The Seasonal Price Behavior of Global Equity Markets

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This study documents the seasonal price behavior of global equity markets during the 32-year period from 1970 through 2001. The calculations are based on the monthly price returns of the 18 developed national equity markets included in the Morgan Stanley Capital International (MSCI) database during this period as well as on the monthly price returns of the market capitalization-weighted MSCI World Index and an equally-weighted world index of the 18 markets. Five national equity markets added later to the MSCI database are not included in the study.[1]

We also show the results of a "top value" strategy of investing in a combination of undervalued markets according to their fundamental valuation.

As measured by the MSCI World Index, the developed equity markets had an average annual price return of 8.16% (6.91% compounded) in local currencies during the 32-year period ending in December 2001. Interestingly, a higher average price return was achieved during the favorable months of January, February, March, and April as well as November and December (8.36%, 7.68% compounded, in the "good" months). The average price return during the other six months of each year–May through October (the "bad" months)–was only -0.37% (-0.72% compounded).

Buy-and-hold investors would have seen their capital grow from 100 to 848 in local currencies, while investors who held the MSCI World Index only during the six good months of each year would have seen their capital grow from 100 to 1,067 local currency units over the same 32-year period, not counting transaction cost and taxes. Unfortunate market timers who were invested in global equities only during the bad months would have seen their capital shrink from 100 to 79 over the 32-year period from 1970 to 2001. This relationship does not change materially if returns are calculated in U.S. Dollars.[2]

There is a season for everything. The rhyme, "Sell in May and go away", indicates that, come springtime in the northern hemisphere, it is time to take some profits in the stock market

and prepare for some sort of setback. Mark Twain may have been the first person to comment on seasonal price behavior of equities around 1897, when he observed in *Pudd'nhead Wilson* that October "is one of the most peculiarly dangerous months to speculate in stocks. The others are July, January, September, April, November, May, March, June, December, August, and February," Apparently he knew more about stocks than is commonly thought.

Exhibit 1 lists the average annual price returns of the 18 national equity markets in the MSCI World Index from its inception at the end of 1969 through the end of 2001 as well as the average annual price returns achieved during the good months and the bad months. The same information is shown for the MSCI World Index and an equally-weighted world index.

E X H I B I T 1
Average Annual Price Returns (%) Based on MSCI Indexes in Local Currencies (December 1969-December 2001)

	Good Months	All Months	Bad Months
Australia	7.38	8.71	0.99
Austria	9.00	6.91	-2.06
Belgium	11.30	9.42	-2.10
Canada	7.92	8.62	0.70
Denmark	6.83	13.89	5.13
France	13.43	11.95	-1.72
Germany	9.32	8.87	-1.10
Hong Kong	14.24	23.05	6.64
Italy	14.52	12.28	-2.25
Japan	10.18	9.29	-1.67
Netherlands	11.25	9.91	-1.43
Norway	11.11	14.49	1.69
Singapore	14.65	15.08	0.03
Spain	11.34	9.77	-1.77
Sweden	16.03	17.33	0.51
Switzerland	8.16	9.23	0.52
United Kingdom	12.97	12.42	-0.72
USA	7.54	9.03	1.19
MSCI World Index	8.36	8.16	-0.37
World Index (equally-weighted)	10.68	11.14	0.09
KAM Top Value Strategy	14.42	15.77	0.73

Good Months: January through April, and November, and December.
All Months: January through December.
Bad Months: May through October.

Since some companies pay annual dividends during the bad months, some comments on dividends are appropriate. Dividends may explain the entire average monthly price return of the MSCI Germany index of minus 1.2% in May, when the bulk of annual dividends is deducted from stock prices.[3] Our findings are based on price returns only, which do not include any

dividends, but when stocks go ex-dividend, all else equal, stock prices tend to decline by the amount of the dividend.

Also, dividend yields were once much higher than current levels. The average annual dividend yield of the MSCI World Index during its 32-year history was 3.20%. Yield for the equally-weighted world index was 3.61%. Therefore one can assume that a total return analysis would show that the total return during the bad months would be enhanced by more than half of the dividend yield, while the total returns of the good months would be proportionally lower.

Even if we assume that all annual dividend payments were to occur during the bad months (a very generous assumption against the case we are making), and adjust our results accordingly, i.e., add the entire 3.20% average annual dividend yield (3.61% for the equally-weighted world index) to the 37 basis point average annual loss of the MSCI World Index, the average annual price return of 8.36% in local currencies (10.68% for the equally-weighted world index) achieved during the goods months would still dwarf the 2.83% total return (3.70% for the equally-weighted world index) recorded for the bad periods, which now includes all dividends.

Our numbers do not include any interest earned during the time an investor was out of the market. The average three-month Treasury bill rate was 6.5% during the 32-year study period. We assume that the benefit of earning interest would be equal for the good and bad months.

Even more important than these above-average returns seems to be the risk reduction benefit of being invested only during the good months. With the very few exceptions (Canada, Hong Kong, and the U.S.), all risk measures shown in Exhibit 2 were lower during the good months in each country than during the total period. And even the exceptions show equal and not more risk during the good months.

On average, as shown for the equally-weighted world index in Exhibit 2, the expectation of loss (= probability of a loss multiplied by the average loss in losing periods) was 1.29% during the good months versus 3.24% for the entire period—a 60.2% risk reduction. Similarly, the standard deviation of annual returns was 12.17% during the good months versus 18.45% for the entire period—a reduction in annual price volatility of 34%. As a consequence, risk- and volatility-adjusted returns were significantly higher during the good months.

QUESTIONS

These are the facts. The most important questions are now: 1) What were the reasons for this seasonal price behavior? 2) Is there reason to believe the results may persist in the future? And, as a consequence, are the results generic rather than time-specific?

POSSIBLE ANSWERS

There seem to be no clear-cut answers to these questions. There are, however, various hypotheses about seasonal price phenomena. A variety of different seasonality patterns have been studied, each different in their definitions of the good and bad periods for investing.

Tax-Selling

"It should be obvious that tax considerations play an important role in the securities market," claims Branch [1977]. Brown et al. [1983] contend that investors faced with capital gains taxation at the end of the year will sell underperforming positions to reduce their taxes.

This is especially pertinent to the months surrounding the turn-of-the-year (the January effect) but seems to have relevance to the longer good-month/bad-month periods as well. Investors are more likely to be conscious of the tax ramifications of their investment toward the end of the tax year. This is shown to be more statistically significant for investment in small companies.

Reinganum [1983] highlights this increased significance. He states "Small firms experience large returns in January and exceptionally large returns during the first few days of January."

E X H I B I T 2

Risk and Return Characteristics Based on Price Returns of the Equally-Weighted World Index in Local Currencies (December 1969-December 2001)

	Good Months	All Months	Bad Months
Number of Years	32	32	32
Average Annual Return (%)	10.68	11.14	0.09
Compound Annual Return (%)	10.01	9.56	-0.41
Number of Winning Years	24	23	16
Highest Annual Return (%)	38.52	41.35	21.19
Probability of Gain (%)	75.00	71.88	50.00
Average Gain in Winning Years (%)	15.95	20.02	7.70
Expectation of Annual Gain (%)	11.97	14.39	3.85
Number of Losing Years	8	9	16
Lowest Annual Return (%)	-9.03	-29.26	-22.23
Probability of Loss (%)	25.00	28.13	50.00
Average Loss in Losing Years (%)	5.15	11.54	7.51
Expectation of Annual Loss (%)	1.29	3.24	3.76
Longest Losing Streak (# Years)	2	2	5
Largest Drawdown from Previous High (%)	15.98	35.38	35.14
Standard Deviation of Annual Returns (%)	12.17	18.45	9.97
Risk-Adjusted Return (Keppler Ratio):			
- Return per Unit of Expectation of Loss	8.28	3.43	0.02
Volatility-Adjusted Return (Sharpe Ratio):			
- Return per Unit of Standard Deviation	0.88	0.60	0.01

Good Months: January through April, and November, and December.

All Months: January through December.

Bad Months: May through October.

Window-Dressing

Institutional investors are pressured to alter their portfolios for the purpose of year-end reporting. In essence, managers change their portfolios to make them seem more attractive in print. Weak positions are sold and left in cash until the proceeds are invested.

Selling at the end of the year drives the market down, and sets up investors to reinvest that money over the beginning of the New Year, which results in higher prices (see Haugen and Lakonishok [1988]).

Coasting

Some institutional investors admittedly change their strategies after the first few months of the year. This is especially true after a high-performing first few months. These managers make their money early, and then sell out to more conservative positions and coast for the rest of the year to avoid the possibility of losing an already healthy return.

This strategy is considered selfish on the part of the money manager. The manager is compensated depending on the return on assets under management and is not willing to risk a performance bonus by forfeiting early winnings.

New Year's Resolutions

At the end of each year, many people resolve to invest a certain portion of their income throughout the coming year. These plans may be well intentioned, but as the year progresses the chances of reducing contributions or even stopping altogether become greater. Unexpected events, such as sickness, unemployment, vacation, marriage, or large purchases, can divert funds earmarked for investment later in the year.

Tax Planning

Certain tax-friendly investments set maximum yearly contribution limits. If this threshold is met early in the year, further investment in these accounts is impossible under current tax laws. Other investors may perhaps put off contributions until the very end, and make them in November or December to benefit from the tax reward.

General Financial Planning

Year-end broker and bank statements are usually studied with greater care than monthly statements. As a consequence, strategic asset allocation decisions are more likely to be made at the end or at the beginning of the year than during the summer months. Since bonuses and profit-sharing retirement contributions are also usually granted at the end of the year or during the first few months of the new year, new investments are made at that time.

A resulting liquidity push may lead to above-average stock price appreciation during the good months. Many investors are able or willing to invest only in the first few months of the year because summer and year-end expenses are higher than those at the beginning of the year. Summer vacations, children's activities, and holidays are all possible diversions from investment.

SUMMARY AND CONCLUSION

Our study of the seasonal price behavior of global equity markets during the 32-year period from 1970 through 2001 shows that investors could achieve superior returns at lower risk during the good months of November through April, if they are able to move in and out of markets without transaction cost and tax consequences.

We believe that the seasonal price patterns we describe may be generic rather than time-specific as long as the majority of the reasons we conjecture apply. Significant changes (in human behavior, tax codes, patterns of employee compensation, etc.) would be required to make the seasonal price patterns disappear.

While the transaction costs of market-timing strategies may prevent most investors from benefiting from these seasonal patterns, it may be useful to consider them for tax-free retirement accounts or for new investments and disinvestments decisions whose timing is somewhat flexible.

ENDNOTES

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[1] The 18 markets are Australia, Austria, Belgium, Canada, Denmark, France, Germany, Hong Kong, Italy, Japan, the Netherlands, Norway, Singapore, Spain, Sweden, Switzerland, the United Kingdom, and the United States. The price return series for Finland and New Zealand start only in December 1981, and those for Ireland, Portugal, and Greece start in December 1987.

[2] The average price return of the MSCI World Index in U.S. dollars was 8.77%. While 8.58% was obtained during the good months, the average annual price return during the bad months was 0.08%. Compounded, the returns were 7.47%, 7.78%, and -0.29, respectively.

[3] Actual payment dates usually lag the ex-dividend dates, but for the purpose of our study only the ex-dividend dates are important.

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