

A Comparative Analysis of Financial Records Between Software and Biopharmaceutical Corporations

Adnan Miski

Abstract— This study provides a comparative analysis of financial records for companies whose primary focus is on software production. A comparative analysis is then provided between software producing corporations and those in the biopharmaceutical industry to give the reader an understanding of both similarities and disparities between the two industries. The report uses common financial ratios such as Return on Investments (ROI), Current Ratio, and Earnings per Share (EPS). Both sectors share similarities that it takes high initial investment to develop a marketable produce. Biopharmaceutical companies have the added hurdle of passing government regulations before marketing their product. This has a potentially adverse impact on their profit margin, which may account for the generally lower net income of the sector.

Index Terms— Return on Investments, Current Ratio, Earnings per Share, Profit Margin, Profitability Ratio, Return On Common Equity.

1 INTRODUCTION

The software producing companies evaluated in this paper are Cisco, Microsoft, and Oracle, as for the biopharmaceutical corporations will evaluate Allergan, Access and Mylan.

i) Cisco: is a company focused on internet interconnectivity and has products that range from web conferencing software, to routers and internet security. Cisco was founded in 1984 and currently has 63,000 employees with 470 offices located in more than 165 countries. They invest over \$53 billion annually in research and currently hold over 8000 patents. Cisco's core competency is revolved around marketing internet-protocol based networking equipment. They are based out of San Jose and receive more than half of their sales in North America.

ii) Microsoft: was founded in 1975 with the primary focus is in the production and sale of computer software. Microsoft controls a dominant portion of the software market with notable products such as the Microsoft Office Suite, Microsoft Windows and SharePoint. Microsoft has also branched into other markets with the creations of the X-Box video game system and Zune digital media player. Microsoft breaks its corporation into eight business divisions: online services, servers and tools, business solutions, Microsoft office, interactive entertainment, windows phone, windows live, and internet explorer division. Microsoft has over 90,000 employees in 112 countries, and is headquartered in Redmond, Washington.

iii) Oracle: provides tools for managing business data and produces software that aims to reduce the complexity of information technology while improving productivity and efficiency. Oracle's primary source of revenue comes from its software licenses as opposed to software related service in-

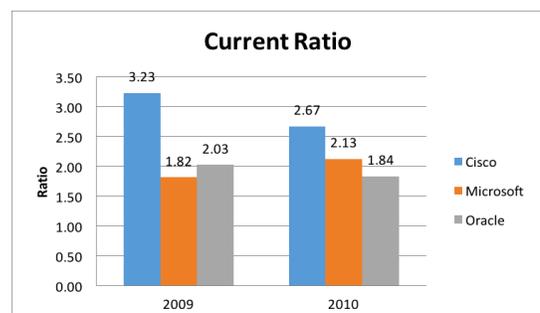
come that similar companies rely on. Popular products include PeopleSoft for asset management and the E-Business Suite for supply chain managing. Oracle was founded in 1977 and currently has 108,000 employees worldwide.

2 FINANCIAL STATEMENT ANALYSIS BY RATIO FOR SOFTWARE COMPANIES

The financial statements of Cisco, Microsoft and Oracle are analyzed using ratios. The following ten methods are used: current ratio, quick ratio, debt to total assets, debt to equity, inventory turnover, days of receivables outstanding, earning power, return on investment assets, return on common equity, and earnings per share.

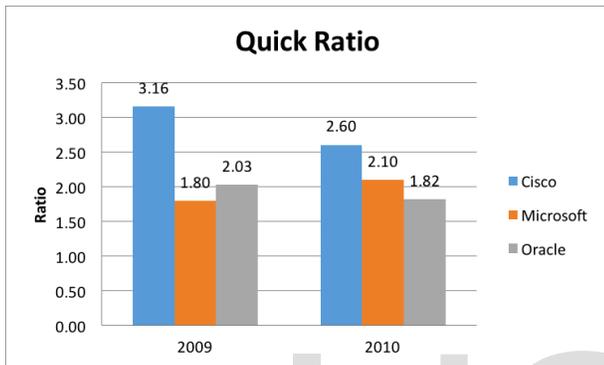
2.1 Liquidity Ratio

i) Current Ratio: is a reflection of the company's financial strength. It is the number of times a company's current assets exceed its current liabilities, which is an indication of the solvency of the business. It can be found by dividing the Current assets by current liabilities as shown in the graph below.



The graph shows that Cisco's current ratio decreased from 3.23 in 2009 to 2.67 in 2010. Oracle current ratio also decreased from 2.03 in 2009 to 1.83 in 2010. On the other hand, Microsoft increased its current ratio from 1.82 in 2009 to 2.12 in 2010. This tells the owners of Cisco, Microsoft and Oracle that current liabilities are covered by current assets 2.67, 1.83 and 2.12 times respectively.

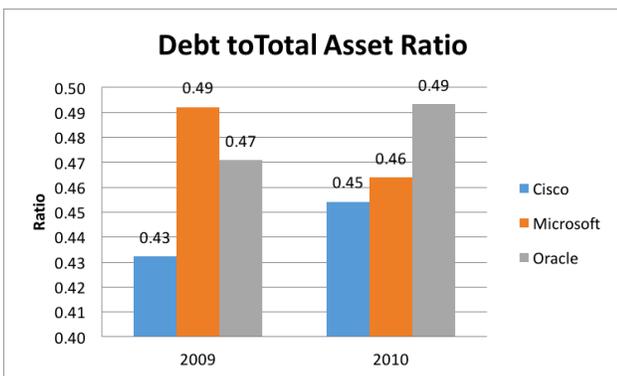
ii) Quick Ratio: It shows the firm's ability to meet the current liabilities with its most liquid assets. It can be found by subtracting the inventories from the Current assets and divided by current liabilities.



Cisco's quick ratio decreased from 3.16 in 2009 to 2.60 in 2010. Oracle current ratio also decreased from 2.03 in 2009 to 1.82 in 2010. Moreover, Microsoft increased its quick ratio from 1.80 in 2009 to 2.10 in 2010. In general, quick ratios between 0.5 and 1 are considered satisfactory.

2.2 Financial Leverage Debt Ratio

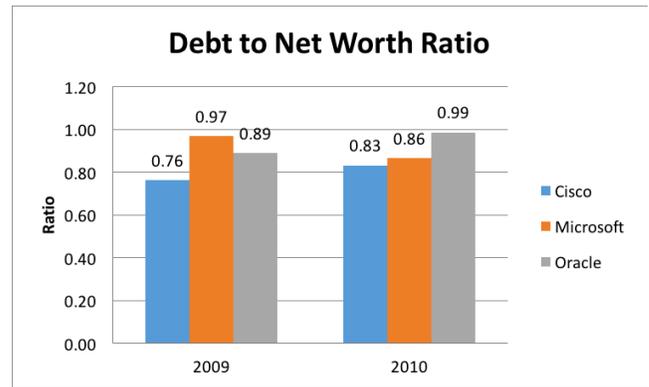
i) Debt to total asset ratio: derived by dividing a firm's total debt by its total assets and its used to measure a company's financial risk.



The graph shows that Cisco's ratio increased from 0.43 in 2009 to 0.45 in 2010. Oracle ratio also increased from 0.47 in 2009 to 0.49 in 2010. On the contrary, Microsoft decreased its ratio from 0.49 in 2009 to 0.46 in 2010.

ii) Debt-To-Equity: This ratio shows the extent to which the firm is financed by debt. In other word, it is a measure of a company's financial leverage. It can be found by dividing total

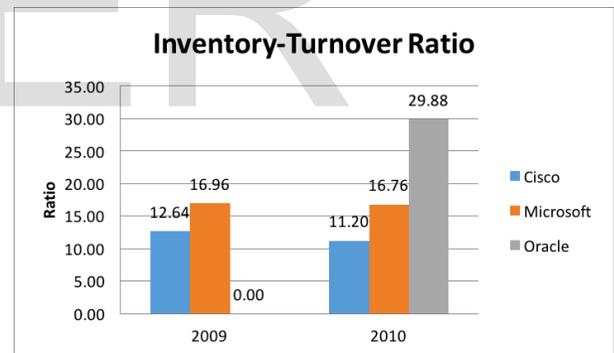
liabilities by stockholders' equity.



Cisco's ratio increased from 0.76 in 2009 to 0.83 in 2010. Oracle ratio also increased from 0.89 in 2009 to 0.99 in 2010. The increase shows that Oracle and Cisco are taking more debt to support other investments. However, Microsoft decreased its ratio from 0.97 in 2009 to 0.86 in 2010. All of these values are far below the industry average of 29.48. A lower debt to net worth ratio is more favorable than a higher one.

2.3 Activity Ratio

i) Inventory-turnover ratio: A ratio showing how many times a company's inventory is sold and replaced over a period.

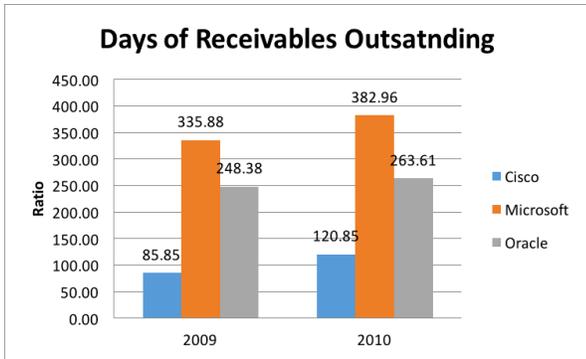


Cisco's ratio decreased from 12.64 in 2009 to 11.20 in 2010. Microsoft also decreased from 16.96 in 2009 to 16.76 in 2010. Oracle's ratio increased dramatically from 0 in 2009 to 29.88 in 2010.

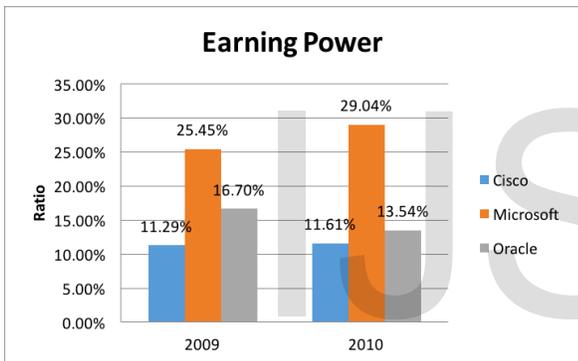
ii) Days of receivables outstanding (DSO): A measure of the average number of days that a company takes to collect revenue after a sale has been made. A low DSO number implies that it takes a company fewer days to collect its accounts receivable. A high DSO number shows that a company is selling its product to customers on credit and taking longer to collect money. This means the company may lose out on potential investments and the ability to make more sales.

The graph below shows that Cisco took longer to collect revenue in 2010 than 2009; Microsoft also took 382.9 days to collect

revenue in 2010 compared to 335.8 in 2009. Oracle did not differ from the others; it took Oracle 263.6 days to collect its revenue in 2010. Overall, Microsoft has taken the longest to collect cash from the sale of its products.



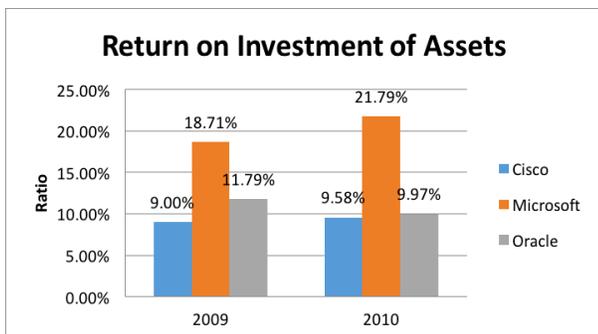
iii) Earning Power: A business's ability to generate profit from conducting its operations.



Cisco had a slight increase in its ability to generate profit in 2010, Microsoft also had an increase in 2010 from 25.45% to 29.04%. Oracle on the other hand, had a decrease in its ability to generate profit from 16.70% to 13.54%.

2.4 Profitability Ratio

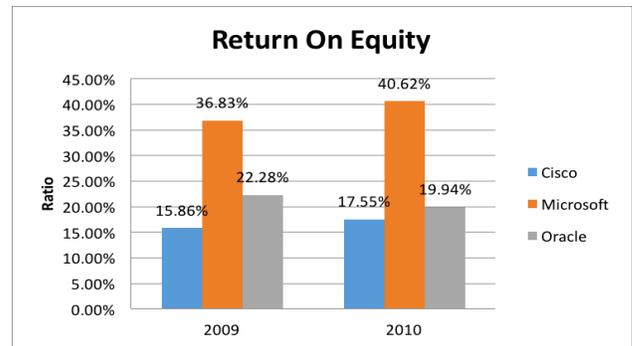
i) Return on Investment of Assets: An indicator of how profitable a company is relative to its total assets. Return on assets (ROA) gives an idea as to how efficient management is at using its assets to generate earnings



Cisco had an increase from 9% to 9.6% in 2010. Microsoft also

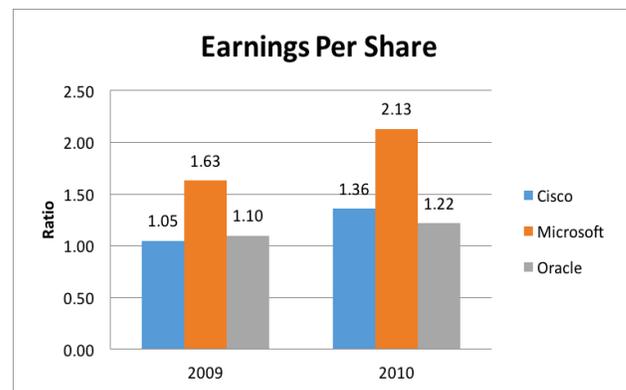
had an increase in 2010 from 18.71% to 21.79% and the highest ROA among the two other companies. Oracle on the other hand, had a decrease in its ROA from 11.79% to 9.97%.

ii) Return on Common Equity: The amount of net income returned as a percentage of shareholder's equity. Return on equity (ROE) measures a corporation's profitability by revealing how much profit a company generates with the money shareholders have invested.



Cisco had an increase in its ROE from 15.86% to 17.55% in 2010, Microsoft also had an increase in 2010 from 36.83% to 40.62%. Oracle on the other hand, had a decrease in its ROE from 22.28% to 19.94%. As with earning power and ROA, Microsoft has a significantly higher ROE than Cisco and Oracle. Industry average for ROE is 14.9%.

iii) Earnings Per Share: The portion of a company's profit allocated to each outstanding share of common stock. Earnings per share (EPS) serve as an indicator of the company's profitability.



The graph above shows that Cisco had an increase in its earning from 1.05 to 1.36 in 2010, Microsoft also had an increase in 2010 from 1.63 to 2.13. Oracle did not differ from the others with an increase from 1.10 to 1.22 in 2010. As with previous ratios, Microsoft has the highest EPS of almost double the other two companies. This corresponds with the earning power and ROE ratios previously discussed.

2.5 Cash Flows Analysis

All the software companies have a positive cash flow from operations. Microsoft has the highest cash flow in 2010 compared to the other two. Microsoft also had the largest increase compared to last year

	Cisco		Microsoft		Oracle	
	2009	2010	2009	2010	2009	2010
Net Operating Cash Flow	9.9B	10.17B	19.04B	24.07B	8.26B	8.68B

3 FINANCIAL COMPARISON BETWEEN SOFTWARE PRODUCERS & BIOPHARMACEUTICAL COMPANIES

Values in Billions (USD)	Cisco		Microsoft		Oracle	
	2009	2010	2009	2010	2009	2010
Gross Income	22.60	25.40	45.40	50.09	16.75	19.08
R&D	5.21	5.27	8.00	9.00	2.77	3.25
CGS	11.75	12.86	9.95	9.72	6.51	7.74
EPS	1.05	1.33	1.62	2.11	1.09	1.21
Total Assets	44.10	51.40	77.87	86.11	18.58	27
Accounts Receivable	3.90	5.82	11.19	13.01	4.99	6.32
Inventory	1.07	1.33	502M	552M	0.00	259M
Property/Equipment	4.04	3.94	7.45	7.63	1.92	276
Net Income	6.13	7.77	14.57	18.76	5.19	6.14
Depreciation/ Amortization	1.77	2.03	2.56	2.67	1.98	2.27
Net Asset from Acquisitions	(426M)	(5.20)	(868M)	(245M)	(1.16)	(5.61)

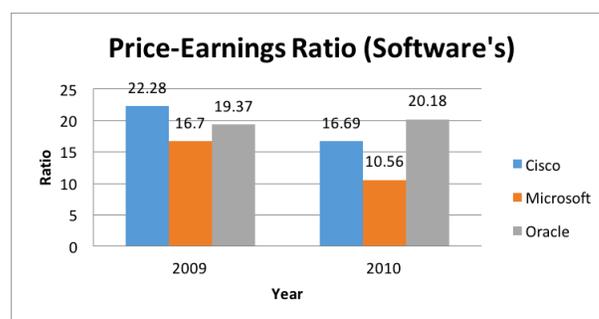
Financial statements within the software sector share numerous traits. Funds spent on research and development is between 15-25% of gross income for each company. Earnings-per-share tends to be in low digits between zero and three. Inventory is low for both Microsoft and Oracle. Cisco's relatively large inventory is potentially due to their production of numerous hardware items and participant in the technology sector.

All of the three companies have large property and equipment values potentially due to their large size and the resources needed to create products that can be marketed worldwide. All three companies spend considerable funds in the acquisition of new assets that include licenses, products and patents. Looking at acquisitions, smaller companies appear to have a focus on rapid growth. Oracle being the smallest according to gross income and net assets has the highest dollar amount spent on acquisitions. Microsoft has spent the least amount on acquiring new assets, which could be due to its large control of the software market.

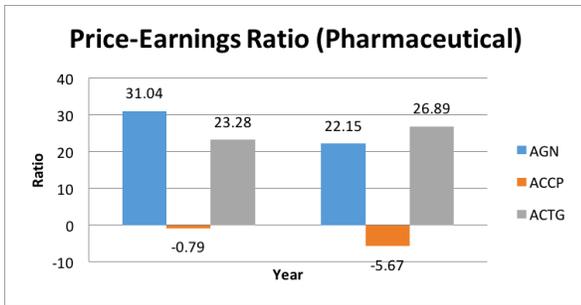
Money Values in Billions	Allergan		Access		Mylan	
	2009	2010	2009	2010	2009	2010
Gross Income	3.61	3.96	0.00	103K	2.07	2.22
R&D	706M	804M	2.6M	3.35M	272M	282M
CGS	897.2M	860M	0.00	378k	3.02	3.23
EPS	2.03	0.00	(1.63)	(0.60)	0.30	0.68
Total Assets	3.11	3.99	685k	8.12M	3.29	3.56
Accounts Receivable	576M	647M	36K	1.02M	1.23	1.16
Inventory	213M	229M	0.00	0.00	1.11	1.24
Property/Equipment	808M	800M	50k	32k	1.21	1.21
Net Income	621M	600k	(17.34M)	(7.54M)	247M	345M
Depreciation/ Amortization	262M	257M	259K	238K	401M	422M
Net Asset from Acquisitions	(12.8M)	(69.8M)	0.00	0.00	(236M)	(562M)
Fixed Asset Sales	0.00	400K	1k	0.00	49M	4.9M

The most notable financial differences between biopharmaceutical companies and software producers are the EPS and net income values. Biotech companies tend to frontload heavy monetary investments in hopes that they will develop a marketable product. This also may account for the low inventory levels. Earnings during the research and development stage of a product are expected to remain low. Both software producers and biopharmaceutical companies devote significant portions of their funds towards the development of new products that are critical to maintaining market share. Both sectors receive little income from the sale of fixed assets although biopharmaceutical companies had higher values in this category. One of the most noticeable differences between the two sectors is the apparent volatile nature of the biopharmaceutical sector. Changes in EPS and net income among biopharmaceutical companies are significantly greater than software producing companies. The largest net income change in the software sector was a 27 percent increase while two biopharmaceutical companies had income changes greater than 50 percent.

Price-Earnings Ratio: In general, a high P/E suggests that investors are expecting higher earnings growth in the future compared to companies with lower Price-Earnings.



In 2009, Cisco had the highest P/E which means, that investors were expecting a growth in the company financially. Microsoft had a decrease in its P/E in 2010 while Oracle maintained the same P/E with a slight increase since last year.



AGN had the highest P/E in 2009 but in 2010 ACTG became the highest P/E Company among the two other Pharmaceutical companies.



The high P/E indicates the trust of the investors in the company's financial growth. Therefore, we would recommend investing in ACTG since it has the highest P/E in 2010 compared to the other five companies

4 CONCLUSIONS

The potential profitability of each company is analyzed. The assigned risk is a subjective analysis based upon ROE, ROA, and other financial statistics.

Each software producing company saw solid growth between the reporting periods of 2009 and 2010. All three companies also have debt to net worth ratios far below the industry average and would be considered good investments. The quick ratios of the compared companies are all larger than 1.0 showing that they have enough assets to meet current liabilities. This also helps show the stability of the company.

Cisco is another solid choice for the investor who desires a company with more growth potential than Microsoft but with less risk than Oracle. While Cisco is less efficient than both Microsoft and Oracle with lower ROE and ROA, they also have the least amount of debt. With the highest quick ratio of the three companies, Cisco remains a safe investment with ample assets to cover its liabilities. This is a low risk investment option for the software and technology sector.

Microsoft: is a large company with one of the largest market shares in the software sector. They are also one of the most efficient, with more than double the ROE of the nearest compared company in their sector. Even with a high ROE, Mi-

crosoft was able to improve their ROE by four percent between 2009 and 2010. This company is recommended for the more risk adverse investor who desires stability. They spent the least amount on acquisitions, which represents smaller growth potential. Microsoft is considered a low risk investment.

Oracle: is a solidly established company within the software sector yet relatively small in comparison to corporations such as Microsoft and Cisco. This company has the largest growth potential of any of the software producers. The large amount of money spent on acquisitions shows that Oracle is focused on its growth and pushing for a larger market share. Their ROA and ROE are lower than both Microsoft and Cisco. Relative to these two companies, they appear to be the least efficient and therefore the riskiest option of the three. Oracle is an average to low risk investment. As for the Biopharmaceutical sector: None of the selected companies showed consistent earnings growth and are considered to be moderate to high risk investments.

Allergan: has considerable gross income of which it devotes a significant portion to research and development. It maintains a positive but decreasing net income through the observed period, making it a risky investment. However, Allergan has a rising gross income and increasing amount of money invested in research. Their inventories and assets have also increased potentially in preparation for future products. Increasing gross income, current small size, and sizeable amount of money invested in research and development shows Allergan to have high growth potential. Due to their current performance they are rated as an above average investment risk.

Access: is the least profitable of the biopharmaceuticals with a 2010 gross income that is less than the net income of comparable companies. They show improvement between 2009 and 2010 with a smaller deficit in net income and showing increase in assets and account receivable. Access is classified as a high-risk investment with questionable growth potential.

Mylan: is the most profitable of the biopharmaceuticals with a positive increasing net income and total assets between the two reported years. There was a significant increase in acquisitions in 2010 and a slight increase in funds devoted to research and development. EPS was low but increasing therefore, Mylan is classified as a moderate risk investment.

5 REFERENCES

1. Rees, B. (1995). Financial analysis. London: Prentice Hall
2. Maness, T. S., & Henderson, J. W. (1991). Financial analysis and forecasting: A software system. London: Prentice Hall.
3. Maness, T. S., & Henderson, J. W. (1991). Financial analysis and forecasting: A software system. London: Prentice Hall.
4. Keyes, J. (2000). Financial services information systems. Boca Raton: Auerbach.