IS THE VALUE EFFECT SEASONAL? EVIDENCE FROM GLOBAL EQUITY MARKETS

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ABSTRACT

This paper extends the research on value premium by examining patterns of seasonality exhibited in the book-to-market effect in major global equity markets. The results provide evidence supporting the January effect in the value premium phenomenon. Using stock market indices for Asia Pacific; Europe, Australasia, and Far East (EAFE); and Europe, with and without the U.K., Scandinavian countries, the U.K., U.S., and Japan form 1975 through 2007, the paper provides out-of-sample evidence from twenty-one countries that comprise different index portfolios. As a robustness measures, we use regression analysis, paired means tests, and non-parametric tests to examine whether the persistence of the anomalous January value premium is real and significant. The annualized excess January value premium ranges from 42.96 percent for Scandinavian countries to 9.24 percent for EAFE markets with 20.28 percent for U.S. Even though such a predictable pattern exists, our analysis suggests that large standard deviations would not allow a viable investment strategy.

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KEYWORDS: Value premium, International equity market, January effect

INTRODUCTION

Long-term investment data makes it clear that value stocks (firms with high book-to-market equity ratios) outperform growth stocks (firms with low book-to-market equity ratios). This book-to-market (B/M) equity effect, also known as value premium, is persistent over time and across regions (see for example, Chan, Hamao, and Lakonishok, 1991; De Bondt and Thaler, 1985, 1987; Fama and French, 1992, 1995, 1996, 1998; Haugen and Baker, 1996; Lakonishok, Shleifer, and Vishny, 1994). The finance literature provides several competing explanations for this value premium. These explanations vary from usage of a bad model for controlling risk (Black and Fraser, 2004; Fama, 1998; Fama and French, 1995, 1996, 1998; Kiku, 2006; Lakonishok, Shleifer, and Vishny, 1994; Lettau and Ludvigson, 2001; Petkova and Zhang, 2005; Zhang, 2005), behavioral biases (Daniel, Hirshleifer, and Teoh, 2001; De Bondt and Thaler, 1987; Haugen, 1995; Hirshleifer, 2001; Kothari, 2000; Lakonishok, Shleifer, and Vishny, 1994), random occurrences (Kothari, Shanken, and Sloan, 1995), to simply a case of data snooping (Lo and Mackinlay, 1990). The value premium remains a puzzle in spite of considerable research effort in finding an explanation for the higher returns earned by value stocks relative to growth stocks. Our paper extends the research on value premium by examining the pattern of seasonality exhibited in book-to-market effect in the major global equity markets. While value premium has been persistent, the important research question is whether there is a predictable pattern to the premium. In addition, if any such pattern in value premium exists, does it provide profitable arbitrage opportunities to investors?

Our results provide evidence of January effect in the value premium phenomenon. The consistent result across all major indices ensures that seasonal pattern in value premium is not the result of data mining. Using stock market indices for Asia Pacific, EAFE (Europe, Australasia, and Far East), Europe (with and without the U.K.), Scandinavian countries, the U.K., U.S., and Japan across time period 1975 through 2007, our study provides out-of-sample evidence from twenty-one countries that comprise different index

portfolios. As robustness measures, we use regression analysis, paired means t-tests, and non-parametric tests to examine whether the persistence of anomalous January value premium is real and significant.

Our empirical analysis shows that the annualized excess January value premium ranges from 42.96 percent for Scandinavian countries to 9.24 percent for EAFE markets with 20.28 percent for U.S. These findings are important to investors seeking to understand and exploit market anomalies such as seasonality and value effect. Even though such predictable pattern exists, our analysis suggests that large standard deviations would not allow a viable investment strategy.

This article is organized as follows. Section II is a discussion of the literature relevant to our current study. In Section III, we present the data and methodology to form portfolios. We conduct our empirical analysis in Section IV. More specifically, we examine the monthly distribution of the value premium using mean and regression tests and present robustness measures employing paired means tests, non-parametric tests, and asset-pricing regression models. Section V concludes the article.

LITERATURE REVIEW

It has been well established in the finance literature that the average stock returns are significantly higher in January than in any other calendar months. This January effect was first identified by Wachtel (1942) who shows that odds in favor of rise in stock price are higher compared to odds in favor of price decline. Subsequently, three decades later, Rozeff and Kinney (1976) analyze the stocks listed on New York Stock Exchange (NYSE) and find that average monthly returns are higher in January than non-January months. During the sample period of 1904-1974, the equal-weighted index of stocks listed on NYSE generated an average return of 3.5 percent in January compared to 0.5 percent in rest of months of the year. Gultekin and Gultekin (1983) show that January effect is not limited to U.S. equity market but prevalent in the global market. In their study of 16 developed equity markets globally, they find evidence of January effect in 15 countries. Roll (1983) and Reinganum (1983) find that the January effect is more pronounced in small firms. In addition, Keim (1983) also finds that small firms outperform large firms mainly in January. Blume and Stambaugh (1983) adjust for bid-ask bias in the measurement of small-stocks' returns and find that size effect is limited to January.

The persistence of January effect over a long period of time has fascinated finance researchers. Several explanations have been offered for the January effect. Roll (1983) and Reinganum (1983) argue that January effect is an outcome of tax-loss selling by investors. Several other studies provide evidence supporting tax-loss selling hypothesis. For example, Poterba and Weisbenner (2001), Jones, Lee, and Apenbrink (1991) examine the effect of changes in income tax rules on January effect; Brown, Keim, Kleidon, and Marsh (1983) examine January effect in Australia where tax year is in July; Berges, McConnell, and Schlarbaum (1984) examine Canadian market where there are no capital gains taxes.

Haugen and Lakonishok (1987) and Lakonishok, Shleifer, Thaler, and Vishny (1991) provide another explanation of January effect based on window-dressing hypothesis. They argue that institutional investors sell poorly performing stocks in December before disclosing their portfolios to SEC. The institutional investors engage in window-dressing to make their portfolio attractive to their clients. Once they fulfil their disclosure requirement, they buy back those shares in January resulting in their higher returns. Barry and Brown (1984) propose a hypothesis based on differential information to explain January effect whereas Bhardwaj and Brooks (1992) and Cox and Johnston (1998) argue that January effect is an outcome of market microstructure biases related to bid-ask bounce. Chen and Singal (2004) conduct a study to compare different explanations proposed for January effect and conclude that tax-selling hypothesis is the most plausible factor driving the January effect.

Several studies document the value effect. Basu (1977) finds that risk-adjusted returns of stocks with high ratio of B/M is superior to those of stocks with low ratio of B/M. Chan, Hamao, and Lakonishok (1991) analyze the Japanese stocks and find that value firms consistently outperform growth firms. Capaul, Rowley, and Sharpe (1993) investigate the value effect in six developed equity markets and find evidence of superior performance of value stocks compared to growth stocks in all six countries in their sample. Fama and French (1998) use the B/M ratio to separate value and growth stocks and provide evidence supporting value effect in thirteen countries during the sample period of 1975-1995. Fama and French (1993) and Davis, Fama, and French (2000) provide evidence of existence of value premium in post-1963 and pre-1963 data, respectively. Fama and French (1993) and Lakonishok, Shleifer, and Vishny (1994) suggest that B/M ratio is a proxy for distress risk. Fama and French (1993) argue that higher returns generated by value stocks are a compensation for higher systematic risk. In support of risk-based explanation of Fama and French (1993), Chen and Zhang (1998) find that value firms are associated with low earnings, higher leverage, and more earnings uncertainty.

Several studies report evidence of January seasonal related to value premium. Fama and French (1993) examine risk-adjusted excess stock returns of U.S. stocks and find evidence of January seasonal related to size and value effect. However, they attribute the seasonal variation in size and value premiums to corresponding seasonal variation in the size and book-to-market risk factors. Daniel and Titman (1997) argue that book-to-market is not a proxy of risk. In support of their characteristic model, they study the seasonal patterns of returns generated by different U.S. portfolios sorted on book-to-market. They show that value premium of large firms exists mainly in January. Loughran (1997) and Chou, Das, and Rao (2011) analyze the January effect on value premium and find that large U.S. firms exhibit value premium mainly in January. These studies document a seasonal pattern in the value premium in U.S. stock markets. Arshanapalli, Coggin, and Nelson (2002, 2003) find that value stocks outperform growth stocks mainly in January. However, their risk-based regression models do not find evidence of January effect outside of U.S. Das and Rao (2011) provide evidence of seasonality in Japanese, U.K., and French equity markets. In this paper, we analyze comprehensive global stock market data from 21 countries to study the interaction of value premium and the January effect. Using major international indices, we find that January seasonal in value premium is more prevalent than once thought.

DATA

Our study employs value-weighted monthly portfolio returns for stock markets of Asia Pacific, EAFE, Europe with and without the U.K., Scandinavian countries, the U.K. and U.S. over the period of January 1975 through December 2007. We use book-to-market equity ratios to separate value and growth stocks. At the end of each year *t*, all stocks in each country are sorted on book-to-market equity ratios. Firms in the top 30% (High) of a sort ratio constitute value portfolio and firms in the bottom 30% (Low) form growth portfolios. For each portfolio, the value-weighted return for each month of year *t+1* is calculated using raw return data from Morgan Stanley's Capital International Perspectives (MSCI) for 1975 to 2006 and for 2007 from Bloomberg. The monthly portfolio returns data are obtained from website of Kenneth French (see Fama and French, 1998, for more detailed information about the data).

Table 1 presents the list of countries included in each index portfolio. The return on each index portfolio is value-weighted average of returns on the country portfolios. The weights assigned to the country in index are based on their relative proportions in the MSCI EAFE index. The sample period is from 1975 to 2007. The Morgan Stanley Capital International provides value-weighted return data for each country portfolio. Many countries that are included in the sample have return data starting from 1975. Six countries have starting dates different from 1975 - Austria (1987), Denmark (1989), Finland (1988), Ireland (1991), Malaysia (1994), and New Zealand (1988). According to a report published by MSCI in May 2010, the total country weight of these 21 countries included in this study accounts for more than 82% in the MSCI All Country Investable Marketable Index.

Table 1: International Index Portfolios

Countries	Date of Inception	Asia Pacific	EAFE	Europe without U.K.	Europe with U.K.	Scandinavian Countries	U.K.	U.S.	Japan
Australia	1975	Y	Y						
Austria	1987		Y	Y	Y				
Belgium	1975		Y	Y	Y				
Denmark	1989		Y			Y			
Finland	1988		Y			Y			
France	1975		Y	Y	Y				
Germany	1975		Y	Y	Y				
Great	1975		Y		Y		Y		
Hong Kong	1975	Y	Y						
Ireland	1991		Y		Y		Y		
Italy	1975		Y	Y	Y				
Japan	1975	Y	Y						Y
Malaysia	1994	Y							
Netherlands	1975		Y	Y	Y				
New	1988	Y	Y						
Norway	1975		Y			Y			
Singapore	1975	Y	Y						
Spain	1975		Y	Y	Y				
Sweden	1975		Y			Y			
Switzerland	1975		Y	Y	Y				
U.S.	1975							Y	

This table shows the countries included in each index portfolios. Date of inception is the starting date when country return data is added to the index portfolio.

Table 2 shows the summary statistics of value-weighted monthly dollar returns of market, value (High B/M) and growth (Low B/M) portfolios for each index included in the sample. When compared to standard deviations of non-U.S. markets, the standard deviation of the U.S. market is much lower suggesting higher volatility of stock returns in non-U.S. markets. Consistent with evidence provided in Fama and French (1998), the value portfolios consistently outperform growth portfolios in all markets. For example, the U.S. value stocks earn 1.45 percent monthly return compared to 1.08 percent monthly return of U.S. growth stocks. The standard deviations of High B/M portfolios are greater than those of Low B/M portfolios except for the U.S. market suggesting that value stocks are riskier than growth stocks. The value-growth spread is positive for all markets and ranges from 89 basis points for Japan to 27 basis points for the U.K. market. Importantly, High-Low (value minus growth zero investment portfolio) has lower standard deviation than market, High B/M, and Low B/M portfolios. The higher standard deviations of Scandinavian countries and the U.K. markets compared to Europe (both with and without the U.K.) suggest high volatility of stock returns at country level. Our findings are consistent with Fama and French (1998) who suggest that high volatility of country returns drive down the statistical significance of deviation of the U.K. stock market and Scandinavian stock markets. We find a very significant, large value premium in Asia Pacific, EAFE, and Japan. The effect of value premium is

smaller, yet significant in U.S., Europe without the U.K., and Europe with the U.K. Value premium is economically meaningful, but not significant in the U.K and Scandinavian countries. The value premium is one of the most well documented facts in finance. Our global results confirm that this premium appeared with a high degree of persistence during 1975-2007. Though global value premiums are large, so are their standard deviations, meaning that there are not too many arbitrage opportunities.

Table 2: Portfolio Characteristics of the Sample

	Mean	Std. Deviation	Median	Maximum	Minimum
	Asia Pacific				
Market	1.04***	5.82	1.08	23.11	-17.23
High B/M	1.53***	6.24	1.48	26.24	-15.38
Low B/M	0.73**	6.12	0.65	25.36	-20.06
High - Low	0.80***	4.14	0.63	21.35	-22.38
	EAFE				
Market	1.15***	4.73	1.25	17.79	-14.67
High B/M	1.48***	4.91	1.77	16.73	-16.74
Low B/M	0.97***	4.84	1.02	17.76	-15.16
High – Low	0.51***	2.57	0.31	10.60	-12.76
	Europe without the U.K.				
Market	1.19***	4.77	1.27	15.19	-17.78
High B/M	1.43***	5.24	1.45	19.47	-18.56
Low B/M	1.13***	4.78	1.14	16.80	-19.70
High – Low	0.30**	2.47	0.22	8.81	-12.86
	Europe with the U.K.				
Market	1.25***	4.74	1.40	24.44	-19.79
High B/M	1.47***	5.16	1.65	23.22	-18.95
Low B/M	1.18***	4.75	1.32	25.33	-21.61
High – Low	0.29**	2.35	0.28	9.67	-10.40
	Scandinavian Countries				
Market	1.40***	6.00	1.61	20.66	-19.22
High B/M	1.69***	6.48	1.51	24.29	-19.24
Low B/M	1.37***	6.40	1.33	23.92	-22.12
High – Low	0.32	5.10	0.30	23.07	-21.13
	U.K.				
Market	1.47***	6.28	1.25	54.90	-22.43
High B/M	1.63***	6.88	1.43	52.61	-23.29
Low B/M	1.36***	6.45	1.16	53.42	-24.13
High – Low	0.27	3.54	0.51	14.48	-13.43
	U.S.				
Market	1.43***	3.94	1.62	12.85	-22.54
High B/M	1.45***	4.30	1.66	23.69	-20.37
Low B/M	1.08***	4.77	1.26	14.18	-24.27
High - Low	0.37**	3.01	0.35	14.25	-7.41
	Japan				
Market	1.00***	6.33	0.72	25.92	-18.58
High B/M	1.53***	6.94	1.03	34.78	-15.96
Low B/M	0.64*	6.69	0.38	27.51	-21.58
High - Low	0.89***	4.81	0.66	30.05	-24.63

*This table shows the mean, standard deviation, median, maximum, and minimum of value-weighted average of monthly dollar returns for market, high book-to-market (High B/M), and low book-to-market (Low B/M) portfolios for each index included in the sample. All figures reported are in percent. The sample period is 1975 to 2007. The indices included in the sample are Asia Pacific, Europe, EAFE, Europe (with and without the U.K.), Scandinavian countries, the U.K., U.S., and Japan. The countries included in each index are shown in table 1. *** and ** denote statistical significance at 1% and 5% level respectively.*

EMPIRICAL RESULTS

Monthly Distribution of Value Premium

To address the issue of the seasonal pattern of value effect, we analyze the monthly distributions of the value premium. Table 3 shows the monthly average of value premiums for each index included in the sample. Among months of the year, January is unique. The value premium is economically large and statistically significant in January for all indices. For example, in U.S., the January value premium is

1.92%, which is almost twice that of value premium in February, the month with second highest value premium. More importantly, the value premium is positive and significant only for January. Similarly, the EAFE market shows most pronounced and significant value premium in January. The results of the table clearly indicate a consistent pattern that value premium is mainly a January event.

Table 3: Monthly Distribution of Value Premiums

Months	Asia Pacific	EAFE	Europe without the U.K.	Europe with the U.K.	Scandinavian countries	U.K.	U.S.	Japan
January	1.89*	1.22**	1.09**	1.18**	3.60***	1.28*	1.92**	2.34*
February	1.07	0.68	1.02*	0.53	1.79	-0.24	0.98	1.14
March	0.58	0.73*	1.00**	0.80*	1.30**	0.48	0.80	0.82
April	1.58**	1.08**	0.62	0.65	-0.34	0.61	0.57	1.72*
May	1.11	0.64	0.31	0.23	-0.65	0.15	0.29	1.31
June	2.02***	0.64	-0.56	-0.49	-0.74	-0.44	-0.03	2.30***
July	0.07	0.25	0.16	0.10	1.23	-0.04	0.02	0.09
August	-0.01	-0.21	0.01	-0.23	-0.35	-0.59	0.52	-0.13
September	0.55	0.12	-0.43	-0.29	-0.88	0.11	0.08	0.54
October	0.34	-0.01	-0.29	-0.04	-1.99**	0.26	-0.82*	0.45
November	-0.69	0.04	0.27	0.46	0.01	0.86	-0.17	-1.09
December	1.05	0.91**	0.42	0.54*	0.83	0.73	0.26	1.19

This table shows the average monthly value premium (difference between monthly value-weighted average returns of high book-to-market and low book-to-market portfolios) for each index included in the sample. All figures reported are in percent. The sample period is 1975 to 2007. The indices included in the sample are Asia Pacific, Europe, EAFE, Europe (with and without the U.K.), Scandinavian countries, the U.K., U.S., and Japan. The countries included in each index are shown in table 1. ***, **, and * denote statistical significance at 1%, 5%, and 10% level respectively.

As a robustness test to support our results in table 3, we use the following regression model:

$$\text{Premium}_t = \sum_{i=1}^{12} \gamma_i \text{Dummy}_i + \beta\,(\text{RM}_t - \text{RF}_t) + e_t \qquad (1)$$

where Premium_t is value premium (difference between value-weighted returns of High and Low book-to-market portfolios) for month t, RM_t is either global market (Panel A) or local market (Panel B) returns in U.S. dollars, RF_t is one-month U.S. Treasury bills rate. Dummy_i is a dummy variable with i=1 (January) to i=12 (December) and takes value of 1 in i^{th} month and zero otherwise. Table 4 presents the regressions results. The dummy variable for January is economically large and statistically significant for all groups. Our global results in table 3 present a pattern consistent with our previous table and indicate that value premiums are strong and concentrated mainly in January.

Table 4: CAPM Regressions with Dummy Indicators for Each Month

Panel A: RM = Global N = 396								
	Asia Pacific	**EAFE**	**Europe without the U.K.**	**Europe with the U.K.**	**Scandinavian countries**	**U.K.**	**U.S.**	**Japan**
January	2.09***	1.29***	1.01**	1.12***	3.90***	1.23**	2.14***	2.57***
February	1.12	0.69	1.00**	0.52	1.86**	-0.25	1.03**	1.19
March	0.68	0.77*	0.96**	0.77*	1.46*	0.45	0.92*	0.94
April	1.86***	1.18***	0.52	0.56	0.08	0.53	0.89*	2.05**
May	1.12	0.64	0.30	0.23	-0.63	0.15	0.30	1.33
June	2.05***	0.65	-0.57	-0.50	-0.69	-0.45	0.00	2.33***
July	0.08	0.26	0.16	0.10	1.24	-0.04	0.01	0.10
August	-0.01	-0.21	0.01	-0.23	-0.36*	-0.59	0.52	-0.14
September	0.41	0.07	-0.38	-0.25	-1.08	0.15	-0.07	0.39
October	0.44	0.03	-0.33	-0.07	-1.83**	0.23	-0.70	0.58
November	-0.49	0.11	0.19	0.40	0.31	0.80	0.06	-0.85
December	1.35*	1.01**	0.31	0.45	1.28	0.65	0.60	1.52*
$RM_t - RF_t$	-0.16***	-0.06*	0.06*	0.05*	-0.24***	0.05	-0.18***	-0.18***
Panel B: RM = Local N = 396								
January	1.95***	1.27***	1.07**	1.14***	3.99***	1.26**	1.94***	2.37***
February	1.12	0.72	0.95**	0.49	2.09**	-0.25	1.10**	1.19
March	0.70	0.78*	0.95**	0.77*	1.38	0.48	0.90*	0.98
April	1.75**	1.19***	0.53	0.57	0.06	0.58	0.66	1.87**
May	1.08	0.60	0.37	0.27	-0.76	0.16	0.39	1.27
June	2.03***	0.63	-0.56	-0.48	-0.78	-0.43	0.10	2.32***
July	0.05	0.27	0.14	0.08	1.52*	-0.05	0.06	0.04
August	0.01	-0.21	0.02	-0.24	-0.66	-0.60	0.63	-0.10
September	0.51	0.09	-0.41	-0.26	-0.97	0.12	0.14	0.50
October	0.38	0.03	-0.35	-0.07	-1.78**	0.26	-0.77	0.48
November	-0.68	0.08	0.18	0.41	0.28	0.85	-0.08	-1.08
December	1.26*	1.05**	0.25	0.43	1.27	0.70	0.23	1.36
$RM_t - RF_t$	-0.09**	-0.05*	0.06**	0.04	-0.17***	0.01	-0.08*	-0.08**

The regression model used is: $\mathrm{Premium}_t = \sum_{i=1}^{12} \mathrm{Dummy}_i + \beta(RM_t - RF_t) + e_t$ *where* $\mathrm{Premium}_t$ *is value premium (difference between value-weighted returns of high and low book-to-market portfolios) for month t,* RM_t *is either global market (Panel A) or local market returns (Panel B) in U.S. dollars,* RF_t *is one-month U.S. Treasury bills rate,* Dummy_i *is a dummy variable with i=1 (January) to i=12 (December) and takes value of 1 in i month and 0 otherwise. ***, **, and * denote significance at 1%, 5%, and 10% level respectively.*

Value Premium in January and Non-January Months

Table 5 reports the mean, standard deviation, and median of value-weighted monthly returns of High B/M, Low B/M, and H-L portfolios for January and non-January months. The January value premium is positive, economically large, and statistically significant in all the markets. The value-growth spread in January ranges from 3.6 percent for Scandinavian market, to 1.09 percent for European market without the U.K. The corresponding value premium in non-January months is either economically small or statistically insignificant. The three largest countries in terms of stock market capitalization (U.S., Japan, and the U.K.) have positive value premiums that are not statistically different from zero. Only Asia Pacific and EAFE markets show value premiums statistically significant at 1% level. To analyze whether January value premium is greater than non-January value premium, we conduct paired means t-test between January and non-January value premiums and report the results in the last column (Jan-NonJ) of the table. It is evident from the results of table 5 that January value premium is greater than non-January value premium. The January minus non-January value premium is economically large. For example, the January value premium of Scandinavian countries is 3.60 percent compared to almost negligible value premium (2 basis points) in non-January months. The annualized excess January value premium, calculated by multiplying the difference of average January and non-January value premium by 12, ranges from 42.96 percent for Scandinavian countries to 9.24 percent for EAFE market. U.S., the U.K., and Japan have annualized excess returns of 20.28 percent, 13.32 percent, and 18.96 percent. The excess January value premium is economically large in all cases and statistically significant in five markets. The non-significance of excess value premiums in three cases is an outcome of high volatility. It is important to note that higher returns earned on value stocks in January drive the January value premium.

Table 5: Portfolio Returns for January and Non-January months: Difference of Mean Tests

		January (N=33)			Non-January (N=363)			Jan-NonJ
		High	Low	H-L	High	Low	H-L	(N=33)
	Asia Pacific							
Mean		2.45**	0.56	1.89*	1.45***	0.75**	0.70***	1.19
Std. Deviation		5.81	6.35	6.03	6.28	6.10	3.92	6.40
Median		2.10	0.16	1.60	1.32	0.96	0.57	1.69
	EAFE							
Mean		2.31**	1.10	1.22**	1.40***	0.96***	0.44***	0.77
Std. Deviation		4.87	5.40	3.17	4.92	4.79	2.50	3.52
Median		2.27	0.05	1.37	1.75	1.07	0.27	1.43
	Europe without the U.K.							
Mean		1.78*	0.70	1.09**	1.40***	1.17***	0.23*	0.86*
Std. Deviation		5.10	4.50	2.47	5.26	4.81	2.45	2.57
Median		1.68	0.68	1.33	1.42	1.16	0.19	0.75
	Europe with the U.K.							
Mean		2.38**	1.20	1.18**	1.39***	1.18***	0.21*	0.97**
Std. Deviation		5.71	5.43	2.66	5.11	4.69	2.31	2.71
Median		2.96	0.73	1.22	1.57	1.34	0.23	1.12
	Scandinavian Countries							
Mean		5.77***	2.17**	3.60***	1.32***	1.30***	0.02	3.58***
Std. Deviation		7.48	5.89	6.01	6.26	6.45	4.91	5.92
Median		4.43	2.07	2.37	1.19	1.27	0.24	2.52
				U.K.				
Mean		3.89**	2.60	1.28*	1.42***	1.25***	0.17	1.11*
Std. Deviation		10.67	10.57	3.65	6.42	5.95	3.52	3.64
Median		2.27	0.02	0.81	1.38	1.25	0.46	1.38
	U.S.							
Mean		3.74***	1.82**	1.92**	1.24***	1.01***	0.23	1.69**
Std. Deviation		6.18	5.48	4.40	4.04	4.70	2.82	4.13
Median		3.03	1.97	1.61	1.55	1.15	0.24	1.13
	Japan							
Mean		2.45*	0.11	2.34*	1.45	0.69	0.76	1.58
Std. Deviation		7.63	7.23	7.42	6.87	6.45	4.50	7.80
Median		1.56	-0.10	2.36	0.94	0.43	0.52	2.18

*All firms included in the sample are sorted on the basis of book-to-market (B/M). The top 30 percent of firms in a given country form value portfolios (indicated with High), and bottom 30 percent of firms constitute growth portfolios (indicated with Low). H-L is the difference between returns of high and low B/M portfolios. This table reports the mean, standard deviation, and median of value-weighted monthly returns of High, low, and H-L portfolios for January and non-January months. The last column (Jan-NonJ) shows statistics for excess January H-L over non-January H-L. All returns reported are in percent. The sample period is 1975 to 2007. ***, **, and * represent the significance level at 1%, 5%, and 10% level respectively.*

We next test the hypothesis asserting that January minus non-January value premium is positive each year. Under the null hypothesis, the occurrence of the positive and negative January minus non-January value premium is equally likely (i.e., each result should occur with an equal frequency of 50%). We employ the non-parametric sign-test to investigate whether excess January value premium persists or is an outcome of any random event and report the results in the table 6. The percent positive (frequency) showing the proportion of years with January value premium greater than non-January value premium months suggests that the January value premium is greater than non-January value premium almost two-third of the times. Importantly, the sign-test statistics are significant at all conventional levels of significance. To confirm and further validate our findings reported in tables 5 and 6, we turn to asset pricing tests to explain the January seasonal in the value premium. We use CAPM to test the January effect in the value premium. We follow Fama and French (2006) and use the following test model:

$$\text{Premium}_t = \alpha + \beta(\text{RM}_t - \text{RF}_t) + \gamma * \text{JanDummy} + e_t \quad (2)$$

where Premium_t is value premium (value - growth) for month t, RM_t is market return, RF_t is one-month U.S. Treasury bill rate, and JanDummy, a dummy variable that takes the value 1 if month is January and zero otherwise. We use two different market returns, global market return and local market return. The monthly dollar returns of global and local market are calculated using MSCI indices.

Table 6: Portfolio Returns for January and Non-January Months: Non-parametric Tests

	January (N=33)			Non-January (N=363)			Jan-NonJ
	High	Low	H-L	High	Low	H-L	(N=33)
	Asia Pacific						
Percent positive	69.70	51.52	75.76	59.23	56.20	57.85	63.64
Sign test (z-stat)	139.50	12.00	185.50	8375.00	4505.00	7647.50	134.50
Sign test (prob)	0.01	0.82	0.00	0.00	0.02	0.00	0.01
	EAFE						
Percent positive	66.67	51.52	72.73	64.74	60.88	57.85	72.73
Sign test (z-stat)	140.00	29.50	179.50	11548.00	8461.00	7029.50	131.50
Sign test (prob.)	0.01	0.61	0.00	0.00	0.00	0.00	0.02
	Europe without the U.K.						
Percent positive	69.70	60.61	60.61	63.09	62.26	53.44	63.64
Sign test (z-stat)	116.00	37.50	122.50	11352.00	10641.00	3310.50	106.50
Sign test (prob)	0.04	0.51	0.03	0.00	0.00	0.10	0.06
	Europe with the U.K.						
Percent positive	75.76	57.58	69.70	63.36	64.74	56.75	69.70
Sign test (z-stat)	143.50	59.50	135.00	11370.00	10922.50	3965.50	131.50
Sign test (prob)	0.01	0.29	0.01	0.00	0.00	0.05	0.02
	Scandinavian Countries						
Percent positive	81.82	63.64	63.64	59.50	59.78	52.89	69.70
Sign test (z-stat)	211.00	108.50	149.50	8251.00	8301.50	55.00	161.00
Sign test (prob)	0.00	0.05	0.01	0.00	0.00	0.98	0.00
			U.K.				
Percent positive	69.70	51.52	63.64	61.16	59.50	55.10	66.67
Sign test (z-stat)	137.50	53.00	116.50	8934.00	8589.00	3031.00	112.50
Sign test (prob)	0.01	0.35	0.04	0.00	0.00	0.13	0.04
	U.S.						
Percent positive	75.76	63.64	69.70	65.29	58.68	52.34	72.73
Sign test (z-stat)	191.00	94.50	124.50	13682.50	9209.50	3014.00	121.50
Sign test (prob)	0.00	0.09	0.02	0.00	0.00	0.13	0.03
	Japan						
Percent positive	69.70	45.45	72.73	57.85	57.90	58.95	66.67
Sign test (z-stat)	106.50	-25.50	187.50	7316.50	3298.50	7133.50	142.50
Sign test (prob)	0.06	0.66	0.00	0.00	0.10	0.00	0.01

*All firms included in the sample are sorted on the basis of book-to-market (B/M). The top 30 percent of firms in a given country form value portfolios (indicated with High), and bottom 30 percent of firms constitute growth portfolios (indicated with Low). H-L is the difference between returns of high and low B/M portfolios. This table reports percent positive, sign test, and p value of sign test statistics of value-weighted monthly returns of High, low, and H-L portfolios for January and non-January months. The last column (Jan-NonJ) shows statistics for excess January H-L over non-January H-L. All returns reported are in percent. The sample period is 1975 to 2007. ***, **, and * represent the significance level at 1%, 5%, and 10% level respectively.*

In a CAPM world, we should expect α and γ to be not different from zero. A positive and significant α would indicate presence of value premium in stock returns not captured by the CAPM model. On the other hand, a positive and significant γ implies that January value premium is greater than non-January value premium. We report our results from CAPM regressions in table 7. It is interesting to note that while α is positive and significant in only four groups (U.S., Japan, Asia Pacific, and EAFE), γ is positive and significant in all groups. Furthermore, γ is greater than α in all groups suggesting the economic significance of January value premium.

CONCLUSIONS

The anomalous superior performance of value stocks relative to growth stocks persists; it has not been arbitraged away since it received the attention of financial economists more than three decades ago. Even after decades of research, there is no consensus on the explanation of the persistence and source of value premium. We add to this debate by examining the predictable seasonal pattern of value premium in the major global equity markets. Using value-weighted monthly returns of value and growth portfolios of

Table 7: CAPM Regressions with January Dummy

Panel A: RM = Global N = 396								
	Asia Pacific	**EAFE**	**Europe without the U.K.**	**Europe with the U.K.**	**Scandinavian Countries**	**U.K.**	**U.S.**	**Japan**
α	0.78***	0.47***	0.19	0.17	0.15	0.14	0.32**	0.85**
$t(\alpha)$	3.59	3.45	1.49	1.41	0.54	0.75	2.10	3.38
β	-0.15***	-0.05	0.07**	0.06**	-0.23***	0.06	-0.17***	-0.17*
$t(\beta)$	-2.90	-1.43	2.21	2.16	-3.64	1.37	-4.78	-2.91
γ	1.29*	0.81*	0.81*	0.93**	3.73***	1.07*	1.80***	1.71**
$t(\gamma)$	1.74	1.73	1.83	2.20	4.16	1.67	3.43	1.97
Adj. R Sq	0.02	0.01	0.02	0.02	0.06	0.01	0.07	0.03
Panel B: RM = Local N = 396								
α	0.74***	0.47***	0.18	0.17	0.13	0.16	0.30*	0.80*
$t(\alpha)$	3.42	3.46	1.42	1.37	0.50	0.85	1.85	3.17
β	-0.08**	-0.04	0.06**	0.05**	-0.14	0.02	-0.07*	-0.08**
$t(\beta)$	-2.24	-1.48	2.43	2.07	-3.44	0.58	-1.81	-1.96
γ	1.20	0.79*	0.88**	0.96**	3.80***	1.08*	1.64***	1.57**
$t(\gamma)$	1.61	1.69	1.98	2.26	4.22	1.67	3.03	1.81
Adj. R Sq	0.01	0.01	0.02	0.02	0.06	0.01	0.03	0.02

*The regression model used is where $Premium_t$ is value premium (difference between value-weighted returns of high and low book-to-market portfolios) for month t, RM_t is either global market (Panel A) or local market returns (Panel B) in U.S. dollars, RF_t is one-month U.S. Treasury bills rate, $JanDummy$ is a dummy variable which takes value of 1 if month is January and 0 otherwise. t() is the t-statistics of a regression coefficient, and Adj. R Sq. is the coefficient of determination adjusted for degrees of freedom. The sample period is 1975 to 2007. ***, **, and * represent the significance level at 1%, 5%, and 10% level respectively.* $Premium_t = \alpha + \beta(RM_t - RF_t) + \gamma * JanDummy + e_t$

several global equity markets, we provide empirical evidence supporting existence of pronounced January effect in the value premium. The excess January value premium exists and is economically large in major global indices. During the sample period extending from January 1975 to December 2007, the annualized excess January value premium ranges from 9.24% for EAFE market to 42.96% for Scandinavian countries with 11.64% and 20.28% for Europe without the U.K. and U.S. stock markets.

We perform several tests to ensure robustness of our results. We use two different regression models: (1) we regress market risk premium and dummy variables for each calendar month on monthly value premium and (2) CAPM with a dummy variable for January. The coefficient of January indicator is economically large and statistically significant irrespective of whether we use global or local market returns. The paired means t-tests and non-parametric sign tests further validate and confirm our results of pronounced January value premium. Our study provides several issues for future research. MSCI indices are mainly comprised of large-cap stocks. Our sample (MSCI indices) is biased towards large cap stocks. Future research may examine whether the pronounced January value premium exists in small-cap stocks. Additionally, research may also focus on explanation of January effect observed in value premium. Theory does not explain why value premium of large firms should be concentrated in January. In any case, exploiting this effect and creating a viable investment strategy may be more difficult than it would appear. Even if there is a dependable, predictable pattern in January value premium, it may be the result of data mining or it may not be exploitable by investors due to large standard deviation of the value premium, taxes, and high transaction costs.

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