Market Timing at Home and Abroad

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By now, the story of the great rise of stock prices in the late 1990s and their great fall in the early 2000s seems clear. In the late 1990s, exuberant investors lifted P/E ratios to levels much higher than their historical averages and pressed dividend yields to levels much lower than their historical averages. True to form, stock prices fell in the early 2000s. By now, the lesson seems equally clear: Sell stocks when P/E ratios go above their historical average or when dividend yields go below their historical average. But is this a good lesson? We argue that it is not.

Fisher and Statman [2006] adopt the perspective of market timers, who search for P/E and dividend-based trading rules to guide them in switching from U.S. stocks to bills and back to stocks—such that they accumulate more than the sums accumulated by buy-and-hold stock investors. We follow with a study of market timing in three additional markets: U.K., Germany, and Japan. If P/E and dividend-based trading rules can be used to reliably time the market, such rules should work in similar fashion in all major developed markets. However, we find that they do not.

Value and sentiment are the two drivers of security prices in Shefrin and Statman's [1994] behavioral capital asset pricing theory. P/E ratios and dividend yields are indirect measures of sentiment because they combine sentiment with value. Prices equal value in markets where only information traders trade, and change in value is the only driver of prices. However, noise traders join information traders in real-world markets, and their sentiment—bullish or bearish—is the second driver of prices. Sentiment drives prices away from value.

We can use P/E ratios and dividend yields as measures of sentiment if, from their actual levels, we subtract the levels consistent with value. If levels of P/E ratios and dividend yields that are consistent with value are constant, such as their long-term averages, then it is possible to conclude that sentiment is bullish when actual P/E ratios exceed their long-term average, or when actual dividend yields fall below their long-term average. Similarly, sentiment is bearish when actual P/E ratios fall below their long-term average, or when actual dividend yields exceed their long-term average.

The debate about the ability of P/E ratios and dividend yields to predict future returns goes on. Campbell and Shiller [1988, 1998] found that high P/E ratios and low dividend yields predict low subsequent 10-year stock returns. However, Fisher and Statman [2000] found that dividend yields and P/E ratios do not predict stock returns over periods of one or two years and pointed out examples where high P/E ratios and low dividend yields were followed by high stock returns. Goyal and Welch [2003] found that P/E ratios and dividend yields do not predict future returns. However, Lewellen [2004] found that they do.

The econometric method used in all these studies is a regression of returns on past P/E ratios and/or dividend yields. Returns are deemed predictable if regression coefficients

are statistically significant. Many, including Campbell and Shiller [1998], and Goyal and Welch [2003], have noted the problems in the construction of regressions and the difficulty in the assessment of their statistical significance. Moreover, regressions require that we specify in advance a fixed holding period of securities, be it a month, a year, or a decade. But market timers need not have fixed holding periods. Instead, market timers look for trading rules that tell them when to buy stocks and when to replace them with other securities, such as Treasury bills, and the holding periods of stocks and bills might vary from a month at one time to a decade at another. Fisher and Statman [2006] analyzed U.S. data with a straightforward methodology, searching for P/E and dividend-based trading rules that could be used to accumulate more than the sums accumulated by stock buy-and-hold investors.

We use that methodology here. In our study, U.S. stock returns, earnings, and dividends were provided by Jack Wilson and are described in Wilson and Jones [2002]. U.K., Germany, and Japan stock returns, earnings, and dividends are from MSCI via Thomson Financial Datastream. Returns on short-term bills in Germany and Japan are from Global Financial Data (Total Returns Bills Index). Returns on short-term bills in the U.K. are from Barclays U.K. T-bill Index. Returns on U.S. T-bills are from Ibbotson Associates.

MARKET TIMING WITH P/E RATIOS

Buy-and-hold investors who invested a dollar in U.S. stocks at the beginning of 1871 would have accumulated $67,672 by the end of 2002, 132 years later.[1] Consider P/E-based market timing rules, and begin with P/E ratios calculated for each calendar year as the ratio of price at the end of the year to earnings during the preceding 12 months. The median P/E ratio during the 132-year period was 14.4. If a 14.4 P/E ratio represents the value component of actual P/E ratios, then P/E ratios above 14.4 imply bullish sentiment and those below it imply bearish sentiment. Market timers who expect bullish and bearish sentiment to fade over time act as contrarians, switching from T-bills to stocks in years that begin with P/E ratios lower than 14.4, and switching from stocks to T-bills in years that begin with P/E ratios higher than 14.4. Fisher and Statman [2005] found that market timers following this market timing rule since 1871 would have accumulated only $8,513 by the end of 2002, trailing quite badly the $67,672 accumulated by buy-and-hold investors (see Exhibit 1).

Market timers would have benefited from their switch to T-bills in 1931, when the 15.2 P/E ratio at the end of 1930 would have led them to T-bills that earned 1.09% in 1931 (while stocks lost 45.16%), but they would have been harmed in 1959 when a P/E ratio of 19.1 at the end of 1958 would have led them to T-bills that earned 2.97% in 1959 (while stocks earned 11.95%).

The use of the 14.4 P/E market timing rule implies that investors could have known in 1871 that the median P/E ratio during the following 132 years would be 14.4. Consider a more realistic case where market timers follow the median trading rule but calculate the critical P/E ratio as the median P/E ratio during the preceding years. We find that market timers who were to use this trading rule would have done somewhat better than market timers who used the full-period median rule, accumulating $14,518. But this accumulation is still far smaller than the $67,672 accumulated by buy-and-hold investors.

Consider trading rules based on a range of critical P/E ratios, from 5 to 40 in increments of one. It turns out that no trading rule in this range would have done better than the buy-and-hold rule. The best critical P/E ratio within the range is 26, but investors following its trading rule would have accumulated $60,628, still short of the $67,672 accumulated by buy-and-hold investors.
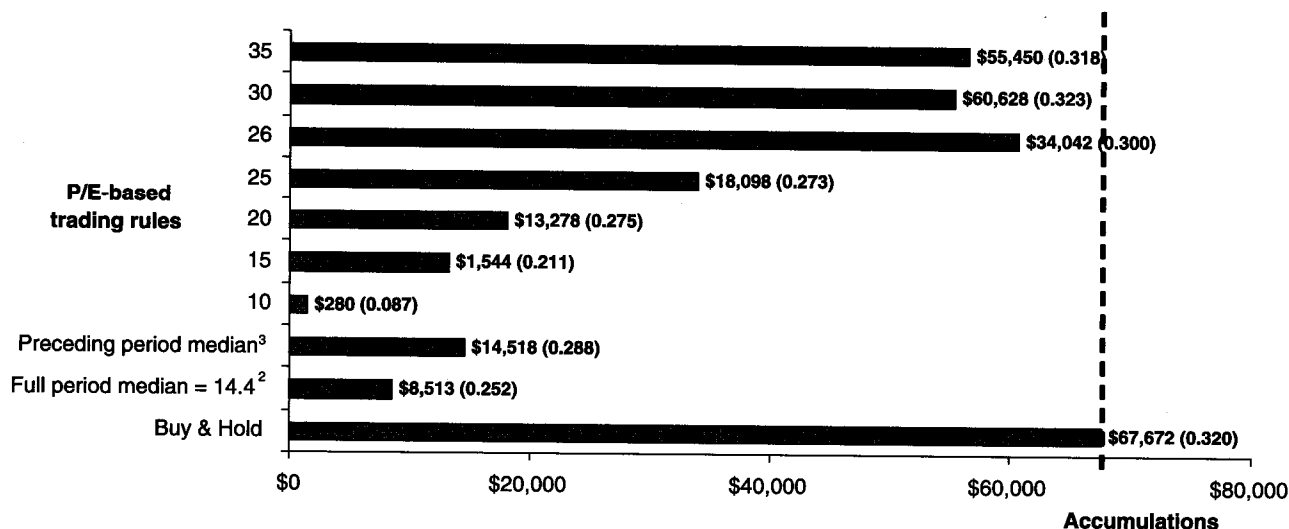
The fact that no P/E rule between 5 and 40 did better than a buy-and-hold rule is peculiar, due to the fact that the P/E ratio at the end of 1932 was an extraordinarily high 136.5. That P/E ratio would have sent market timers into T-bills that earned a measly 0.32% in 1933 while stocks earned a whopping 56.50%. The P/E ratio at the end of 1932 came about because earnings during 1932, in the midst of the Great Depression, were only slightly better than zero.

The low earnings in 1932 are one of many examples of the high volatility of annual earnings. Campbell and Shiller [1998] dampened that volatility by replacing earnings during the preceding 12 months in the P/E ratio with the average annual earnings during the preceding 10 years. The 10-year averaging of earnings makes a great difference in the market timing success of trading rules. The median P/E ratio in which earnings are averaged over the preceding 10 years is 16.4, and market timers who were to use it as the critical P/E ratio would have accumulated $72,750 by the end of 2002—more than the $67,672 of buy-and-hold investors. But accumulations are very sensitive to the averaging method. For example, market timers who were to use a median P/E ratio in which earnings are averaged over the preceding five years would have accumulated only $24,194; and those who were to use a median P/E ratio in which earnings are

EXHIBIT 1
Market Timing with P/E Trading Rules: U.S. 1871-2002
(Accumulation at the end of 2002 of $1 invested at the beginning of 1871. Sharpe ratios are in parentheses)

Trading rules: Investors have $1 at the beginning of 1871 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the P/E ratio is lower than the P/E ratio in the trading rule and back to T-bills when it is higher.[1] For example, the trading rule associated with a P/E ratio of 26 calls for switching from T-bills to stocks when the P/E ratio is lower than 26 and back to T-bills when the P/E ratio is higher. Investors who were to follow that rule from the beginning of 1871 to the end of 2002 would have seen their initial $1 accumulate to $60,628. Investors who bought stocks with their $1 at the beginning of 1871 and held them through the end of 2002 would have accumulated $67,672. We examined trading rules with P/E as integers from 5 to 40, but we report only some, including the one with the highest accumulation.
[1]P/E at the end of the preceding year. P/E is calculated as price at the end of the year divided by earnings during the year.
[2]The P/E in the trading rule is the median P/E ratio during the entire period.
[3]The P/E in the trading rule is the median P/E ratio during the years preceding the switching decision.

averaged over the preceding 15 years would have accumulated only $16,450. Both figures are lower than the $67,672 accumulated by buy-and-hold investors.[2]

The Sharpe ratio of market timers who were to use a P/E ratio of 26 as their P/E ratio in a trading rule would have been 0.323. This Sharpe ratio is slightly higher than the 0.320 ratio of buy-and-hold investors; however, it is biased upward when used to measure the performance of market timers. Market timers who are entirely in stocks in half the periods and entirely in cash in the other half are measured by the Sharpe ratio as equivalent to buy-and-hold investors who divided their money equally between stocks and bonds during all periods. Samuelson [1990] wrote; "Diversification across time is not the same as diversification during each time period. Instead it involves a lowered risk-corrected mean return." Moreover, market timers usually promise to provide higher returns, not just higher Sharpe ratios, than those of buy-and-hold investors.

Now, consider evidence of the success of P/E ratio-based market timing rules in international markets.

Complete data on international markets are available only since 1969, and we begin with the U.S. during 1970–2002 as the base case. During this period, the median P/E ratio in the U.S. was 15.4 when earnings are measured during the preceding 12 months. Buy-and-hold investors who invested $1 in U.S. stocks at the beginning of 1970 would have accumulated $29.55 by the end of 2002, but market timers using the 15.4 median P/E ratio as the critical P/E ratio in a market timing rule would have accumulated only $18.84 (see Exhibit 2). The best trading rule had 25 as the critical P/E ratio; it provided an accumulation of $44.03. But even small deviations from rules that work turn gains into losses. While market timers who were to use 25 as the critical P/E ratio—where earnings are averaged over the preceding 12 months—would have accumulated more than buy-and-hold investors, market timers who were to use the same critical P/E ratio—where earnings are averaged over the preceding five or 10 years—would have accumulated less than buy-and-hold investors.

We turn now to P/E-based rules in the U.K., Germany, and Japan. Buy-and-hold investors in the U.K.,

EXHIBIT 2

Market Timing with P/E Trading Rules: U.S. 1970-2002
(Accumulation at the end of 2002 of $1 invested at the beginning of 1970. Sharpe ratios are in parentheses)
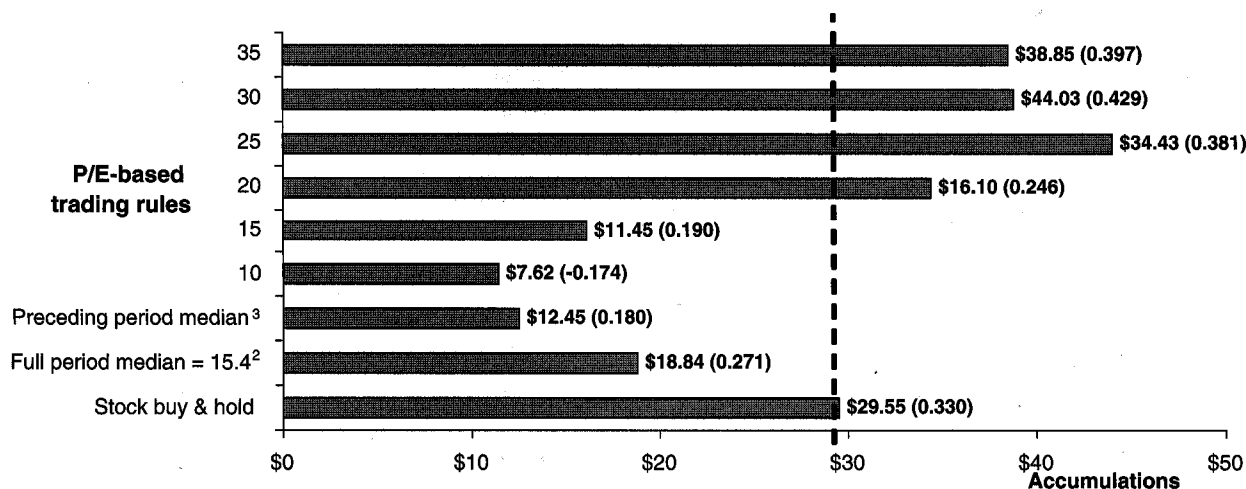
Trading rules: Investors have $1 at the beginning of 1970 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the P/E ratio is lower than the P/E ratio in the trading rule and back to T-bills when it is higher.[1] For example, the trading rule associated with a P/E ratio of 25 calls for switching from T-bills to stocks when the P/E ratio is lower than 25 and back to T-bills when the P/E ratio is higher. Investors who were to follow that rule from the beginning of 1970 to the end of 2002 would have seen their initial $1 accumulate to $44.03. Investors who bought stocks with their $1 at the beginning of 1970 and held them through the end of 2002 would have accumulated $29.55. We examined trading rules with P/E as integers from 5 to 40, but we report only some, including the one with the highest accumulation.
[1]P/E at the end of the preceding year. P/E is calculated as price at the end of the year divided by earnings during the year.
[2]The P/E in the trading rule is the median P/E ratio during the entire period.
[3]The P/E in the trading rule is the median P/E ratio during the years preceding the switching decision.

as in the U.S., would have done better than market timers who used the median P/E ratio as their critical P/E ratio. Buy-and-hold investors in the U.K. would have seen their £1 invested at the beginning of 1970 grow to £47.13 by the end of 2002, but market timers who were to use the 12.1 median P/E ratio as the critical P/E ratio rule would have accumulated only £43.32 (see Exhibit 3).

P/E ratio-based trading rules that employ the median P/E ratio as the critical P/E ratio would have done better in Japan and Germany than in the U.S. or the U.K. Buy-and-hold investors in Japan would have seen their ¥1 invested at the beginning of 1970 grow to ¥8.66 by the end of 2002 while market timers who were to use the 31.0 median P/E ratio as the critical P/E ratio would have accumulated ¥19.01. Similarly, market timers in Germany who were to use the 14.7 median P/E ratio as the critical P/E ratio would have accumulated €15.19 by the end of 2002, better than the €9.05 accumulated by buy-and-hold investors (see Exhibits 4 and 5).

Trading rules that are successful in one market are not always successful in another. Consider the 25 critical P/E ratio that provided the highest accumulation in the U.S. market. Investors who were to use 25 as the critical P/E

ratio in the German market would have accumulated less than buy-and-hold investors. Once again, even small deviations from trading rules that work turn gains into losses. For example, market timers in Japan would have accumulated more than buy-and-hold investors if they were to use 14 or 15 as the critical P/E ratio in market timing rules. But they would have lagged buy-and-hold investors if they were to use 13 or 16 as the critical P/E ratio.

MARKET TIMING
WITH DIVIDEND YIELDS

The median dividend yield in the U.S. during the 1871–2002 period was 4.35%, where dividend yield is calculated as the ratio of the price at the end of a year to dividends during the year. Consider market timers who were to use that median dividend yield as the critical dividend yield in their market timing trading rule, beginning with $1 at the end of 1871 and switching from T-bills to stocks when the dividend yield rose above 4.35% and back to T-bills when the dividend yield fell below it. Fisher and Statman [2005] found that such market timers would have accumulated $13,513 by the end of 2002, less than

EXHIBIT 3

Market Timing with P/E Trading Rules: UK 1970-2002
(Accumulation at the end of 2002 of $1 invested at the beginning of 1970. Sharpe ratios are in parentheses)
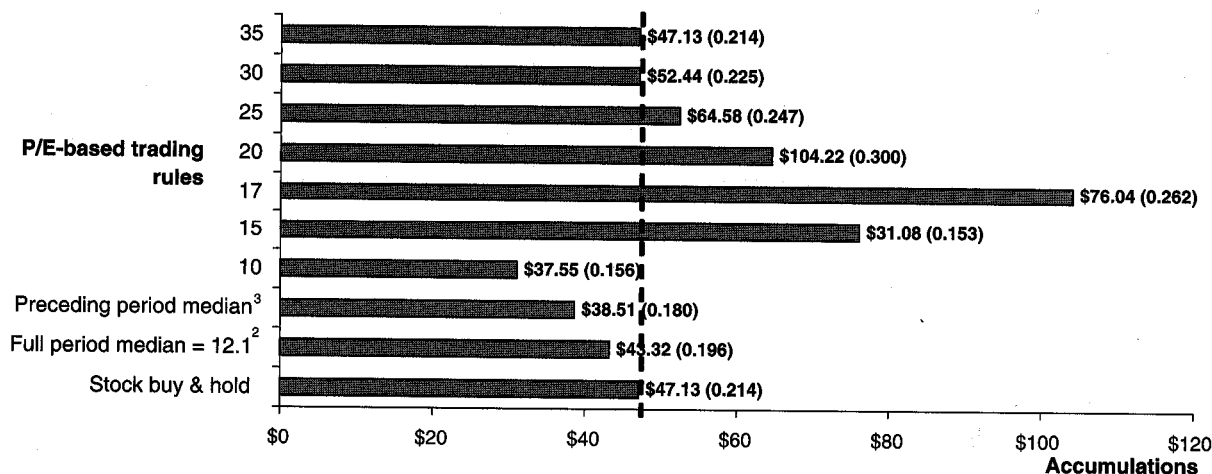
Trading rules: Investors have $1 at the beginning of 1970 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the P/E ratio is lower than the P/E ratio in the trading rule and back to T-bills when it is higher.[1] For example, the trading rule associated with a P/E ratio of 17 calls for switching from T-bills to stocks when the P/E ratio is lower than 17 and back to T-bills when the P/E ratio is higher. Investors who were to follow that rule from the beginning of 1970 to the end of 2002 would have seen their initial $1 accumulate to $44.03. Investors who bought stocks with their $1 at the beginning of 1970 and held them through the end of 2002 would have accumulated $47.13. We examined trading rules with P/E as integers from 3 to 38, but we report only some, including the one with the highest accumulation.
[1] P/E at the end of the preceding year. P/E is calculated as price at the end of the year divided by earnings during the year.
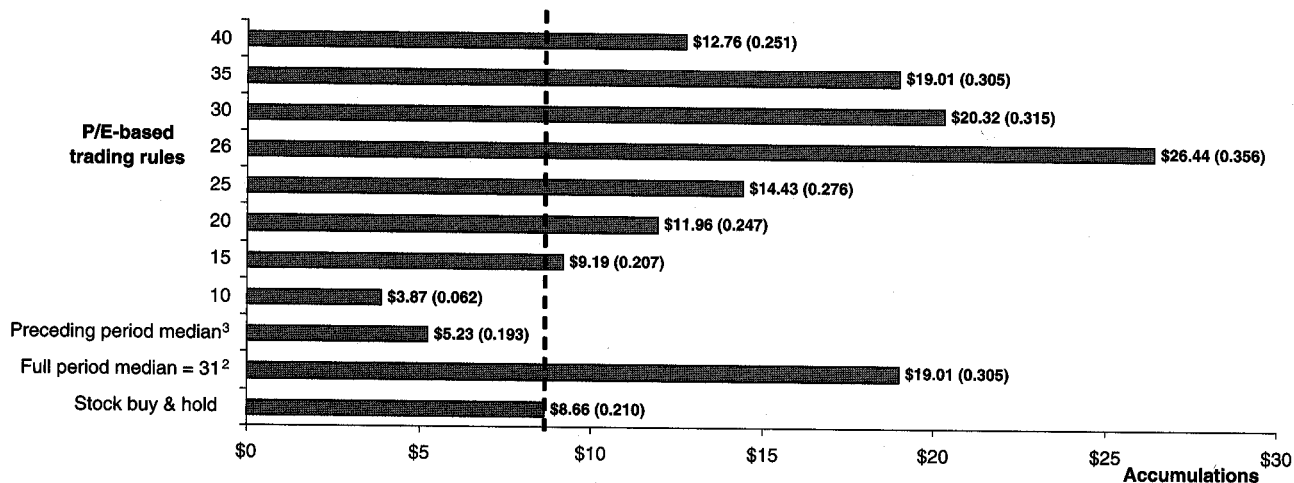*[2] The P/E in the trading rule is the median P/E ratio during the entire period.*
[3] The P/E in the trading rule is the median P/E ratio during the years preceding the switching decision.

EXHIBIT 4

Market Timing with P/E Trading Rules: Japan 1970-2002
(Accumulation at the end of 2002 of $1 invested at the beginning of 1970. Sharpe ratios are in parentheses)

Trading rules: Investors have $1 at the beginning of 1970 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the P/E ratio is lower than the P/E ratio in the trading rule and back to T-bills when it is higher.[1] For example, the trading rule associated with a P/E ratio of 26 calls for switching from T-bills to stocks when the P/E ratio is lower than 26 and back to T-bills when the P/E ratio is higher. Investors who were to follow that rule from the beginning of 1970 to the end of 2002 would have seen their initial $1 accumulate to $26.44. Investors who bought stocks with their $1 at the beginning of 1970 and held them through the end of 2002 would have accumulated $8.66. We examined trading rules with P/E as integers from 7 to 42, but we report only some, including the one with the highest accumulation.
[1] P/E at the end of the preceding year. P/E is calculated as price at the end of the year divided by earnings during the year.
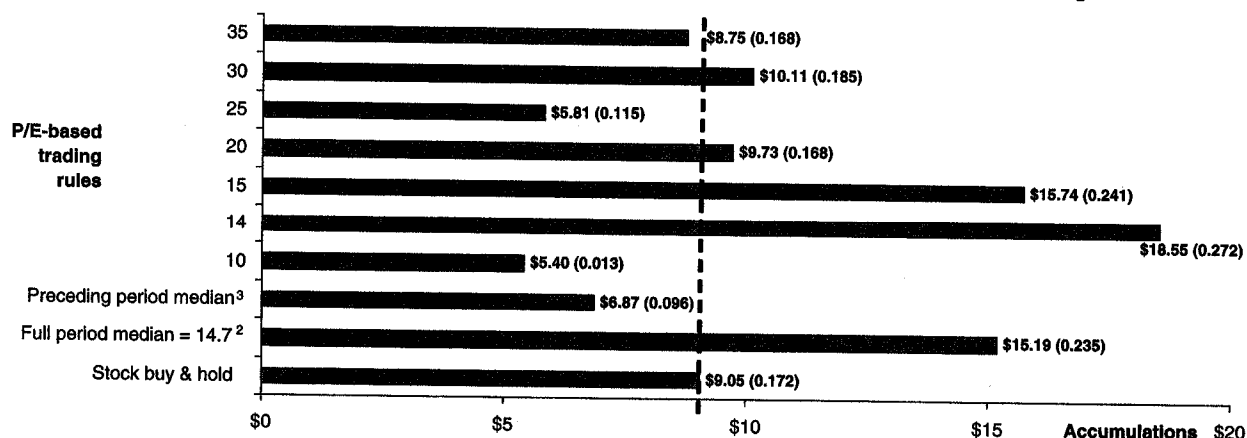*[2] The P/E in the trading rule is the median P/E ratio during the entire period.*
[3] The P/E in the trading rule is the median P/E ratio during the years preceding the switching decision.

EXHIBIT 5

Market Timing with P/E Trading Rules: Germany 1970-2002
(Accumulation at the end of 2002 of $1 invested at the beginning of 1970. Sharpe ratios are in parentheses)

Trading rules: Investors have $1 at the beginning of 1970 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the P/E ratio is lower than the P/E ratio in the trading rule and back to T-bills when it is higher.[1] For example, the trading rule associated with a P/E ratio of 14 calls for switching from T-bills to stocks when the P/E ratio is lower than 14 and back to T-bills when the P/E ratio is higher. Investors who were to follow that rule from the beginning of 1970 to the end of 2002 would have seen their initial $1 accumulate to $18.55. Investors who bought stocks with their $1 at the beginning of 1970 and held them through the end of 2002 would have accumulated $9.05. We examined trading rules with P/E as integers from 7 to 42, but we report only some, including the one with the highest accumulation.
[1]P/E at the end of the preceding year. P/E is calculated as price at the end of the year divided by earnings during the year.
[2]The P/E in the trading rule is the median P/E ratio during the entire period.
[3]The P/E in the trading rule is the median P/E ratio during the years preceding the switching decision.

the $67,672 accumulated by buy-and-hold investors. The median dividend yield during the period 1871-2002 could not have been known before the end of 2002; as in the case of P/E ratios, consider a more realistic case where market timers use the median dividend yield in preceding years as the critical dividend yield for the trading rule. Such market timers would have accumulated only $6,883, much less than the $67,672 accumulated by buy-and-hold investors.

Consider a range of dividend yields, from 1.00% to 10.50%, in increments of 0.50%. The best critical value for a dividend-yield market timing rule would be 1.50%. Market timers who held stocks when the dividend yield rose above 1.50% and switched to T-bills when the dividend yield fell below it would have accumulated $98,289, more than the $67,672 accumulated by buy-and-hold investors. The 1.50% rule would have kept market timers in stocks all the way from 1871 through 1998, and switched them to T-bills at the end of that year and through 2002. These market timers would have missed the gain of stocks in 1999, but would have also missed the losses in 2000, 2001, and 2002 (see Exhibit 6).

Consider dividend-based market timing rules during 1970-2002. We begin with the U.S. market and omit the Japanese market since its dividend yields were miniscule. Buy-and-hold investors in the U.S. who invested $1 at the beginning of 1970 would have accumulated $29.55

by the end of 2002. Market timers who were to use the 3.42% median dividend yield as the critical dividend yield in a market timing rule would have accumulated less: $20.33. The best critical dividend yield for a trading rule in the U.S. market was 1.50%. Market timers who were to follow that rule would have accumulated $46.91, while buy-and-hold investors would have accumulated only $29.55. Such market timers would have missed the high stock returns of 1999 but they would have been saved from the stock losses of 2000, 2001, and 2002 (see Exhibit 7).
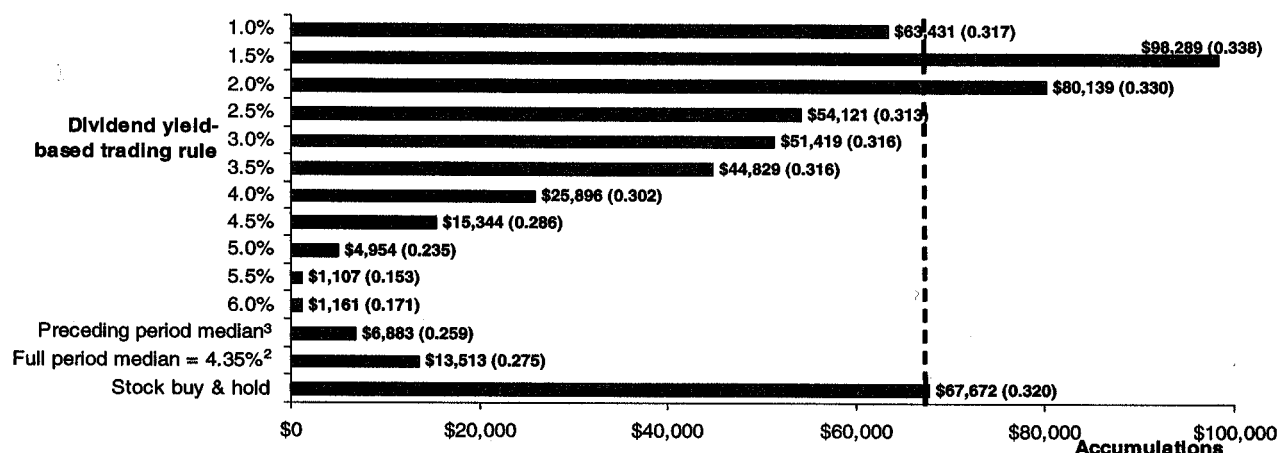
Market timers in the U.K. would have come out ahead of buy-and-hold investors if they were to use the 4.50% median dividend yield as the critical dividend yield in their trading rule. Such market timers would have accumulated £58.28 by the end of 2002, while buy-and-hold investors would have accumulated only £47.13. Similarly, market timers in Germany who were to use the 3.70% median dividend yield as the critical dividend yield in a market timing rule would have accumulated €32.71, more than the €9.95 of buy-and-hold investors (see Exhibits 8 and 9).

Here, too, small changes in trading rules can result in large changes in accumulation levels. Consider again the case of Germany, where market timers who were to use the median dividend yield as the critical dividend yield would have accumulated more than buy-and-hold

EXHIBIT 6

Market Timing with Dividend Yield Trading Rules: U.S. 1871-2002
(Accumulation at the end of 2002 of $1 invested at the beginning of 1871. Sharpe ratios are in parentheses)

Dividend yield-based trading rule:
- 1.0% — $63,431 (0.317)
- 1.5% — $98,289 (0.338)
- 2.0% — $80,139 (0.330)
- 2.5% — $54,121 (0.313)
- 3.0% — $51,419 (0.316)
- 3.5% — $44,829 (0.316)
- 4.0% — $25,896 (0.302)
- 4.5% — $15,344 (0.286)
- 5.0% — $4,954 (0.235)
- 5.5% — $1,107 (0.153)
- 6.0% — $1,161 (0.171)

Preceding period median[3] — $6,883 (0.259)
Full period median = 4.35%[2] — $13,513 (0.275)
Stock buy & hold — $67,672 (0.320)

Trading rules: Investors have $1 at the beginning of 1871 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the dividend yield is higher than the dividend yield in the trading rule and back to T-bills when it is lower.[1] For example, the trading rule associated with a dividend yield of 1.50% calls for switching from T-bills to stocks when the dividend yield is higher than 1.50% and back to T-bills when the dividend yield is lower. Investors who were to follow that trading rule from the beginning of 1970 through the end of 2002 would have seen their initial $1 accumulate to $98,289. Investors who bought stocks with their $1 at the beginning of 1871 and held them through the end of 2002 would have accumulated $67,672. We examined trading rules with dividend yield from 1.00% to 10.50%, but we report only some, including the one with the highest accumulation.
[1] Dividend yield at the end of the preceding year. Dividend yield is calculated as dividend per share (in dollars) during the year divided by the price per share at the end of the year.
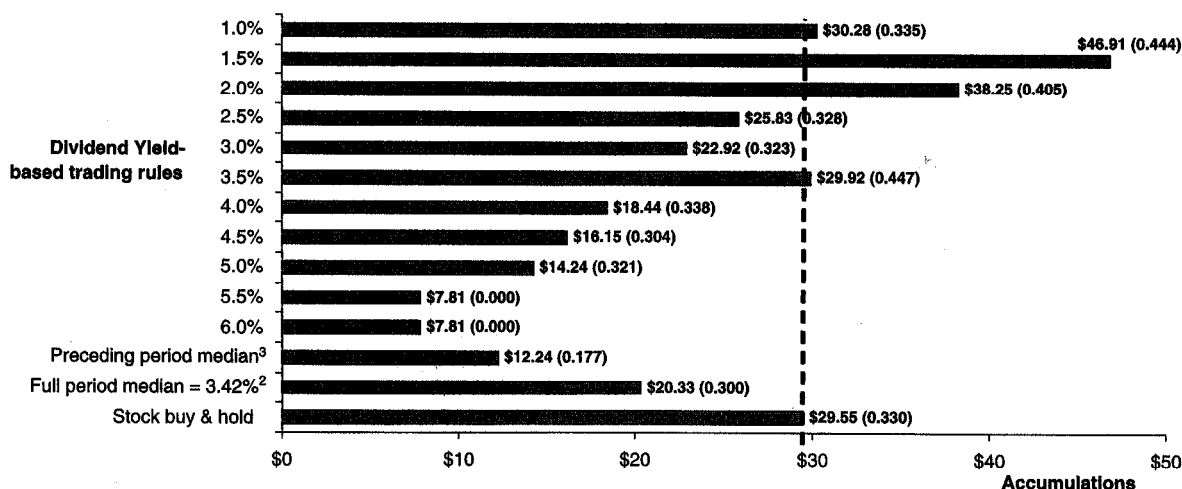*[2] The dividend yield in the trading rule is the median dividend yield during the entire period.*
[3] The dividend yield in the trading rule is the median dividend yield during the years preceding the switching decision.

EXHIBIT 7

Market Timing with Dividend Yield Trading Rules: U.S. 1970-2002
(Value at the end of 2002 of $1 invested at the beginning of 1970. Sharpe ratios are in parentheses)

Dividend Yield-based trading rules:
- 1.0% — $30.28 (0.335)
- 1.5% — $46.91 (0.444)
- 2.0% — $38.25 (0.405)
- 2.5% — $25.83 (0.328)
- 3.0% — $22.92 (0.323)
- 3.5% — $29.92 (0.447)
- 4.0% — $18.44 (0.338)
- 4.5% — $16.15 (0.304)
- 5.0% — $14.24 (0.321)
- 5.5% — $7.81 (0.000)
- 6.0% — $7.81 (0.000)

Preceding period median[3] — $12.24 (0.177)
Full period median = 3.42%[2] — $20.33 (0.300)
Stock buy & hold — $29.55 (0.330)

Trading rules: Investors have $1 at the beginning of 1970 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the dividend yield is higher than the dividend yield in the trading rule and back to T-bills when it is lower.[1] For example, the trading rule associated with a dividend yield of 1.50% calls for switching from T-bills to stocks when the dividend yield is higher than 1.50% and back to T-bills when the dividend yield is lower. Investors who were to follow that trading rule from the beginning of 1970 through the end of 2002 would have seen their initial $1 accumulate to $46.91. Investors who bought stocks with their $1 at the beginning of 1970 and held them through the end of 2002 would have accumulated $29.55. We examined trading rules with dividend yield from 1.00% to 10.50%, but we report only some, including the one with the highest accumulation.
[1] Dividend yield at the end of the preceding year. Dividend yield is calculated as dividend per share (in dollars) during the year divided by the price per share at the end of the year.
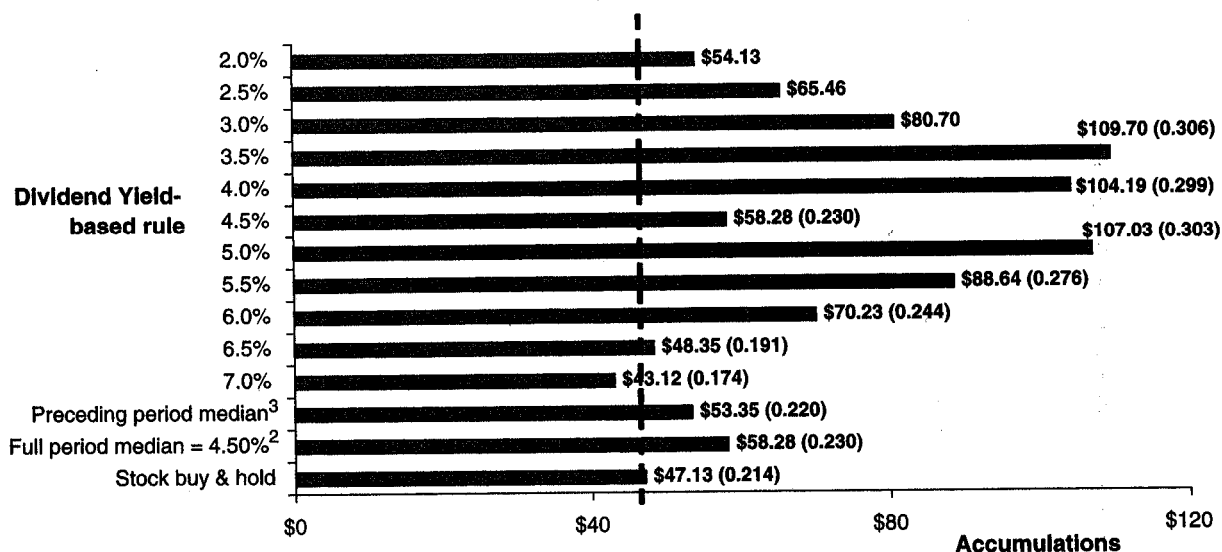*[2] The dividend yield in the trading rule is the median dividend yield during the entire period.*
[3] The dividend yield in the trading rule is the median dividend yield during the years preceding the switching decision.

EXHIBIT 8

Market Timing with Dividend Yield Trading Rules: UK 1970-2002
(Value at the end of 2002 of $1 invested at the beginning of 1970. Sharpe ratios are in parentheses)

Trading rules: Investors have $1 at the beginning of 1970 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the dividend yield is higher than the dividend yield in the trading rule and back to T-bills when it is lower.[1] For example, the trading rule associated with a dividend yield of 1.50% calls for switching from T-bills to stocks when the dividend yield is higher than 3.50% and back to T-bills when the dividend yield is lower. Investors who were to follow that trading rule from the beginning of 1970 through the end of 2002 would have seen their initial $1 accumulate to $46.91. Investors who bought stocks with their $1 at the beginning of 1970 and held them through the end of 2002 would have accumulated $29.55. We examined trading rules with dividend yield from 2.00% to 12.00%, but we report only some, including the one with the highest accumulation.
[1]*Dividend yield at the end of the preceding year. Dividend yield is calculated as dividend per share (in dollars) during the year divided by the price per share at the end of the year.*
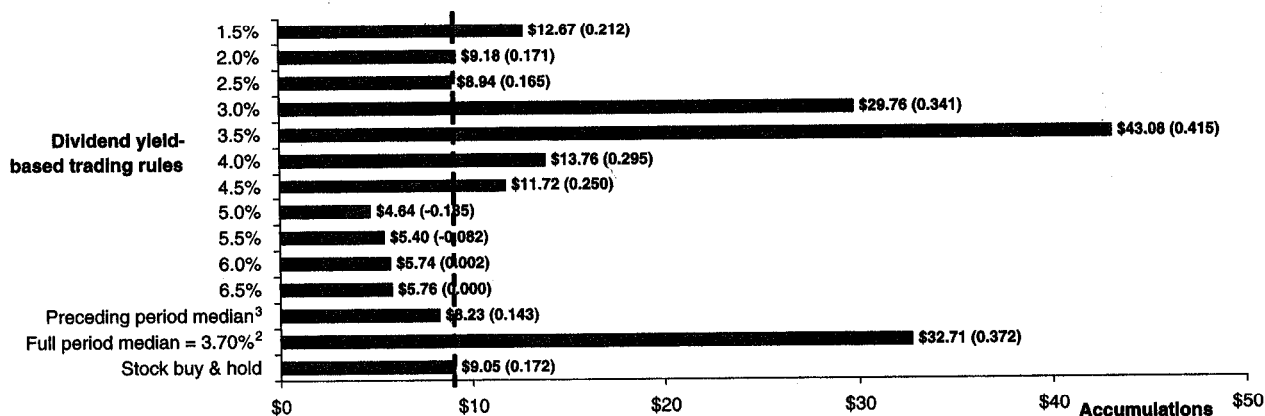[2]*The dividend yield in the trading rule is the median dividend yield during the entire period.*
[3]*The dividend yield in the trading rule is the median dividend yield during the years preceding the switching decision.*

EXHIBIT 9

Market Timing with Dividend Yield Trading Rules: Germany 1970-2002
(Accumulations at the end of 2002 of $1 invested at the beginning of 1970. Sharpe ratios are in parentheses)

Trading rules: Investors have $1 at the beginning of 1970 and that money accumulates over time as it is invested in stocks or T-bills. Investors switch from T-bills to stocks when the dividend yield is higher than the dividend yield in the trading rule and back to T-bills when it is lower.[1] For example, the trading rule associated with a dividend yield of 3.50% calls for switching from T-bills to stocks when the dividend yield is higher than 3.50% and back to T-bills when the dividend yield is lower. Investors who were to follow that trading rule from the beginning of 1970 through the end of 2002 would have seen their initial $1 accumulate to $43.08. Investors who bought stocks with their $1 at the beginning of 1970 and held them through the end of 2002 would have accumulated $9.05. We examined trading rules with dividend yield from 1.50% to 6.50%, but we report only some, including the one with the highest accumulation.
[1]*Dividend yield at the end of the preceding year. Dividend yield is calculated as dividend per share (in dollars) during the year divided by the price per share at the end of the year.*
[2]*The dividend yield in the trading rule is the median dividend yield during the entire period.*
[3]*The dividend yield in the trading rule is the median dividend yield during the years preceding the switching decision.*

investors. Realistically, market timers would have known the median level of the full-period 1970-2002 only at the end of the period, not during it. Consider a more realistic case where the critical dividend yield in the trading rule for each year is the median dividend yield during the preceding years. Market timers who were to use this trading rule would have accumulated only €8.23, less than the €9.05 accumulated by buy-and-hold investors.

Dividend yields in the U.S. were higher than long-term interest rates until 1958, and they have been generally declining ever since. Some of the decline is likely due to changing investor preferences for dividends rather than to changing valuations. But investors in 1958 would have found it difficult to guess where dividend yields were going next, and so would have found it difficult to incorporate any dividend trends in their market timing rules. Today's investors are similarly puzzled. Will future dividend yields be higher than today's, or will they be lower?

CONCLUSION

Stein and DeMuth [2003] studied the market timing abilities of P/E ratios, dividend yields, and similar measures in the U.S. market and stated their conclusion in the title of their book, *Yes, You Can Time the Market*.

"Looking Forward: A Note of Caution" is the title of the book's last chapter. In it, Stein and DeMuth recommend that readers stay away from stocks. They note that their market timing rules would have led them to stay away from stocks in 1999, and recommend that readers stay away from stocks in early 2003, as the book was published. They write, "Our point is that for a number of measurements, prices are still fantastically high."

The U.S. stock market did not follow the path charted by Stein and DeMuth. Investors who stayed away from U.S. stocks deprived themselves of the 28.68% return of the S&P 500 Index in 2003 and the 10.88% return in 2004. Moreover, investors who used median P/E ratios and dividend yields as their critical P/E ratios and dividend yields in market timing rules would have stayed away from stocks in all four markets and accumulated less than buy-and-hold stock investors in every one.[3]

We do not argue that market timing is impossible. Rather, we observe that stock prices reflect both value and sentiment, neither of which is perfectly known in foresight, and that sentiment can drive stock prices higher even if their value is driven lower. Successful market timing requires insights into sentiment and value—insights that are not fully reflected in current P/E ratios and dividend yields.

ENDNOTES

[1] The $67,672 accumulation reflects a geometric average annual return of 8.8%.

[2] Money is invested in stocks during the years when the P/E ratio cannot be calculated for lack of data.

[3] Dividend yields in Japan were excluded from the analysis.

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