SEASONALITY IN VALUE VS. GROWTH STOCK RETURNS AND THE VALUE PREMIUM

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ABSTRACT

Employing data from each of the three US stock markets separately, namely, AMEX, NASDAQ and NYSE, over the period 1985-2006, the paper finds that both value and growth stocks exhibit seasonal strength in January and the first half of the year, but the effect is stronger for the value stocks. In the second half of the year, however, the opposite is true. Growth stocks exhibit weaker performance than value stocks. Seasonality is also observed in the value premium. There is no evidence that NASDAQ stocks drive the results. The findings, which are pervasive across all markets examined, are consistent with the gamesmanship hypothesis and portfolio rebalancing by professional portfolio managers. However, they are not consistent with the argument that it may be higher risk that drives the outperformance of value stocks. This is because while portfolio managers seem to rebalance aggressively into value stocks at the beginning of the year, they switch out of growth stocks more aggressively in the second half of the year, thus negating the argument that value stocks bear more risk that growth stocks. Finally, the paper shows that the difference we observe in value and growth stock return seasonality is not driven by size, but it is rather a pure value effect.

INTRODUCTION

The Finance literature is replete with evidence in support of the January Effect, namely that stocks on average have higher returns in January than the rest of the year (See, for example, Rozeff and Kinney (1976), Gultekin and Gultekin (1983), Tinic and Barone-Adisi (1988)). This phenomenon is much stronger for small cap than large cap stocks (See, for example, Reinganum (1983), Keim (1983)). Researchers have attributed the drivers of this phenomenon to either tax loss selling (See, for example, Reinganum (1983), Roll (1983)) or to portfolio rebalancing by professional portfolio managers (See, for example, Haugen (1990) and Haugen and Lakonishok (1988)), but without a clear consensus or a universally accepted theory to date. Despite that, most of the evidence seems to side with portfolio rebalancing by professional portfolio managers (also known as the gamesmanship hypothesis) as the driving force behind the January effect (See, for example, Ritter and Chopra (1989), Athanassakos and Schnabel (1994), Cuny, Fedenia and Haugen (1996), Chevalier and Ellison (1997), and Ackert and Athanassakos (2001)).[1]

To understand the motivation behind the gamesmanship hypothesis, one needs to understand the investment decision process. Greenwald et al. (2001, p. 21) describe it as follows: "Even though most investment dollars are in the hands of institutions, institutions do not make investment decisions; individuals working for institutions do. These people have their own interest and agendas, some of which may not be in line with the interest of the institution for which they work."

The gamesmanship hypothesis asserts that the high returns in risky securities in January are caused by systematic shifts in the portfolio holdings of professional portfolio managers who attempt to influence performance based remuneration. Professional portfolio managers are net buyers of risky stocks

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[1] The tax loss selling hypothesis argues that, as the year end approaches, individual investors sell stocks whose value has declined in order to realize losses to offset their capital gains. There is no clear evidence or support for the tax loss selling hypothesis as an explanation of the January Effect (See, for example, Reinganum (1983), Tinic, Baroni-Adesi and West (1987), Ritter (1988) and Koogler and Maberly (1994)).

at the beginning of the year, when they are attempting to outperform benchmarks. Taking higher risk at the beginning of the year is associated with an expectation of higher returns in the year ahead. Come later on in the year, portfolio managers lock in returns by removing lesser known, risky stocks from their portfolios and replace them with well known, less risky stocks or risk free securities.[2] The excess demand for risky stocks at the beginning of the year and excess supply of such stocks towards the latter part of the year affect stock returns in a predictable way, which is up in January and down later on in the year leading to the seasonal pattern in stock returns known as the January Effect. While most professional portfolio managers enter the market in January, when the annual performance evaluation period starts, they do not all exit the market at the same time as different portfolio managers realize returns which are acceptable to them and guarantee their Christmas bonus at different points in time throughout the year.

About the same time that evidence had started to surface regarding the January effect, a parallel body of academic research furnished evidence that low P/E stocks (referred to as value stocks, since this is the group of stocks from which value investors normally choose stocks to invest in) beat high P/E stocks (referred to as growth stocks, since this is **not** the group of stocks from which value investors normally choose stocks to invest in). Basu (1977) was the first to provide evidence of a value premium, namely that value stocks tend to have, on average, higher returns than growth stocks. Others followed with similar evidence in different contexts. Chan, Hamao and Lakonishok (1991), Fama and French (1992, 1993, 1996), Lakonishok, Shleifer and Vishny (1994) and Chan and Lakonishok (2004) found evidence in both US markets and around the globe.

The evidence that a value premium exists is overwhelming. As a result, most academic arguments and research currently revolve around the reasons for the superior performance of value stocks. Two schools of thought have emerged in this regard. Proponents of efficient markets, such as Fama and French (1992, 1993, 1996, 1998), argue that the value premium exists because value stocks bear more risk. Others, however, such as La Porta, Lakonishok, Shleifer and Vishny (1997), and Chan and Lakonishok (2004), argue against market efficiency and rational pricing. They advocate that systematic errors made by investors and agency problems faced by institutional investors prevent the value premium from disappearing. Nevertheless, the empirical evidence on the drivers of the value premium is inconclusive (See, for example, Doukas, Kim and Pantzalis (2002), Doukas, Kim and Pantzalis (2004), Petkova and Zhang (2005), Phalippou (2008), and Lettau and Wachter (2007)).

This paper merges the seasonality in stock returns literature with that of the value premium and uses explanations of the former to help identify whether risk drives the latter over the 1985-2006 sample period. This paper argues that portfolio rebalancing and gamesmanship by portfolio managers drive not only the seasonal behavior of stock returns, in general, but also those of the value and growth stocks and the value premium, in particular. Since portfolio rebalancing and stock return seasonality are driven by risk based rebalancing by portfolio managers throughout the year, seasonality in the value premium, and differential seasonal behavior in the returns of value and growth stocks, if documented, will also be driven by risk differences between value and growth stocks. The question then is: Do value stocks exhibit stronger seasonality than growth stocks, which, according to the gamesmanship hypothesis, is driven by risk differences between value and growth stocks?

Previous studies of the value premium in the US markets have examined stock data from the CRSP database, which aggregates NYSE, NASDAQ and AMEX stocks. Loughran (1997), for example, in examining the behavior of the value premium, also investigates the January Effect of value stocks by aggregating all NYSE, NASDAQ and AMEX stocks. He classifies value and growth stocks based on book-to-market sorts and concludes that the book-to-market effect is a "manifestation of the low returns on small newly listed stocks outside of January coupled with a seasonal January for value stocks". But he does not attempt to explain what drives such seasonality. He then goes on to argue that small growth firms, which are overwhelmingly listed on NASDAQ, tend to drive the results.

[2] Chevalier and Ellison (1997) find exactly this in their study of portfolio holdings of growth and growth/income funds, namely that these funds rebalance their portfolio holdings towards higher quality, less risky stocks as the year end approaches.

In this paper, we will examine the seasonality of value vs. growth stocks in each market separately, as a robustness test of the generability of our findings, as different markets tend to attract different liquidity, capitalization and industry stocks. This way, we will be able to answer the following questions: Is there seasonality in the returns of value and growth stocks and the value premium and is it pervasive across all these separate markets?

The paper finds that both value and growth stocks exhibit seasonal strength in January and the first half of the year, but the effect is stronger for the value stocks. In the second half of the year, however, the opposite is true. Growth stocks exhibit weaker performance than value stocks. Seasonality is also observed in the value premium, which exhibits peak seasonal strength in the June to July period for NASDAQ and NYSE and relative seasonal weakness in the remaining months of the year. AMEX stocks, on the other hand, exhibit seasonal strength in the first seven months of the year and seasonal weakness thereafter, with AMEX value premium turning negative, which is unlike the NYSE and NASDAQ value premiums that always remain positive. While the findings are consistent with the January seasonal strength of value stocks found by Loughran (1997), there is no evidence that NASDAQ stocks drive the results. The findings, which are pervasive across all markets examined, are, in general, consistent with the gamesmanship hypothesis and portfolio rebalancing by professional portfolio managers. However, they are not consistent with the argument that it may be higher risk that drives the outperformance of value stocks. This is because while portfolio managers seem to rebalance aggressively into value stocks at the beginning of the year, they switch out of growth stocks more aggressively in the second half of the year (which they would not do if growth stocks had lower risk than value stocks), thus negating the argument that value stocks bear more risk that growth stocks.

Finally, the paper shows that the difference we observe in value and growth stock return seasonality is not driven by size, but it is rather a pure value effect for AMEX and NASDAQ stocks, while the evidence is mixed for NYSE stocks. This finding is inconsistent with the conclusions reached by Loughran (1997).

The rest of the paper is structured as follows. Section 2 develops the testable hypotheses. Section 3 discusses the data and methodology. Section 4 presents the empirical findings, while section 5 concludes the paper.

TESTABLE HYPOTHESES

Athanassakos and Schnabel (1994) provide the theoretical underpinning of the gamesmanship hypothesis. Their theory is also consistent with the tournament interpretation of the investment fund industry (See Brown, Harlow and Starks (1996)).

According to the gamesmanship hypothesis, the high returns on risky securities around the turn of the year are caused by systematic shifts in the portfolio holdings of professional portfolio managers who rebalance their portfolios to affect performance-based remuneration. Institutional investors are net buyers of risky securities around the turn of the year when they are motivated to include less-known, high risk securities in their portfolios and are trying to outperform benchmarks. Later on in the year, portfolio managers (as they rebalance their portfolios) divest from lesser-known, risky stocks and replace them with well known and less risky stocks or risk-free securities, such as government bonds. The excess demand/supply for risky stocks throughout the year bids the prices of these securities up/down.

If professional portfolio managers perceive the value stocks to be more risky than growth stocks they will, on average, load up on them at the beginning of the year. Towards the end of the year, they will switch out of value stocks and into less risky and more visible securities (including growth stocks) and in so doing lock in returns. As a result, we would expect to find seasonality not only in risky securities in general, but also in value and growth stocks and the value premium in particular, as value stocks (if they are riskier) should have, on average, higher returns than growth stocks in the first half of the year and weaker thereafter and, hence, stronger seasonality.

Consequently, we will test the following three hypotheses:

$H_{0,1}$: There is seasonality in the returns of value and growth stocks.

$H_{0,2}$: The returns of value stocks are stronger than the returns of growth stocks in the first half of the year and weaker in the second half of the year.

$H_{0,3}$: The value premium is positive in the first half of the year and negative in the second half of the year.

Consistent with the theoretical model of Athanassakos and Schnabel (1994), if risk based rebalancing by portfolio managers takes place thought-out the year, and if value stocks bear more risk that growth stocks, we should not expect to reject any of the above hypotheses.[3]

DATA SOURCES, SAMPLE SELECTION AND METHODOLOGY

This study uses data from three data bases. The first data base is the CRSP database from which monthly stock prices and total stock returns, as well as monthly shares outstanding and trading volumes are obtained, respectively, for AMEX, NASDAQ, and NYSE stocks. This database is also employed to derive market capitalization (i.e., size) by multiplying shares outstanding by price per share at the end of the previous month. The second database is COMPUSTAT from which trailing earnings per share (EPS) are obtained. The third database is the Institutional Brokers Estimate System (I/B/E/S) database from which the analysts' consensus (median) EPS forecast is obtained for every month of the year. In this study, as will be explained later, we define value and growth stocks based on price to earnings (P/E) ratio sortings. In the P/E ratio calculation, the price (P) is as of the end of June of year (t) and E is the basic annual earnings per share for companies with fiscal year end (t-1), as reported in COMPUSTAT. Utilizing P/E ratios to group stocks into value and growth enable us to also include financial stocks in our sample rather than exclude them as it is typical the case in studies that employ price to book ratios for such determination. Moreover, constructing portfolios based on P/E ratios rather than the market to book value ratios that are typically employed in the literature (See Fama and French (1992)) enable us to perform out of sample tests and look at the problem from a different angle as both ratios are being used by investors to screen stocks.

Our sample contains monthly data from 1985 to 2006. The firms included in the final sample passed the following filters:

(i) The price per share exceeds $1.

(ii) There is a consensus forecast for each stock's earnings per share available for twelve consecutive months – from January to December.

(iii) Companies are required to have return data available for the year following the determination of P/E ratios and matching stock returns are available from CRSP for the period examined.

(iv) Companies with negative P/E ratios are excluded.

The first criterion ensures that the sample is not dominated by penny stocks as severe liquidity problems exist in this group of stocks, and extremely high stock returns are not unusual for such stocks biasing value and growth stock returns. The second criterion makes sure that the stocks in our sample are those that professional portfolio managers would tend to invest in as evidence shows that they normally avoid stocks for which there are no consensus forecasts available (See, for example, Ackert and Athanassakos (2001)). The third criterion ensures data continuity and availability of successive monthly

[3] A possible criticism here is that we test a joint hypothesis. That is, we accept risk based portfolio rebalancing as true and if we find no difference in the returns of value and growth stocks we conclude that higher risk is not driving the value returns. What if portfolio rebalancing does not hold and so it does not shape seasonality in returns? But there is plenty of evidence in support of portfolio rebalancing (See, for example, Ritter and Chopra (1989), Athanassakos and Schnabel (1994), Cuny, Fedenia and Haugen (1996), Chevalier and Ellison (1997), and Ackert and Athanassakos (2001)). Moreover, as it will be reported later, both value and growth stocks exhibit seasonal behavior which is consistent with portfolio rebalancing as they are both risky investments, but value stocks do not consistently exhibit stronger seasonality than growth stocks throughout the year.

stock return observations. The fourth criterion helps prevent problems arising from including negative P/E ratio values and eliminate likely data errors (See La Porta, Lakonishok, Shleifer and Vishny (1997), Griffin and Lemmon (2002) and Cohen, Polk and Vuolteenaho (2003)).

After the above screens and adjustments for missing observations, the intersection of the three databases resulted in a total of 12,804, 313,779, and 344,712 cross sectional-time series (month-firm) observations for our final sample of 583, 4908 and 2977 AMEX, NASDAQ and NYSE unique firms, respectively. Examining the seasonality of the value premium in different markets will ensure that this effect is pervasive and not limited only to a particular market.

At the end of June of every year, starting in June 1985, firms are ranked based on P/E ratios from low to high and the ranked firms are divided into four groups of equal size[4]. The above process is repeated for every 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 multiples change over time, an arbitrary measure across time for all stocks in our sample would be inappropriate. Returns are then obtained from July to following June (starting in July 1985) for each stock within each quartile and equally weighted mean returns for each quartile are derived (See Fama and French (1992), Lakonishok, Shleifer and Vishny (1994) and La Porta, Lakonishok, Shleifer and Vishny (1997)). Quartile-1 (Q1) is the low P/E ratio quartile or the value stocks, while Quartile-4 (Q4) is the high P/E ratio quartile or the growth stocks. A cross sectional-time series of non-overlapping monthly stock returns are obtained for each quartile from July 1985 to June 2006.[5]

SUMMARY STATISTICS AND EMPIRICAL RESULTS

Table 1, Panels A, B and C report the summary statistics for the variables of interest in each of the three US markets examined. As designed, value stocks have much lower P/E ratios than growth stocks. We observe that value stocks have, on average, higher returns than growth stocks and are smaller and lower priced than growth stocks. They also trade a smaller number of shares than growth stocks. However, in all markets examined, the differences in size, price and shares traded between value and growth stocks are not substantial. That is value stocks, on average, are not extremely thinly traded stocks of micro cap companies.

Table 2, Panels A, B and C and Figures 1, 2 and 3 show that while both value and growth stocks have a strong seasonal strength in January, value stocks have a more pronounced January seasonal than growth stocks. Moreover, the value premium in January is statistically significant at traditional levels of significance. The P-values for the value and growth stocks also seem to indicate January strength for both groups of stocks, but that there is an overall stronger January seasonality for the value stocks than the growth stocks in terms of the strength of returns at the beginning of the year[6]. The findings are consistent across all three markets examined. As a result, while the findings are consistent with the January seasonal strength of value stocks found by Loughran (1997), there is no evidence that NASDAQ stocks drive the results. However, Table 2, Panels A, B and C and Figures 1, 2 and 3 also show that while value stocks have stronger seasonal than growth stocks in the first few months of the year, growth stocks have weaker seasonal performance than value stocks in the second half of the year.

As far as the value premium is concerned, Figure 4 shows that seasonality is also observed in the value premium, which exhibits peak seasonal strength in the June to July period for NASDAQ and NYSE

[4] We sort into quartiles. Most published papers on the one way sorts use 10 portfolio sorts (See Conrad, Cooper and Kaul (2003)). However, as Conrad, et al. (2003) have shown, support of the value premium increases with the fineness of sorting.

[5] We did not employ the typically used French database for the value and growth portfolios as we have passed the data through a number of additional screens in order to make sure that, among other things, the stocks we are examining are stocks that portfolio managers will tend to invest in. Moreover, we also wanted to keep stocks from each market separate in order to examine the pervasiveness of our findings.

[6] The P-values for the month of January examine the statistical significance of January returns. The P-values for the rest of the months of the year examine the statistical significance of the differences of February to December monthly stock returns from January.

and relative seasonal weakness in the remaining months of the year. AMEX stocks, on the other hand, exhibit seasonal strength in the first seven months of the year and seasonal weakness thereafter, with the AMEX value premium turning negative, which is unlike the NYSE and NASDAQ value premiums that always remain positive. However, the June-July peak for the value premium happens mainly because of weak growth stock returns than strong value stock returns. As we will see later, this throws a wrench into the argument that it may be risk that drives the seasonality in the returns of value stocks. In general, however, the value premium is higher in the first seven months of the year than the rest of the year.

Overall, and examining the seasonal return patterns for value and growth stocks, the findings appear to be consistent with the gamesmanship hypothesis and portfolio rebalancing by professional portfolio managers in that portfolio managers invest heavily in stocks (both value and growth stocks) in the first few months of the year and switching out of them in the second half of the year. The overall results are driven by risk, as it is a risk driven rebalancing of portfolios by portfolio managers throughout the year that drives seasonality in stock returns. These findings are consistent with $H_{0,1.}$

But from the paper's findings and the seasonal patterns of value and growth stocks, can we conclude that value stocks bear more risk than growth stocks? The answer is no. The paper's findings do not support the argument that value stocks have higher risk than growth stocks. First, both value and growth stocks exhibit seasonality as they are both perceived by portfolio managers to be risky investments. Second, portfolio managers rebalance out of growth stocks more aggressively in the June to July period and thereafter.[7] If value stocks bear higher risk that growth stocks then the stronger switching into value stocks in the first half of the year must be followed by stronger switching out of value stocks in the second half of the year. This is not happening. The fact that growth stocks decline in value more than value stocks in the second half of the year indicates that portfolio managers rebalance more aggressively out of growth stocks and this muddles the picture as it implies that growth stocks may be perceived as more risky than value stocks when rebalancing happens in the second half of the year. Portfolio managers get more aggressively into value stocks at the beginning of the year and rebalance more aggressively out of growth stocks in the second half of the year. This leads to the overall higher returns of value vs. growth stocks that other studies have also documented (See, for example, Fama and French (1992, 1998) and Lakonishok, et al. (1994)) and to a value premium which while it exhibits seasonality it mostly remains positive. The above findings are inconsistent with $H_{0,2}$ and $H_{0,3}$. Therefore, it is not possible to argue that value stocks are more or less risky or perceived to be more or less risky than growth stocks. It seems both value and growth stocks are viewed by portfolio managers as being risky investments with comparable risk. This prompts portfolio managers to rebalance in and out of such stocks throughout the year leading to the observed seasonal pattern in the returns of both groups of stocks. The comparability in risk of value and growth stocks is consistent with other studies that reached similar conclusions (See, for example, Athanassakos (2011), Lakonishok, et al. (1994) and Phalippou (2008)).

Could it be that the value vs. growth stock return seasonality is actually a size related seasonal behaviour rather than a value related effect? To this end, we sort independently the value and growth stocks by market cap and form size-related quartiles within the value and growth stock portfolios. We then compare the returns of small-value stocks to those of small-growth stocks. If size drives the value premium and value stocks are materially smaller than growth stocks, then small-value stocks should be expected to have much higher returns than small-growth stocks and the small value-growth stock return patterns throughout the year to be indistinguishable from the value vs. growth stock return patterns documented in Table 2, Panels A, B and C and Figures 1, 2 and 3. Table 3, Panels A, B and C and Figures 5, 6 and 7 purport to answer this question. Table 3, Panels A1 and A2, and Panels B1 and B2 and Figures 5 and 6 show that not only is the January strength similar for value and growth small cap stocks in the AMEX and NASDAQ markets, but the seasonal pattern throughout the year is quite comparable between value and growth small cap stocks. At the same time, the seasonal patterns observed in these Tables and

[7] One may argue that this is a liquidity induced effect, as growth stocks tend to be more liquid than value stocks and so easier to rebalance out of. Table 1, however, does not bear this out as it shows that volume and size differences between value and growth stocks are quite comparable in all markets examined.

Figures are quite different from those documented in Table 2, Panels A and B and Figures 1 and 2, further reinforcing the argument that the value vs. growth seasonal effect we found in these two markets is not related to size[8]. As far as the NYSE market is concerned, the evidence is mixed as there is some similarity in the seasonal patterns observed in Table 3, Panels C1 and C2 and Figure 7, and Table 2, Panel C and Figure 3. As a result, the difference we observe in value and growth stock return seasonality is not driven by size differences, but it is rather a pure value effect for AMEX and NASDAQ stocks, while the evidence is mixed for NYSE stocks. This finding is inconsistent with the conclusions reached by Loughran (1997).[9]

CONCLUSIONS

This paper merged the January Effect literature with that on the Value Premium and used explanations of the former to help identify whether risk drives the latter over the 1985-2006 sample period by examining the seasonal behavior of stock returns and the value premium in each of three US markets separately, namely AMEX, NASDAQ and NYSE as a robustness test of the generability of our findings. The paper argued that portfolio rebalancing and gamesmanship by portfolio managers drive not only the seasonal behavior of stock returns, in general, but also those of the value and growth stocks and the value premium, in particular. Since portfolio rebalancing and stock return seasonality are driven by risk based rebalancing by portfolio managers throughout the year, seasonality in the value premium, and differential seasonal behavior in the returns of value and growth stocks, if documented, will also be driven by risk differences between value and growth stocks.

The paper finds that both value and growth stocks exhibit seasonal strength in January and the first half of the year, but the effect is stronger for the value stocks. In the second half of the year, however, the opposite is true. Growth stocks exhibit weaker performance than value stocks. Seasonality is also observed in the value premium, which exhibits peak seasonal strength in the June to July period for NASDAQ and NYSE and relative seasonal weakness in the remaining months of the year. AMEX stocks, on the other hand, exhibit seasonal strength in the first seven months of the year and seasonal weakness thereafter, with AMEX value premium turning negative, which is unlike the NYSE and NASDAQ value premiums that always remain positive. While the findings are, in general, consistent with the January seasonal strength of value stocks found by Loughran (1997), there is no evidence that NASDAQ stocks drive the results. The findings, which are pervasive across all markets examined, are consistent with the gamesmanship hypothesis and portfolio rebalancing by professional portfolio managers. However, they are not consistent with the argument that it may be higher risk that drives the outperformance of value stocks. This is because while portfolio managers seem to rebalance aggressively into value stocks at the beginning of the year, they switch out of growth stocks more aggressively in the second half of the year (which they would not do if growth stocks had lower risk than value stocks), thus negating the argument that value stocks bear more risk that growth stocks.

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[8] The mean market cap of small-value and small-growth portfolios, the return seasonalities of which are reported in Table 3, are respectively, 20.8 million vs. 35.2 million for AMEX, 20.8 million vs. 32.5 million for NASDAQ and 112.7 million vs. 158.3 million for NYSE.

[9] To enhance the confidence in our findings and the findings' generability, we also ran the Fama-French model using the data for the value and growth portfolios and relevant factors from French's web site. We ran the Fama-French regression over the 1985-2006 period with HmL as the dependent variable and the dummy (binary) variables for February-December, the market variable and SmB variable as independent variables. The intercept of this regression is the January value premium. We find that the value for the intercept is 1.20 (p-value 0.03). September and October are statistically well below January. The market variable loading is -0.32 (p-value 0.00) and the SmB variable loading -0.34 (p-value 0.00). The r-squared of the regression is 0.63. After we control for the market effect and the size effect, there is still a seasonal pattern in the value premium. Moreover, the value premium is not firm size related as the size factor loading has a negative sign, which means that the value premium and its seasonality are not driven by the size effect. We would like to thank John McDermott for suggesting this approach and for these findings.

Finally, the paper shows that the difference we observe in value and growth stock return seasonality is not driven by size, but it is rather a pure value effect for AMEX and NASDAQ stocks, while the evidence is mixed for NYSE stocks. This finding is inconsistent with the conclusions reached by Loughran (1997).

Table 1: Summary Statistics of Key Variables: July 1985 - June 2006

Panel A: AMEX*

Total Sample	**Mean**	**Median**	**Max**	**Min**	**Std**
P/E	31.4	15.6	1062	0	67.9
Raw Return	-0.0017	0.0000	0.9987	-0.9946	0.1492
Price	$13.20	$8.30	$1,765.00	$1.10	$34.60
Size (000's)	$312,578.00	$84,798.00	$8,575,773.00	$461.50	$359,043.00
Volume (000's)	33650	310	2368490	0	25290
Value Stocks					
P/E	7.8	8	13.8	0.42	2.53
Raw Return	-0.0006	0.0000	0.9001	-0.7889	0.1300
Price	$14.00	$10.70	$332.00	$1.07	$22.70
Size (000's)	$151,701.00	$59,566.00	$5,584,036.00	$3,310.00	$409,824.00
Volume (000's)	4839	480	786870	0	31064
Growth Stocks					
P/E	86.7	45.2	1062	22.1	120.7
Raw Return	-0.0058	0.0000	0.9933	-0.8736	0.1400
Price	$20.20	$11.90	$366.00	$1.10	$38.40
Size (000's)	$486,523.00	$118,762.00	$7,298,675.00	$6,601.00	$918,299.00
Volume (000's)	11843	1410	1092960	0	46960

***** P/E is price to earnings ratio. The price (P) is as of the end of June of year (t) and E is the basic annual earnings per share for companies with fiscal year end (t-1), as reported in COMPUSTAT. Return is the monthly total stock return. Size is price per share time's shares outstanding as at the end of previous month. Volume is the monthly number of shares traded. Returns, volume, price and shares outstanding are all from CRSP.

Panel B: NASDAQ*

Total Sample	**Mean**	**Median**	**Max**	**Min**	**Std**
P/E	36.2	15	10600	0	171.1
Raw Return	0.0007	0.0000	0.9997	-0.9985	0.1637
Price	$16.30	$12.40	$1,130.80	$1.10	$18.00
Size (000's)	$618,575.00	$86,331.00	$602,432,918.00	$8.88	$6,872,974.00
Volume (000's)	25980	1656	59292490	0	219070
Value Stocks					
P/E	9.7	8.7	16.3	0.007	3.28
Raw Return	0.0034	0.0000	0.9916	-0.9808	0.1400
Price	$14.90	$11.70	$310.00	$1.10	$13.10
Size (000's)	$297,285.00	$69,119.00	$166,424,073.00	$166.00	$2,170,159.00
Volume (000's)	12550	986	9700110	0	102730
Growth Stocks					
P/E	109.7	43.8	10600	8.5	344.2
Raw Return	-0.0061	0.0000	0.9851	-0.9985	0.1700
Price	$19.70	$14.30	$1,130.80	$1.10	$25.70
Size (000's)	$1,337,476.00	$152,107.00	$505,804,815.00	$226.50	$9,707,488.00
Volume (000's)	54370	4143	12000000	0	315800

***** P/E is price to earnings ratio. The price (P) is as of the end of June of year (t) and E is the basic annual earnings per share for companies with fiscal year end (t-1), as reported in COMPUSTAT. Return is the monthly total stock return. Size is price per share time's shares outstanding as at the end of previous month. Volume is the monthly number of shares traded. Returns, volume, price and shares outstanding are all from CRSP.

Panel C: NYSE*

Total Sample	**Mean**	**Median**	**Max**	**Min**	**Std**
P/E	33.6	16.6	7308	0	121.6
Raw Return	0.0021	0.0073	0.9975	-0.9976	0.1100
Price	$28.90	$24.00	$983.00	$1.10	$26.20
Size (000's)	$3,490,647.00	$640,538.00	$581,098,858.00	$53.90	$14,059,655.00
Volume (000's)	42129	7460	15000000	0	157600
Value Stocks					
P/E	8.6	8.9	13.7	0	2.7
Raw Return	0.0034	0.0073	0.9199	-0.9723	0.1100
Price	$26.50	$22.30	$571.50	$1.10	$21.80
Size (000's)	$2,731,316.00	$547,298.00	$447,993,403.00	$268.10	$9,674,870.00
Volume (000's)	38840	6880	5600000	0	146520
Growth Stocks					
P/E	91.7	38.9	7306	0	248
Raw Return	-0.0016	0.0046	0.9034	-0.9976	0.1221
Price	$31.20	$25.10	$983.00	$1.10	$30.40
Size (000's)	$4,726,480.00	$767,577.00	$524,351,578.00	$53.90	$17,914,164.00
Volume (000's)	54024	10460	4700000	0	163890

***** P/E is price to earnings ratio. The price (P) is as of the end of June of year (t) and E is the basic annual earnings per share for companies with fiscal year end (t-1), as reported in COMPUSTAT. Return is the monthly total stock return. Size is price per share time's shares outstanding as at the end of previous month. Volume is the monthly number of shares traded. Returns, volume, price and shares outstanding are all from CRSP.

Table 2: Seasonality of Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies by Month of the Year: July 1985- June 2006

Panel A: AMEX

	P/E Ratio Sorted Quartiles		
	Q1 (Value)	Q4 (Growth)	Q1 - Q4
Year	*Mean**	*Mean**	*Mean***
Jan	0.043034	0.023137	0.019897
(P-Value)	(0.000000)	(0.016400)	(0.0118)
Feb	0.015890	0.013660	0.002230
(P-Value)	(0.059000)	(0.515500)	(0.7624)
Mar	-0.007765	-0.013431	0.005666
(P-Value)	(0.000400)	(0.012600)	(0.6679)
Apr	0.004015	-0.011947	0.015962
(P-Value)	(0.003100)	(0.010700)	(0.0001)
May	0.012911	0.01025	0.002661
(P-Value)	(0.022500)	(0.349100)	(0.0032)
Jun	0.006014	-0.010513	0.016527
(P-Value)	(0.005200)	(0.014500)	(0.0212)
Jul	-0.00293	-0.017303	0.014373
(P-Value)	(0.000300)	(0.002200)	(0.0167)
Aug	-0.022653	-0.008496	-0.014157
(P-Value)	(0.000000)	(0.016600)	(0.1354)
Sep	-0.017699	-0.011588	-0.006111
(P-Value)	(0.000000)	(0.008800)	(0.2416)
Oct	-0.03132	-0.035289	0.003969
(P-Value)	(0.000000)	(0.000000)	(0.0306)
Nov	-0.005854	-0.004303	-0.001551
(P-Value)	(0.000200)	(0.040000)	(0.4024)
Dec	0.008064	0.003788	0.004276
(P-Value)	(0.006800)	(0.147800)	(0.0554)

* P-value for January signifies statistical difference from zero; P-value for rest of the months signifies statistical difference from January. ** P-value signifies value premium statistically different from zero. The values shown (above P-value) for each month of the year refer to the average returns of the value and growth stocks and to the average value premium for the corresponding month.

Panel B: NASDAQ

	P/E Ratio Sorted Quartiles		
	Q1 (Value)	**Q4 (Growth)**	**Q1 - Q4**
Year	*Mean**	*Mean**	*Mean***
Jan	0.023148	0.018201	0.004947
(P-Value)	(0.000000)	(0.000000)	(0.1064)
Feb	0.005629	-0.008319	0.013948
(P-Value)	(0.000000)	(0.000000)	(0.0000)
Mar	-0.002935	-0.017026	0.014091
(P-Value)	(0.000000)	(0.000000)	(0.0000)
Apr	-0.003182	-0.007546	0.004364
(P-Value)	(0.000000)	(0.000000)	(0.1403)
May	0.026977	0.012368	0.014609
(P-Value)	(0.000000)	(0.082200)	(0.0000)
Jun	0.004541	-0.001730	0.006271
(P-Value)	(0.000000)	(0.000000)	(0.0237)
Jul	-0.001635	-0.029232	0.027597
(P-Value)	(0.000000)	(0.000000)	(0.0000)
Aug	-0.004660	-0.019054	0.014394
(P-Value)	(0.000000)	(0.000000)	(0.0000)
Sep	-0.001555	-0.009908	0.008353
(P-Value)	(0.000000)	(0.000000)	(0.0029)
Oct	-0.030170	-0.025114	-0.005056
(P-Value)	(0.000000)	(0.000000)	(0.1306)
Nov	0.012720	0.010014	0.002706
(P-Value)	(0.000000)	(0.012200)	(0.3569)
Dec	0.012129	0.008059	0.004070
(P-Value)	(0.000000)	(0.002100)	(0.1524)

* P-value for January signifies statistical difference from zero; P-value for rest of the months signifies statistical difference from January. ** P-value signifies value premium statistically different from zero. The values shown (above P-value) for each month of the year refer to the average returns of the value and growth stocks and to the average value premium for the corresponding month.

Panel C: NYSE

	P/E Ratio Sorted Quartiles		
	Q1 (Value)	**Q4 (Growth)**	**Q1 - Q4**
Year	*Mean**	*Mean**	*Mean***
Jan	0.013692	0.009808	0.003884
(P-Value)	(0.000000)	(0.000000)	(0.0714)
Feb	-0.005232	-0.01117	0.005938
(P-Value)	(0.000000)	(0.000000)	(0.0127)
Mar	-0.007386	-0.007137	-0.000249
(P-Value)	(0.000000)	(0.000000)	(0.9169)
Apr	0.012298	0.011606	0.000692
(P-Value)	(0.520200)	(0.449000)	(0.7307)
May	0.022573	0.017599	0.004974
(P-Value)	(0.000000)	(0.001000)	(0.0074)
Jun	0.021206	0.012175	0.009031
(P-Value)	(0.000500)	(0.319100)	(0.0000)
Jul	-0.004835	-0.015396	0.010561
(P-Value)	(0.000000)	(0.000000)	(0.0000)
Aug	-0.018478	-0.025702	0.007224
(P-Value)	(0.000000)	(0.000000)	(0.0040)
Sep	0.000093	-0.003436	0.003529
(P-Value)	(0.000000)	(0.000000)	(0.0860)
Oct	-0.012629	-0.01278	0.000151
(P-Value)	(0.000000)	(0.000000)	(0.9589)
Nov	0.010967	0.004289	0.006678
(P-Value)	(0.206600)	(0.018100)	(0.0010)
Dec	0.004391	0.000652	0.003739
(P-Value)	(0.000000)	(0.000000)	(0.0793)

* P-value for January signifies statistical difference from zero; P-value for rest of the months signifies statistical difference from January. ** P-value signifies value premium statistically different from zero. The values shown (above P-value) for each month of the year refer to the average returns of the value and growth stocks and to the average value premium for the corresponding month.

Table 3: Seasonality of Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies for Small Cap Stocks by Month of the Year: July 1985- June 2006*

Panel A1: AMEX Value Small Cap Stock Return Seasonality

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Return	0.0514	0.0014	-0.0217	0.0007	-0.0011	-0.0097	0.0119	-0.0105	-0.0460	-0.0703	-0.0311	-0.0245
(P-Value)	(0.007)	(0.091)	(0.013)	(0.067)	(0.059)	(0.032)	(0.159)	(0.000)	(0.000)	(0.000)	(0.002)	(0.005)

Panel A2: AMEX Growth Small Cap Stock Return Seasonality

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Return	0.0493	-0.0117	-0.0035	-0.0670	0.0178	-0.0340	-0.0486	-0.0543	-0.0158	-0.0150	-0.0285	-0.0252
(P-Value)	(0.030)	(0.070)	(0.009)	(0.000)	(0.320)	(0.008)	(0.001)	(0.000)	(0.031)	(-0.001)	(0.011)	(0.015)

Panel B1: NASDAQ Value Small Cap Stock Return Seasonality

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Return	0.0321	0.0032	-0.0088	-0.0145	-0.0085	-0.0047	-0.0093	-0.0153	-0.0099	-0.0489	-0.0044	-0.0066
(P-Value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Panel B2: NASDAQ Growth Small Cap Stock Return Seasonality

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Return	0.0326	-0.0038	-0.0183	0.0163	0.0060	-0.0170	-0.0274	-0.0221	-0.0175	-0.0497	-0.0071	-0.0150
(P-Value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)

Panel C1: NYSE Value Small Cap Stock Return Seasonality

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Return	0.0188	-0.0067	-0.0158	0.0076	0.0179	0.0170	-0.0070	-0.0378	-0.0024	-0.0211	0.0065	-0.0038
(P-Value)	(0.000)	(0.000)	(0.000)	(0.022)	(0.856)	(0.726)	(0.000)	(0.000)	(0.000)	(0.000)	(0.0100)	(0.000)

Panel C2: NYSE Growth Small Cap Stock Return Seasonality

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Return	0.0114	-0.0158	-0.0096	0.0094	0.0135	0.0150	-0.0120	-0.0377	-0.0106	-0.0233	-0.0010	-0.0053
(P-Value)	(0.001)	(0.000)	(0.000)	(0.686)	(0.661)	(0.461)	(0.000)	(0.000)	(0.000)	(0.012)	(0.000)	(0.000)

* P-value for January signifies statistical difference from zero; P-value for rest of the months signifies statistical difference from January. The value shown above P-value for each month of the year refers to the average return for the corresponding month over the sample period.

Figure 1: Seasonality of AMEX Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies by Month of the Year: July 1985 - June 2006

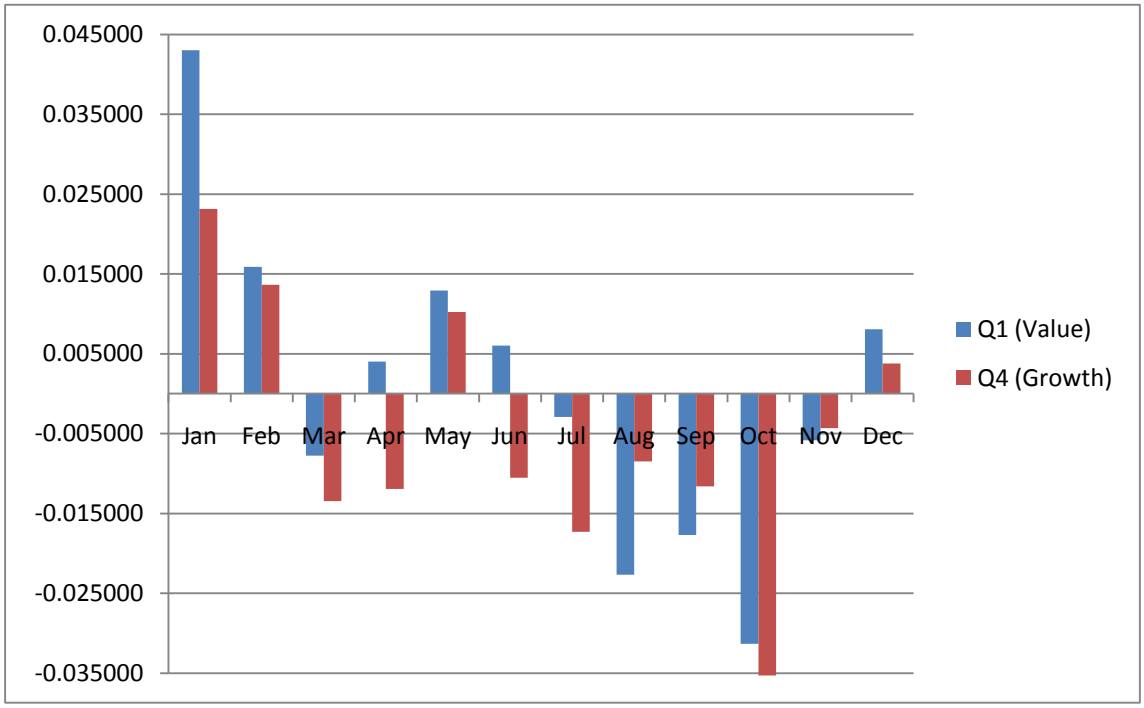


Figure 2: Seasonality of NASDAQ Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies by Month of the Year: July 1985- June 2006

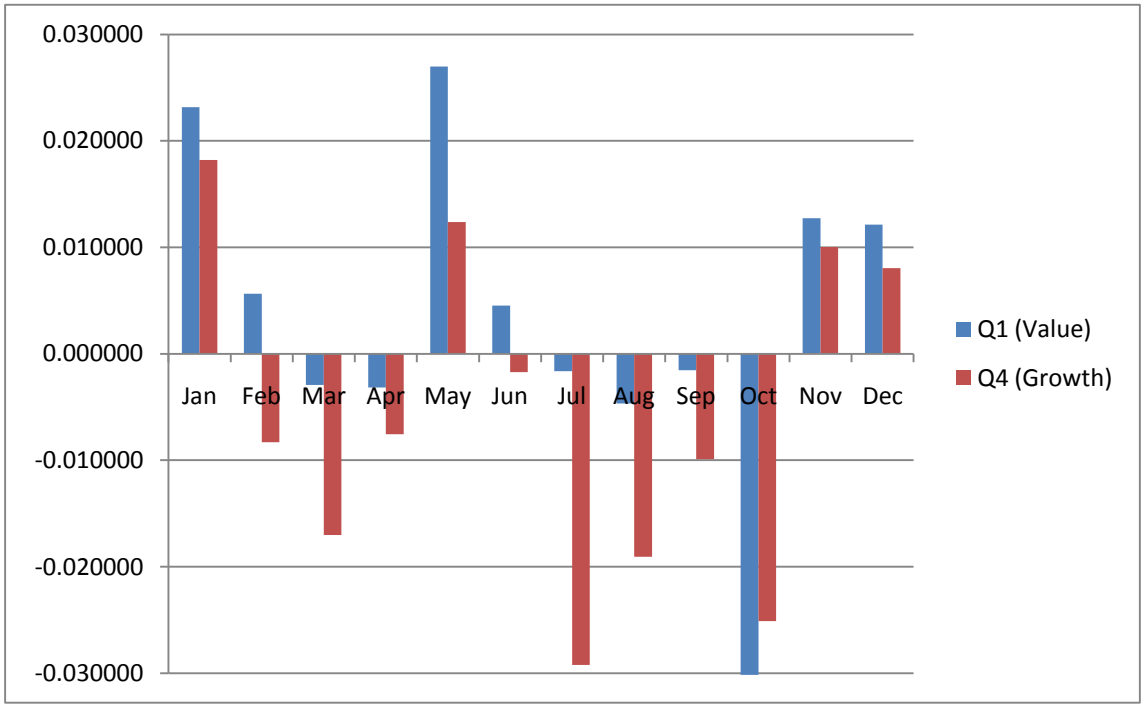


Figure 3: Seasonality of NYSE Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies by Month of the Year: July 1985- June 2006

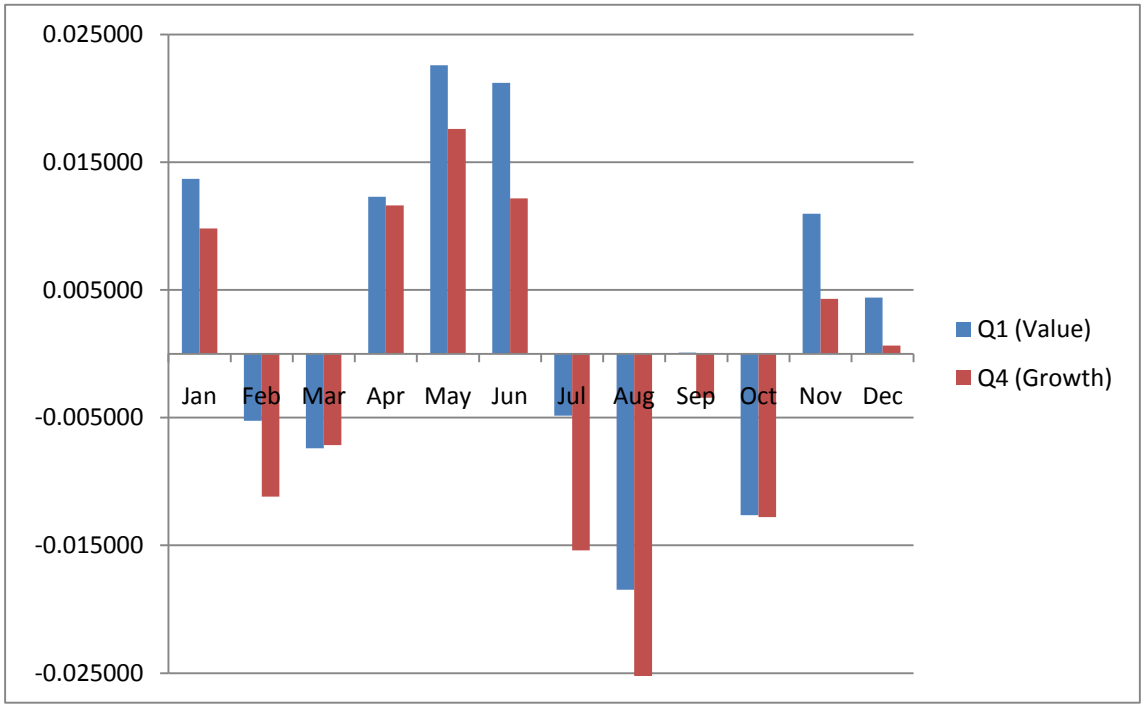
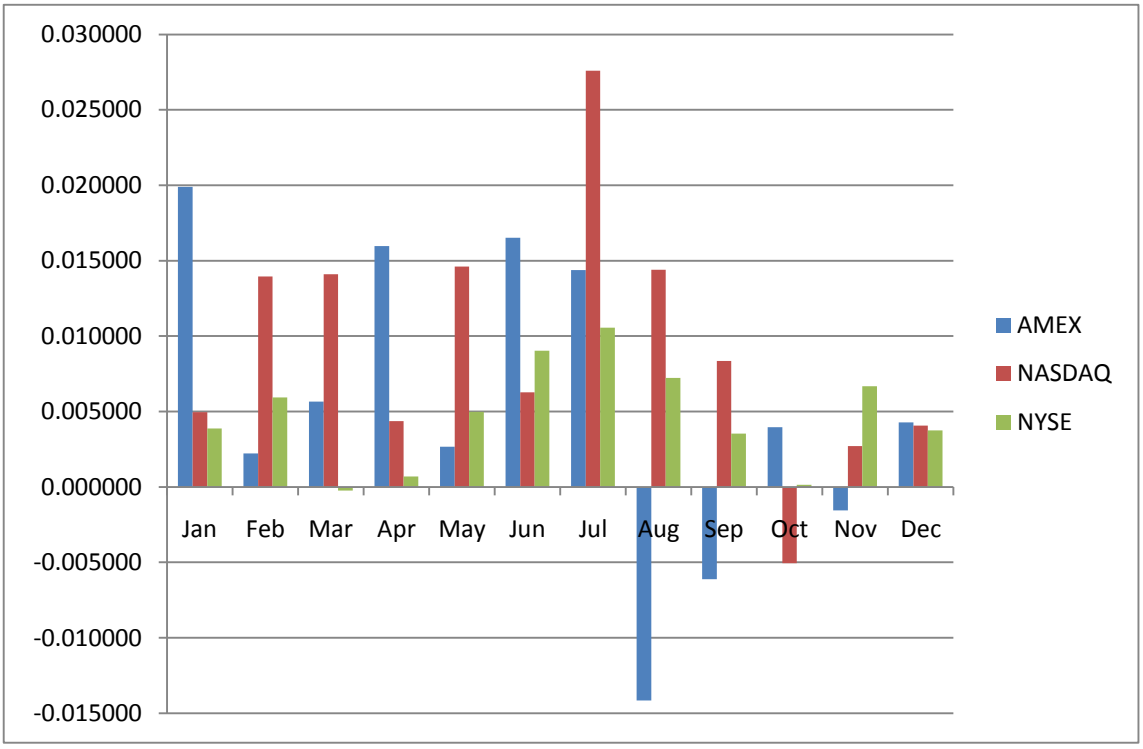


Figure 4: Seasonality of AMEX, NASDAQ, and NYSE Value Premiums to P/E Ratio (June, Trailing) Based Value and Growth Strategies by Month: July 1985 - June 2006*

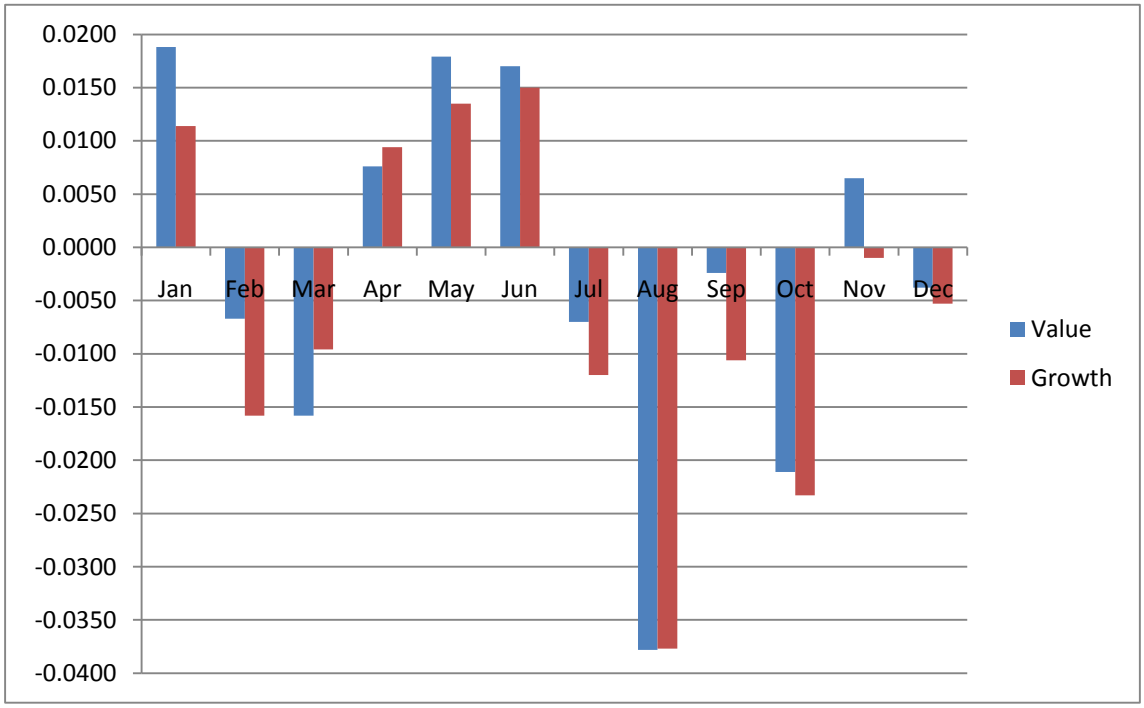


* Value premiums for AMEX, NASDAQ and NYSE are from Table 2, Panels A, B, and C, respectively and represent the mean difference in raw monthly returns of value less growth stocks.

Figure 5: Seasonality of AMEX Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies for Small Cap Stocks by Month of the Year: July 1985- June 2006

Figure 6: Seasonality of NASDAQ Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies for Small Cap Stocks by Month of the Year: July 1985- June 2006

Figure 7: Seasonality of NYSE Total Stock (Raw) Returns to P/E Ratio (June, Trailing) Based Value and Growth Strategies for Small Cap Stocks by Month of the Year: July 1985- June 2006



REFERENCES

Ackert, L. F. and G. Athanassakos, 2001, Visibility, Institutional Preferences and Agency Considerations, *Journal of Psychology and Financial Markets 2*, 201-209.

Athanassakos, G., 2011, The Performance, Pervasiveness and Determinants of Value Premium in Different US Exchanges: 1985-2006, *Journal of Investment Management*, Forthcoming.

Athanassakos, G. and J. Schnabel, 1994, Professional Portfolio Managers and the January Effect: Theory and Evidence, *Review of Financial Economics* 4, 79-91.

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.

Brown, K. C., W. V. Harlow and L. Starks, 1996, Of Tournaments and Temptations: An Analysis of Managerial Incentives in the Mutual Fund Industry, *Journal of Finance 51*, 85-110.

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

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

Chevalier, J, and G. Ellison, 1997, Risk taking by Mutual Finds as a Response to Incentives, *Journal of Political Economy 105*, 1167-1200.

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

Conrad, J., M.Copper, and G. Kaul, 2003, Value versus Glamour, Journal of Finance 58, 1969-1995.

Cuny, C., Fedenia, M., and Haugen, R. A., 1996, Professional Investor Re-entry and the January Effect, *Advances in Financial Economics 2*, 47-74.

Doukas, J., C. Kim, and C. Pantzalis, 2002, A Test of the Errors-in-Expectations of the Value/Growth Stock Returns Performance: Evidence from Analysts' Forecasts, *Journal of Finance 57*, 2143-2165.

Doukas, J., C. Kim, and C. Pantzalis, 2004, Divergent Opinions and the Performance of Value Stocks, *Financial Analysts' Journal*, November/December, 55-64.

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

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

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

Fama, E. F., and K. R. French, 1998, Value versus Growth: *The International Evidence, Journal of Finance 53*, 1975-1999.

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.

Gultekin, M. N, and N. B. Gultekin, 1983, Stock Market Seasonality: International Evidence, *Journal of Financial Economics 12*, 469-481.

Haugen, R.A., *Modern Investment Theory*, 1990, Second Edition, New Jersey: Prentice-Hall, Englewood Cliffs, 1990.

Haugen, R.A. and J. Lakonishok, 1988, *The Incredible January Effect: The Stock Market's Unsolved Mystery*, Dow Jones-Irwin, Illinois.

Keim, D. B., 1983, Size Related Anomalies and Stock Market Seasonality – Further Empirical Evidence, *Journal of Financial Economics 12*, 13-32.

Koogler, P., and E. Maberly, 1994, Additional Evidence of Year-End Motivated Trading by Individual Investors, 1962-1986, *Journal of the American Taxation Association 16*, 122-137.

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

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

Lettau, M. and J. A. Wachter, 2007, Why is Long-Horizon Equity Les Risky? A Duration Based Explanation of the Value Premium, *Journal of Finance 60*, 55-92.

Loughran, T., 1997, Book-to-Market Across Firm Size, Exchange and Seasonality: Is There an Effect?, *Journal of Financial and Quantitative Analysis 32*, 249-268.

Petkova, R. and L. Zhang, 2005, Is Value Riskier Than Growth?, *Journal of Financial Economics*, Forthcoming.

Phalippou, L., 2008, Where is the Value Premium?, *Financial Analysts Journal 64*, March, 41-48.

Reinganum, M. R., 1983, The Anomalous Stock Market Behavior of Small Firms in January –Empirical tests for Tax Loss Selling Effects, *Journal of Financial Economics 12*, 89-104.

Ritter, J. R., 1988, The Buying and Selling Behavior of Individual Investors at the Turn of the Year, *Journal of Finance 43*, 701-717.

Ritter, J. R., and N. Chopra, 1989, Portfolio Rebalancing and the Turn of the Year Effect, *Journal of Finance 44*, 149-166.

Roll, R., 1983, On Computing Mean Returns and the Small Firm Premium, *Journal of Financial Economics 12*, 371-386.

Rozeff, M. S., and Kinney, W. R. Jr., 1976, Capital market Seasonality: The Case of Stock Returns, *Journal of Financial Economics 3,* 379-402.

Tinic, S.M., G. Barone-Adesi, and R.R. West, 1987, "Seasonality in Canadian Stock Prices: A Test of the 'Tax-Loss-Selling Hypothesis'", *Journal of Financial and Quantitative Analysis,* 51-64.