40,949	131.98%	$17,652	233.18%	5,298
Inventory	$9,824	409.28%	1,929	51.06%	1,277

Table 4. Restated Horizontal Analysis

The adjusted growth numbers still show significant increases in all featured categories. Revenue, profit and inventory all still increased by over 100% from 2013 to 2014. Inventory also increased much faster than sales, even when restated.

These numbers support the proposition that the company was growing quickly in 2013 and 2014, but that projected goals were too aggressive for the company to realistically meet.

Vertical Analysis

Vertical analysis can be used to determine how the company is composed at the end of a fiscal year. It compares various measures to a single metric from the financial statements. If components are significantly larger (or smaller) than expected, it may indicate the fraud is present

In this analysis the "anchor measure" is Total Revenue. As in the Horizontal Analysis, this section focuses on the 2014 fiscal year and provides the 2013 fiscal year for a baseline.

One of the first measures worth analyzing is the relationship between revenue, income, and cost of goods sold (CoGS). Table 5, shows this analysis below.

	2014 Amount	% Of Revenue	2013 Amount	% Of Revenue
Total Revenue	**59,867**		**24,308**	
Net Income	$46,696	78.00%	$17,652	72.62%
Total Cost of Sales	$13,171	22.00%	$6,656	27.38%

Figure 5. Vertical Analysis for Revenue, Income, and CoGS

Because *income* + *CoGS* = *revenue*, it makes sense to compare the three together. The percentages for income and CoGS should add up to 100%, which they do.

What is surprising is the Gross Profit Margin. Depending on the industry, 78% profit margin may be an indicator of fraud. However, the profit margin for 2013 is 72.62%. These two numbers are relatively similar. This could indicate that it is a common level for the biotechnology industry. Further analysis for this is found in the Industry Analysis Section.

Ratio Analysis

Ratio Analysis can provide quick, normalized comparisons between different components of the company. These ratios can show the relationships between these components. With an understanding of the business, it's possible to determine whether these relationships make sense for the business. If they do not make sense, it may be an indicator of fraud. The full Ratio Analysis table are available in Appendix A.

Beneish numbers

A set important fraud indicators are the Beneish calculations. These numbers can be used alone or combined to create the composite "M-Score". These scores are especially useful, because they were created from real-world samplings. Beneish gathered financial statements from companies that were known to either be "Manipulators" or "Non-Manipulators" [11].

Each of these calculations compare measures from the current year to those from the previous year. This allows an analyst to see how each piece of the business is growing from year to year and determine if that growth is occurring naturally. These measures are the Days Sales in Receivable Index (DSRI), Gross Margin Index (GMI), Asset Quality Index (AQI), and Sales

Growth Index (SGI). There is also an M-Score that encompasses weighted versions of all of these scores. The results of the individual Beneish measures are in Table 5.

Beneish Measures			
	Non Manipulators	Manipulators	Osiris 2014
DSRI	1.031	1.465	1.323
GMI	1.014	1.193	1.074
AQI	1.039	1.254	0.015
SGI	1.134	1.607	2.463
M-Score	<-2.22	>-2.22	-0.814

Table 5. Beneish Measures

Each Beneish has a threshold for known "Non-Manipulator" and "Manipulator" levels. These are listed in the first two columns. Results less than the "Non-Manipulator" can be considered genuine, and results higher than the "Manipulator" can be considered red flags. Results in between the two are indeterminate.

As seen in Table 5, Osiris is only a confirmed "Non-Manipulator" in one of the five measures (AQI). In two of the measures, including the "M-Score" (with SGI), Osiris presents as a "Manipulator". The other two scores are indeterminate (DSRI and GMI).

This analysis has already analyzed the significant growth the company saw in 2014, which is the basis for SGI. The is certainly a factor that drove the "M-Score" into the "Manipulator" range. However, considering there were other results within the indeterminate range, the overall impression from the Beneish measures does indicate fraud.

Industry Analysis

Osiris is a smaller company within the Biotechnology industry, relative to its competitors. This may partly be due to its smaller scope within the field. The company website advertises five total products available from the company. Osiris' focus is on regenerative solutions, typically used in surgical procedures (either as an implant or a surgical aid). These products have a narrow customer market, and they are only available through a medical provider. [1]

The Mergent Online database lists a number of pharmaceutical companies as competitors for Osiris [12]. The two largest competitors listed for Osiris are Johnson & Johnson and Pfizer Inc. A comparison for the three companies can be found below, in Table 6.

	2018 Financials (In Thousands)	
	Revenue	Income
Osiris	142,824	36,901
Johnson & Johnsn	81,581,000	15,297,000
Pfizer Inc	53,647,000	11,153,000

Table 6. General Market Comparison

Both Johnson & Johnson and Pfizer Inc have a wide variety of product and solutions. They offer solutions in partnership with medical providers and direct to consumer. This ranges from vaccines and injections to over-the-counter medication [13] [14]. This is in direct juxtaposition to Osiris, which offers limited products that are not available direct to the consumer.

This research effort includes a market analysis, comparing Osiris to another company within the Biotechnology market. This analysis compares Osiris' financials to the Biogen Inc. A basic comparison between the two companies is in Table 7 below [12]. Biogen Inc was chosen for this analysis because the scope of their business closely aligns to the scope of Osiris. Biogen specializes in tissue regeneration technology that is used for a variety of degenerative disorders [15].

	2018 Financials (in Thousands)	
	Revenue	Income
Osiris	$142,824	$36,901
Biogen	$13,452,900	$4,430,700

Table 7. Specific Market Comparison

Because the financials are on significantly different scales for the two companies, the main comparison will be taken on normalized values for the financial statements. The full financial figures for Biogen are available in Appendix A. Table 8, below, shows the Horizontal Analysis comparison for the two companies, using the % change values.

% Change	December 31, 2014		December 31, 2013	
	Osiris	Biogen	Osiris	Biogen
Total Revenue	146.29%	39.97%	209.70%	25.66%
Total Cost of Sales	97.88%	36.53%	160.92%	57.24%
Profit	164.54%	40.46%	233.75%	22.20%
Gross Margin	7.41%	0.35%	7.58%	-2.76%
R&D	38.57%	31.12%	-9.98%	8.18%
General and Admini	144.80%	30.38%	315.97%	34.02%
Cash	-16.06%	99.97%	30.31%	5.58%
Inventory	466.30%	22.01%	50.94%	47.31%
Accounts Receivabl	42.26%	56.77%	457.82%	20.03%
Total Current Assets	14.06%	46.71%	115.47%	881.71%
Total Assets	6.54%	20.68%	122.11%	17.11%
Property Plant & Eq	10.07%	0.86%	-10.18%	0.49%
Accounts Payable	82.90%	4.21%	-3.16%	7.80%
Current Liabilities	-3.71%	26.24%	117.59%	0.00%
Total Liabilities	-62.73%	8.02%	100.00%	2.41%

Table 8. Horizontal Market Analysis

It's clear that Osiris did not trend with Biogen for either 2013 or 2014. In almost all fields, Osiris' metrics increase significantly more than Biogen's. In 2014, Biogen was a more established company though. It makes sense that their growth numbers would be more moderate compared to a company that is featuring their first major commercial release.

A specific measure worth noting is the Gross Margin, which was highlighted in the Vertical Analysis Section. Table 9 shows the Gros Margins for each company over 2013 and 2014.

	December 31, 2014		December 31, 2013	
	Osiris	Biogen	Osiris	Biogen
Gross Margin	78.00%	87.93%	72.62%	87.63%

Table 9. Gros Margin Comparison

Biogen also showed high Gross Margins for both 2013 and 2014, indicating that this is a market-standard value. Based on this market analysis (although limited), the Gross Margin is most likely not an indicator of fraud.

One of the measures that were significant for Osiris on its own were the Benish measures. Table 10 compares these scores between Osiris and Biogen.

Beneish Measures				
	Non Manipulators	Manipulators	Osiris 2014	Biogen
DSRI	1.031	1.465	1.323	1.120
GMI	1.014	1.193	1.074	1.003
AQI	1.039	1.254	0.015	0.942
SGI	1.134	1.607	2.463	1.400
M-Score	<-2.22	>-2.22	-0.814	-1.559

Table 10. Beneish Market Analysis

While Biogen does fall between the Non-Manipulator and Manipulator measures for DSRI, SGI, and overall M-Score; it is significantly closer to the Non-Manipulator level than Osiris. These thresholds may not be a perfect fit for this industry, but they do show that Osiris is significantly closer to the Manipulator category than Biogen for fiscal year 2014. The M-Score for Biogen is twice as close to the Non-Manipulator threshold than Osiris, which serves as a clear red flag.

Financial Statement Notes

The notes the accompany financial statements offer insight into the financial statements that cannot be expressed in numbers. Companies can use this to explain aspects of the financial statements that may raise red flags.

As seen in the Horizontal Analysis, the inventory valuation increased drastically from 2013 to 2014. This increase was also significantly higher than the increase from 2012 to 2013 (466.30%). While this may appear as a red flag, the financial statements help shed light on the issue.

It's also noted in the Horizontal Analysis Section that Osiris was growing quickly even without the misstatements. Note 5 to the financial statements documents that Osiris "began carrying inventory of our Biosurgery produces on our balance sheets following commercial launch of such products" [6]. The note provides the following table (Table 11).

	December 31, 2014	December 31, 2013
Raw materials	$1,025	$387
Work-in process	$465	$22
Finished goods	$9,434	$1,520
Total	$10,924	$1,929

Table 11. Inventory Break-Down

The new carrying inventory of product that is ready to be sold commercially can be seen in the "Finished goods" section. This helps explain the drastic increase that can be seen from 2013 to 2014. The company was now carrying new stock of inventory in a form in which it can be easily sold.

The notes to financial statements in the 10-K/A that was released in 2017 directly addresses the restatement of financial statements. This note acknowledges that the misstatements decreased the company revenue by $9 million and profit by $8.2 million for fiscal year 2014 [10].

Non-Financial Information

Non-financial information can be useful to analyze because this type of information is often generated and audited by different parties than the financial statements. These numbers can often be easily verified by outside sources. Together, these two factors make it difficult to coordinate fraudulent misstatements

Throughout this study, it has been clear that Osiris was growing during the period of fraud. A non-financial indicator of growth is an increase in employees. If a company is growing, it follows that they would be looking to hire additional employees to accommodate the growing business. Table 12 shows the number of employees for Osiris compared to company revenue.

	December 31, 2014	December 31, 2013
Total Revenue	$59,869	$24,308
Assets	$98,119	$92,097
Employees	217	75

Table 12. Employee to Revenue Comparison

Computing the Non-Financial Information Differential (NFI DIFF) Provides the scores in Table 13.

	NFI DIFF	Adjusted NIF DIFF
Revenue	-0.430	-0.802
Assets	-1.828	-1.933

Table 13. NFI DIFF Measure

The generally accepted range of non-manipulation is if the value is within the rang [-0.3, 0.3]. The NIF DIFF is outside other expected range for both revenue and assets. However, this is not consistent with the fraud that was perpetrated. The number of employees actually grew more than the revenue or assets in the period.

However, this is not an indicator that is linked to the fraud perpetrated during the period. This is highlighted by the Adjusted NFI DIFF that is in the right column. The DIFFs move further outside of the expected range with the actual revenue and asset numbers.

This could again, link into the idea that the company was expanding during the time period. Diving deeper into these employee numbers shows that the overall employee count grew from 75 to 217, but the employees “engaged in sales and marketing activities” grew from 19 to 110. The growth makes sense in the overall business growth. The company was moving into a position where it could sell its product at a much larger scale than before, and required staff to support those specific activities.

Conclusion

Throughout this analysis, it has become clear that finding fraud within the financial statements of Osiris Therapeutics has not been as simple as making a few calculations in Excel. The regular company business obscured the fraud.

However, there were measures that indicated fraud existed. These red flags served as weak indicators of fraud that should be followed up. And it appears as though investigators followed the same philosophy. Within the SEC complaint, many of the pieces of items they recognize are email messages sent from Debrabandere to employees and customers. These artifacts confirmed that the date recorded in the financial statements were not the accurate dates for the transactions.

Finding fraud is rarely as easy as finding a red flag in a financial statement. It often requires more in-depth analysis that incorporate material from outside the financial statements to determine the true meaning of the numbers presented.

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Appendix A- Full Figures

Horizontal Analysis- Full Tables

Osiris Original Filing Horizontal Analysis

Original Filing					
	December 31, 2014	% Change	December 31, 2013	% Change	December 31, 2012
Total Revenue	$59,867	146.29%	$24,308	209.70%	$7,849
Total Cost of Sales	$13,171	97.88%	$6,656	160.92%	$2,551
Profit	$46,696	164.54%	$17,652	233.75%	$5,289
Gross Margin	78.00%	7.41%	72.62%	7.58%	67.50%
R&D	$6,862	38.57%	$4,952	-9.98%	$5,501
General and Adminitrative	$37,432	144.80%	$15,291	315.97%	$3,676
Cash	$2,028	-16.06%	$2,416	30.31%	$1,854
Inventory	$10,924	466.30%	$1,929	50.94%	$1,278
Accounts Receivable	$24,307	42.26%	$17,086	457.82%	$3,063
Total Current Assets	$95,936	14.06%	$84,109	115.47%	$39,036
Total Assets	$98,118	6.54%	$92,097	122.11%	$41,464
Property Plant & Equip	$2,087	10.07%	$1,896	-10.18%	$2,111
Accounts Payable	$8,854	82.90%	$4,841	-3.16%	$4,999
Current Liabilities	$10,566	-3.71%	$10,973	117.59%	$5,043
Total Liabilities	$4,155	-62.73%	$11,148	100.00%	$5,574

Osiris Restated Filing Horizontal Analysis

Restated Filing					
	December 31, 2014	% Change	December 31, 2013	% Change	December 31, 2012
Total Revenue	$50,835	109.13%	$24,308	209.70%	$7,849
Total Cost of Sales	$9,886	48.53%	$6,656	160.92%	$2,551
Profit	$40,949	131.98%	$17,652	233.75%	$5,289
Gross Margin	80.55%	10.93%	72.62%	7.58%	67.50%
R&D	$6,862	38.57%	$4,952	-9.98%	$5,501
General and Adminitrative	$37,432	144.80%	$15,291	315.97%	$3,676
Cash	$2,028	-16.06%	$2,416	30.31%	$1,854
Inventory	$9,824	409.28%	$1,929	50.94%	$1,278
Accounts Receivable	$24,307	42.26%	$17,086	457.82%	$3,063
Total Current Assets	$95,936	14.06%	$84,109	115.47%	$39,036
Property Plant & Equip	$2,087	10.07%	$1,896	-10.18%	$2,111
Current Liabilities	$10,566	-3.71%	$10,973	117.59%	$5,043
Accounts Payable	$8,854	82.90%	$4,841	-3.16%	$4,999

Vertical Analysis- Full Tables

Osiris Original Filing Vertical Analysis

Original				
	2014 Amount	% Of Revenue	2013 Amount	% Of Revenue
Total Revenue	**59,867**		**24,308**	
Net Income	$46,696	78.00%	$17,652	72.62%
Total Cost of Sales	$13,171	22.00%	$6,656	27.38%
R&D	$6,862	11.46%	$4,952	20.37%
G&A Cost	$37,432	62.53%	$15,291	62.91%
Inventory	$10,924	18.25%	$1,929	7.94%

Osiris Restated Filing Vertical Analysis

Refiling				
	2014 Amount	% Of Revenu	2013 Amoı	% Of Revenue
Total Revenue	**50,835**		**24,308**	
Net Income	$40,949	80.55%	$17,652	72.62%
Total Cost of Sales	$9,886	19.45%	$6,656	27.38%
R&D	$6,862	13.50%	$4,952	20.37%
G&A Cost	$37,432	73.63%	$15,291	62.91%
Inventory	$9,824	19.33%	$1,929	7.94%

Ratio Analysis

Assets	2014	2013	2012
Cash and cash eq	2208	2416	
Investments	37305	39508	
Accounts Receivable	24307	7459	3063
Inventories	10924	1929	1278
Financing Recievables			
Total Current Assets	95936	84109	
Property Equipment	2087	1896	
Total Assets	98118	92097	41464
Liabilties			
Total Current Liabilities	10566	10793	
Total Liabilities	14155	11148	
Total Equity	83963	80949	
Total Equity and Liabilities	98118	92097	
Consolidate Satements of Op			
Total Net Sales	59867	24308	7849
Total Cost of Sales	13171	6656	2551
Net Income	46697	17652	5298

Ratios	CY	CY-1
Current Ratio	9.07968957	7.79292134
Quick Ratio	6.04012871	4.57546558
Inventory Turnover	2.04948261	4.15091986
Average days in Inventory	178.093729	87.9323167
Collection Ratio	96.836237	78.9972437
Receivable Turnover	3.76925014	4.62041437
Debt 2 Equity	0.16858616	0.13771634
Profit Margin	0.78001236	0.72618068
Asset Turnover	0.62946666	0.36399847
Margin Analysis	0.77999566	0.72618068
Sales Growth Index	2.46285174	3.09695503

Industry Analysis- Full Analysis Charts

Biogen Horizontal Analysis

Biogen					
	December 31, 2014	% Change	December 31, 2013	% Change	December 31, 2012
Total Revenue	$9,703,324	39.97%	$6,932,199	25.66%	$5,516,461
Total Cost of Sales	$1,171,036	36.53%	$857,726	57.24%	$545,494
Profit	$8,532,288	40.46%	$6,074,473	22.20%	$4,970,967
Gross Margin	87.93%	0.35%	87.63%	-2.76%	90.11%
R&D	$1,893,422	31.12%	$1,444,053	8.18%	$1,334,919
General and Adminitrative	$2,232,242	30.38%	$1,712,051	34.02%	$1,277,465
Cash	$1,204,924	99.97%	$602,562	5.58%	$570,721
Inventory	$804,022	22.01%	$659,003	47.31%	$447,373
Accounts Receivable	$1,292,445	56.77%	$824,406	20.03%	$686,848
Total Current Assets	$4,672,673	46.71%	$3,184,934	881.71%	$324,427
Total Asset	$14,316,559	20.68%	$11,863,335	17.11%	$10,130,118
Property Plant & Equip	$1,765,683	0.86%	$1,750,710	0.49%	$1,742,226
Accounts Payable	$229,178	4.21%	$219,913	7.80%	$203,999
Current Liabilities	$2,219,706	26.24%	$1,758,279	0.00%	$1,758,279
Total Liabilities	$3,502,519	8.02%	$3,242,497	2.41%	$3,166,323

Biogen Beneish Measures

Beneish Measures			
	Non Manipulators	Manipulators	Biogen
DSRI	1.031	1.465	1.120
GMI	1.014	1.193	1.003
AQI	1.039	1.254	0.942
SGI	1.134	1.607	1.400
M-Score	<-2.22	>-2.22	-1.559