Do Value Investors Add Value?

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A B S T R A C T

The purpose of this paper is first to examine whether a value premium exists following a mechanical screening process (i.e., the search process) in the Canadian markets between two distinctly different periods, 1985-1999 and 1999-2007, and second whether value investors add value in the stock selection process by being able to find truly undervalued stocks from the universe of the possibly undervalued stocks identified from the search process. We find that a strong and pervasive value premium exists in Canada over our sample periods that persists in bull and bear markets and during recessions/recoveries. Value stocks, on average, beat growth stocks even when using the very mechanical screening of the search process. Furthermore, this paper demonstrates that value investors do add value, in the sense that their process of selecting truly undervalued stocks, via in-depth security valuation of the possibly undervalued stocks and arriving at their investment decision using the concept of "margin of safety", produces positive excess returns over and above the naive approach of simply selecting low P/E - P/BV ratio stocks. The paper was extended to the years of the "great recession" (2008-2009) and despite the fact that over this extended period we had a severe recession and bear market, on average, the sophisticated portfolio still beat the naïve value portfolio, consistent with earlier evidence.

Do Value Investors Add Value?

1. Introduction

A large body of academic research has shown that value stocks (i.e., low price-to-earnings (P/E) or price-to-book value (P/BV) stocks) tend to have higher average returns than growth stocks (i.e., high P/E or high P/BV stocks). Basu (1977) was the first to confirm the existence of a value premium, namely, that value stocks outperform growth stocks. More recently, Chan, Hamao and Lakonishok (1991), Fama and French (1992, 1993, 1996), Lakonishok, Shleifer and Vishny (1994), Chan and Lakonishok (2004) and Athanassakos (2009 (a), (b)) have found evidence consistent with a positive value premium in markets around the globe using not only P/E based classifications of stocks into value and growth, but also other search criteria which value investors have traditionally used to divide stocks into value and growth, such as P/BV and dividend yield.

While academic papers, such as the ones referred to above, have claimed to examine value and growth strategies and their performance, such claim is only partly correct. The problem with the academic classification of stocks into value and growth is that such stock selection approach is only part of what value investors do! Value investors use the above mentioned screening process, namely screening for the low P/E or low P/BV stocks, to identify *possibly* undervalued stocks. But this is not all. This is the first step they follow in stock selection. Once the possibly undervalued stocks are screened out, value investors then proceed to the second step of their analysis which is to identify the stocks that are truly undervalued by valuing individually each stock and arriving at their investment decision using the concept of the "margin of safety".

Unfortunately, academics do not and cannot know which stocks value investors eventually choose to invest in and so they only look at the first step of value investors' stock selection process. After all, academics know that it is from this group of low P/E or low P/BV stocks that value investors tend to select stocks to invest in. Consequently, academics tend to call the low P/E (or P/BV) stocks value stocks and the high P/E (or P/BV) stocks growth stocks, as this latter group of stocks is not the group of stocks from which value investors typically tend to select stocks to invest in. The first step of stock selection, and the one the academics have examined, is a naïve process and entirely mechanical. Anyone can run such a stock screening selection process to identify possibly undervalued stocks. The value that value investors add, however, is with regards to their second step of stock selection, namely,

valuing each stock individually and using the concept of "margin of safety" in order to identify the truly undervalued stocks. And it is this step in particular that previous academic research has not examined.

Using Canadian data for two distinctly different sub-periods 1985-1999 and 1999-2007, this paper has two objectives.[1] The first is to confirm that a value premium exists in our sample of stocks using a search process (i.e., the first step of stock selection) that consists of cross-sorting stocks by both P/E and P/BV ratios. Our hypothesis here is that we expect (potentially) value stocks (i.e., low P/E - low P/BV) to beat growth stocks (i.e., high P/E - high P/BV).[2] The second is to examine whether the second step of valuation and stock selection that value investors follow adds any value. In this regard, our hypothesis is that if value investors really add any value, stocks found to be truly undervalued (i.e., the truly value stocks), on average, beat stocks selected naïvely via the first step of stock selection (i.e., the potentially value stocks).[3] So the question is: Do value investors add any value? Answering this question is the key objective of this paper, and the paper's main contribution. Previous academic research has said nothing about the value of value investors; this paper will.

We find that a strong and pervasive value premium exists in Canada over our sample sub-periods that persist in bull and bear markets and during recessions/recoveries. Furthermore, this paper demonstrates that value investors do add value, in the sense that their process of selecting truly undervalued stocks, via in-depth security valuation of the possibly undervalued stocks and arriving at their investment decision using the concept of "margin of safety", produces positive excess returns over and above a naive approach of simply selecting low P/E - P/BV ratio stocks.

The rest of the paper is structured as follows. Section 2 discusses the data and methodology. Section 3 presents the empirical findings, while section 4 concludes the paper.

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[1] The first sub-period, 1985-1999, was characterized by a classic bull market when markets witnessed a continuous upward trend, whereas the second sub-period, 1999-2007, with the exception of the materials and oil sectors, was characterized by relatively flat markets.

[2] Previous academic evidence supports this hypothesis (See Basu (1977), Chan, Hamao and Lakonishok (1991), Fama and French (1992, 1993, 1996), Lakonishok, Shleifer and Vishny (1994), Chan and Lakonishok (2004) and Athanassakos (2009 (a), (b))).

[3] The performance of legendary value investors, such as Mr. Warren Buffett and Mr. Walter Schloss, over long time periods supports this hypothesis. Under Mr. Buffett, Berkshire Hathaway has averaged a 25%+ annual return to its shareholders for the last 25 years, while employing large amounts of capital and minimal debt. Mr. Schloss and his son Edwin, over the period 1956 to 2000, provided investors a compounded return of 15.3% compared with the S&P 500's annual return on 11.5% (See http://www.bengrahaminvesting.ca/Teaching_Applications/Guest_Speakers/2008_speakers.htm).

2. Data and Methodology

This paper uses data from COMPUSTAT from which earnings per share (E), book value per share (BV), shares outstanding, stock prices, and dividends paid are obtained, and from which trailing price to earnings (P/E) and price to book value (P/BV) ratios and market cap are derived. For the trailing P/E and P/BV ratios, the price (P) is as of the end of April of year (t) and E and BV are, respectively, the December (t-1) fully diluted annual earnings per share and book value per share for companies with fiscal year end December (t-1), as reported in COMPUSTAT. Market cap is derived by multiplying price per share times shares outstanding at the end of April of year t. Annual total stock returns for the second sub-period are calculated as the price change plus the dividend from April of year t to April of year t+1 over the price in April of year t, using COMPUSTAT. For the first sub-period, due to data unavailability, annual total returns were calculated as above, but data for the calculation were obtained from the Canadian Financial Markets Research Center (CFMRC) data base.

Our sample includes all December fiscal year end non-financial services companies that trade on the Toronto Stock Exchange (TSX).[4] Based on this, we started with COMPUSTAT's industrial 4443 year-firm observations (data) belonging to 1263 companies for the period 1985-1999, and 4503 year-firm observations (data) belonging to 1081 companies for the period 1999-2007. We carried out a number of screenings to the data. Companies are not income trusts. Companies are required to have return data available for the year following the determination of P/E and P/BV ratios unless a company was acquired in which case the stock return for the remaining annual period was assumed to be the Canadian t-bill 6 month rate obtained from the Bank of Canada database. To prevent problems arising from including negative or extremely positive P/E and P/BV ratio firms, and eliminate likely data errors (See La Porta, Lakonishok, Shleifer and Vishny (1997), Griffin and Lemmon (2002) and Cohen, Polk and Vuolteenaho (2003)), we have excluded negative P/E and P/BV ratios, as well as P/E ratios in excess of 150 and P/BV in excess of 20. Firms had to have both P/E and P/BV ratios within the aforementioned boundaries to be

[4] We exclude financial services companies, such as banks and insurance companies, since the high leverage normally employed by these companies does not have the same meaning as for non-financial companies for which high leverage indicates financial distress.

included in the sample. Finally, to be included in our sample a stock had to have a price over $1. [5,6]

Our data, which are adjusted for stock splits and stock dividends, are for each year over two distinctly different sub-periods, 1985-1999 and 1999-2007. These periods were chosen and kept separate for the following reasons: The first sub-period was characterized by a steadily rising stock market, while the second sub-period was a most challenging period for the stock market – with the exception of the materials and oil sectors, the stock market overall remained mostly flat over this sub-period which also included the burst of the stock market bubble. After all aforementioned screenings, we end up with 2139, in 1985-1999, and 1301, in 1999-2007, cross sectional-time series (firm-year) observations belonging to a cumulative number of 406 and 377 unique companies, respectively over the two sample sub-periods. The tables below report the total number of observations (companies examined) per year for each sub-period.

Sub-period 1985-1999	
Year	Number of Observations
1985	133
1986	142
1987	139
1988	168
1989	147
1990	135
1991	126
1992	98
1993	116
1994	164
1995	222
1996	174
1997	178
1998	197

Sub-period 1999-2007	
Year	Number of Observations
1999	162
2000	175
2001	177
2002	148
2003	144
2004	150
2005	167
2006	178

[5] Since our sample only includes firms with fiscal year end December of year (t-1), all firms have released their annual reports needed for the valuations and information for earnings per share and book value per share by April of year (t).

[6] For sub-period 1985-1999, the no income trust screen eliminated 182 observations, price over $1 39 observations, the P/E restrictions 722 observations and the P/BV restrictions 108 observations. In addition, 407 and further 846 observations were eliminated as there were no price and EPS data, respectively available in COMPUSTAT. For sub-period 1999-2007, the no income trust screen eliminated 971 observations, price over $1 622 observations, the P/E restrictions 563 observations and the P/BV restrictions 15 observations. In addition, 811 and further 220 observations were eliminated as there were no price and EPS data, respectively available in COMPUSTAT.

At the end of April of every year (t), starting either in 1985 or in 1999, firms are ranked based on trailing P/E ratios from low to high and the ranked firms are divided into four groups of equal size. Each P/E based quartile is then subdivided into four quartiles based on P/BV ratios from low to high. This process is repeated for each year of our sample. Membership in a quartile changes each year as multiples change from year to year. Inclusion in a quartile depends on a stock's multiple in relation to other stocks' multiples. Because P/E and P/BV ratios change over time, an arbitrary measure across time for all stocks in our sample would be inappropriate. The range of P/E – P/BV ratios per year for the low P/E – low P/BV basket (Q1) and the high P/E – high P/BV basket (Q16), per sub-period, are reported in the tables below.

Sub-period 1985-1999					
		Q1 (Value)		Q16 (Growth)	
	Year	P/E	P/BV	P/E	P/BV
1985	Min	3.15	0.48	17.73	2.87
1985	Max	8.92	0.74	52.28	8.00
1986	Min	3.87	0.40	24.22	4.46
1986	Max	10.25	0.86	48.65	17.42
1987	Min	1.61	0.23	29.18	4.23
1987	Max	13.93	1.23	101.48	30.00
1988	Min	1.18	0.11	22.52	2.87
1988	Max	8.28	0.90	49.50	10.51
1989	Min	7.30	0.43	18.68	2.33
1989	Max	8.88	1.01	55.09	12.70
1990	Min	3.93	0.14	18.71	2.29
1990	Max	6.84	0.79	41.60	6.46
1991	Min	2.41	0.14	26.14	1.78
1991	Max	9.49	0.82	103.13	8.47
1992	Min	7.49	0.42	35.94	2.83
1992	Max	11.88	1.09	146.15	4.55
1993	Min	5.68	0.70	53.33	2.99
1993	Max	13.01	1.12	93.75	13.54
1994	Min	2.28	0.41	37.09	4.01
1994	Max	10.95	1.15	130.00	47.77
1995	Min	2.76	0.26	25.51	2.79
1995	Max	10.18	0.91	105.00	6.91
1996	Min	1.41	0.45	33.27	3.91
1996	Max	9.13	0.78	137.50	12.15
1997	Min	4.40	0.70	26.41	3.18
1997	Max	12.10	1.04	89.63	5.87
1998	Min	0.66	0.56	32.45	4.04
1998	Max	15.45	1.02	129.41	20.51

Sub-period 1999-2007					
		Q1 (Value)		Q16 (Growth)	
	Year	P/E	P/BV	P/E	P/BV
1999	Min	2.38	0.35	25.00	2.41
1999	Max	9.72	0.72	83.72	17.64
2000	Min	0.42	0.39	29.12	3.87
2000	Max	7.23	0.67	144.00	11.48
2001	Min	2.65	0.27	21.46	3.28
2001	Max	8.19	0.78	140.00	8.52
2002	Min	3.45	0.33	27.17	3.76
2002	Max	8.72	0.78	133.33	6.41
2003	Min	3.26	0.47	23.91	2.85
2003	Max	9.82	0.72	85.00	5.23
2004	Min	5.05	0.54	28.64	3.31
2004	Max	10.77	1.09	135.00	7.19
2005	Min	4.05	0.73	30.95	4.94
2005	Max	11.30	1.03	135.00	13.34
2006	Min	2.55	0.58	29.80	4.57
2006	Max	12.82	1.27	86.11	18.61

In the first sub-period, we end up with 140 observations in both the low and high P/E - low P/BV baskets (Q1 and Q16). In the second sub-period, we end up with 81 observations in the low P/E - low P/BV basket (Q1) and 85 observations in the high P/E - high P/BV basket (Q16). The reason for this discrepancy in the latter sub-period is the following. Unlike Q16, we actually carry out valuations on Q1 stocks and while a few stocks in the low P/E - low P/BV basket did not possess the ticker suffix used for filtering income trusts, namely .U, upon closer inspection during valuation of Q1 stocks, we found that some stocks were actually income trusts and, thus, were subsequently eliminated. For this reason, in some years, we have fewer stocks in Q1 than Q16.

For each stock within each portfolio, returns are obtained for the following year (starting in May 1, 1985 or 1999 and ending April 30, 1999 or 2007, respectively in each sub-period) and equally weighted mean (and median) returns for each portfolio (basket) are derived (See Fama and French (1992), Lakonishok, Shleifer and Vishny (1994) and La Porta, Lakonishok, Shleifer and Vishny (1997)). Basket-1 (Q1) is the lowest P/E - lowest P/BV ratio portfolio or the value stocks, while Basket-16 (Q16) is the highest P/E - highest P/BV ratio portfolio or the growth stocks. The P/E and P/BV sorting requirement was made in order to reduce the number of stocks we had to actually evaluate due to the labor intensity of the project. For each sub-period, the number of observations for each basket per year is reported in the tables below. The 140 overall observations for the first sub-period belong to 78 unique

companies for Q1 and 75 unique companies for Q16. The 81 overall observations in Q1 and 85 observations in Q16 for sub-period 1999-2007 correspond to 48 and 59 unique companies, respectively.

Sub-period 1985-1999		
	Q1 (Value)	Q16 (Growth)
Year	Number of observations	Number of observations
1985	8	8
1986	9	9
1987	9	9
1988	11	11
1989	10	10
1990	9	9
1991	8	8
1992	7	7
1993	8	8
1994	11	11
1995	14	14
1996	11	11
1997	12	12
1998	13	13

Sub-period 1999-2007		
	Q1 (Value)	Q16 (Growth)
Year	Number of observations	Number of observations
1999	10	10
2000	10	11
2001	11	12
2002	8	9
2003	9	10
2004	10	10
2005	11	11
2006	12	12
Total	81	85

A time series of non-overlapping annual returns are obtained for each stock within the Q1 and Q16 portfolios (and for each portfolio) from May 1, 1985 (1999) to April 30, 1999 (2007). Summary statistics of variables of interest (i.e., value and growth stock returns, value premium, market cap) for the various stocks and portfolios are calculated and univariate analysis ensues that looks at value and growth stock performance and the value premium. If a stock stopped trading due to an acquisition, then the remaining of the year returns for this stock were estimated as being the Canadian 6-month t-bill rate of return obtained from the Bank of Canada database. For Q1, there were 1 stock in 1986, 1993, 1996, 1997, and 2002, and 2 stocks in 2000 that stopped trading within a given year. For Q16, there were 1 stock in 1986, 1987, 1997, 2000, 2001 and 2002 that stopped trading within a given year. Combined in Q1 and Q16, we had overall 7 companies in 1985-1999 and 6 companies in 1999-2007 for which we had to use the 6 month t-bill assumption. Appendices A, B (which show the stocks contained in Q1 and Q16) and D (which shows the stocks from Q1 selected as truly undervalued after careful valuation) highlight the stocks that stopped trading within a year and the t-bill assumption had to be made.

As soon as a value premium is established, we then go on to determine whether the second step of the value investing process, namely, valuing each stock and determining whether it is truly undervalued to buy, will beat the naïvely determined value stocks, namely, the first step of the value investing process.

To determine the truly undervalued stocks, the naively chosen stocks from Q1 were individually valued. The annual reports of the companies in question were obtained from Sedar.com. The objective here was to see if investing in the truly undervalued stocks, using a valuation approach employed by value investors, will lead to returns higher than those of the naively chosen Q1 stocks.

For each stock in Q1, two valuations were carried out. First, the net replacement value of each company's assets (called Net Asset Value) was estimated using an approach similar to the one described in Greenwald etc. (2001). Second, a Free cash Flow (FCF) based valuation for each company was produced (called Earnings Power Value), by normalizing FCFs and discounting them to infinity using a perpetuity formula. The discount rate was the weighted average costs of capital (WACC), with the cost of equity obtained from the bond plus risk premium approach described in Athanassakos (1998), and the cost of debt obtained from the company's rating and the YTM of similarly rated companies obtained from *Canadian Bond Rating Service and Scotia Capital Markets (1985-1999) and Moodys and Bloomberg (1999-2007)*. The weights in the WACC formula were the company's target capital structure weights.

Value investors believe that in the long run, in a free entry market, the return on invested capital (ROIC) will be equal to WACC, and so for the majority of companies the Discounted Cash Flow (DCF) model becomes one of perpetuity. However, if a company has a sustainable competitive advantage, a (real) growth assumption is incorporated in the DCF model and the value with growth (Vg) is derived.

Consequently, for each company two values were derived. One is the Net Asset Value (NAV) and the other the Earnings Power Value (EPV). Where exactly the company's intrinsic value lies depends on strategic analysis and the probabilities of possible outcomes. If the NAV exceeds the EPV, a catalyst was assumed depending on the probability of a takeover or the probability of management change given public information available in the financial press. In this case, the company's intrinsic value was between NAV and EPV. Whether the intrinsic value was closer to NAV than EPV depended on how high or low the probability of the aforementioned changes was, respectively. If EPV was above NAV, then an

analysis of the company's competitive environment was made to determine whether the company had a sustainable competitive advantage. If that was the case, then the company's intrinsic value was its EPV; if not, the company's intrinsic value was between EPV and NAV. How close to EPV or NAV the intrinsic value was depended on how strong we felt, given available information and our strategic analysis of the industry and company, the probability of sustainability of competitive advantage was. The lower this probability, the closer to NAV the intrinsic value was and vice versa. If a (real) growth assumption was necessary, then the value with growth was estimated (Vg) which for obvious reasons exceeded EPV (the no growth valuation to perpetuity). In this case, the company's intrinsic value was Vg. We found 87 cases in the first sub-period and 54 cases in the second sub-period, in which NAV was above EPV, 2 and 18 cases, respectively for which EPV was above NAV and no case and only 1 case, respectively for which a growth assumption was necessary, that is, when Vg was higher than EPV.[7] Once, the intrinsic value is estimated, the entry price is calculated as 2/3 of the intrinsic value. This allows for 1/3 margin of safety. The entry price in the growth case is the lower of EPV or 2/3 of Vg.

If a stock's current price is below the entry price, a decision is made to invest in this stock; the stock is truly undervalued. Otherwise, a decision is made not to invest in the stock in the following 12 month period. At the end of each 12-month period, stocks are liquidated and annual returns are calculated for this period. At the beginning of the next 12-month period, new intrinsic values and entry prices are re-estimated. Stocks whose current price is below their re-estimated entry price are invested in the new sophisticated portfolio for the following 12 months, and the process continues for every subsequent 12-month period. That is, at the beginning of each 12-month period, every stock in the sophisticated portfolio needs to have met the condition of having a price less than its entry price to justify its position in the following year's sophisticated portfolio. While this portfolio rebalancing may not be entirely true for all value investors many of whom may still be invested in the stock as long as it hasn't reached its intrinsic value, the fact that a stock has moved up over the previous year and is now

[7] In the first sub-period, the valuation team found a number of companies that were outside their "circle of competence" to value reliably. These companies were (26) resource companies (eliminated due to uncertain real options), (6) private equity firms or holding companies (eliminated due to uncertain value of investments or holdings) and (12) companies of high business and financial risk (due to extreme financial distress situations). In addition, five companies had no data available and 2 companies were recent IPOs for which no historical data were available and they were thus eliminated from the valuation step. The exclusion of such companies also helped reduce the number of companies that had to be valued and made the project more manageable. As a result, 89 companies were actually valued and not 140 as originally indicated for sub-period 1985-1999. In the second sub-period, where there were fewer companies to be valued, at the valuation step, the valuation team eliminated six companies that had high business and financial risk and two companies for which annual reports were not available. No other companies were eliminated in this sub-period as the valuation team felt that the remaining companies were within their "circle of competence" and could be reasonably valued. As a result, 73 companies were actually valued and not 81 as originally indicated for sub-period 1999-2007.

above its new entry price may mean that much of the upside on the stock has been realized and better investment opportunities may exist in other stocks with price less than entry price that are worth investing in with higher upside. Besides, our objective is to compare the returns of the sophisticated portfolio to those of the naïve Q1 portfolio and, to do this accurately and consistently, we need to derive annual total returns for both portfolios. Since the assumption of once a year rebalancing applies to Q1, the same assumption is also made for the sophisticated portfolio. The final number of stocks per year in the invested "sophisticated" portfolio (Q1S) is shown below. The total number of stocks purchased in the sophisticated portfolio corresponds to 44 companies (30 unique companies) in the first sub-period and 33 companies (24 unique companies) in the second sub-period. That is, a few companies were repeat members of the sophisticated portfolio as, year after year, they met the price less than entry price condition.

Sub-period 1985-1999	
Year	# of Stocks in Sophisticated Portfolio
1985	3
1986	3
1987	2
1988	2
1989	3
1990	3
1991	1
1992	1
1993	3
1994	3
1995	4
1996	5
1997	7
1998	4

Sub-period 1999-2007	
Year	# of Stocks in Sophisticated Portfolio
1999	4
2000	6
2001	5
2002	4
2003	4
2004	2
2005	4
2006	4

To our knowledge, this is the first study to examine both steps of the value investing decision making approach and explore whether value investors add value to the strictly mechanical search process.

3. Empirical Results

3.1. Step 1: The search Process - Is There a Value Premium?

Tables 1 and 2 report, respectively, the mean and median annual returns of P/E - P/BV sorted value (Q1) and growth (Q16) portfolios and the value premium (Q1 minus Q16) per year and overall. Table 1 also reports the variance of returns of the value and growth portfolios and their Sharpe ratio performance metrics for the two sub-periods examined. Figures 1 and 2, on the other hand, shows diagrammatically how the value premium has behaved over the two sub-periods.

It is quite apparent from these Tables that a value premium exists and it is quite impressive for its size and consistency, particularly for the 1999-2007 sub-period. The value premium in Table 1 is mostly positive. In the years when the value premium is negative, the size of the value premium is relatively small, when compared with the years when the value premium is positive. In Table 2, all annual value premiums are positive. For 1985-1999, the mean (median) annual value premium (Q1-Q16) is 2.4% (3.7%). For 1999-2007, the mean (median) annual value premium is 16.60% (16.00%). For comparative purposes, using only P/E sorting, Athanassakos (2009 (a)) finds that the mean value premium in Canada for the period 1985-2005 is 6.30%, whereas Athanassakos (2009 (b)), using again P/E sorting, finds that the mean value premium in the US is 6.24%, 11.40% and 6.00% for AMEX, NASDAQ and NYSE stocks, respectively for the period 1986-2006.

Tables 1 and 2 also allow us a glimpse into the behavior of the value premium during recessions and/or bear markets. For example, www.thedowtheory.com/bear&recessions.htm reports years 2000 and 2002 as bear market years and years 1991 and 2001 as recessionary years. With the exception of the mean value premium in 1991 which is negative, Tables 1 and 2 show that irrespective of the state of the world, the value strategy normally beats the growth strategy. Table 1, Panel A shows that in 1991, a recessionary year, the growth strategy beats the value strategy by 6.3%. Table 1, Panel B, however, shows that in the bear market years value and growth portfolios experience about the same return, whereas in 2001, the year of recession, value clearly beats growth. In Table 2, Panel A, which shows medians for the period 1985-1999, the value premium is positive in 1991, the recessionary year. In Table 2, panel B, which shows medians for the period 1999-2007, all value premiums are positive in both bear markets years (2000 and 2002) and recessionary year (2001). It can also be easily inferred from Tables 1 and 2 that, value premiums in adverse states of the world are mostly comparable to the value

premiums at favorable states of the world over our two sample periods, particularly the 1999-2007 sub-period. These findings are consistent with Athanassakos (2009 (a), (b)) and Kwag and Lee (2006) who, similar to our findings, show that value stocks in Canada and the US, on average, outperform growth stocks throughout the business cycle.

How does the variance and firm-size of the value stocks compare to those of the growth stocks? Table 1 reports the variance of the annual returns of the value and growth portfolios, while Table 3 reports market cap of the value and growth portfolios per year over our two sub-periods. These tables show that value stocks tend to be smaller than growth stocks and that while the value portfolio has higher annual variance of returns than the growth portfolio in the second sub-period, the opposite is the case in the first sub-period. The smaller size of Q1 vs. Q16 may imply that the outperformance of value over growth stocks is driven by risk, as normally one would expect smaller stocks to have higher risk than larger stocks. However, if risk drove the findings, one would expect to find (a) consistently higher variance in the returns of value vs. growth stocks and (b) that the higher risk of value stocks is manifested more vividly during adverse states of the world (such as recessions and bear markets) at which time growth would beat value strategies. As this is not the case, one cannot attribute the return differences between value and growth stocks to possible higher risk of value stocks. The risk issue will also be addressed in the following section, where risk is incorporated in the valuation exercise, intrinsic value, entry price and final investment decision making.

Nevertheless, regardless of which way one wants to interpret this evidence, Table 1 shows that the Sharpe ratio of value stocks (0.24 in 1985-1999; and 0.83 in 1999-2007) exceeds the Sharpe ratio of growth stocks (0.14 in 1985-1999; and 0.75 in 1999-2007) indicating that value stocks have had a better risk adjusted performance than growth stocks over our sample sub-periods. The p-value of the difference between the Sharpe ratios of these two portfolios, calculated based on a test of significance discussed in Jobson and Korkie (1981), is 0.09 in 1985-1999 and 0.03 in 1999-2007.

Could it be that the value premium is driven only by a few value stocks with very large positive returns? Table 4 reports the percentage of stocks with positive and the percentage of stocks with negative returns for the value and growth portfolios for every year over our sample sub-periods. In the first sub-period, both value and growth stocks experience more positive than negative returns in 9 out of the 14 years. In the second sub-period, in every year, more stocks in the value portfolio have positive

returns than negative. This is true only in 4 out of the 8 years for the growth portfolio. Consequently, the value premium is pervasive and not the result of a few outliers.

3.2. Step 2: Valuation – Is Any Value Added?

Now that we established that there is a value premium over our sample sub-periods which is consistent with previous academic research, the question is: can a value investor with his/her ability to value stocks, using value investing principles, do better than an approach that naively picks a basket of stocks with the lowest P/E – P/BV ratio combination?

All stocks that were previously sorted in the value basket (Q1) are now individually valued in a very time consuming and laborious way. First, the intrinsic value of a stock is estimated as discussed earlier and then the entry price is calculated as intrinsic value less 1/3 of the intrinsic value - the margin of safety. If a stock's current price is below its entry price, a decision is made to buy this particular stock. If not, a decision is made not to purchase the stock. We refer to the portfolio with the stocks in which we choose to invest as the "sophisticated portfolio" (Q1S), whereas the value portfolio Q1 is referred to as the "naïve portfolio". The annual and overall mean and median returns of the sophisticated portfolio and its excess returns from the naïve value Q1 portfolio are reported in Tables 5 and 6. Figures 3 and 4, on the other hand, show diagrammatically the excess return of the sophisticated portfolio over the naïve portfolio over the two sample sub-periods. Appendix C shows the kind of reports we produced for each stock in portfolio Q1. Appendix D reports the actual stocks we chose to purchase and include in the sophisticated portfolio (Q1S) per sub-period after painstaking valuations.

The sophisticated portfolio (Q1S) beats the naïve Q1 portfolio both in mean and median returns. The mean (median) outperformance in sub-period 1985-1999 is 1.10% (3.30%), while in sub-period 1999-2007 is 13.20% (3.80%). Tables 5 and 6 also show that the sophisticated portfolio beats the naïve one in both bear market years and the recessionary market years. Irrespective of the state of the world, both the mean and median returns of the sophisticated portfolio exceed those for the naive portfolio. Moreover, it can be easily inferred from Tables 5 and 6 that the sophisticated portfolio outperforms the naïve portfolio by more in adverse states of the world than in favorable states of the world. Finally, Table 7 reports that, in general, the percentage of positive returns in the sophisticated portfolio is higher than the percentage of positive returns in the naïve portfolio.

Table 5 also shows that the variance of the sophisticated portfolio is somewhat higher than the variance of the naïve one, while Table 8 shows that the market cap of these two portfolios is about the same. The risk adjusted returns of the sophisticated portfolio exceed those of the "naive portfolio" as exemplified by the higher Sharpe ratio of the sophisticated portfolio than the naïve one (See Tables 5 and 6). The Sharpe ratio for the sophisticated and naïve portfolios is 0.30 vs. 0.24 in 1985-1999, and 1.07 vs. 0.83, in 1999-2007, respectively.[8] The p-value of the difference between the Sharpe ratios of these two portfolios, again calculated based on a test of significance discussed in Jobson and Korkie (1981), is 0.15 in 1985-1999 and 0.01 in 1999-2007.[9]

Moreover, the valuation exercise described above and the eventual decision to buy a stock in the sophisticated portfolio accounts for risk and makes the final stock selection less risky in the sense of reducing the possibility of loss of capital.[10] Preserving capital is of paramount importance in the investment decision process of value investors. The margin of safely taken off the intrinsic value to arrive at the entry price ensures downside protection that goes beyond diversification without sacrificing the returns of the chosen stocks. In addition, Q1 and Q1S are both from the same basket of stocks and have the same market cap as shown in Table 8. And the fact that the sophisticated portfolio beats the naïve one by more in adverse than favorable states of the world further supports the argument that the risk of the sophisticated portfolio is not higher than that of the naïve portfolio. Hence, risk does not seem to drive the outperformance of the stocks that value investors choose to eventually invest in (i.e., the truly undervalued stocks), which is the key contribution of this paper.

Finally, not only does the sophisticated portfolio beats the naïve portfolio Q1, but Q1 significantly beats Q16, making the sophisticated portfolio outperform Q16 by a substantial amount,

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[8] It is possible that the exclusion of the companies indicated in footnote #7 from the second step of the value investing process may have impacted the strength of the findings in the first sub-period as there may have been many truly undervalued stocks among the excluded companies.

[9] It should be noted that this test has low power in the sense that is it is difficult to find statistical significance even if the true difference in Sharpe ratios is not zero.

[10] The issue of whether risk or behavioral factors drive the value premium has arisen because academics deal only with the first step of the value investing process. Not knowing what stocks value investors tend to buy, academics resort to arguments about risk to justify the value premium (See Fama and French (1992, 1993, 1996)). However, if one knows the intrinsic value of a stock and its entry price (which accounts for the margin of safety), and, hence, what stocks value investors would buy, as per second step of the value investing process, then he/she should know the risk of the portfolio/stocks. In the valuation process, risk is adjusted through the risk premium in the discount factor and in the final selection process risk is controlled for via the margin of safety.

which is too large to be explained by possible risk differences. As a result, value investors proceeding to the second step in the stock selection process do add value.[11]

3.3. How About 2007-2009?

This study had started well before the credit crisis of 2008-2009 engulfed the world economies and markets. It ended right at the time the credit crisis hit.

As data have now become available for 2008 and 2009, and as readers will be interested in knowing how the value investing approach worked over this period of crisis, we decided to extend this paper to also include the credit crisis period.

The methodology and process are the same as described earlier. Following same screenings as before, we end up with 223 observations in 2007 and 183 observations in 2008. We then form Q1 (the value portfolio) and Q16 (the growth portfolio) for 2007 and 2008 with the following ranges for P/E and P/BV: Q1-2007 (min P/E: 3.60, max P/E: 11.92; min P/BV: 0.71, max P/BV: 1.23); Q1-2008 (min P/E: 3.80, max P/E: 11.14; min P/BV: 0.62, max P/BV: 1.10); Q16-2007 (min P/E: 33.46, max P/E: 144.14; min P/BV: 5.38, max P/BV: 10.15); Q16-2008 (min P/E: 31.04, max P/E: 112.47; min P/BV: 4.36, max P/BV: 15.93). There were 14 observations in 2007 and 12 observations in 2008 for Q1 and Q16. We only found 2 truly undervalued stocks in 2007 and only 1 truly undervalued stock in 2008, and these stocks were included in the sophisticated portfolio.

Tables 9 and 10 show the mean and median annual returns for Q1 and Q16, while Tables 11 and 12 show the mean and median annual returns for Q1S (the "sophisticated" (value) portfolio) and Q1 (the "naïve" (value) portfolio) for the period May 1, 2007 to April 30, 2009. In addition, this time, the Tables also show the returns for Q1, Q16 and Q1S from May 1, 2008 to September 30, 2009 (referred to as 2008 extended). These Tables' extended period returns represent seventeen month returns for Q1, Q16 and Q1S portfolios, as if the stock selections and compositions for value, growth and sophisticated portfolios had not changed from May to September 2009. Appendix E shows the stocks included in Q1, Q16 and Q1S.

[11] Our sophisticated portfolio is quite concentrated. However, the margin of safety acts as a way to protect capital which is distinct from, and in many respects consistent with, diversification. Moreover, the superior performance of the sophisticated portfolio is consistent with Kacperczyk et al. (2007) who find that all concentrated funds in their study did well, but the more concentrated did the best.

We see that over the two years of the "great recession", the mean and median returns for the growth portfolio exceed those for the value portfolio by a significant amount for both the normal and extended period. On the other hand, the sophisticated portfolio under-performed the naïve portfolio in 2007, but significantly outperformed it in 2008 for both the normal and extended 2008 period. In 2008, the sophisticated portfolio outperformed both the naive value and the growth portfolio. On average, over the two year period, the sophisticated portfolio beat the naïve portfolio and the growth portfolio. Moreover, the sophisticated portfolio beat the naive during the recession and the bear market period of May 1, 2008 to April 30, 2009. These findings are consistent with those reported earlier for 1985-2007.

4. Conclusions

Value investors wish to buy stocks at a discount to intrinsic value. To find the heavily discounted stocks, value investors follow a two step process. First they search for possibly undervalued stocks, using screening metrics, such as P/E and/or P/BV ratios. Second, they carefully apply a valuation technology to all possibly undervalued stocks that passed the first step and arrive at their investment decision by applying the concept of "margin of safety" in order to determine which among those stocks are truly undervalued.

The purpose of this paper was first to examine whether a value premium existed following a mechanical screening process (i.e., the search process) in the Canadian markets between 1985-1999 and 1999-2007, and second whether value investors added value in the stock selection process by being able to find truly undervalued stocks from the universe of the possibly undervalued stocks identified from the search process.

First, we apply a cross-sorting process whereby value stocks are defined as the low P/E - low P/BV stocks and growth stocks as the high P/E - high P/BV stocks. Second, we examine whether the previously identified value stocks beat the growth stocks. Third, we focus on the low P/E – low P/BV stocks, which we carefully value and apply the concept of "margin of safety" to identify the truly undervalued stocks among them. Finally, we compare the returns of the truly undervalued stocks to those of the naively chosen value stocks of the search process.

We find that a strong and pervasive value premium exists in Canada over our sample period that persists in bull and bear markets and during recessions/recoveries. Value stocks, on average, beat growth stocks even when using a very mechanical screening of the search process. Furthermore, this

paper demonstrates that value investors do add value, in the sense that their process of selecting truly undervalued stocks, via in-depth security valuation of the possibly undervalued stocks and arriving at their investment decision using the concept of “margin of safety”, produces positive excess returns over and above the naive approach of simply selecting low P/E - P/BV ratio stocks.

The paper was extended to the years of the “great recession” and despite the fact that over this extended period we had a severe recession and bear market, on average, the sophisticated portfolio still beat the naïve value portfolio, consistent with earlier evidence.

In conclusion, value investors proceeding to the second step of the stock selection process do add value.

References

Athanassakos, G. (2009 (a)). Value vs. Growth Stock Returns and the Value Premium: The Canadian Experience 1985-2005, *Canadian Journal of Administrative Studies 26 (2),* pp. 109-129.

Athanassakos, G. (2009 (b)). The Performance, Pervasiveness and Determinants of Value Premium in Different US Exchanges: 1986-2006", Working paper, Richard Ivey School of Business, The University of Western Ontario, Canada.

Athanassakos, G. (1998). Estimating Expected Equity Risk-Premia and the Cost of Equity Using the Bond Plus Risk-Premium Approach: The Canadian Experience," *Multinational Finance Journal 3*, 1998, pp. 229-254.

Basu, S. (1977). Investment Performance of Common Stocks in Relation to Their Price to earnings Ratios: A Test of the Efficient Market Hypothesis, *Journal of Finance 32*, 663-682.

Chan, L. K. C., Hamao, Y. & Lakonishok, J. (1991). Fundamentals and Stock Returns in Japan, *Journal of Finance 46*, 1739-1764.

Chan, L. K. C. & Lakonishok, J. (2004). Value and Growth Investing: Review and Update, *Financial Analysts' Journal,* January/February, 71-84.

Cohen, R. B., Polk, C. & Vuolteenaho, T. (2003). The Value Spread, *Journal of Finance 58*, 609-641.

Fama, E. F. & French, K. R. (1992). The Cross Section of Expected Stock Returns, *Journal of Finance 47*, 427-465.

Fama, E. F. & French, K. R. (1993). Common Risk Factors in the Returns on Stocks and Bonds, *Journal of Financial Economics 33*, 3-56.

Fama, E. F. & French, K. R. (1996). Multifactor Explanations of Asset Pricing Anomalies, *Journal of Finance 51*, 55-84.

Greenwald, B. C. N., J. Kahn, P. D. Sonkin and M. Van Biema (2001). "Value Investing: From Graham to Buffett and Beyond", Wiley Finance, John Wiley & Sons, Inc., Hoboken, N.J.

Griffin, J. M. & Lemmon, M. L. (2002). Book to Market Equity, Distress Risk, and Stock Returns, *Journal of Finance 57*, 2317-2336.

Jobson, I.D. & Korkie, B. M. (1981). Performance Hypothesis Testing with the Sharpe and Treynor Measures, *Journal of Finance 36*, 889-908.

Kacperczyk, M., C. Sialm & L. Zheng (2007). Industry Concentration and Mutual Fund Performance, *Journal of Investment Management 5, No.*1, 49-69.

Kwag, S. W. & Lee, S. W. (2006). Value Investing and the Business Cycle, *Journal of Financial Planning*, Article 7, August, pp. 1-10.

Lakonishok, J. Shleifer, A. & Vishny, R. W. (1994). Contrarian Investment, Extrapolation and Risk, *Journal of Finance 49,* 1541-1578.

La Porta, R., Lakonishok, J., Schleifer, A. & Vishny, R. W. (1997). Good News for Value Stocks: Further Evidence on Market Efficiency, *Journal of Finance 50,* 1715-1742.

Table 1

Mean Annual (%) Returns to P/E – P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies by Year

Panel A: 1985 – 1999

	Mean Return		Value Premium
Year	Q1	Q16	Q1-Q16
1985	12.4%	-3.4%	15.8%
1986	81.8%	47.3%	34.6%
1987	-2.2%	-12.3%	10.1%
1988	15.0%	-7.2%	22.2%
1989	-13.8%	8.9%	-22.7%
1990	1.1%	19.3%	-18.2%
1991	-10.8%	-4.5%	-6.3%
1992	9.4%	98.1%	-88.7%
1993	36.3%	3.0%	33.4%
1994	3.8%	-9.2%	13.0%
1995	7.1%	16.1%	-9.0%
1996	20.6%	-1.2%	21.8%
1997	54.1%	9.7%	44.4%
1998	-16.3%	1.0%	-17.3%
Overall average	14.2%	11.8%	2.4%
Variance	7.4%	8.5%	
Risk-free rate	7.8%	7.8%	
SHARPE ratio*	0.24	0.14	

Panel B: 1999-2007

	Mean Return		Value Premium
Year	Q1	Q16	Q1-Q16
1999	5.7%	10.9%	-5.2%
2000	1.5%	4.8%	-3.3%
2001	45.4%	9.7%	35.7%
2002	-4.6%	-4.2%	-0.4%
2003	92.8%	29.7%	63.1%
2004	32.5%	33.4%	-0.9%
2005	84.8%	53.2%	31.6%
2006	17.8%	5.6%	12.2%
Overall average	34.5%	17.9%	16.6%
Variance	14.0%	3.6%	
Risk-free rate	3.6%	3.6%	
SHARPE ratio**	0.83	0.75	

***** The p-value of the difference between the Sharpe ratios of the two portfolios is 0.09.

****** The p-value of the difference between the Sharpe ratios of the two portfolios is 0.03.

Table 2

Median Annual (%) Returns to P/E – P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies by Year

Panel A: 1985 – 1999

	Median Return		Value Premium
Year	Q1	Q16	Q1-Q16
1985	9.3%	-17.9%	27.2%
1986	60.9%	34.9%	26.0%
1987	-7.3%	-25.2%	17.9%
1988	1.6%	-5.2%	6.7%
1989	-23.8%	1.4%	-25.2%
1990	2.1%	14.8%	-12.7%
1991	-3.5%	-15.4%	11.9%
1992	19.1%	107.8%	-88.7%
1993	21.4%	9.4%	12.0%
1994	-1.5%	-13.8%	12.3%
1995	12.9%	20.4%	-7.5%
1996	15.8%	-25.1%	40.9%
1997	33.6%	11.6%	21.9%
1998	-26.9%	2.7%	-29.6%
Overall median	5.7%	2.1%	3.7%

Panel B: 1999-2007

	Median Return		Value Premium
Year	Q1	Q16	Q1-Q16
1999	1.4%	-4.8%	6.2%
2000	0.6%	-17.7%	18.3%
2001	20.1%	8.4%	11.6%
2002	1.8%	-8.8%	10.7%
2003	89.4%	26.0%	63.4%
2004	28.6%	16.2%	12.4%
2005	42.1%	34.4%	7.7%
2006	22.9%	2.5%	20.4%
Overall median	21.5%	5.5%	16.0%

Table 3

Mean and Median Market Cap ($ Mil.) to P/E – P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies by Year

Panel A: 1985 – 1999

	Q1 (Value)		Q16 (Growth)	
Year	Avg Mcap	Mdn Mcap	Avg Mcap	Mdn Mcap
1985	101.76	78.11	724.01	398.43
1986	42.97	26.33	1025.2	536.23
1987	260.3	75.77	2378.18	930.34
1988	190.33	115.79	1156.65	711.44
1989	260.38	79.58	1350.27	1017.32
1990	283.73	147.72	2589.37	748.48
1991	132.87	46.56	916.32	730.6
1992	151.88	145.7	1038.44	421.76
1993	130.93	52.87	1746.4	362.57
1994	127.86	50.03	6822.51	330.84
1995	89.2	63.8	3751.48	1199.71
1996	44.4	26.57	2544.4	385.61
1997	99.1	52.1	1248.04	211.93
1998	157.84	61.27	3762.14	1558.34

Panel B: 1999-2007

	Q1 (Value)		Q16 (Growth)	
Year	Avg Mcap	Mdn Mcap	Avg Mcap	Mdn Mcap
1999	44.55	26.85	1233.52	116.8
2000	91.29	73.32	772.04	142.5
2001	97.14	47.01	2957.89	791.89
2002	95.01	65.56	4734.2	907.98
2003	143.94	147.69	1024.62	348.26
2004	187.83	44.91	1022.13	630.71
2005	262.97	71.89	1007.46	320.12
2006	316.75	87.59	1306.94	800.85

Table 4

Percentage of Positive and Negative Returns by P/E - P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies

Panel A: 1985 - 1999

	Q1 (Value)		Q16 (Growth)	
Year	% of negative returns	% of positive returns	% of negative returns	% of positive returns
1985	25.0%	75.0%	62.5%	37.5%
1986	0.0%	100.0%	11.1%	88.9%
1987	66.7%	33.3%	0.0%	100.0%
1988	45.5%	54.5%	72.7%	27.3%
1989	70.0%	30.0%	40.0%	60.0%
1990	33.3%	66.7%	0.0%	100.0%
1991	50.0%	50.0%	62.5%	37.5%
1992	14.3%	85.7%	14.3%	85.7%
1993	25.0%	75.0%	37.5%	62.5%
1994	54.5%	45.5%	54.5%	45.5%
1995	35.7%	64.3%	21.4%	78.6%
1996	18.2%	81.8%	72.7%	27.3%
1997	16.7%	83.3%	41.7%	58.3%
1998	69.2%	30.8%	38.5%	61.5%

Panel B: 1999-2007

	Q1 (Value)		Q16 (Growth)	
Year	% of negative returns	% of positive returns	% of negative returns	% of positive returns
1999	50.0%	50.0%	60.0%	40.0%
2000	50.0%	50.0%	63.6%	36.4%
2001	0.0%	100.0%	33.3%	66.7%
2002	37.5%	62.5%	77.8%	22.2%
2003	0.0%	100.0%	10.0%	90.0%
2004	0.0%	100.0%	30.0%	70.0%
2005	18.2%	81.8%	18.2%	81.8%
2006	25.0%	75.0%	66.7%	33.3%

Table 5

Mean Annual (%) Returns to P/E – P/BV Ratio Based ("Naïve") Value (Q1) and "Sophisticated" Value (Q1S) Strategies by Year

Panel A: 1985 – 1999

	Mean Return		Value Investor Premium
Year	Q1S	Q1	Q1S - Q1
1985	20.3%	12.4%	7.9%
1986	4.2%	81.8%	-77.6%
1987	-18.8%	-2.2%	-16.6%
1988	48.8%	15.0%	33.8%
1989	-20.0%	-13.8%	-6.2%
1990	10.6%	1.1%	9.5%
1991	16.7%	-10.8%	27.5%
1992	10.5%	9.4%	1.1%
1993	55.7%	36.3%	19.4%
1994	33.9%	3.8%	30.1%
1995	4.7%	7.1%	-2.4%
1996	16.1%	20.6%	-4.5%
1997	49.6%	54.1%	-4.5%
1998	-18.2%	-16.3%	-1.9%
Overall average	15.3%	14.2%	1.1%
Variance	6.2%	7.4%	
Risk-free rate	7.8%	7.8%	
SHARPE ratio*	0.3	0.24	

Panel B: 1999-2007

	Mean Return		Value Investor Premium
Year	Q1S	Q1	Q1S - Q1
1999	5.7%	5.7%	0.0%
2000	13.9%	1.5%	12.4%
2001	71.7%	45.4%	26.4%
2002	27.5%	-4.6%	32.2%
2003	100.4%	92.8%	7.6%
2004	24.7%	32.5%	-7.8%
2005	112.7%	84.8%	27.9%
2006	25.0%	17.8%	7.2%
Overall average	47.7%	34.5%	13.2%
Variance	17.1%	14.0%	
Risk-free rate	3.6%	3.6%	
SHARPE ratio**	1.07	0.83	

***** The p-value of the difference between the Sharpe ratios of the two portfolios is 0.15.

****** The p-value of the difference between the Sharpe ratios of the two portfolios is 0.01.

Table 6

Median Annual (%) Returns to P/E – P/BV Ratio Based ("Naïve") Value (Q1) and "Sophisticated" Value (Q1S) Strategies by Year

Panel A: 1985 – 1999

	Median Return		Value Investor Premium
Year	Q1S	Q1	Q1S - Q1
1985	7.5%	9.3%	-1.8%
1986	5.2%	60.9%	-55.7%
1987	-18.8%	-7.3%	-11.5%
1988	48.8%	1.6%	47.2%
1989	-23.7%	-23.8%	0.1%
1990	6.5%	2.1%	4.4%
1991	16.7%	-3.5%	20.2%
1992	10.5%	19.1%	-8.6%
1993	65.9%	21.4%	44.5%
1994	29.2%	-1.5%	30.7%
1995	4.6%	12.9%	-8.3%
1996	15.8%	15.8%	0.0%
1997	31.8%	33.6%	-1.8%
1998	-31.1%	-26.9%	-4.2%
Overall median	9.0%	5.7%	3.3%

Panel B: 1999-2007

	Median Return		Value Investor Premium
Year	Q1S	Q1	Q1S - Q1
1999	1.4%	1.4%	0.0%
2000	9.6%	0.6%	9.1%
2001	46.3%	20.1%	26.2%
2002	25.6%	1.8%	23.8%
2003	34.0%	89.4%	-55.4%
2004	24.7%	28.6%	-3.9%
2005	115.5%	42.1%	73.4%
2006	25.0%	22.9%	2.1%
Overall median	25.3%	21.5%	3.8%

Table 7

Percentage of Positive and Negative Returns by P/E - P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies

Panel A: 1985 – 1999

	Q1S (Sophisticated)		Q1 (Value)	
Year	% of negative returns	% of positive returns	% of negative returns	% of positive returns
1985	0.0%	100.0%	25.0%	75.0%
1986	0.0%	100.0%	0.0%	100.0%
1987	100.0%	0.0%	66.7%	33.3%
1988	0.0%	100.0%	45.5%	54.5%
1989	100.0%	0.0%	70.0%	30.0%
1990	0.0%	100.0%	33.3%	66.7%
1991	0.0%	100.0%	50.0%	50.0%
1992	0.0%	100.0%	14.3%	85.7%
1993	0.0%	100.0%	25.0%	75.0%
1994	0.0%	100.0%	54.5%	45.5%
1995	50.0%	50.0%	35.7%	64.3%
1996	40.0%	60.0%	18.2%	81.8%
1997	28.6%	71.4%	16.7%	83.3%
1998	75.0%	25.0%	69.2%	30.8%

Panel B: 1999-2007

	Q1S (Sophisticated)		Q1 (Value)	
Year	% of negative returns	% of positive returns	% of negative returns	% of positive returns
1999	50.0%	50.0%	50.0%	50.0%
2000	33.3%	66.7%	50.0%	50.0%
2001	0.0%	100.0%	0.0%	100.0%
2002	0.0%	100.0%	37.5%	62.5%
2003	0.0%	100.0%	0.0%	100.0%
2004	0.0%	100.0%	0.0%	100.0%
2005	0.0%	100.0%	18.2%	81.8%
2006	25.0%	75.0%	25.0%	75.0%

Table 8

Mean and Median Market Cap ($Mil.) to P/E – P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies by Year

Panel A: 1985 – 1999

	Q1S (Sophisticated)		Q1 (Value)	
Year	Avg Mcap	Mdn Mcap	Avg Mcap	Mdn Mcap
1985	54.78	54.59	101.76	78.11
1986	43.62	29.03	42.97	26.33
1987	23.92	23.92	260.3	75.77
1988	52.91	52.91	190.33	115.79
1989	687.23	220.32	260.38	79.58
1990	544.07	293.81	283.73	147.72
1991	32.1	32.1	132.87	46.56
1992	36.96	36.96	151.88	145.7
1993	159.99	62.46	130.93	52.87
1994	186.35	64.2	127.86	50.03
1995	138	25.68	89.2	63.8
1996	39.99	26.57	44.4	26.57
1997	100.75	32.11	99.1	52.1
1998	88.4	89.97	157.84	61.27

Panel B: 1999-2007

	Q1S (Sophisticated)		Q1 (Value)	
Year	Avg Mcap	Mdn Mcap	Avg Mcap	Mdn Mcap
1999	34.18	33.78	44.55	26.85
2000	88.28	35.98	91.29	73.32
2001	77.36	37.94	97.14	47.01
2002	61.58	65.56	95.01	65.56
2003	81.08	76.54	143.94	147.69
2004	425.09	425.09	187.83	44.91
2005	51.74	55.9	262.97	71.89
2006	203.29	111.12	316.75	87.59

Table 9

Mean Annual (%) Returns to P/E – P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies by Year 2007-2009

Year	Mean Return		Value Premium
	Q1	Q16	Q1 – Q16
2007	-30.20%	20.20%	-50.40%
2008	-58.20%	-33.50%	-24.70%
2008 (Extended)*	-31.20%	-16.60%	-14.60%

Table 10

Median Annual (%) Returns to P/E – P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies by Year 2007-2009

Year	Median Return		Value Premium
	Q1	Q16	Q1 – Q16
2007	-31.30%	9.60%	-40.90%
2008	-62.30%	-34.40%	-27.90%
2008 (Extended)*	-34.00%	-14.60%	-19.30%

***** May 1, 2008 - September 30, 2009.

Table 11

Mean Annual (%) Returns to P/E – P/BV Ratio Based ("Naïve") Value (Q1) and "Sophisticated" Value (Q1S) Strategies by Year
2007-2009

	Mean Return		Value Investor Premium
Year	Q1S	Q1	Q1S - Q1
2007	-45.70%	-30.20%	-15.50%
2008	-13.00%	-58.20%	45.20%
2008 (Extended)*	64.70%	-31.20%	95.90%

Table 12

Median Annual (%) Returns to P/E – P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies by Year
2007-2009

	Median Return		Value Investor Premium
Year	Q1S	Q1	Q1S - Q1
2007	-45.70%	-31.30%	-14.40%
2008	-13.00%	-62.30%	49.30%
2008 (Extended)*	64.70%	-34.00%	98.70%

* May 1, 2008 - September 30, 2009.

Figure 1

Mean and Median Annual (%) Value Premia to P/E – P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies by Year: 1985-1999

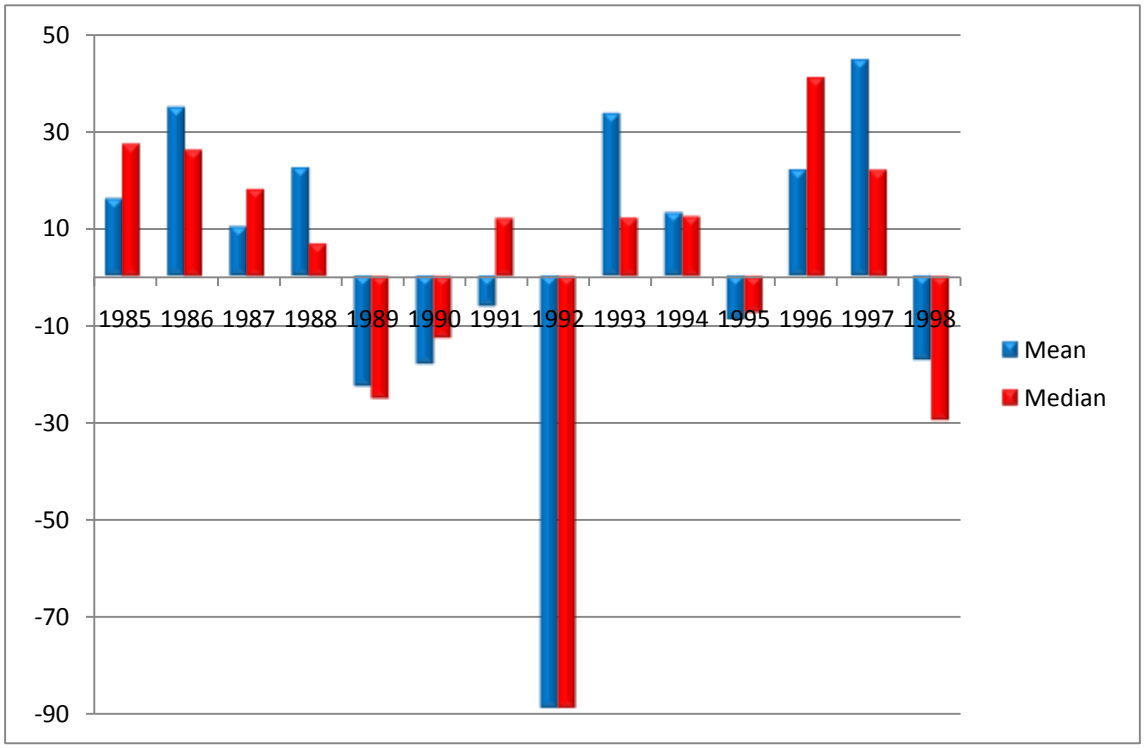


Figure 2

Mean and Median Annual (%) Value Premia to P/E – P/BV Ratio Based Value (Q1) and Growth (Q16) Strategies by Year: 1999-2007

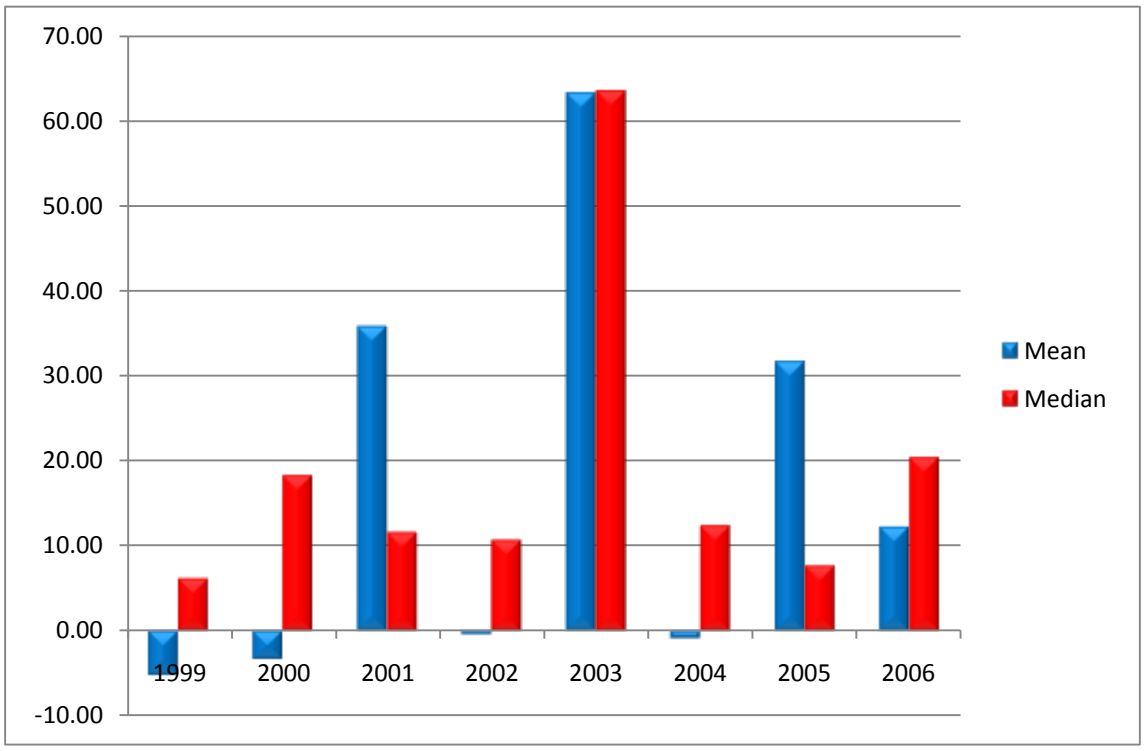


Figure 3

Mean and Median Annual (%) Returns to P/E – P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies by Year: 1985-1999

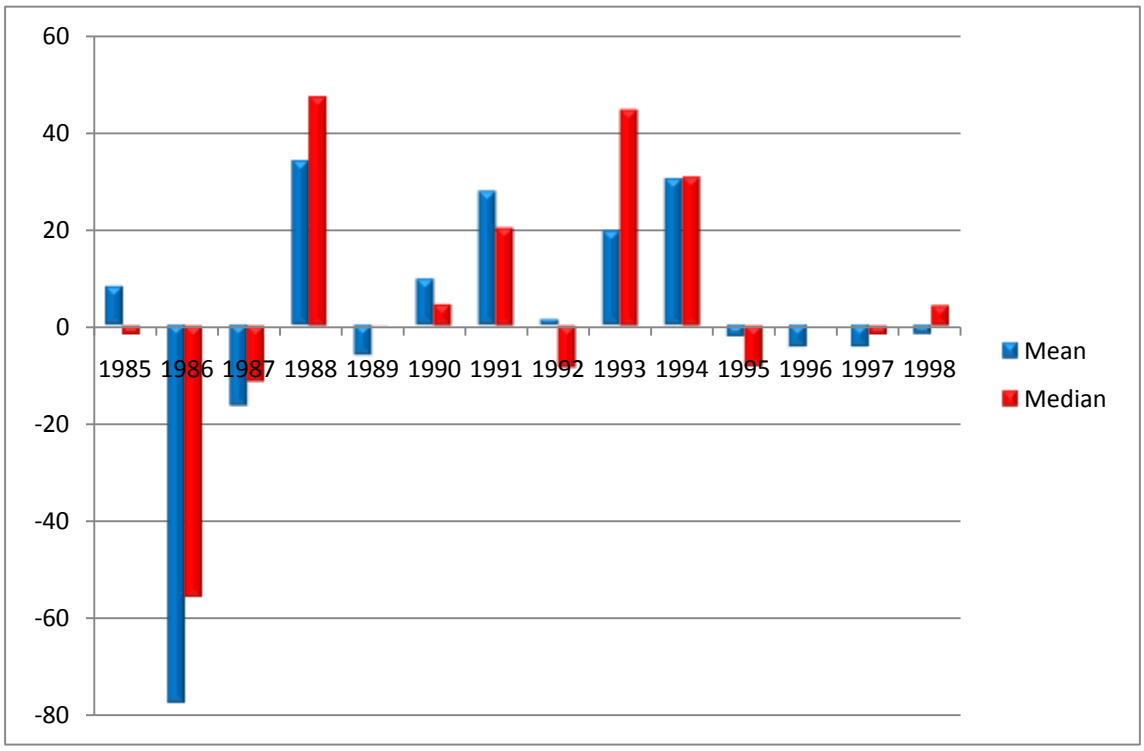
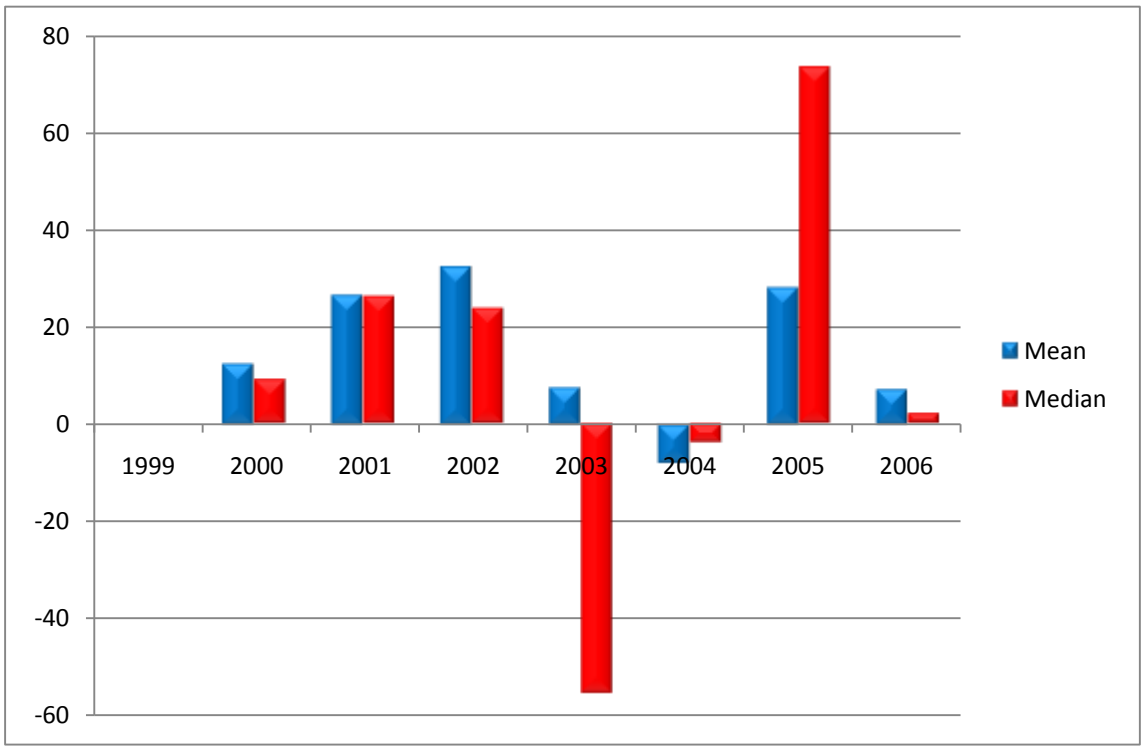


Figure 4

Mean and Median Annual (%) Returns to P/E – P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies by Year: 1999-2007



APPENDIX A.1

Low P/E and P/B Stocks – Possibly Undervalued Stocks: 1985-1999

Company	Ticker	Year
ABITIBI CONSOLIDATED INC	ABY	1985
ALIANT INC	AIT.	1985
CANADA MALTING CO LTD	CMG.2	1985
CANADIAN AIRLINES CORP	CA.1	1985
FARADAY RESOURCES INC	CFY.	1985
GOODYEAR CANADA INC	GT.1	1985
HOWDEN (D.H.) & CO LTD	HDH	1985
WESTFIELD MINERALS LTD	WFD.	1985
CONWEST EXPLORATION	CEXCF	1986
FARADAY RESOURCES INC	CFY.	1986
FOUR SEASONS HOTELS -LTD VTG	FS.	1986
MAJESTIC CONTRACTORS LTD	MJC	1986
MORRISON PETROLEUMS LTD	MRP.1	1986
QUEBECTEL GROUP INC	QTG	1986
TRICENTROL PLC	TCT.1	1986
ULSTER PETROLEUM LTD	ULP	1986
WESTFIELD MINERALS LTD	WFD.	1986
CANADIAN AIRLINES CORP	CA.1	1987
CANBRA FOODS LTD	CBF.2	1987
DOFASCO INC	DFS.	1987
FP RESOURCES LTD	FPL.Z	1987
FRUEHAUF CANADA INC	FRH.	1987
GENERAL ELECTRIC CANADA INC	GEZ	1987
GSW INC -CL B	GSW.Z.	1987
HAWKER SIDDELEY CANADA	HSC.	1987
ISLAND TELEPHONE CO LTD	IT.1	1987
CANADA MALTING CO LTD	CMG.2	1988
CANADIAN AIRLINES CORP	CA.1	1988
CANRON INC -CL A VTG	CL.A	1988
CONWEST EXPLORATION	CEXCF	1988
CORE-MARK INTL INC-OLD	CMK.4	1988
FARADAY RESOURCES INC	CFY.	1988
GOODYEAR CANADA INC	GT.1	1988
TALISMAN ENERGY INC	TLM	1988
TRANSALTA CORP	TAC	1988
WARDAIR INC	WDI	1988
WILMINGTON CAP MGMT -CL A	WCM.A	1988
BRENDA MINES LTD	BND.1	1989

Company	Ticker	Year
CANAM GROUP INC	CAM.	1989
CASSIDYS LTD	CYL.	1989
DOFASCO INC	DFS.	1989
FARADAY RESOURCES INC	CFY.	1989
IVACO INC -CL A	IVA.	1989
MASONITE INTERNATIONAL CORP	MHM	1989
ROLLAND INC	RL.1	1989
SLATER STEEL INC	SSI.	1989
WILMINGTON CAP MGMT -CL A	WCM.A	1989
BROOKFIELD HOMES LTD	BRH.	1990
DOFASCO INC	DFS.	1990
GWIL INDUSTRIES	GWS.	1990
POTASH CORP SASK INC	POT	1990
SLATER STEEL INC	SSI.	1990
TALISMAN ENERGY INC	TLM	1990
TDZ HOLDINGS CORP	TDZ	1990
WESTBURNE INC	WBI.2	1990
WESTFIELD MINERALS LTD	WFD.	1990
ALGOMA CENTRAL CORP	ALC.	1991
BROOKFIELD HOMES LTD	BRH.	1991
EQUITY SILVER MINES -CL A	EST.A.	1991
GWIL INDUSTRIES	GWS.	1991
MELCOR DEVELOPMENT LTD	MRD.	1991
PRINCETON MINING	PMC.1	1991
RIO ALGOM LTD	ROM.2	1991
TALISMAN ENERGY INC	TLM	1991
ALGOMA CENTRAL CORP	ALC.	1992
ATCO LTD -CL I	ACO.X	1992
BROOKFIELD HOMES LTD	BRH.	1992
FORTIS INC	FTS.	1992
IPSCO INC	IPS.2	1992
PHOTO ENGRAVERS & ELECTROTYP	PHE.	1992
WESTFIELD MINERALS LTD	WFD.	1992
ALGOMA CENTRAL CORP	ALC.	1993
ATCO LTD -CL I	ACO.X	1993
CASCADES INC	CAS.	1993
FIRST MARITIME MNG CORP LTD	FMM.1	1993
GREYVEST CAPITAL INC	GFI.1	1993

Company	Ticker	Year
GSW INC -CL B	GSW.Z.	1993
MELCOR DEVELOPMENT LTD	MRD.	1993
MONARCH DEVELOPMENT CORP	MON.1	1993
ALGOMA CENTRAL CORP	ALC.	1994
ATCO LTD -CL I	ACO.X	1994
CARMA CORP -CL A	CVP.A	1994
CFS GROUP INC	CFZ.	1994
GLENTEL INC	GLN.	1994
MELCOR DEVELOPMENT LTD	MRD.	1994
MONARCH DEVELOPMENT CORP	MON.1	1994
MULTIBANC NT FINANCIAL CORP	MIB.1	1994
SENVEST CAPITAL INC	SEC.	1994
TERASEN INC	TER.1	1994
TIE/TELECOMMUN CANADA LTD	TTI.2	1994
ATLANTIS COMM INC -SUB VTG	ATV.1	1995
CARMA CORP -CL A	CVP.A	1995
FP RESOURCES LTD	FPL.Z	1995
GWIL INDUSTRIES	GWS.	1995
HARROWSTON INC -CL A	HRW.	1995
INTERNATIONAL COLIN ENERGY	KCN.1	1995
MAPLE LEAF FOODS INC	MFI.	1995
MELCOR DEVELOPMENT LTD	MRD.	1995
NOBLE CHINA INC	NMO.	1995
NUGAS LTD	NGS.	1995
SENVEST CAPITAL INC	SEC.	1995
SLATER STEEL INC	SSI.	1995
SYNERGISTICS INDS LTD -CL A	SGX.A	1995
WILMINGTON CAP MGMT -CL A	WCM.A	1995
ADVENTURE ELECTRONICS INC	AVN.1	1996
CARMA CORP -CL A	CVP.A	1996
CONSOLTEX GROUP INC	CTX.1	1996
FIRST MARITIME MNG CORP LTD	FMM.1	1996
IVACO INC -CL A	IVA.	1996
NORTHSTAR AEROSPACE INC	NAS.	1996
ROLLAND INC	RL.1	1996
SENVEST CAPITAL INC	SEC.	1996
SYNERGISTICS INDS LTD -CL A	SGX.A	1996
WESTFIELD MINERALS LTD	WFD.	1996
GLENTEL INC	GLN.	1997
HAMMOND MFG LTD -CL A	HMM.A	1997
HARRIS STEEL GROUP INC	HSG.	1997
HARROWSTON INC -CL A	HRW.	1997
MELCOR DEVELOPMENT LTD	MRD.	1997
ROLLAND INC	RL.1	1997
SENVEST CAPITAL INC	SEC.	1997
SINO-FOREST CORP	TRE.	1997
SLATER STEEL INC	SSI.	1997
SYNERGISTICS INDS LTD -CL A	SGX.A	1997
WILMINGTON CAP MGMT -CL A	WCM.A	1997
AECON GROUP INC	ARE.	1998
BOLIDEN AB	BLS.	1998
CANAM GROUP INC	CAM.	1998
FIRST MARITIME MNG CORP LTD	FMM.1	1998
FP RESOURCES LTD	FPL.Z	1998
GLENTEL INC	GLN.	1998
HAMMOND MFG LTD -CL A	HMM.A	1998
IVACO INC -CL A	IVA.	1998
MELCOR DEVELOPMENT LTD	MRD.	1998
SCOTTS RESTAURANTS	SRG.1	1998
STERLING CENTRECORP INC CDA	SCF.	1998
SENVEST CAPITAL INC	SEC.	1998
WILMINGTON CAP MGMT -CL A	WCM.A	1998

Note: Stocks that stopped trading in a given year are highlighted and a T-Bill assumption was made for the remainder of the year

APPENDIX A.2
Low P/E and Low P/BV Stocks - Possibly Undervalued Stocks: 1999-2007

Company	Ticker	Year
AECON GROUP INC	ARE.	1999
DOMCO TARKETT INC	DOC.1	1999
HALLMARK TECHNOLOGIES INC	HTI.1	1999
HAMMOND MFG LTD -CL A	HMM.A	1999
HARROWSTON INC -CL A	HRW.A	1999
INTERNATIONAL AQUA FOODS LTD	IAF.	1999
INTL FOREST PRODUCTS -CL A	IFP.A	1999
MELCOR DEVELOPMENT LTD	MRD.	1999
NOBLE CHINA INC	NMO.	1999
SENVEST CAPITAL INC	SEC.	1999
CFS GROUP INC	CFZ.	2000
CROWN LIFE INSURANCE CO	CLA.	2000
DOMCO TARKETT INC	DOC.1	2000
HAMMOND MFG LTD -CL A	HMM.A	2000
HARROWSTON INC -CL A	HRW.A	2000
INMET MINING CORP	IMN.	2000
MELCOR DEVELOPMENT LTD	MRD.	2000
PAULIN H & CO LTD	PAP.A	2000
SINO-FOREST CORP	TRE.	2000
SMK SPEEDY INTERNATIONAL INC	SMK.	2000
AFTON FOOD GROUP LTD	AFF.	2001
DATAMARK SYSTEMS GROUP INC	DMK.	2001
INTL FOREST PRODUCTS -CL A	IFP.A	2001
MCGRAW-HILL RYERSON LTD	MHR.	2001
MORGUARD CORP	MRC	2001
NORWALL GROUP INC	NGI.	2001
PAULIN H & CO LTD	PAP.A	2001
SHERRITT INTERNATIONAL CORP	S.	2001
SINO-FOREST CORP	TRE.	2001
STACKPOLE LTD	SKD.1	2001
TRIMIN CAPITAL CORP	TMN.	2001
AFTON FOOD GROUP LTD	AFF.	2002
ALGOMA CENTRAL CORP	ALC.	2002
BEST PACIFIC RESOURCES LTD	BPG.	2002
ELK POINT RESOURCES INC	ELK.	2002
MORGUARD CORP	MRC	2002
PAULIN H & CO LTD	PAP.A	2002
SINO-FOREST CORP	TRE.	2002
WILMINGTON CAP MGMT -CL A	WCM.A	2002
ALGOMA CENTRAL CORP	ALC.	2003
BOLIDEN AB	BLS.	2003
DUNDEE CORP	DC.A	2003
GLENTEL INC	GLN.	2003
HARRIS STEEL GROUP INC	HSG.	2003
INTL FOREST PRODUCTS -CL A	IFP.A	2003
PAULIN H & CO LTD	PAP.A	2003
SINO-FOREST CORP	TRE.	2003
WORLD POINT TERMINALS INC	WPO.	2003
DUNDEE CORP	DC.A	2004
EQUITABLE GROUP INC	ETC.	2004
MELCOR DEVELOPMENT LTD	MRD.	2004
PAULIN H & CO LTD	PAP.A	2004
PE BEN OILFIELD SERVICES LTD	PBN.	2004
PHOENIX CANADA OIL CO LTD	PCO.	2004
SENVEST CAPITAL INC	SEC.	2004
SHERRITT INTERNATIONAL CORP	S.	2004
SODISCO-HOWDEN GROUP INC	SOD	2004
STELLA-JONES INC	SJ	2004
BOLIDEN AB	BLS.	2005
CLARKE INC	CKI.	2005
CO-OPERATORS GEN INS CO	CCS.A	2005
HAMMOND POWER SOLUTIONS INC	HPS.A	2005
LOGISTEC CORP	LGT.B	2005
MCGRAW-HILL RYERSON LTD	MHR.	2005
NOVICOURT INC	NOV.	2005
PAULIN H & CO LTD	PAP.A	2005
ROCTEST LTD	RTT	2005
SENVEST CAPITAL INC	SEC.	2005
SINO-FOREST CORP	TRE.	2005
AINSWORTH LUMBER CO LTD	ANS.	2006
ALGOMA CENTRAL CORP	ALC.	2006
CIRCA ENTERPRISES INC	CTO.	2006
CLARKE INC	CKI.	2006
CO-OPERATORS GEN INS CO	CCS.A	2006
DATAMARK SYSTEMS GROUP INC	DMK.	2006
E-L FINANCIAL CORP LTD	ELF.	2006
LOGISTEC CORP	LGT.B	2006
PACIFIC NORTHERN GAS LTD	PNG.	2006
PAULIN H & CO LTD	PAP.A	2006
SENVEST CAPITAL INC	SEC.	2006
TRIMIN CAPITAL CORP	TMN.	2006

Note: Stocks that stopped trading in a given year are highlighted and a T-Bill assumption was made for the remaining of the year.

APPENDIX B.1
High P/E and High P/B Stocks: 1985-1999

Company	Ticker	Year
AGNICO EAGLE MINES LTD	AEM	1985
BRUNSWICK MINING & SMLT CORP	BMS.1	1985
CAMPBELL RED LAKE MINES	CRK.1	1985
KIENA GOLD MINES LTD	KGM.1	1985
LUMONICS INC-OLD	LUM.1	1985
THOMSON NEWSPAPERS -CL A	THM.A	1985
TIE/TELECOMMUN CANADA LTD	TTI.2	1985
WESTMN RESOURCES LTD	WMI.1	1985
AGNICO EAGLE MINES LTD	AEM	1986
BATTLE MOUNTAIN GOLD CO	BMG.	1986
CAMPBELL RED LAKE MINES	CRK.1	1986
CASCADES INC	CAS.	1986
CONNAUGHT BIOSCIENCES INC	CSESF	1986
HIGH LINER FOODS INC	HLF.	1986
MACLEAN HUNTER	MHP.	1986
NOMA INDUSTRIES LTD -CL A	NMA.A	1986
THOMSON NEWSPAPERS -CL A	THM.A	1986
AGNICO EAGLE MINES LTD	AEM	1987
BARRICK GOLD CORP	ABX	1987
BATTLE MOUNTAIN GOLD CO	BMG.	1987
CAMPBELL RED LAKE MINES	CRK.1	1987
CONNAUGHT BIOSCIENCES INC	CSESF	1987
CRESTBROOK FOREST INDS LTD	CFI.1	1987
LAC MINERALS LTD	LAC	1987
MCDONALD'S CORP	MCD	1987
PIONEER METALS CORP	PSM.	1987
AGNICO EAGLE MINES LTD	AEM	1988
BARRICK GOLD CORP	ABX	1988
BATTLE MOUNTAIN GOLD CO	BMG.	1988
CONNAUGHT BIOSCIENCES INC	CSESF	1988
EQUITY SILVER MINES -CL A	EST.A.	1988
HUSKY ENERGY INC	HSE.	1988
IU INTERNATIONAL CORP	IU	1988
LAC MINERALS LTD	LAC	1988
MACLEAN HUNTER	MHP.	1988
RANGER OIL LTD	RGO	1988
THOMSON-REUTERS CORP (CDN)	TRI	1988
ALBERTA NATURAL GAS CO LTD	ANG.	1989

Company	Ticker	Year
AMAX GOLD INC	AU.2	1989
BARRICK GOLD CORP	ABX	1989
FOUR SEASONS HOTELS -LTD VTG	FS.	1989
HUSKY ENERGY INC	HSE.	1989
LAC MINERALS LTD	LAC	1989
MACLEAN HUNTER	MHP.	1989
RANGER OIL LTD	RGO	1989
SOUTHAM INC	STM.1	1989
THOMSON-REUTERS CORP (CDN)	TRI	1989
BARRICK GOLD CORP	ABX	1990
BATTLE MOUNTAIN GOLD CO	BMG.	1990
CZAR RESOURCES LTD	CZR.1	1990
DRAXIS HEALTH INC	DRAX	1990
HUSKY ENERGY INC	HSE.	1990
MCDONALD'S CORP	MCD	1990
NORTEL NETWORKS CORP	NT	1990
PINNACLE RESOURCES LTD	PNN.1	1990
PIONEER NATURAL RESOURCES	PCX.	1990
AMAX GOLD INC	AU.2	1991
BARRICK GOLD CORP	ABX	1991
BATTLE MOUNTAIN GOLD CO	BMG.	1991
DRAXIS HEALTH INC	DRAX	1991
HUSKY ENERGY INC	HSE.	1991
MACLEAN HUNTER	MHP.	1991
MORGAN HYDROCARBONS	MHX.	1991
RANCHMENS RESOURCES LTD	RRL.1	1991
BARRICK GOLD CORP	ABX	1992
DORSET EXPLORATION LTD	DXL.2	1992
FOUR SEASONS HOTELS -LTD VTG	FS.	1992
HUSKY ENERGY INC	HSE.	1992
MACLEAN HUNTER	MHP.	1992
PARAMOUNT RESOURCES LTD	POU	1992
PINNACLE RESOURCES LTD	PNN.1	1992
DORSET EXPLORATION LTD	DXL.2	1993
HUSKY ENERGY INC	HSE.	1993
INTENSITY RESOURCES LTD	ITY.	1993
INVERNESS PETROLEUM LTD	IES.1	1993
PARAMOUNT RESOURCES LTD	POU	1993

Company	Ticker	Year
RIO ALTO EXPLORATION LTD	RAX.1	1993
TALISMAN ENERGY INC	TLM	1993
THOMSON-REUTERS CORP (CDN)	TRI	1993
ARCHER RESOURCES LTD	ARC.2	1994
BARRICK GOLD CORP	ABX	1994
CHANCELLOR ENERGY RES INC	CHC.3	1994
GENERAL MOTORS CORP	GM	1994
KINROSS GOLD CORP	KGC	1994
NORTHROCK RESOURCES LTD	NRK.	1994
ORBUS PHARMA INC	ORB.	1994
PETROMET RESOURCES LTD	PNTGF	1994
PLACER DOME INC	PDG	1994
SPECTRUM SIGNAL PROCESSING	SSPI	1994
TVX GOLD INC	TVX	1994
AGNICO EAGLE MINES LTD	AEM	1995
BARRICK GOLD CORP	ABX	1995
BCE MOBILE COMMUNICATIONS	BCX.	1995
FOUR SEASONS HOTELS -LTD VTG	FS.	1995
KINROSS GOLD CORP	KGC	1995
NEXEN INC	NXY	1995
NORTEL NETWORKS CORP	NT	1995
PETROMET RESOURCES LTD	PNTGF	1995
PLACER DOME INC	PDG	1995
RICHLAND PETROLEUM CORP-CL A	RLP	1995
TEE-COMM ELECTRONICS INC	TENXF	1995
THOMSON-REUTERS CORP (CDN)	TRI	1995
TVX GOLD INC	TVX	1995
ZENON ENVIRONMENTAL INC	ZEN.	1995
AGNICO EAGLE MINES LTD	AEM	1996
BARRICK GOLD CORP	ABX	1996
BERKLEY PETROLEUM CORP	BKP.1	1996
CARMANAH RESOURCES LTD	CKM.	1996
FULCRUM TECHNOLOGIES INC	FULCF	1996
GSI GROUP INC	GSIG	1996
KINROSS GOLD CORP	KGC	1996
PLACER DOME INC	PDG	1996
RAND A TECHNOLOGY CORP	RND.Z	1996
TORRINGTON RESOURCES LTD	TRN.2	1996
WESTMN RESOURCES LTD	WMI.1	1996
BARRICK GOLD CORP	ABX	1997
BERKLEY PETROLEUM CORP	BKP.1	1997
CANRISE RESOURCES LTD	CRE.1	1997
DEFIANCE MINING CORP	DM.4	1997
DIGITAL PROCESSING SYS INC	DPS.	1997
GENESIS EXPLORATION LTD	GEX.1	1997
MAPLE LEAF FOODS INC	MFI.	1997
NORTHROCK RESOURCES LTD	NRK.	1997
PURSUIT RESOURCES INC	PUT	1997
RAND A TECHNOLOGY CORP	RND.Z	1997
REMINGTON ENERGY LTD	REL.1	1997
SPECTRUM SIGNAL PROCESSING	SSPI	1997
BCE MOBILE COMMUNICATIONS	BCX.	1998
BIOVAIL CORP	BVF	1998
DALSA CORP	DSA.	1998
FONOROLA INC	FON.1	1998
FOUR SEASONS HOTELS -LTD VTG	FS.	1998
LOBLAW COMPANIES LTD	L.	1998
MAPLE LEAF FOODS INC	MFI.	1998
PARAMOUNT RESOURCES LTD	POU	1998
RAND A TECHNOLOGY CORP	RND.Z	1998
ROYAL LEPAGE LIMITED	RLG	1998
TELEGLOBE INC	TGO.	1998
THOMSON-REUTERS CORP (CDN)	TRI	1998
ZENON ENVIRONMENTAL INC	ZEN.	1998

Note: Stocks that stopped trading in a given year are highlighted and a T-Bill assumption was made for the remainder of the year.

APPENDIX B.2
High P/E and High P/BV Stocks: 1999-2007

Company	Ticker	Year
AASTRA TECHNOLOGIES LTD	AAH.	1999
BISSETT & ASSOC INVT MGT LTD	BIM.	1999
GUARDIAN CAP GRP LTD -CL A	GCG.A	1999
IONIC ENERGY INC	IOI.	1999
LOBLAW COMPANIES LTD	L.	1999
PARAMOUNT RESOURCES LTD	POU	1999
PETROBANK ENERGY RES LTD	PBG.	1999
POST ENERGY CORP	PSN.1	1999
VAQUERO ENERGY LTD	VAQ	1999
ZENON ENVIRONMENTAL INC	ZEN.	1999
AASTRA TECHNOLOGIES LTD	AAH.	2000
AD OPT TECHNOLOGIES INC	AOP.	2000
ALIANT INC	AIT.	2000
CRS ROBOTICS CORP	ROB.	2000
ENSIGN ENERGY SERVICES INC	ESI.	2000
JANNA SYSTEMS INC	JAN.	2000
KNOWLEDGE HOUSE INC	KHI.	2000
MOSAIC GROUP INC	MGX.	2000
PALADIN LABS INC	PLB.	2000
PASON SYSTEMS INC	PSI.	2000
WESTJET AIRLINES LTD	WJA	2000
CAUSEWAY ENERGY CORP	CUW.	2001
ENSOURCE ENERGY SERVICES INC	EEN.	2001
GAUNTLET ENERGY CORP	GAU	2001
GUARDIAN CAP GRP LTD -CL A	GCG.A	2001
LOBLAW COMPANIES LTD	L.	2001
MACDONALD DETTWILER & ASSOC	MDA.	2001
MANITOBA TELECOM SVCS INC	MBT.	2001
SHAWCOR LTD -CL A	SCL.A	2001
SPIRE ENERGY LTD	SEY	2001
TRICAN WELL SERVICE LTD	TCW.	2001
WESTJET AIRLINES LTD	WJA	2001
WESTON (GEORGE) LTD	WN.	2001
DALSA CORP	DSA.	2002
DUPONT CANADA -CL A	DUP.A	2002
HERITAGE OIL CORP	HOC.	2002
LOBLAW COMPANIES LTD	L.	2002
MACDONALD DETTWILER & ASSOC	MDA.	2002
TEMPEST ENERGY CORP	TMY.A	2002
WESTJET AIRLINES LTD	WJA	2002
WESTON (GEORGE) LTD	WN.	2002
ZENON ENVIRONMENTAL INC	ZEN.	2002
DUPONT CANADA -CL A	DUP.A	2003

Company	Ticker	Year
ENGLOBE CORP	EG	2003
ENSIGN ENERGY SERVICES INC	ESI.	2003
GREAT NORTHERN EXPL LTD	GNL	2003
HIGH RIVER GOLD MINES LTD	HRG	2003
MACDONALD DETTWILER & ASSOC	MDA.	2003
OLYMPIA ENERGY INC	OLY.	2003
SHOPPERS DRUG MART CORP	SC.	2003
TRICAN WELL SERVICE LTD	TCW.	2003
WESTJET AIRLINES LTD	WJA	2003
CELTIC EXPLORATION LTD	CLT.	2004
DALSA CORP	DSA.	2004
FIRST QUANTUM MINERALS LTD	FM.	2004
GREAT CANADIAN GAMING CORP	GC	2004
MANITOBA TELECOM SVCS INC	MBT.	2004
SNC-LAVALIN GROUP INC	SNC.	2004
VAQUERO ENERGY LTD	VAQ	2004
WESTJET AIRLINES LTD	WJA	2004
WORKBRAIN CORP	WB.	2004
ZENON ENVIRONMENTAL INC	ZEN.	2004
BLACKROCK VENTURES INC	BVI	2005
CALVALLEY PETROLEUM INC	CVI.A	2005
CARMANAH TECHNOLOGIES CORP	CMH.	2005
FIRST QUANTUM MINERALS LTD	FM.	2005
GREAT CANADIAN GAMING CORP	GC	2005
IMPERIAL METALS CORP	III.	2005
KICK ENERGY CORP	KEC	2005
ONEX CORP	OCX	2005
PRAIRIE SCHOONER PETROLEUM	PSL.	2005
SNC-LAVALIN GROUP INC	SNC.	2005
VAQUERO ENERGY LTD	VAQ	2005
BLACKROCK VENTURES INC	BVI	2006
BOW VALLEY ENERGY LTD	BVX.	2006
DIVESTCO INC	DVT	2006
GALLEON ENERGY INC	GO.A	2006
MACDONALD DETTWILER & ASSOC	MDA.	2006
MINACS WORLDWIDE INC	MXW	2006
PETROBANK ENERGY RES LTD	PBG.	2006
PROEX ENERGY LTD	PXE.	2006
SNC-LAVALIN GROUP INC	SNC.	2006
TMX GROUP INC	X.	2006
TRANZEO WIRELESS TECH INC	TZT	2006
WESTERN LAKOTA ENERGY SVCS	WLE	2006

Note: Stocks that stopped trading in a given year are highlighted and a T-Bill assumption was made for the remaining of the year.

APPENDIX C

Sample Report Produced for each Possibly Undervalued Stock of Q1 to Decide Whether to Include or not Include a Q1 Stock in the Sophisticated Portfolio of Truly Undervalued Stocks

H Paulin (TSE: PAP.A) — April 1st, 2005

Price Graph

Summary of Analysis and Recommendation

Entry Price:	**$37.83**
Intrinsic Value / Share ($):	56.75
Margin of Safety (%)	33.3
P/BV:	.93
P/E:	8.0
Market Cap is ($millions):	39.9
# of Analysts Covering:	0
Current Price:	**$37.50**

Recommendation

BUY

Overview

Profile: H Paulin was founded in 1920 and is a manufacturer and distributor of fasteners, fluid system products, automotive parts and screw machine components. All manufacturing facilities are located in Ontario and consist of cold heading, nut forming, metal stamping, screw machine, adhesive coating, and packaging processes. Distribution facilities are located in Vancouver, Edmonton, Winnipeg, Toronto, Montreal, Moncton and Cleveland.

Management: Paulin's President, Richard Paulin, has been on the board of directors since 1980. While a majority of board members are independent, the chairman of the board is also the company president, which may represent a conflict of interest. Furthermore, the company leases property (on the order of $750,000 per year) from its controlling shareholders. Two Paulin family accounts own a combined 70% of the company. The company has been paying a small dividend since 2003, currently yielding 1.25%

Value Indicators: The stock has a P/B ratio of .93 and a P/E of 8. This is a small cap company with a market cap of $39.9M, with no institutional analysts covering this stock. The current market price offers investors a discount to both the earnings power as well as the replacement value of assets estimated later. The company has seen sales and income growth in both its manufacturing as well as its distribution segments.

Valuation: Stock is Undervalued

Business and Financial Risk: We classify Paulin as having **medium business risk**. While the manufacturing segment is highly cyclical, the company's operating margin has stayed between 3.4% and 7% through the last operating cycle. Furthermore, manufacturing now represents only 2/3 of sales and continues to have less bearing on financial results as sales growth has been increasing rapidly in the distribution segment. The company uses contracts as part of its distribution business, which allows for some revenue certainty. However, 23% of the company's sales are from one customer, increasing its risk.

We classify Paulin as having **medium financial risk**. They have a current debt to capital ratio of 40% including operating leases, which is consistent with its capital structure of the last several years and what we think the company should target. Note that the company does not carry cash, opting instead to use its operating line of credit, which could cause financing difficulties under extraordinary circumstances.

Given our assessment of the company's business and financial risks, we estimate Paulin's debt rating at BBB, resulting in a weighted average cost of capital (WACC) of 8.7%, versus an ROIC (replacement) of 8.3%.

An Asset Based Purchase: Since Paulin's WACC exceeds its ROIC, this is an asset based investment. Moreover, almost 80% of the company's assets are liquid (A/R and inventories), therefore there is an opportunity to buy liquid assets (namely A/R and inventory) at a discount. We estimate Net Asset Value (NAV) of $58.44/share and Earnings Power Value (EPV) of $55.06/share. Incorporating a 50% catalyst contribution to these estimates, due to the fact that most of the NAV is in liquid assets and that the company has remained a family run business with continued control for many years, we arrive at an intrinsic value of $56.75/share. Considering a 33% margin of safety yields an entry price of $37.83/share. Hence, our recommendation is to purchase the stock at the current price.

APPENDIX D.1
Sophisticated Portfolio – Truly Undervalued Stocks: 1985-1999

Company	Ticker	Year
CANADA MALTING CO LTD	CMG.2	1985
GOODYEAR CANADA INC	GT.1	1985
HOWDEN (D.H.) & CO LTD	HDH	1985
QUEBECTEL GROUP INC	QTG	1986
FOUR SEASONS HOTELS -LTD VTG	FS.	1986
MAJESTIC CONTRACTORS LTD	MJC	1986
CANBRA FOODS LTD	CBF.2	1987
ISLAND TELEPHONE CO LTD	IT.1	1987
CORE-MARK INTL INC-OLD	CMK.4	1988
CANADA MALTING CO LTD	CMG.2	1988
SLATER STEEL INC	SSI.	1989
IVACO INC -CL A	IVA.	1989
DOFASCO INC	DFS.	1989
SLATER STEEL INC	SSI.	1990
DOFASCO INC	DFS.	1990
WESTBURNE INC	WBI.2	1990
ALGOMA CENTRAL CORP	ALC.	1991
ALGOMA CENTRAL CORP	ALC.	1992
ATCO LTD -CL I	ACO.X	1993
ALGOMA CENTRAL CORP	ALC.	1993
GSW INC -CL B	GSW.Z.	1993
GLENTEL INC	GLN	1994
ALGOMA CENTRAL CORP	ALC.	1994
ATCO LTD -CL I	ACO.X	1994
MAPLE LEAF FOODS INC	MFI.	1995
MELCOR DEVELOPMENT LTD	MRD.	1995
GWIL INDUSTRIES	GWS.	1995
SYNERGISTICS INDS LTD -CL A	SGX.A	1995
SYNERGISTICS INDS LTD -CL A	SGX	1996
IVACO INC -CL A	IVA.	1996
CONSOLTEX GROUP INC	CTX.1	1996
WILMINGTON CAP MGMT -CL A	WCM.A	1996
ADVENTURE ELECTRONICS INC	AVN.1	1996
WILMINGTON CAP MGMT -CL A	WCM.A	1997
SENVEST CAPITAL INC	SEC.	1997
HAMMOND MFG LTD -CL A	HMM.A	1997
SYNERGISTICS INDS LTD -CL A	SGX.A	1997
CASCADES INC	CAS	1997
ROLLAND INC	RL.1	1997
GLENTEL INC	GLN	1997
IVACO INC -CL A	IVA	1998
HAMMOND MFG LTD -CL A	HMM.A	1998
SCOTTS RESTAURANTS	SRG	1998
AECON GROUP INC	ARE.	1998

APPENDIX D.2
Sophisticated Portfolio Stocks - Truly Undervalued Stocks: 1999-2007

Company	Ticker	Year
MELCOR DEVELOPMENT LTD	MRD.	1999
NOBLE CHINA INC	NMO.	1999
SENVEST CAPITAL INC	SEC.	1999
HAMMOND MFG LTD -CL A	HMM.A	1999
MELCOR DEVELOPMENT LTD	MRD.	2000
PAULIN H & CO LTD	PAP.A	2000
CFS GROUP INC	CFZ.	2000
CROWN LIFE INSURANCE CO	CLA.	2000
DOMCO TARKETT INC	DOC.1	2000
HAMMOND MFG LTD -CL A	HMM.A	2000
DATAMARK SYSTEMS GROUP INC	DMK.	2001
MCGRAW-HILL RYERSON LTD	MHR.	2001
NORWALL GROUP INC	NGI.	2001
PAULIN H & CO LTD	PAP.A	2001
SHERRITT INTERNATIONAL CORP	S.	2001
ELK POINT RESOURCES INC	ELK.	2002
PAULIN H & CO LTD	PAP.A	2002
SINO-FOREST CORP	TRE.	2002
WILMINGTON CAP MGMT -CL A	WCM.A	2002
ALGOMA CENTRAL CORP	ALC.	2003
GLENTEL INC	GLN.	2003
HARRIS STEEL GROUP INC	HSG.	2003
PAULIN H & CO LTD	PAP.A	2003
PHOENIX CANADA OIL CO LTD	PCO.	2004
SHERRITT INTERNATIONAL CORP	S.	2004
HAMMOND POWER SOLUTIONS INC	HPS.A	2005
MCGRAW-HILL RYERSON LTD	MHR.	2005
NOVICOURT INC	NOV.	2005
PAULIN H & CO LTD	PAP.A	2005
CLARKE INC	CKI.	2006
CO-OPERATORS GEN INS CO	CCS.PA	2006
PACIFIC NORTHERN GAS LTD	PNG.	2006
SENVEST CAPITAL INC	SEC.	2006

Note: Stocks that stopped trading in a given year are highlighted and a T-Bill assumption was made for the remaining of the year.

APPENDIX E.1

Low P/E and Low P/BV Stocks - Possibly Undervalued Stocks: 2007-2009

Company	Ticker	Year
BRAMPTON BRICK LTD -CL A	BBL.A	2007
BUILDERS ENERGY SRVCS TRUST	BET.Z	2007
CANADIAN SUB-SURFACE ENERGY	CSE.Z	2007
CANFOR CORP	CFP.	2007
CIRCA ENTERPRISES INC	CTO.	2007
COLLICUTT ENERGY SVCS LTD	COH.Z	2007
CORETEC INC	CYY	2007
ENERCHEM INTL INC	ECH.	2007
HIGH ARCTIC ENERGY SERVICES	HWO.	2007
INTL FOREST PRODUCTS -CL A	IFP.A	2007
PAULIN H & CO LTD	PAP.A	2007
PEBERCAN INC	PBC.	2007
SENVEST CAPITAL INC	SEC.	2007
WEST FRASER TIMBER CO	WFT.	2007
ALTAGAS UTILITY GROUP INC	AUI.	2008
AUTOMODULAR CORP	AM.	2008
CASCADES INC	CAS.	2008
CLARKE INC	CKI.	2008
DIVESTCO INC	DVT	2008
DUNDEE CORP	DC.A	2008
EGI FINANCIAL HOLDINGS INC	EFH.	2008
HOMBURG INVEST INC	HII.B	2008
HYDUKE ENERGY SERVICES INC	HYD.	2008
LINAMAR CORP	LNR.	2008
MARTINREA INTL INC	MRE.	2008
PEBERCAN INC	PBC.	2008

Note: Stocks that stopped trading in a given year are highlighted and a T-Bill assumption was made for the remaining of the year.

APPENDIX E.2

High P/E and High P/BV Stocks: 2007-2009

Company	Ticker	Year
AVCORP INDUSTRIES INC	AVP.	2007
CAMECO CORP	CCJ	2007
HANFENG EVERGREEN INC	HF.	2007
MERCATOR MINERALS LTD	ML	2007
MERIDIAN GOLD INC	MDG	2007
PETROBANK ENERGY RES LTD	PBG.	2007
POTASH CORP SASK INC	POT	2007
RALLY ENERGY CORP	RAL.Z	2007
RITCHIE BROS AUCTIONEERS INC	RBA	2007
ROGERS COMMUNICATIONS -CL B	RCI	2007
SILVER STANDARD RES INC	SSRI	2007
WESTERN OIL SANDS INC	WTO.Z	2007
WORLD POINT TERMINALS INC	WPO.	2007
ZCL COMPOSITES INC	ZCL	2007
AGNICO EAGLE MINES LTD	AEM	2008
CAMECO CORP	CCJ	2008
CONSTELLATION SOFTWARE INC	CSU.	2008
OILEXCO INC	OIL.	2008
PETROBANK ENERGY RES LTD	PBG.	2008
PETROMINERALES LTD	PMG.	2008
POTASH CORP SASK INC	POT	2008
PRISTINE POWER INC	PPX.	2008
ROGERS COMMUNICATIONS -CL B	RCI	2008
SNC-LAVALIN GROUP INC	SNC.	2008
SOLIUM CAPITAL INC	SUM	2008
WATERFURNACE RENEWABLE ENRGY	WFI.	2008

Note: Stocks that stopped trading in a given year are highlighted and a T-Bill assumption was made for the remaining of the year.

APPENDIX E.3

Sophisticated Portfolio Stocks - Truly Undervalued Stocks: 2007-2009

Company	Ticker	Year
CIRCA ENTERPRISES INC	CTO.	2007
PAULIN H & CO LTD	PAP.A	2007
ALTAGAS UTILITY GROUP INC	AUI.	2008