

Date: 2014/4/11Analyst Name: Shengpeng Wu**CIF Stock Recommendation Report (Spring 2014)**Company Name and Ticker: EMC**Section (A) Investment Summary**

Recommendation Buy: Yes No		Target Price: 31.92	Stop-Loss Price: 22.61
Sector: XLK	Industry: Data Storage Devices	Market Cap (in Billions): 54739.72	# of Shrs. O/S (in Millions): 2020
Current Price: 26.6	52 WK Hi: 28.25	52 WK Low: 21.45	EBO Valuation: 21.09
Morningstar (MS) Fair Value Est.: 26	MS FV Uncertainty: Medium	MS Consider Buying: 18.2	MS Consider Selling: 35.1
EPS (TTM): 8.34	EPS (FY1): 1.94	EPS (FY2): 2.17	MS Star Rating: 3 Starts
Next Fiscal Yr. End "Year": 2104 "Month": December	Last Fiscal Qtr. End: Less Than 8 WK: Y N	If Less Than 8 WK, next Earnings Ann. Date: 4/24/2014	Analyst Consensus Recommendation: Hold
Forward P/E: 12.28	Mean LT Growth: 11.62%	PEG: 1.06	Beta: 1.26
% Inst. Ownership: 86.25%	Inst. Ownership- Net Buy: Y N	Short Interest Ratio: 3.1	Short as % of Float: 3.4%
<u>Ratio Analysis</u>	<u>Company</u>	<u>Industry</u>	<u>Sector</u>
P/E (TTM)	20.18	16.13	15.09
P/S (TTM)	2.36	1.16	3.79
P/B (MRQ)	2.45	2.36	2.45
P/CF (TTM)	11.50	10.08	18.26
Dividend Yield	1.48	2.11	1.2
Total Debt/Equity (MRQ)	32.1	26.94	14.12
Net Profit Margin (TTM)	13.32	5.72	12.68
ROA (TTM)	7.37	6.58	14.30
ROE (TTM)	12.94	13.88	19.43

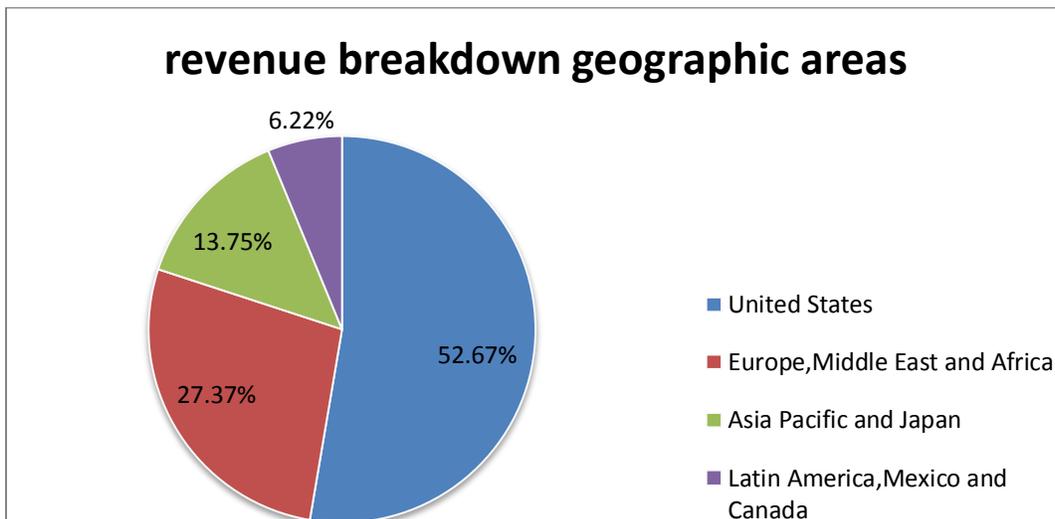
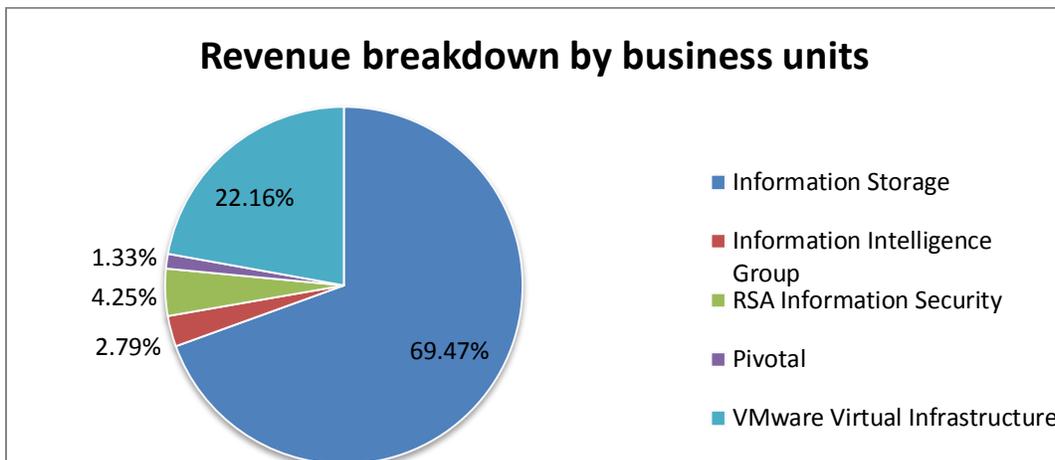
<p><u>Investment Thesis</u></p> <p><i>EMC with more than 11 billion in cash and equivalents, so it has more resource to pursue new technology through acquisition and internal development.</i></p> <p><i>EMC has been a leader in the information storage market for many years, therefore its massive installed based will give it a competitive advantage. Customers don't want to change vendor due to a sky high switching cost.</i></p> <p><i>EMC's information storage unites and VMware virtual infrastructure unites has been doing well in the past. They are consistently providing revenue for EMC. Its new unit Pivotal, focusing on a cloud computing is able to bring new fuel to grow EMC's revenue.</i></p>	<p><u>Summary</u> Provide brief summary of your analysis in each section that follows</p>
	<p><u>Company Profile:</u> EMC Corporation is a multi-international information technology company .It develops, delivers and supports information infrastructure and virtual infrastructure technologies, solutions and services (Yahoo).</p>
	<p><u>Fundamental Valuation:</u> The fundamental valuation model doesn't work well in terms of valuating technology companies.</p>
	<p><u>Relative Valuation:</u> The valuation doesn't show a significant buy signal. Compare to competitors EMC is not very attractive.</p>
	<p><u>Revenue and Earnings Estimates:</u> The consensus estimates on sales and earnings are down significantly from one year ago, but the number doesn't change too much in a 2 months period.</p>
	<p><u>Analyst Recommendations:</u> The number of recommending hold increase. While, the number of recommending outperform and buy decrease.</p>
	<p><u>Institutional Ownership:</u> 86.25% of stock are owned by institution. 2.75% of owner increase their position and 3.59% of owner decrease their position. The both owners holding over 4% of ownership increase their position.</p>
<p><u>Short Interest:</u> Recently, "Days to cover" decreases consistently, which shows that the sentiment turned more bullish. EMC's day to cover is on the intermediate level, which is higher than HPQ's 1.73 days but lot better than IBM's 4.44 days.</p>	
<p><u>Stock Price Chart:</u> EMC is doing better than its competitor and the broad market in the three months period. S&P500 outperform technology sector, IBM and EMC in one year period. EMC underperform the broad market in five year period.</p>	

Section (B) Company Profile

(B-1) Profile

Company profile and revenue breakdown

EMC Corporation is a multi-international information technology company found by Richard Egan and Roger Marino in 1979. It develops, delivers and supports information infrastructure and virtual infrastructure technologies, solutions and services (Yahoo). EMC's revenue comes from 5 major business units, Information Storage make up 69.47%, Information Intelligence Group makes up 2.79% , RSA Information Security makes up 4.25%, Pivotal and VMware Virtual Infrastructure contribute 1.33% and 22.16% respectively. EMC also has many business operations oversee, Europe, Middle East and Africa make up of 27.37% EMC' revenue, Asia Pacific and Japan make up 13.75%, and Latin America, Mexico and Canada contribute 6.22%.



Business model & strategy and competition

They manage their business as three federated businesses; each plays a vital role in the delivery of their mission. Under the federation model, each of the three businesses operates freely and independently to build its own ecosystem and offer customers the best technology solutions, free from vendor confinement. (10-k)

EMC is the leader in the information storage industry; SanDisk Corporation is its major competitor in this field. According to Gartner, EMC is the number one vendor in storage market with a 47.9% of market share in 2012. Cloud computing market is very competitive; it dominates by Amazon, Google, and Microsoft. EMC have been struggle in this market. According to Networkworld, EMC is the sixth biggest company in big data market in 2012, after IBM, HP, Teradata, Oracle and SAP. EMC has been doing well in big data market, its revenue increase about 100% in 2012 and increase 18.8% in 2013. Virtual infrastructure market is dominating by EMC, Citrix Systems Inc., Microsoft Corp., and Oracle Corp. EMC is a leader in this market because its subsidiary VMware.

Major risk factors and major restructure

EMC in a market where is characterized by rapid technological change, frequent new product introductions, evolving industry standards and changing needs of customers. So there is a possibility that EMC is unable to stay with the evolution wave. EMC's sales could be affected by the decreasing demand in the information technology market. Since EMC hold a large amount of VMware's stake, so EMC's revenue could be affected by VMware's performance. Also EMC could be affected by the economic conditions. Cyber security Breach is a huge threat for EMC, which is able to put EMC into a difficult financial situation and damage EMC's reputation. Foreign policies is another risk for EMC because about half of EMC's profit comes from outside of US. Changes in regulation are another factor that could affect EMC's performance.

In January 2014, EMC announced a restructuring plan which consists of a reduction in force impacting our Information Storage, RSA Information Security and Information Intelligence Group segments which will be substantially completed by the end of the first quarter of 2014 and fully completed by the end of 2014. (10-k)

(B-2) Revenue and Earnings History

Revenue			Earning/share		
Periods	2012	2013	Periods	2012	2013
March	5094.38	5387.38	March	0.2652	0.26426
June	5311.39	5614	June	0.29303	0.32153
September	5278.18	5539	September	0.28256	0.26975
December	6029.96	6682	December	0.39421	0.48248
Annual	21713.91	23222.38	Annual	1.235	1.33802

For the past two years, EMC's annual revenue and EPS increase steadily. The quarter revenue increases progressively in both 2012 and 2013, and it is very stable. The first, second and fourth quarter revenues in 2013 have a pretty big increase compared to revenues in the same period of 2012. The revenue growth rate in tend be raised sharply in fourth quarter, while the growth in the third quarter tends to be shrunk the last two years. Overall, the revenue in 2013 is bigger than 2012.

Earning is pretty much follow the revenue's moving pattern. But the growth rate of earnings in four quarter is huge in 2013 compare to 2012.

(B-3) Most Recent Quarterly Earnings Release

EMC Co.'s most recent earning lease was on February 25, 2014. Neither revenue nor earnings match the expected consensus estimate. The management doesn't have any claim about the miss because several of its larger peers in the technology industry experienced declining revenues; while they experienced growth during the year across each of the segments within our federation of businesses. The management didn't provide any guidance about their current quarter or their outlook for the year. But the observable pattern is that their information storage segment and information intelligence group segment will have a relative low grow rate compare to the other three segments. And pivotal segment and VMware virtual infrastructure segment will have a much high potential grow than information security segment. After the earning release, there is a 3.4% increase on the next three trading days. While during the same period, the S&P 500 and technology sector increase 0.35% and 0.44% respectively.

Risk-free rate:	<u>3.7%</u>
Beta:	<u>1.26</u>
Market risk premium:	<u>9.5%</u>

Output

Above normal growth period chosen: 8

We choose 8 years as above normal period because we believe that 11.62 is a reasonable number. The demand of information support service will keep increase in next the 8 years, as more and more business need data to support their operations. Though the demand of information storage segment will slow down, the demand from big data, information security and cloud computing segments will keep two–digital increase, as they are still new to the market. Their increase will offset the slowdown for information storage.

EBO valuation (Implied price from the spreadsheet): 21.09

The implied price in an 8 year outlook is 21.09, which is not in 52-week price range. We don't believe this estimation is accurate because the prerequisite is that EMC is able to keep the growth rate in 8 years. However, 8 years is long period which means there are lots of risk involved. So it is likely that EMC could do even better than 11.62%.

We believe that the fundamental valuation model doesn't work well in terms of valuating technology companies. Because the model is very sensitive to forecast EPS and long-term growth rate. However, most of technology companies' EPS is low, and the estimation of long-term growth rate can be extremely variable.

Sensitivity Analysis

EBO valuation would be (you can include more than one scenario in each of the following):

<u>20.10</u>	if changing above normal growth period to <u>2018</u>
<u>24.23</u>	if changing growth rate from mean (consensus) to the highest estimate
<u>15%</u>	
<u>17.36</u>	if changing growth rate from mean (consensus) to the lowest estimate
<u>7%</u>	
<u>27.95</u>	if changing discount rate to <u>9%</u>
<u>21.09</u>	if changing target ROE to <u>40%</u>

Section (D) Relative Valuation

EMC													
Mean FY2													
Earnings Estimate		Forward	Mean LT	PEG	P/B	ROE	Value	P/S	P/CF				
Ticker	Name	Mkt Cap	Current Price	(next fiscal year)	P/E	Growth Rate	(MRQ)	5 yr ave	Ratio	TTM	TTM	TTM	TTM
1	WDC	Western Digital Corp	\$ 20,831.18	\$ 88.21	\$ 8.61	10.25	3.65%	2.81	2.44	19.62%	0.12	1.36	9.09
2	STX	Seagate Technology PLC	\$ 17,736.34	\$ 53.39	\$ 5.66	9.43	12.50%	0.75	7.10	25.88%	0.27	1.27	7.04
3	NTAP	NetApp, Inc.	\$ 12,071.67	\$ 35.97	\$ 2.99	12.03	13.32%	0.90	3.10	14.46%	0.21	1.89	12.64
4	SNDK	SanDisk Corp	\$ 17,068.66	\$ 73.65	\$ 6.07	12.13	12.50%	0.97	2.45	14.24%	0.17	2.77	12.95
	EMC	EMC Corp.	\$ 54,739.72	\$ 26.65	\$ 2.17	12.28	11.62%	1.06	2.45	11.98%	0.20	2.36	11.5
Implied Price based on:					P/E	PEG	P/B	Value	P/S	P/CF			
1	WDC	Western Digital Corp				\$22.23		\$70.78	\$26.54		\$16.21	\$15.36	\$21.07
2	STX	Seagate Technology PLC				\$20.47		\$19.03	\$77.23		\$35.75	\$14.34	\$16.31
3	NTAP	NetApp, Inc.				\$26.11		\$22.77	\$33.72		\$27.94	\$21.34	\$29.29
4	SNDK	SanDisk Corp				\$26.33		\$24.48	\$26.65		\$22.42	\$31.28	\$30.01
		High				\$26.33		\$70.78	\$77.23		\$35.75	\$31.28	\$30.01
		Low				\$20.47		\$19.03	\$26.54		\$16.21	\$14.34	\$16.31
		Median				\$24.17		\$23.62	\$30.19		\$25.18	\$18.35	\$25.18

The four competitors are Western Digital Corp, Seagate Technology PLC, NetApp, Inc., and SanDisk Corp. Like EMC Corp, they are all from Data Storage industry. EMC has the largest market capital among these five companies, following by Western Digital Corp. NetApp, Inc. is the smallest competitor in term of market capital.

EMC Corp has the highest Forward PE ratio of 12.28., while Seagate Technology PLC has the lowest ratio of 9.43. Among these five companies, EMC's LT growth rate is on the intermediate level. Compare to Seagate Technology Inc. EMC's PEG is very outstanding. The range of P/B rate is between 2.44 to 3.1, so EMC has an average performance on this ratio. EMC's ROE is 11.98%, which is the lowest figure among its competitors. EMC's P/S ratio is the second highest figure within the five companies. EMC's P/CF ratio indicates that it has a pretty good liquidity.

Based on the forward P/E ratio, EMC is overpriced. It is 32 cents more expensive than SanDisk Corp and about 4 dollar more expensive than Seagate Technology PLC.

Base on the PEG, EMC's price is on the acceptable level. It is lower than Western Digital Corp but higher than other competitors.

Based on the P/S ratio and P/CF ratio, EMC'S price is on the intermediate level.

Overall, the relative valuation doesn't show a buy signal, but this is because the competitors I pick are not very appropriate. They are all from data storage industry; while, EMC is not simply

a data storage company, it also has big data segment, cloud computing segment, and information security segment. Therefore, this valuation mostly reflect EMC's information storage segment.

Section (E) Revenue and Earnings Estimates

(E-1) Historical Surprises

HISTORICAL SURPRISES				
Estimates vs Actual	Estimate	Actual	Difference	Surprise %
SALES (in millions)				
Quarter Ending 十二月-13	6,633.07	6,682.00	48.93	0.74
Quarter Ending 九月-13	5,794.01	5,539.00	255.01	4.4
Quarter Ending 六月-13	5,602.66	5,614.00	11.34	0.2
Quarter Ending 三月-13	5,420.48	5,387.38	33.1	0.61
Quarter Ending 十二月-12	5,975.57	6,029.96	54.39	0.91
Earnings (per share)				
Quarter Ending 十二月-13	0.59	0.6	0.01	1.64
Quarter Ending 九月-13	0.45	0.4	0.06	12.42
Quarter Ending 六月-13	0.42	0.42	0	0.05
Quarter Ending 三月-13	0.4	0.39	0.01	1.27
Quarter Ending 十二月-12	0.52	0.54	0.02	3.21
<i>Sales and Profit Figures in Million</i>				
<i>Earnings and Dividend Figures in Dollar</i>				

The company has a pattern of “surprising” the market; it has positive surprise on sales in the second and fourth quarter and negative surprise in first and third quarter. The figure of positive surprise is around 0.65%, for the negative surprise is variable. The pattern of earnings surprise is parallel with the sales surprise. Overall, the negative surprise is bigger than positive surprise.

The first negative surprise was on March 3rd 2013, there was no impact on the stock price at that day, but it decreased 1.13% in the next two trading days. The first positive surprise was on August 2nd, though the company’s revenue and earnings beat the estimate, the stock decrease 1.7% when S&P500 has a positive return. The second negative surprise was on November 7th 2013, the stock price downed 1.33% which was the same figure as S&P500. The second positive surprise was on February 25th 2014, the stock didn’t change at all, while S&P500 downed 0.13%. According to stock price’s reaction to these four surprises, the investors are not very sensitive to the surprise.

(E-2) Consensus Estimates Analysis

CONSENSUS ESTIMATES ANALYSIS						
	# of Estimates	Mean	High	Low	1 Year Ago	
SALES (in millions)						
Quarter Ending Jun-14	35	5,874.70	6,116.00	5,723.50	6,160.04	
Quarter Ending Sep-14	35	6,003.87	6,201.00	5,883.28	6,285.22	
Year Ending Dec-14	38	24,509.20	24,740.00	24,237.00	25,403.10	
Year Ending Dec-15	34	26,212.50	27,222.00	25,545.00	27,746.00	
Earnings (per share)						
Quarter Ending Jun-14	38	0.44	0.48	0.41	0.48	
Quarter Ending Sep-14	38	0.47	0.52	0.42	0.51	
Year Ending Dec-14	41	1.94	2.13	1.89	2.07	
Year Ending Dec-15	37	2.17	2.38	2.06	2.33	
LT Growth Rate (%)	6	11.62	15	7	13.26	
SALES (in millions)						
		% different of optimistic estimate		% different of pessimistic estimate		
Quarter Ending Jun-14		4.11%		-2.57%		
Quarter Ending Sep-14		3.28%		-2.01%		
Year Ending Dec-14		0.94%		-1.11%		
Year Ending Dec-15		3.85%		-2.55%		
Earnings (per share)						
Quarter Ending Jun-14		9.09%		-6.82%		
Quarter Ending Sep-14		10.64%		-10.64%		
Year Ending Dec-14		9.79%		-2.58%		
Year Ending Dec-15		9.68%		-5.07%		

For sales, the divergent spread is more notable for the current quarter and less notable for out-quarter, while it goes opposite way on the year-ending date. For earnings, the divergent spread is more notable for out-quarter and less notable for current. The divergent spread is more notable on out-year compare to current year on earnings. The number of analysts providing long term growth rate is only 6, which is small number compare to 35-41 of analysts on the sales and earnings estimates.

(E-3) Consensus Estimates Trend

CONSENSUS ESTIMATES TREND

Sales and Profit Figures in US Dollar (USD)

Earnings and Dividend Figures in US Dollar (USD)

	Current	1 Week Ago	1 Month Ago	2 Month Ago	1 Year Ago
SALES (in millions)					
Quarter Ending Jun-14	5,874.70	5,874.71	5,877.93	5,877.08	6,160.04
Quarter Ending Sep-14	6,003.87	6,003.87	6,001.33	6,000.27	6,285.22
Year Ending Dec-14	24,509.20	24,509.20	24,507.20	24,504.50	25,403.10
Year Ending Dec-15	26,212.50	26,212.50	26,207.20	26,202.70	27,746.00
Earnings (per share)					
Quarter Ending Jun-14	0.44	0.44	0.44	0.44	0.48
Quarter Ending Sep-14	0.47	0.47	0.47	0.47	0.51
Quarter Ending Dec-14	1.94	1.94	1.94	1.95	2.07
Quarter Ending Dec-15	2.17	2.17	2.17	2.17	2.33

The consensus estimates on sales and earnings are down significantly compared to one year ago, but the number doesn't change too much in a 2 months period. The trends of earnings and sales estimate share the same pattern in both near-term and out-term. The estimates show that it is unlikely that EMC's revenues and earnings are going to have a surprise in the next earnings report.

(E-4) Estimates Revisions Summary

ESTIMATES REVISIONS SUMMARY

Number Of Revisions:	Last Week		Last 4 Weeks	
	Up	Down	Up	Down
Revenue				
Quarter Ending Jun-14	0	1	0	1
Quarter Ending Sep-14	0	0	0	0
Year Ending Dec-14	1	0	1	0
Year Ending Dec-15	1	0	1	0
Earnings				
Quarter Ending Jun-14	0	1	0	1
Quarter Ending Sep-14	0	1	0	1
Year Ending Dec-14	0	1	0	2
Year Ending Dec-15	0	0	0	0

The number of revisions on sales doesn't change in the last three weeks. While for earning the revenues almost follow earnings revision pattern, except for the data on year ending Dec-14 where the number of down revision decrease from 2 to 1. Overall, the revision summary indicates that EMC revenue and sales are predictable, and the decrease on down revision shows that analysts are have a positive view on EMC's fourth quarter earnings.

(E-5) Consensus Earnings Revisions

Revision Date	Revision Type	Revision Up/Down	Current	Previous	% Change	# of Analysts Reporting
March 3	Down	0/2	0.350	0.351	0.28	37

The company's last earning release was on February 25, 2014, the next earning release date will be on April 24 2014. There is only one revision within the last month appear on CNBC and it is

on March 3rd. Therefore, there is not trend of clustered upgrades and downgrades. The stock price have a slightly decrease on March 3, but went up 3.7% in the next 5 trading days.

Section (F) Analysts' Recommendations

(F-1) Reuters Most Recent Three Months Analysts Recommendations

ANALYST RECOMMENDATIONS AND REVISIONS

1-5 Linear Scale	Current	1 Month Ago	2 Month Ago	3 Month Ago
(1) BUY	16	16	17	18
(2) OUTPERFORM	15	14	15	17
(3) HOLD	10	10	10	7
(4) UNDERPERFORM	0	0	0	0
(5) SELL	0	0	0	0
No Opinion	0	0	0	0
Mean Rating	1.85	1.85	1.83	1.74

Over the past three months EMC is becoming less bullish. The number of analysts recommending buy and outperform is decreasing, while for hold the number is increasing, from 7 analysts 3 months ago to 10 analysts now. The most recent opinion trend is from buy to hold.

The analysts opinion rating on Morningstar is 4.5 (Buy=5, sell=0). This is a positive rating because it is between buy and outperform. 9 out of 12 analysts recommend buy and the rest of 3 recommend a hold. This is in line with the analysts from Reuters. This indicates that EMC is worth to hold, and we should wait for a good time to buy.

The last reported earnings were on February 25th, 2014 and the next earnings release date will be on April 24, 2014.

There are no upgrades or downgrades to report.

Section (G) Institutional Ownership

EMC				
Ownership Activity	# of Holders	% Beg. Holders	Shares	% Shares
Shares Outstanding			2,027,408,155	100.00%
# of Holders/Total Shares Held/% Shares	1,558	99.81%	1,723,905,154	85.03%
# New Positions	5	0.32%		
# Closed Positions	8	0.51%		
# Increased Positions	43	2.75%		
# Decreased Positions	56	3.59%		
Beg. Total Inst. Positions	1,561	100.00%	1,721,921,837	84.93%
# Net Buyers/3 Mo. Net Chg	-13	43.43%	1,983,317	0.10%
Ownership Information	% Outstanding			
% Institutional Ownership	86.25%			
Top 10 Institutions % Ownership	25.19%			
Mutual Fund % Ownership	39.23%			
5%/Insider Ownership	0.86%			
Float %	100.00%			
> 5% Ownership				
Holder Name	% Change	% Outstanding	Report Date	
Vanguard Group, Inc.	0.37%	4.98%	12-31-13	
State Street Corp	4.95%	4.37%	12-31-13	

The section one shows that institutions ownership has a slightly decrease on net basis. 2.75% of owner increase their position and 3.59% of owner decrease their position. The both owners holding over 4% of ownership increase their position. 86.25% of EMC stock is held by institution. According to the data on MSN money, there are 3 out of 15 institutions decrease their position, while the others increase their holding. This shows the stock has sizable institution support. The major holder Vanguard Group, Inc. is a mutual fund.

Section (H) Short Interest

(H-1) Short Interest Data

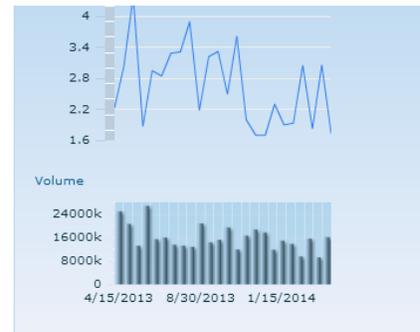
EMC Corporation Short Interest Rate

Settlement Date	Short Interest	Avg Daily Share Volume	Days To Cover
3/31/2014	53,659,341	20,457,937	2.622911
3/14/2014	68,120,960	22,860,556	2.979847
2/28/2014	117,916,987	20,692,449	5.698552
2/14/2014	150,651,166	24,441,033	6.163862
1/31/2014	138,811,206	30,420,207	4.563125
1/15/2014	143,582,377	21,112,376	6.800863
12/31/2013	117,328,111	26,089,776	4.497092
12/13/2013	91,079,786	22,433,649	4.059963
11/29/2013	92,406,286	16,864,779	5.479247
11/15/2013	88,713,988	20,458,452	4.336300
10/31/2013	77,467,411	29,861,287	2.594242
10/15/2013	66,078,814	20,733,894	3.186995
9/30/2013	64,586,106	17,159,711	3.763822
9/13/2013	66,085,693	12,881,474	5.130290
8/30/2013	63,597,891	11,625,313	5.470639
8/15/2013	67,676,211	13,460,031	5.027939
7/31/2013	63,459,374	18,078,501	3.510212
7/15/2013	67,413,582	16,624,640	4.055040
6/28/2013	68,432,931	23,138,955	2.957477
6/14/2013	67,625,731	22,207,393	3.045190
5/31/2013	63,946,855	25,104,039	2.547274
5/15/2013	61,097,064	21,495,768	2.842283
4/30/2013	54,235,242	25,923,977	2.092088
4/15/2013	51,429,502	21,690,550	2.371056



Hewlett-Packard Company Short Interest Rate

Date	Interest	Volume	Cover
3/31/2014	27,868,942	16,099,160	1.731081
3/14/2014	28,194,915	9,199,996	3.064666
2/28/2014	28,343,981	15,551,192	1.822624
2/14/2014	28,908,409	9,450,724	3.058857
1/31/2014	26,661,629	13,794,891	1.932718
1/15/2014	28,344,323	14,892,819	1.903221
12/31/2013	27,117,087	11,765,827	2.304733
12/13/2013	30,103,653	17,680,030	1.702692
11/29/2013	31,701,541	18,677,521	1.697310
11/15/2013	33,195,075	16,560,326	2.004494
10/31/2013	43,135,414	11,915,110	3.620228
10/15/2013	48,404,283	19,425,165	2.491834
9/30/2013	50,490,744	15,190,459	3.323846
9/13/2013	46,216,858	14,337,515	3.223492
8/30/2013	45,341,471	20,813,210	2.178495
8/15/2013	49,751,950	12,779,663	3.893056
7/31/2013	43,720,140	13,200,738	3.311947
7/15/2013	44,229,660	13,450,494	3.288330
6/28/2013	45,514,153	15,987,229	2.846907
6/14/2013	45,383,034	15,386,239	2.949586
5/31/2013	50,037,034	26,786,749	1.867977
5/15/2013	58,030,918	13,229,152	4.386594
4/30/2013	62,251,002	20,554,570	3.028572
4/15/2013	55,384,217	24,931,303	2.221473



International Business Machines Corporation Short Interest

Settlement Date	Short Interest	Avg Daily Share Volume	Days To Cover
3/31/2014	30,182,866	6,802,247	4.437191
3/14/2014	31,145,133	4,417,007	7.051185
2/28/2014	29,287,377	4,501,081	6.506743
2/14/2014	26,873,843	4,660,292	5.766558
1/31/2014	26,626,961	6,986,233	3.811347
1/15/2014	27,981,975	4,680,071	5.978964
12/31/2013	25,928,233	4,665,893	5.556971
12/13/2013	27,907,258	4,669,107	5.977001
11/29/2013	27,458,797	5,113,723	5.369629
11/15/2013	23,086,284	4,998,519	4.618625
10/31/2013	20,082,404	7,644,207	2.627140
10/15/2013	18,922,870	3,570,228	5.300185
9/30/2013	18,499,150	3,768,253	4.909211
9/13/2013	18,566,807	3,339,829	5.559209
8/30/2013	17,773,597	3,005,399	5.913889
8/15/2013	17,801,417	3,640,419	4.889936
7/31/2013	17,247,628	4,109,727	4.196782
7/15/2013	18,251,421	3,878,491	4.705805
6/28/2013	17,820,174	4,788,047	3.721804
6/14/2013	17,229,619	3,235,209	5.325659
5/31/2013	18,364,963	4,297,606	4.273301
5/15/2013	18,237,086	3,947,872	4.619472
4/30/2013	16,721,424	6,631,232	2.521616
4/15/2013	16,628,367	3,249,193	5.117691



(H-2) Short Interest Data

EMC Corporation

Avg Vol (3 month)	Avg Vol (10 day)	Shares Outstanding	Float
23,236,900	16,951,100	2.03 Billion	2.02 Billion
Shares Short (Mar 14, 2014)	Short Ratio (Mar 14, 2014)	Short % of Float (Mar 14, 2014)	Shares Short (2 weeks prior)
68.12 Million	3.10	3.40%	117.92 Million

Hewlett-Packard Company

Avg Vol (3 month)	Avg Vol (10 day)	Shares Outstanding	Float
12,368,900	15,469,600	1.90 Billion	1.89 Billion
Shares Short (Mar 14, 2014)	Short Ratio (Mar 14, 2014)	Short % of Float (Mar 14, 2014)	Shares Short (2 weeks prior)
28.19 Million	2.3	1.50%	28.34 Million

International Business Machines Corporation

Avg Vol (3 month)	Avg Vol (10 day)	Shares Outstanding	Float
5,551,890	5,780,760	1.04 Billion	1.04 Billion
Shares Short (Mar 14, 2014)	Short Ratio (Mar 14, 2014)	Short % of Float (Mar 14, 2014)	Shares Short (2 weeks prior)
31.15 Million	7	3.00%	29.29 Million

The last reported earnings were on February 25th, 2014 and the next earning release date will be on April 24 2014.

Base on the short interest statistics, the market sentiment was up and down. According to the chart, the “Days to cover” is decreasing since 2/14/2014 and achieves the bottom about 2.62 recently. After that it started to increase and it reached the peak on 08/30/2014. And then decrease to the bottom at 2.59 on 10/31/2013. Overall, the sentiment is more bearish over the last year. However, recently, “Days to cover” decrease consistently shows that the sentiment turned more bullish over the last year.

Bothe short interest and daily share volume decreased after the earnings report release. After the earnings release, there is a 3.4% increase on the next three trading days. While during the same period, the S&P 500 and technology sector increase 0.35% and 0.44% respectively.

Compare to EMC’s competitors, EMC’s day to cover is on the intermediate level, which is higher than HPQ’s 1.73 days but lot better than IBM’s 4.44 days.

Section (I) Stock Charts

(I-1) A three months price chart



(I-2) A one year price chart



(I-3) A five year price chart



Overall, EMC is doing better than its competitor and the broad market in the three months period. During this period, S&P 500 increased 1.85%, technology sector increased 0.79%, IBM increased 4.5% and EMC increased 6.64%. The notable decrease near the end of January is because the consumer confidence declined. Another notable dip in March is because the China economy slow down and the Ukrainian crisis.

The one year price shows that technology and S&P500 shared a same upward trend pattern. IBM underperforms the broad market and EMC. EMC was doing well in the third quarter of 2013 and started to dip during the fourth quarter. Overall, S&P500 outperform technology sector, IBM and EMC in one year period. Technology sector and EMC has a similar return, and IBM has a negative return.

According to the five year chart, EMC outperformed the broad market and IBM since the third quarter of 2009. And its return reached the peak about May 2011. EMC has a huge increase around 2011 is because it outstanding earning report. After that, there is a big dip in August 2011 this is due to the debt ceiling issue. S&P's five year return is 118.57%, which is better than technology sector's 112.79% and EMC's 103.77%.

(I-4) Technical Indicators



Currently the short-term moving average is above the long-term moving average. The 10-day moving average crossed 50-day moving average 3 times in the past 6 months. It has a trend to cross the 50-day moving average, which means is likely the stock price will keep decreasing. While the RSI tells a different story, it shows that the stock price is very likely to become

undervalued. The 50-day moving average crossed the 200-day moving average a couple time in the past 2 years. As we can see, these two lines is not going to cross at least in the short-term, this means the current price has potential to go up. The 2 years' IRS shows that the stock is likely to become undervalued.

WORK CITED

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