Do Value Investors Add Value?
Searching for and Finding Value: Canadian Evidence 1999-2007

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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 1999 and 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 period that persists in a bull and bear market and during a recession/recovery. Value stocks 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, produces significantly positive excess returns over and above the naive approach of simply selecting low P/E - P/BV ratio stocks.

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1. Introduction

A large body of academic research has shown that value stocks (i.e., low P/E or 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) 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.

However, 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 their second step of their analysis which is to find stocks that are truly undervalued by valuing individually each stock and arriving at their investment decision.

Unfortunately, academics do not and cannot know which stocks value investors eventually get to 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 in order to identify truly undervalued stocks. And it is this step in particular that previous academic research has not examined.

Using Canadian data for the period 1999-2007, this paper has two objectives. 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 value stocks (i.e., low P/E - low P/BV) to beat growth stocks (i.e., high P/E - high P/BV).[1] The second is to examine whether the second step of 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, on average, beat stocks selected naïvely via the first step of stock selection.[2] 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 period that persists in a bull and bear market and during a recession/recovery. 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, produces significantly positive excess returns over and above a naive approach of simply selecting low P/E or 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.

[1] 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)).

[2] 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 and total stock returns 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. Total stock returns 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.

Companies trade only on the Toronto Stock Exchange (TSX), that is, they are not cross-listed in any other exchange. We started with COMPUSTAT's industrial (non-financials) 4503 year-firm observations (data) belonging to 1081 companies. 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 included in the sample. Finally, to be included in our sample a stock had to have a price over $1 and fiscal year end December. [3,4]

Our data, which are adjusted for stock splits and stock dividends, are for each year in the 1999 to 2007 period. This period was chosen to reduce the amount of labor intensity of the work needed for this project and because this period was a most challenging period for the stock markets that included a strong bull market, a recession and the burst of the stock market bubble. After all aforementioned

[3] 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 EPS and BVPS by April of year (t).

[4] 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.

screenings, we end up with 1301 cross sectional-time series (firm-year) observations belonging to a cumulative number of 377 companies over the sample period. The table below reports the total number of observations (companies examined) per year.

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

At the end of April of every year (t), starting 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 (Q4) are reported in the table below.

		Q1 (Value)		Q4 (Growth)	
	Year	P/E	P/BV	P/E	P/BV
1999	Max	9.72	0.72	83.72	17.64
1999	Min	2.38	0.35	25.00	2.41
2000	Max	7.23	0.67	144.00	11.48
2000	Min	0.42	0.39	29.12	3.87
2001	Max	8.19	0.78	140.00	8.52
2001	Min	2.65	0.27	21.46	3.28
2002	Max	8.72	0.78	133.33	6.41
2002	Min	3.45	0.33	27.17	3.76
2003	Max	9.82	0.72	85.00	5.23
2003	Min	3.26	0.47	23.91	2.85
2004	Max	10.77	1.09	135.00	7.19
2004	Min	5.05	0.54	28.64	3.31
2005	Max	11.30	1.03	135.00	13.34
2005	Min	4.05	0.73	30.95	4.94
2006	Max	12.82	1.27	86.11	18.61
2006	Min	2.55	0.58	29.80	4.57

We end up with 79 observations in the low P/E - low P/BV basket (Q1) and 85 observations in the high P/E - high P/BV basket (Q4). There are a few reasons for this discrepancy. First, unlike Q4, we actually carry out valuations on Q1 stocks and there were several stocks for which we could not find company annual report data needed for the valuation. As a result, these stocks were subsequently eliminated from Q1. Also, while a few of the 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 these reasons, in some years, we have 1 to 2 fewer stocks in Q1 than Q4.

Returns are then obtained for the following year (starting in May 1, 1999 and ending April 30, 2007) for each stock within each portfolio 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-4 (Q4) 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. The number of observations for each basket per year is reported in the table below. The 79 overall observations in Q1 and 85 observations in Q4 correspond to 48 and 59 companies, respectively.

	Q1 (Value)	Q4 (Growth)
Year	Number of observations	Number of observations
1999	8	10
2000	10	11
2001	11	12
2002	8	9
2003	9	10
2004	10	10
2005	11	11
2006	12	12
Total	79	85

A time series of non-overlapping annual returns are obtained for each stock within the Q1 and Q4 portfolios (and for each portfolio) from May 1, 1999 to April 30, 2007. Summary statistics of variables of interest (i.e., value and growth stocks, 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 2 stocks in 2000 and 1 in 2002 that stopped trading within a given year. For Q4, there were 1 stock in 2000, 1 in 2001 and 1 in 2002. Combined in Q1 and Q4, we had overall 6 companies for which we had to use the 6 month t-bill assumption. Appendices A, B (which show the stocks contained in Q1 and Q4) 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, all 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. 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 had 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 low or high the probability of management change 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 60 cases, in which NAV was above EPV, 18 cases for which EPV was above NAV and only 1 case for which a growth assumption was necessary, that is, when Vg was higher than EPV. 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. 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 above its new entry price may mean that much of the upside on the stock has been realized and better investment opportunities may exist on 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 24 companies. 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.

Year	# of Stocks in Sophisticated Portfolio
1999	4
2000	6
2001	7
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 the mean and median annual returns of P/E - P/BV sorted value (Q1) and growth (Q4) portfolios, respectively and the value premium (Q1 minus Q4) per year and overall, as well as the variance of returns of the value and growth portfolios and their Sharpe ratio performance metrics. Figure 1, on the other hand, shows diagrammatically how the value premium has behaved over the sample period.

It is quite apparent from these Tables that a value premium exists and it is quite impressive for its size and consistency. 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 1999-2007, the mean (median) annual value premium (Q1-Q4) is 16.60% (18.80%). For comparative purposes, using only P/E sorting, Athanassakos (2009) finds that the mean value premium in Canada for the period 1985-2005 is 6.30%, whereas Athanassakos (2008), 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. It is obvious that classifying value and growth stocks by cross sorting P/E and P/BV ratios produces higher value premiums. Finally, also for comparative purposes, the average annual total returns of the TSX value weighted (emphasis on large cap stocks) and equally weighted (emphasis on small cap stocks) stock universes over our sample period were 10.50% and 21.80%, respectively.

Tables 1 and 2 also allow us a glimpse into the behavior of the value premium during a recession and/or bear market. For example, www.thedowtheory.com/bear&recessions.htm reports years 2000 and 2002 as bear market years and year 2001 as a recessionary year. Tables 1 and 2 show that no matter what the state of the world is, the value strategy beats the growth strategy. Table 1 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, however, which shows medians, 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 comparable to the value premiums at favorable states of the world over our sample period. These findings are consistent with Athanassakos (2009), and Kwag and Lee (2006) and Athanassakos (2008) who, similar to our findings, show that value stocks in Canada and the US, respectively 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? Tables 1 and 2 report variances of the annual mean and median returns of the value and growth portfolios, while Table 3 reports market cap of the value and growth portfolios per year. These tables show that value stocks tend to be smaller than growth stocks, and that value portfolios have higher annual variance of returns than the growth portfolios. One can therefore argue that the return differences between value and growth stocks are attributed to the higher risk of value stocks. While this may be true, Tables 1 and 2 show that the Sharpe ratio of value stocks (mean 0.83 and median 0.75) far exceeds the Sharpe ratio of growth stocks (mean 0.75 and median 0.19) indicating that value stocks have had a better risk adjusted performance than growth stocks over our sample period. Moreover, the risk issue is addressed in the following section, where risk is incorporated in the valuation exercise, intrinsic value, entry price and final investment decision making. Risk is not what drives the outperformance of value stocks, especially the ones that value investors choose to eventually invest in.

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 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 stocks. 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 period 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. If a stock's current price is below its entry price (i.e., its intrinsic stock value less 1/3 of the intrinsic value - the margin of safety) 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", whereas 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 Q1 portfolio are reported in Tables 5 and 6. Figure 2, on the other hand, shows diagrammatically the excess return of the sophisticated portfolio over the naïve portfolio over the sample period. 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 after painstaking valuations.

The sophisticated portfolio beats the naïve Q1 portfolio both in mean and median returns. The mean (median) outperformance over the whole sample period is 13.20% (9.40%). In every year, but one, the sophisticated portfolio, beats the naïve portfolio when looking at mean returns, and in every year but two when looking at median returns. Tables 5 and 6 also show that the sophisticated portfolio beats the naïve one in both bear market years and the recessionary market year. 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 every year, the percentage of positive returns in the sophisticated portfolio is higher than the percentage of positive returns in the naïve portfolio.

Tables 5 and 6 also show that the variance of the sophisticated portfolio is somewhat higher than the variance of the naïve one. However, Table 8 shows that the market cap of these two portfolios is about the same. Moreover, the risk adjusted returns of the sophisticated portfolio exceed those of the unsophisticated 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 1.07 and 0.83, respectively when using mean returns, and 0.90 vs. 0.75 when examining median returns. 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. 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. Finally, 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 may not actually be higher than that of the naïve portfolio.

Not only does the sophisticated portfolio beats the naïve portfolio Q1, but Q1 significantly beats Q4, making the sophisticated portfolio outperform Q4 by a substantial amount which is too large to be explained by risk differences. As a result, value investors proceeding to the second step in the stock selection process do add value.[5]

4. Conclusions

Value investors wish to buy stocks at a discount. 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 or P/BV ratios. Second, they carefully apply a valuation technology to all possibly

[5] 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.

undervalued stocks that passed the first step 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 1999 and 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 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 a bull and bear market and during a recession/recovery. Value stocks 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, produces significantly positive excess returns over and above the naive approach of simply selecting low P/E - P/BV ratio stocks.

Value investors proceeding to the second step of the stock selection process do add value.

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Table 1
Mean Annual (%) Returns to P/E – P/BV Ratio Based Value (Q1) and Growth (Q4) Strategies by Year: 1999-2007

	Mean Return		Value Premium
Year	Q1	Q4	Q1-Q4
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	

Table 2
Median Annual (%) Returns to P/E – P/BV Ratio Based Value (Q1) and Growth (Q4) Strategies by Year: 1999-2007

	Median Return		Value Premium
Year	Q1	Q4	Q1-Q4
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 average	25.9%	7.0%	18.8%
Variance	8.8%	3.2%	
Risk-free rate	3.6%	3.6%	
SHARPE ratio	0.75	0.19	

Table 3
Mean and Median Market Cap ($ Mil.) to P/E – P/BV Ratio Based Value (Q1) and Growth (Q4) Strategies by Year: 1999-2007

	Q1 (Value)		Q4 (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 (Q4) Strategies: 1999-2007

	Q1 (Value)		Q4 (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: 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	

Table 6
Median Annual (%) Returns to P/E – P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies by Year: 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 average	35.3%	25.9%	9.4%
Variance	12.4%	8.8%	
Risk-free rate	3.6%	3.6%	
SHARPE ratio	0.9	0.75	

Table 7
Percentage of Positive and Negative Returns by P/E - P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies: 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: 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

Figure 1
Mean and Median Annual (%) Value Premia to P/E – P/BV Ratio Based Value (Q1) and Growth (Q4) Strategies by Year: 1999-2007

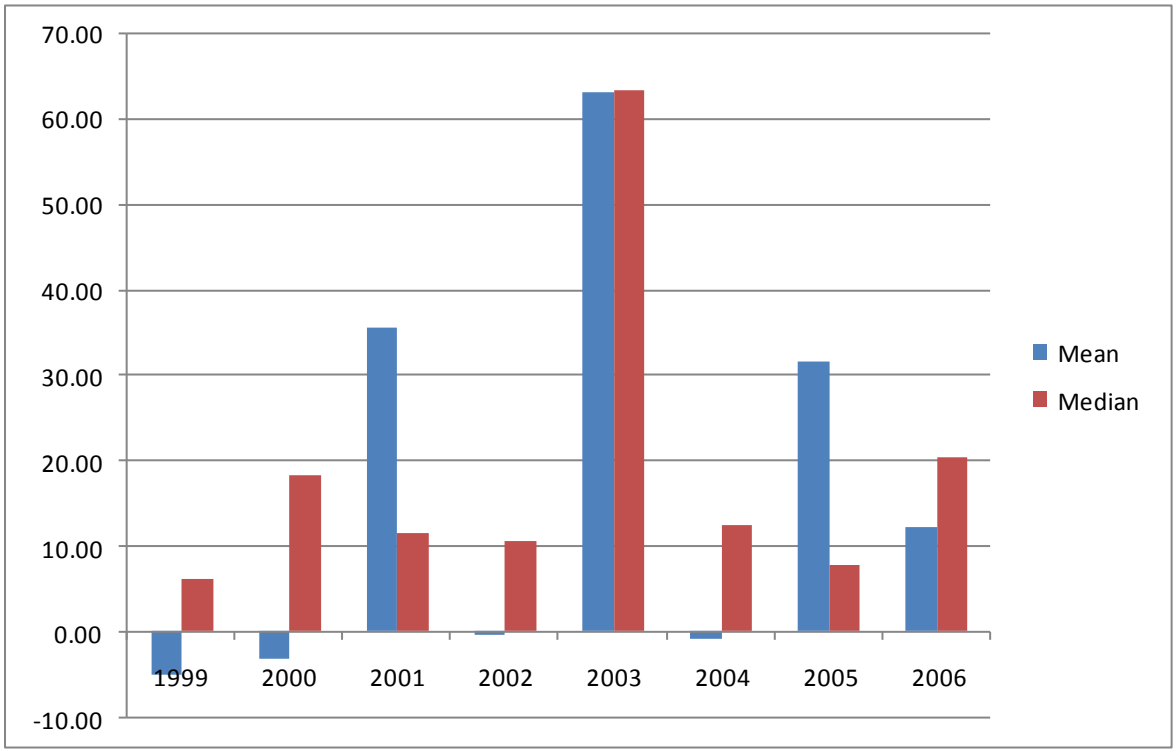
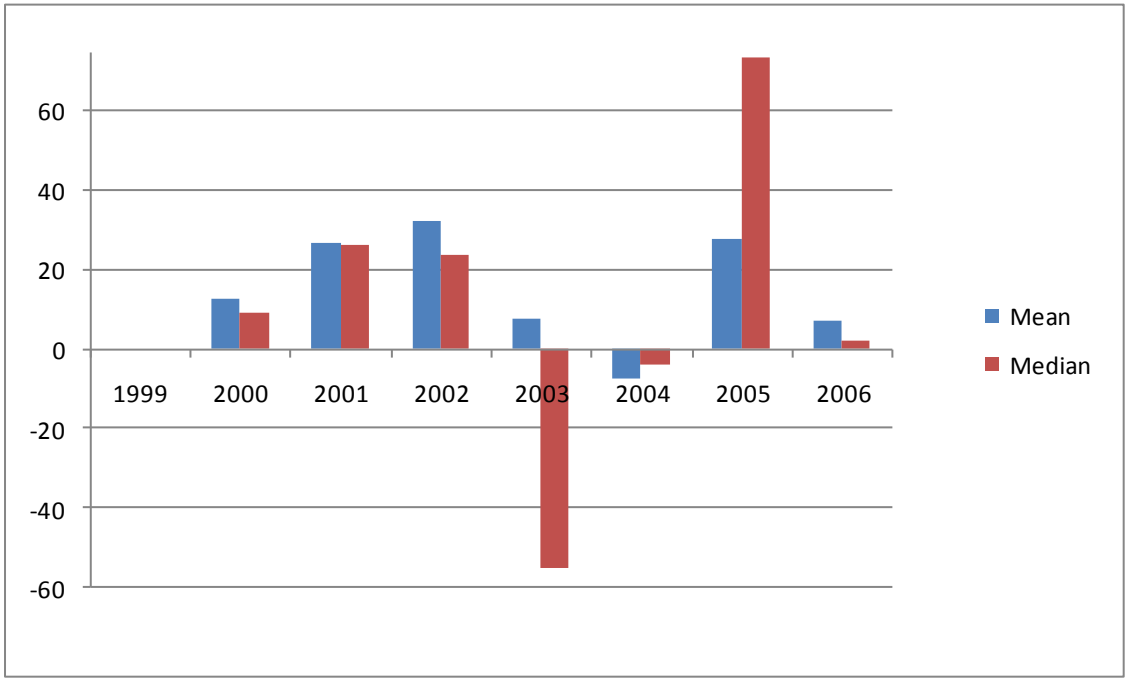


Figure 2
Mean and Median Annual (%) Returns to P/E – P/BV Ratio Based Naïve Value (Q1) and Sophisticated Value (Q1S) Strategies by Year: 1999-2007



APPENDIX A

Low P/E and Low P/BV Stocks: Possibly Undervalued Stocks

Company	Ticker	Year
AECON GROUP INC	ARE.	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
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.PA	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.PA	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

High P/E and High P/BV Stocks

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

Sophisticated Portfolio Stocks: Truly Undervalued Stocks

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.