



# BUSI 4502 A: Portfolio Analysis

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## Contents

Introduction.....	2
Strategy Overview.....	2
Expectations.....	2
Portfolio Return .....	4
Total Return .....	4
Portfolio Beta.....	4
Expected Return .....	4
Attribution Analysis .....	5
Portfolio D.....	5
Portfolio I .....	6
Margin Position.....	6
Initial Portfolio .....	6
Appendices .....	7
Appendix A: SPY vs. Portfolio.....	7
Appendix B: Portfolio Holdings as of March 28 <sup>th</sup> , 2014.....	7
Appendix C: Portfolio D&I Transactions .....	8
Appendix D: Initial Portfolio Transactions .....	10
Appendix E: Holding Comparison Chart.....	11
Works Cited.....	12

## Introduction

### Philosophy

We selected value investing as the underlying philosophy for our portfolio. Our aim is to identify stocks that are underpriced relative to its peers. We do this by weighting the cost of owning a company to its value.

The company's price will be measured by earnings multiples where applicable (mainly P/E ratio), as well as sales multiple where appropriate. The value of the company will be assessed based on its balance sheet condition and historical income statement performance, relative to its peers. We may consider buying a company for any combination of the following reasons:

- \* The cost of owning the company is lower than that of other peers
- \* The company exhibits high growth relative to its peers
- \* The company exhibits a robust financial position relative to its peers
- \* The company exhibits a robust operation.

Given our client is our grandma; our portfolio aims to reduce the risk while generating returns from selecting underpriced stocks.

## Strategy Overview

As our portfolio aims to reduce risk while allowing room for potential gains, we start with the market portfolio and overweight those sectors that meet our purpose, by holding sector ETFs. From there, we identify firms within these sectors that we assess to be underpriced and further allocate our asset to them. We will also hold a small position in undervalued companies in other sectors to give us more exposure to potential opportunities in other sectors.

## Expectations

As mentioned throughout our many past reports, outlining our rationale for selecting certain stocks and industries, our goal was to create a "safe" portfolio. As such, we selected value investing as the underlying philosophy for our portfolio. Our aim was to identify stocks that are underpriced relative to its peers. We did this by weighting the cost of owning a company to its value. We did this for both portfolio D (diversified) and the I portfolio (industry portfolio). We used a variety of different metrics in order to identify stocks that we believed to be underpriced, relative to the industry. These metrics were discussed in the previous reports, however, as a quick refresher, some of the variables we examined were: size, income growth, debt, and several financial ratios. In addition to selecting value stocks, we also selected stocks based on their correlation with others in the portfolio. We chose stocks with a low correlation against the other stocks, in order to further reduce the risk of

the portfolios. As such, because we used stocks that were not highly correlated, that were not growth stocks, and whose primary purpose was to create a portfolio with the lowest possible risk, we did not expect excessively high returns, nor did we expect to outperform the market by a wide margin.

Our portfolio return was 3.71%, which placed us firmly at third place within the class, and graphing the portfolio, it is clear that we outperformed the market; not by a small margin, but by a wide one. In fact, from the last few days of trading, March 25th to March 28th, the market took a huge nosedive, and it was here where we earned our greatest growth in returns. One of our original expectations was that whilst we did not expect large draw downs (which we avoided), we also did not expect huge jumps in our portfolio return, as evidenced by this last three day period of the cycle. Of course, here the market, unexpectedly, took a large nosedive, and not only were we insulated from it, we gained from it. In regards to our Sharpe ratio, we were fourth, and we were first in terms of alpha generated (when beta is taken into consideration). As such, it is clear that our major expectation for our portfolio was fulfilled; we created the least risky portfolio possible, as evidenced by our beta of 0.78. This beta, less than 1, indicates that we created a portfolio, for Grandma, that was substantially less risky than the market. Here, our results were in line with our expectations; everything we did was to provide low risk, and in the end, we succeeded in that. However, what we did not expect was to create a portfolio that not only gave us a return of 3.71%, but also the highest risk adjusted alpha in the universe. This was not something we expected when we created our Grandmother's portfolio. Of course, we are quite happy at the result, but it was indeed a surprise. Only two of our stocks posted negative returns, and the rest posted positive ones; with CVS Caremark earning Grandma an amazing return of 11.82%.

Overall, our portfolio greatly exceeded our expectations. Providing an alpha of 3.17%, coupled with a beta of only 0.78, we can safely say that this portfolio not only gave Grandma low risk, but some extra cash for her retirement. This return does not even factor in the dividends paid, which Grandma will also enjoy a steady stream of. We believe that, as evidenced by our returns and beta, we have established a solid portfolio that our Grandmother can leave alone for a long period of time, whilst simultaneously enjoying far higher returns than we originally expected. **[See Appendix A]**

## Portfolio Return

### Total Return

As per session ended March 28, 2014, our portfolio return is 3.71% on \$1,000,000 CAD. This leaves us with a portfolio value of \$1,037,081.81 CAD and a market value of \$1,044,330.08.

### Portfolio Beta

The beta of the portfolio is stated at 0.78, meaning that the portfolio volatility is less than that of the market portfolio.

### Expected Return

The expected return for the portfolio can be determined through the capital asset pricing model (CAPM) through the following equation:

$$E(r) = R_f + \beta (E(r_m) - R_f)$$

Where:

$R_f$  = Risk free return (Set at 3% as per game settings)

$E(r_m)$  = Expected return on market (Goldman Sachs estimates the return on the S&P 500 to be 9% (Kollmeyer, 2013) in 2014.

Thus we can calculate the Expected return of the portfolio to be:

$$E(r) = 3 + 0.78 (9 - 3)$$

$$E(r) = 7.68\%$$

Converted monthly would be:

$$1.0768 = (1 + r)^{12/6}$$

$$r = 1.24\%$$

Using information from stocktrak:

If we calculate using actual values, the market return during the trading period Jan 20<sup>th</sup> 2014 through to March 28<sup>th</sup> 2014 is: 0.51%

$$E(r) = 3 + 0.78 (0.51 - 3)$$

$$E(r) = 1.0578\%$$

## Attribution Analysis

### Portfolio D

Our attribution for the performance of portfolio D is as below:

Benchmark	Total Return	Attribution Factor	Performance Attribution
S&P 500	0.058352		
Cap-weighted Benchmark	0.075848	Security Selection	0.0174953
Buy & Hold Bench Mark	0.065334	Asset Allocation	-0.0105134
Portfolio D (with hypothetical cash holding)	0.085234	Interaction	0.0198996
Actual portfolio D change in value	-0.44889785	Reallocation to Portfolio I	-0.534131748
		Total value change	-0.44889785

We attribute the change in value of our portfolio D to 4 factors:

- Security Selection: The selection of security from the market. We have a top-down approach, starting from selecting the sectors that we deem as suitable for our client's purpose and gain exposure to these industries through various sector ETFs. Within each sector, we determine undervalued securities through a comparative analysis process and overweight into such.
- Asset Allocation: The decision on the allocation of our client's money in each individual security. We do this by determine the risk and return measures of each security within the past 12-month period, starting with an allocation that would result in the minimum risk level as measured by standard deviation of return and adjust according to reflect the risk level we perceive as appropriate for our client.
- Interaction: As our securities approach their appropriate valuation, we gradually liquidate each position. Although in reality, the proceeds from these liquidations were reallocated to portfolio I, for the purpose of performance attribution, we have considered the hypothetical situation where these proceeds were held on as cash.
- Reallocation to Portfolio I: to accurately reflect and explain the performance of our portfolio D, we adjusted the hypothetical performance to show the actual change in value of Portfolio D.

## Portfolio I

Our attribution for the performance of portfolio I is as below:

Benchmark	Total Return	Attribution Factor	Performance Attribution
S&P 500	0.0157867		
Vanguard US Energy ETF	0.0417952	Industry Selection	0.02600842
Cap-weighted Benchmark	0.0338811	Security Selection	-0.0079141
Actual Portfolio	0.0312755	Asset Allocation	-0.0026056
		Total Return	0.0312755

Performance attribution for portfolio I was done in the same manner. One more factor is considered here as compared to portfolio D: Industry selection. This reflects the premium we were able to generate through the selection of the industry. Since there is no active management involved with this portfolio, no attribution is made for interaction. **[See Appendix A]**

## Margin Position

Our client has required us to complete one margin trade before the reporting season. However, considering the purpose of our portfolio, we determined that such position would be too risky and is inappropriate for our portfolio. However, we set out to complete this requirement for Grandma. Our margin trade was designed to have next to no impact on our portfolio regardless of the price movements. As we were not allowed to take short positions, we needed to hedge 100% of our margin trade through a long position. This was achievable through a long position in two assets with a correlation coefficient of -1. The two assets we have determined to fit these criteria are IVV, an S&P 500 ETF and SH, an S&P 500 short ETF. The net effect of these positions was a mere loss of 6 basis points in our portfolio on a total position of \$70,861.07.

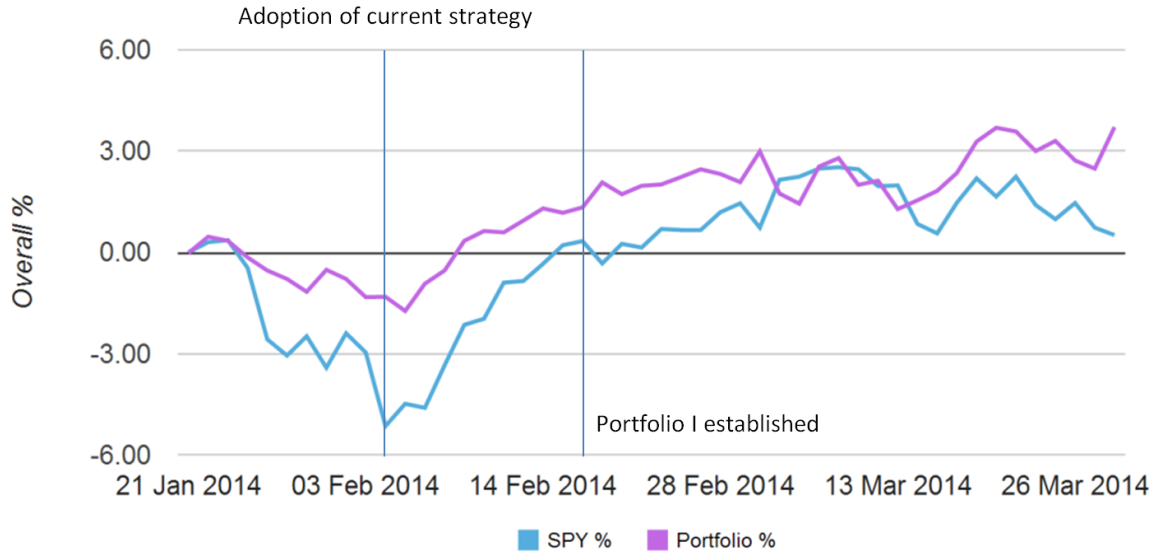
## Initial Portfolio

Our overall portfolio was heavily hit by a few ineffective positions initially held. Before our long-term strategy was clearly established, we adopted a momentum strategy, which we later determined to be unsuitable for the purpose of our portfolio. Relative to our benchmark, the strategy outperformed, however, had an overall negative short-term impact on our portfolio. Our overall portfolio return of 3.71% is already lowered by these initial positions. **[See Appendix D]**



## Appendices

### Appendix A: SPY vs. Portfolio



### Appendix B: Portfolio Holdings as of March 28<sup>th</sup>, 2014

Symbol	Company Name	QTY	Currency	Price Paid	Last Price	Market Value	Profit/Loss (local curr)	P/L %	Margin	Weight
AEP	American Electric Power Company Inc.	726	USD	\$48.16	\$0.00	\$40,162.32	\$1,477.97	3.820598007	\$0.00	0.038459
AGN	Allergan Inc.	87	USD	\$114.58	\$0.00	\$11,651.89	\$622.78	5.646709722	\$0.00	0.011158
APA	Apache Corporation	790	USD	\$84.99	\$0.00	\$72,564.13	(\$1,721.89)	-2.31791976	\$0.00	0.069486
APC	Anadarko Petroleum Corporation	950	USD	\$83.32	\$0.00	\$89,278.74	\$1,702.75	1.94431109	\$0.00	0.085492
COP	ConocoPhillips Co	1235	USD	\$65.45	\$0.00	\$96,126.52	\$6,695.38	7.486631016	\$0.00	0.092049
CVS	CVS Caremark Corporation	506	USD	\$66.41	\$0.00	\$41,573.60	\$4,394.73	11.82050896	\$0.00	0.03981
DLTR	Dollar Tree Inc.	665	USD	\$49.95	\$0.00	\$38,369.68	\$1,618.66	4.404404404	\$0.00	0.036742
DVN	Devon Energy Corporation	1250	USD	\$65.12	\$0.00	\$90,987.57	\$926.61	1.028869779	\$0.00	0.087128
GLD	SPDR Gold Trust ETF	116	USD	\$120.54	\$0.00	\$15,986.33	\$515.94	3.334992534	\$0.00	0.015308
HCA	HCA Holdings Inc.	957	USD	\$49.31	\$0.00	\$54,148.30	\$1,937.65	3.711214764	\$0.00	0.051852
IVV	iShares S&P 500 Index Fund	172	USD	\$186.53	\$0.00	\$35,502.52	\$5.71	0.016083204	\$0.00	0.033997
JNJ	Johnson & Johnson	381	USD	\$87.25	\$0.00	\$41,074.70	\$4,295.48	11.67908309	\$0.00	0.039333
KO	The Coca-Cola Company	568	USD	\$37.40	\$0.00	\$24,477.55	\$974.07	4.144385027	\$0.00	0.023439
NU	Northeast Utilities Systems	231	USD	\$43.24	\$0.00	\$11,488.25	\$437.04	3.9546716	\$0.00	0.011001
SH	ProShares Short S&P500	1285	USD	\$24.90	\$0.00	\$35,372.49	(\$28.43)	-0.08032129	\$0.00	0.033872
SPY	SPDR S&P 500	236	USD	\$174.95	\$0.00	\$48,433.37	\$2,752.10	6.024578451	\$0.00	0.046379
VDC	Vanguard Consumer Staples ETF	401	USD	\$102.31	\$0.00	\$48,794.43	\$3,402.92	7.49682338	\$0.00	0.046725
VHT	VANGUARD HEALTH CARE ETF	406	USD	\$101.41	\$0.00	\$47,300.59	\$1,747.38	3.835913618	\$0.00	0.045294
VPU	Vanguard Utilities ETF	485	USD	\$84.44	\$0.00	\$47,993.86	\$2,683.02	5.921364282	\$0.00	0.045958
WMT	Wal-Mart Stores Inc.	459	USD	\$72.91	\$0.00	\$38,600.74	\$1,574.30	4.251817309	\$0.00	0.036964
XEL	Xcel Energy Inc.	352	USD	\$28.40	\$0.00	\$11,714.74	\$654.28	5.915492958	\$0.00	0.011218
XOM	Exxon Mobil Corporation	950	USD	\$94.65	\$0.00	\$102,690.52	\$3,205.79	3.22239831	\$0.00	0.098335



BUSI 4502 A: Portfolio Analysis

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Appendix C: Portfolio D&I Transactions

Trade Date	TransactionType/Security	Symbol	Company Name	QTY	Price	Comm.*	Amount*
3/28/2014							
3:23 PM	Market - Buy Equities	<a href="#">SH</a>	ProShares Short S&P500	1,285	24.9	-10	-35,382.62
3/28/2014							
3:23 PM	Market - Buy Equities	<a href="#">IVV</a>	iShares S&P 500 Index Fund	172	186.53	-10	-35,478.45
2/19/2014							
12:37 PM	Market - Buy Equities	<a href="#">APA</a>	Apache Corporation	790	84.99	-10	-74,149.20
2/19/2014							
12:23 PM	Market - Buy Equities	<a href="#">APC</a>	Anadarko Petroleum Corporation	950	83.32	-10	-87,414.69
2/19/2014							
12:23 PM	Market - Buy Equities	<a href="#">DVN</a>	Devon Energy Corporation	1,250	65.12	-10	-89,895.09
2/19/2014							
12:21 PM	Market - Buy Equities	<a href="#">COP</a>	ConocoPhillips Co	1,235	65.45	-10	-89,266.43
2/19/2014							
12:19 PM	Market - Buy Equities	<a href="#">XOM</a>	Exxon Mobil Corporation	950	94.65	-10	-99,301.49
2/14/2014							
2:21 PM	Market - Sell Equities	<a href="#">KO</a>	The Coca-Cola Company	-368	38.77	-10	15,659.49
2/14/2014							
1:40 PM	Market - Sell Equities	<a href="#">DLTR</a>	Dollar Tree Inc.	-300	51.94	-10	17,100.53
2/14/2014							
1:40 PM	Market - Sell Equities	<a href="#">WMT</a>	Wal-Mart Stores Inc.	-200	75.96	-10	16,672.52
2/14/2014							
1:40 PM	Market - Sell Equities	<a href="#">CVS</a>	CVS Caremark Corporation	-214	70.11	-10	16,465.69
2/14/2014							
1:39 PM	Market - Sell Equities	<a href="#">JNJ</a>	Johnson & Johnson	-173	92.73	-10	17,605.67
2/14/2014							
1:19 PM	Market - Sell Equities	<a href="#">VPU</a>	Vanguard Utilities ETF	-342	87.57	-10	32,867.58
2/14/2014							
1:16 PM	Market - Sell Equities	<a href="#">VDC</a>	Vanguard Consumer Staples ETF	-283	106.91	-10	33,204.05
2/14/2014							
1:16 PM	Market - Sell Equities	<a href="#">SPY</a>	SPDR S&P 500	-164	183.68	-10	33,059.17
2/14/2014							
1:14 PM	Market - Sell Equities	<a href="#">VHT</a>	VANGUARD HEALTH CARE ETF	-283	106.72	-10	33,185.10
2/6/2014							
11:01 AM	Market - Sell Equities	<a href="#">CVS</a>	CVS Caremark Corporation	-334	65.92	-10	24,444.63
2/6/2014							
11:00 AM	Market - Sell Equities	<a href="#">HCA</a>	HCA Holdings Inc.	-456	48.21	-10	24,407.42

BUSI 4502 A: Portfolio Analysis

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2/6/2014								
10:57 AM	Market - Sell Equities	<a href="#">WMT</a>	Wal-Mart Stores Inc.	-301	72.95	-10	24,378.76	
2/6/2014								
10:56 AM	Market - Sell Equities	<a href="#">DLTR</a>	Dollar Tree Inc.	-438	50.25	-10	24,435.99	
2/6/2014								
10:50 AM	Market - Sell Equities	<a href="#">JNJ</a>	Johnson & Johnson	-248	88.32	-10	24,318.15	
2/4/2014								
10:07 AM	Market - Buy Equities	<a href="#">XEL</a>	Xcel Energy Inc.	352	28.4	-10	-11,081.70	
2/4/2014								
10:05 AM	Market - Buy Equities	<a href="#">NU</a>	Northeast Utilities Systems	231	43.24	-10	-11,072.43	
2/4/2014								
10:04 AM	Market - Buy Equities	<a href="#">AGN</a>	Allergan Inc.	87	114.58	-10	-11,050.28	
2/4/2014								
10:02 AM	Market - Buy Equities	<a href="#">KO</a>	The Coca-Cola Company	936	37.4	-10	-38,805.45	
2/4/2014								
10:01 AM	Market - Buy Equities	<a href="#">AEP</a>	American Electric Power Company Inc.	726	48.16	-10	-38,758.63	
2/4/2014								
10:00 AM	Market - Buy Equities	<a href="#">CVS</a>	CVS Caremark Corporation	1,054	66.41	-10	-77,592.44	
2/4/2014								
10:00 AM	Market - Buy Equities	<a href="#">WMT</a>	Wal-Mart Stores Inc.	960	72.91	-10	-77,589.62	
2/4/2014								
9:59 AM	Market - Buy Equities	<a href="#">HCA</a>	HCA Holdings Inc.	1,413	49.31	-10	-77,236.48	
2/4/2014								
9:58 AM	Market - Buy Equities	<a href="#">JNJ</a>	Johnson & Johnson	802	87.25	-10	-77,568.45	
2/4/2014								
9:58 AM	Market - Buy Equities	<a href="#">DLTR</a>	Dollar Tree Inc.	1,403	49.95	-10	-77,685.23	
2/4/2014								
9:57 AM	Market - Buy Equities	<a href="#">GLD</a>	SPDR Gold Trust ETF	116	120.54	-10	-15,500.10	
2/4/2014								
9:56 AM	Market - Buy Equities	<a href="#">VDC</a>	Vanguard Consumer Staples ETF	684	102.31	-10	-77,540.21	
2/4/2014								
9:55 AM	Market - Buy Equities	<a href="#">VHT</a>	VANGUARD HEALTH CARE ETF	689	101.41	-10	-77,419.93	
2/4/2014								
9:55 AM	Market - Buy Equities	<a href="#">VPU</a>	Vanguard Utilities ETF	827	84.44	-10	-77,376.04	
2/4/2014								
9:54 AM	Market - Buy Equities	<a href="#">SPY</a>	SPDR S&P 500	400	174.95	-10	-77,540.17	

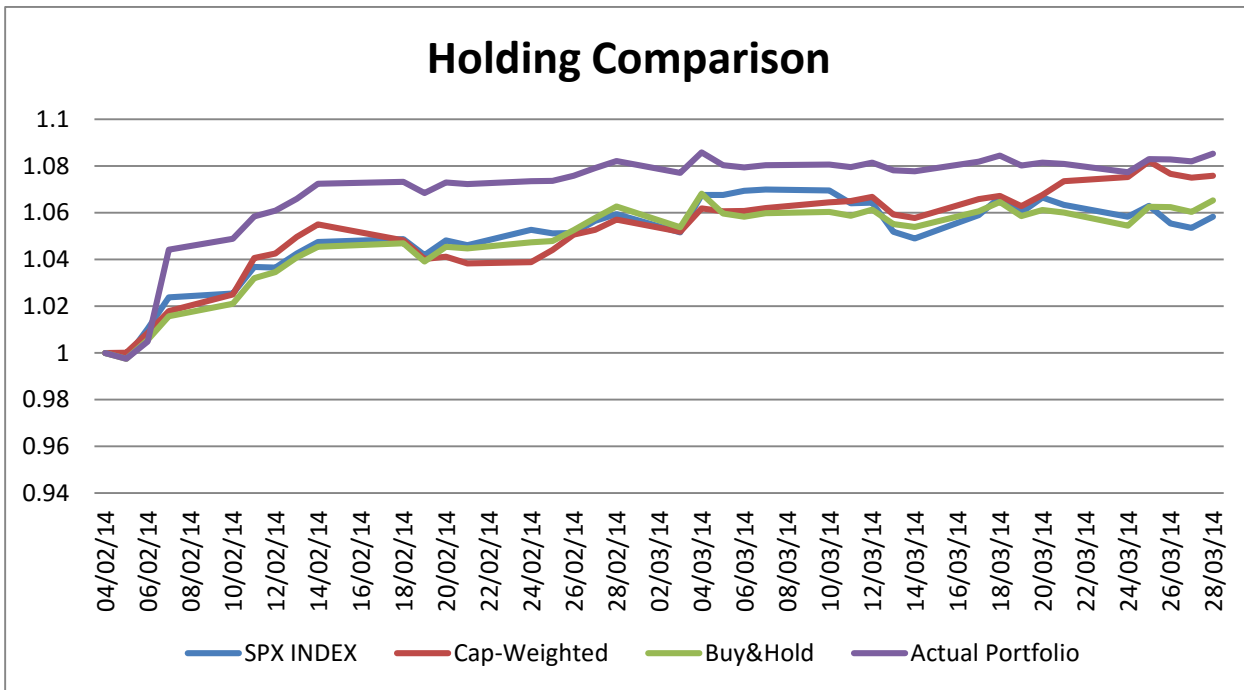
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Appendix D: Initial Portfolio Transactions

Trade Date	TransactionType/Security	Symbol	Company Name	QTY	Price	Comm.*	Amount*
2/4/2014							
11:18 AM	Market - Sell Equities	<a href="#">WXM</a>	First Asset Morningstar Canada Momentum Index ETF	-725	13.47	-10	9,765.75
2/4/2014							
11:18 AM	Market - Sell Equities	<a href="#">TD</a>	TORONTO DOMINION BANK	-200	47.82	-10	9,564.00
2/4/2014							
11:18 AM	Market - Sell Equities	<a href="#">FM</a>	FIRST QUANTUM MINERALS LTD	-492	19.53	-10	9,608.76
2/4/2014							
11:18 AM	Market - Sell Equities	<a href="#">WFT</a>	WEST FRASER TIMBER CO LTD	-500	54.84	-10	27,420.00
2/4/2014							
11:17 AM	Market - Sell Equities	<a href="#">THI</a>	TIM HORTONS INC.	-335	56.6	-10	18,961.00
2/4/2014							
11:17 AM	Market - Sell Equities	<a href="#">ALK</a>	Alaska Air Group Inc.	-127	74.83	-10	10,531.26
2/4/2014							
11:17 AM	Market - Sell Equities	<a href="#">MFC</a>	MANULIFE FINANCIAL CORP	-300	19.72	-10	5,916.00
2/4/2014							
11:17 AM	Market - Sell Equities	<a href="#">AMZN</a>	Amazon.com Inc.	-50	352	-10	19,503.55
2/4/2014							
11:16 AM	Market - Sell Equities	<a href="#">AC.A</a>	AIR CANADA	-5,000	7.71	-10	38,550.00
2/4/2014							
9:51 AM	Market - Sell Equities	<a href="#">PETX</a>	Aratana Therapeutics	-750	20.61	-10	17,127.42
2/3/2014	Market - Sell Equities						
		<a href="#">TD</a>	TORONTO DOMINION BANK	-100	98.34	0	9,834.00
2/3/2014	Market - Buy Equities						
		<a href="#">TD</a>	TORONTO DOMINION BANK	200	49.17	0	-9,834.00
1/21/2014							
9:34 AM	Market - Buy Equities	<a href="#">PETX</a>	Aratana Therapeutics	750	18.84	-10	-15,534.30
1/21/2014							
9:33 AM	Market - Buy Equities	<a href="#">ALK</a>	Alaska Air Group Inc.	127	80.2	-10	-11,197.67
1/21/2014							
9:30 AM	Market - Buy Equities	<a href="#">AMZN</a>	Amazon.com Inc.	50	403.27	-10	-22,167.44
1/20/2014							
12:12 PM	Market - Buy Equities	<a href="#">FM</a>	FIRST QUANTUM MINERALS LTD	492	20.34	-10	-10,007.28
1/20/2014							
12:08 PM	Market - Buy Equities	<a href="#">WXM</a>	First Asset Morningstar Canada Momentum Index ETF	725	13.86	-10	-10,048.50
1/20/2014							
12:06 PM	Market - Buy Equities	<a href="#">THI</a>	TIM HORTONS INC.	335	60.52	-10	-20,274.20
1/20/2014							
9:51 AM	Market - Buy Equities	<a href="#">AC.A</a>	AIR CANADA	5,000	9.14	-10	-45,700.00
1/20/2014							
9:45 AM	Market - Buy Equities	<a href="#">TD</a>	TORONTO DOMINION BANK	100	98.34	-10	-9,834.00
1/20/2014							
9:45 AM	Market - Buy Equities	<a href="#">MFC</a>	MANULIFE FINANCIAL CORP	300	21.95	-10	-6,585.00
1/20/2014							
9:45 AM	Market - Buy Equities	<a href="#">WFT</a>	WEST FRASER TIMBER CO LTD	250	57.3	-10	-14,325.00
1/20/2014							
9:45 AM	Market - Buy Equities	<a href="#">WFT</a>	WEST FRASER TIMBER CO LTD	250	57.3	-10	-14,325.00

## Appendix E: Holding Comparison Chart



## **Works Cited**

Kollmeyer, Barbara. (2013). Goldman raises S&P 500 targets through 2015. *Market Watch – The Wall Street Journal*. Retrieved from <http://blogs.marketwatch.com/thetell/2013/05/21/goldman-raises-sp-500-targets-through-2015/>