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Firm characteristics such as book-to-market ratio (BE/ME), market equity (ME), and one-year past return (MOM, for momentum) help explain the cross-section of average returns on U.S. stocks. Firms with high BE/ME, small ME, and upward MOM produce higher average returns than firms with low BE/ME, big ME, and downward MOM.

Fama and French [1994] propose a rational asset pricing explanation for the BE/ME and ME return premiums. They document that high BE/ME and small ME stocks exhibit persistently poorer earnings than low BE/ME and big ME stocks. If profitability proxies for risk related to financial distress, the observed return premium may represent fair compensation for investors willing to bear this risk. Using equity markets as a whole, in contrast to individual stocks, we extend the investigation of these variables in three ways.

1. We document the power of country versions of these variables to explain the cross-section of expected country returns. Equity markets with high BE/ME, small ME, and upward MOM have higher average returns than markets with low BE/ME, big ME, and downward MOM. Further, the returns to zero-investment portfolios formed by sorting countries on these variables exhibit low but positive correlation with the returns to zero-investment portfolios formed by sorting stocks within one country on these variables. Therefore, the forces driving predictability in country returns

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appear only weakly related to the forces that drive predictability in U.S. stocks.

2. We document a strong January seasonal effect in the ME premium for country returns. This finding raises more questions than it answers. Can the hypotheses on tax-loss selling (Brown et al. [1983]) or window-dressing (Haugen and Lakonishok [1987]) that are put forth to explain the January effect for individual stocks explain the result we see at the country level? Are global asset allocators — that is, portfolio managers who pick countries instead of individual stocks — motivated by the same tax issues (the tax-loss hypothesis) and/or institutional factors (the window-dressing hypothesis) that motivate stock-picking portfolio managers?
3. We document that BE/ME- and ME-sorted country portfolios exhibit patterns in profitability similar to those of U.S. stocks. High BE/ME and small ME country portfolios produce low cash flow on book equity for at least three years before and three years after portfolio formation. Thus, like U.S. stocks, the return premiums of high BE/ME and low ME countries may represent compensation for exposure to risks or to “discomfort” caused by persistently poor profitability. Unlike the BE/ME and ME results, however, patterns in profitability for MOM-sorted portfolios cannot explain the MOM return premium.

AVERAGE RETURNS

Individual stocks exhibit systematic cross-sectional differences in average returns. For example, Banz [1981] shows that small ME stocks have significantly outperformed large ME stocks in the United States. Hawawini and Keim [1994] survey the international evidence and report a significant ME premium in eleven of thirteen countries. Stattman [1980], Fama and French [1992], and others document a significant positive relation between a firm’s BE/ME and its average returns in the United States. Capaul, Rowley, and Sharpe [1993] extend these studies internationally, and find a positive relation between BE/ME and average returns on individual stocks within France, Germany, Japan, Switzerland, and the United Kingdom. Jegadeesh and Titman [1993] and Asness [1995] find a significant momentum effect in individual stock returns in the United States.

Exhibit 1 summarizes these results using equal-weight portfolios of U.S. stocks sorted on BE/ME,

ME, and MOM.¹ We first confirm the BE/ME effect. Within the United States, high BE/ME stocks outperform low BE/ME stocks by 85 basis points per month (t-statistic = 5.61, annual Sharpe ratio = 1.00).²

We also confirm the size effect. Small ME stocks outperform big ME stocks by 44 bp per month (t-statistic = 2.16, annual Sharpe ratio = 0.39).

Finally, we confirm the existence of stock price momentum among U.S. stocks. On average, last year’s winners outperformed last year’s losers by 71 bp per month (t-statistic = 4.45, annual Sharpe ratio = 0.79).

Heckman, Mullin, and Sze [1996], Macedo [1995], and Keppler and Traub [1993] show that country versions of similar variables explain cross-sectional differences in average returns to countries. Exhibit 2 confirms these results using equal-weight developed market country portfolios sorted on aggregate versions of BE/ME, ME, and MOM.

The pattern in average returns is strikingly similar to that for individual stocks. The average returns (bp/month) on the low, medium, and high BE/ME country portfolios are 98, 115, and 177. The average returns (bp/month) on the low, medium, and high BE/ME individual U.S. stock portfolios are 90, 113, and 175. As for individual stocks, the difference between the high and low country portfolio returns is large (78 bp per month) and statistically significant (t-statistic = 3.75, annual Sharpe ratio = 0.84).

The similarity between the country and individual stock results also exists for ME. The low, medium, and high country portfolios produce average returns (bp/month) of 145, 110, and 90. The U.S. stock portfolios produce average returns (bp/month) of 141, 116, and 97. Moreover, as for individual stocks, the country difference between the high and low portfolios is large (–55 bp per month) and statistically significant (t-statistic = –3.13, annual Sharpe ratio = –0.63).

Finally, the country evidence for MOM also mirrors that for stocks. The average returns to the low, medium, and high country portfolios are 68, 121, and 171, while for U.S. stocks they are 94, 119, and 165. Again the difference in returns between the high and low country portfolios is economically large (103 bp per month) and statistically significant (t-statistic = 4.15, annual Sharpe ratio = 0.85).

This evidence uncovers strong parallels between the ability of BE/ME, ME, and MOM to explain differences in average returns across countries and, within countries, across individual stocks.

EXHIBIT 1
EQUAL-WEIGHT TRITILE PORTFOLIOS FOR U.S. STOCKS —
AVERAGE RETURNS, T-STATISTICS, AND SHARPE RATIOS

Time Period	Variable	Low (BP/Month)	Medium (BP/Month)	High (BP/Month)	High – Low (BP/Month) (t-Stat) [Annual Sharpe Ratio]
7/63-12/94	BE/ME	90	113	175	85 (5.61) [1.00]
7/63-12/94	ME	141	116	97	-44 (-2.16) [-0.39]
7/63-12/94	MOM	94	119	165	71 (4.45) [0.79]

The universe of U.S. stocks is all NYSE, AMEX, and Nasdaq firms meeting the necessary data requirements. Each month we sort our universe of stocks into thirds based on one of our three explanatory variables (sort breakpoints for stocks are based on only NYSE firms). We form equal-weight portfolios at month-end and observe returns over the next month. High – Low is a long-short portfolio formed from going long the high portfolio and going short the low portfolio.

EXHIBIT 2
EQUAL-WEIGHT TRITILE PORTFOLIOS FOR COUNTRIES —
AVERAGE RETURNS, T-STATISTICS, AND SHARPE RATIOS

Time Period	Variable	Low (BP/Month)	Medium (BP/Month)	High (BP/Month)	High – Low (BP/Month) (t-Stat) [Annual Sharpe Ratio]
2/75-12/94	BE/ME	98	115	177	78 (3.75) [0.84]
1/70-12/94	ME	145	110	90	-55 (-3.13) [-0.63]
1/71-12/94	MOM	68	121	171	103 (4.15) [0.85]

The universe of countries is those included in the MSCI world index (excluding Finland, Ireland, New Zealand, and Malaysia). All returns are denominated in local currency. Each month we sort our universe of countries into thirds based on one of our three explanatory variables. We form equal-weight portfolios at month-end and observe returns over the next month. High – Low is a long-short portfolio formed from going long the high portfolio and going short the low portfolio.

THE JANUARY EFFECT

Keim [1983] documents a January seasonal effect in the return differential between U.S. portfolios of small and big stocks. He finds that approximately half of the outperformance of small stocks occurs in January. Brown et al. [1983] offer an explanation related to tax-loss selling. They argue that near year-end investors generate capital losses to offset taxable income by selling loser stocks. Thus, since small stocks are more likely to experience large price declines because of their greater volatility, they may experience abnormal price increases in January as the year-end selling pressure abates.

Haugen and Lakonishok [1987] offer another explanation related to institutional window-dressing. They argue that institutional managers, motivated by the desire to avoid showing losing stocks on their year-end statements, sell poor performers prior to year-end. Since extreme losers tend to be small stocks, the stocks sold by institutional managers at year-end are more likely to be small. This hypothesis argues that small stocks rebound in January when selling pressure from window-dressing abates.

We examine seasonality in the ME premium across countries. Since global money managers are often subject to the same tax consequences as domestic managers, and must also provide year-end reporting, the tax-loss selling and window-dressing hypotheses for

the January effect across individual stocks may also apply across countries.

To investigate this hypothesis, we decompose our ME stock and country tritile portfolios into January and non-January months. Exhibit 3 presents our results. Within the United States, average returns in January exceed average returns in non-January months for all three size portfolios. The average return differential between big and small stocks is greater in January (-670 bp, t -statistic = -7.00) than in non-January months (11 bp, t -statistic = 0.64).

The evidence across countries is similar. The average monthly return difference between big ME countries and small ME countries is larger in January (-237 bp, t -statistic = -3.35) than in non-January months (-38 bp, t -statistic = -2.16).

Exhibit 4 gives the statistical significance of the January seasonal effect in the size premium. We regress the return difference between the big ME and small ME portfolios on a January dummy.

In the absence of a January seasonal, the coefficient on the dummy variable should equal zero. For individual U.S. stocks, the coefficient on the January dummy is strongly negative and statistically significant (-681 bp/month, t -statistic = -10.28). A positive intercept (0.11%/month, t -statistic = 0.60) suggests that all of the size premium for U.S. stocks occurs in January.

For countries, the coefficient on the January dummy is also strongly negative and statistically signifi-

EXHIBIT 3
JANUARY VERSUS NON-JANUARY EVIDENCE OF THE SIZE EFFECT
EQUAL-WEIGHT TRITILE PORTFOLIOS FOR U.S. STOCKS AND COUNTRIES
AVERAGE RETURNS, T-STATISTICS, AND SHARPE RATIOS

Time Period	Sample	Small		Medium		Big		Big - Small	
		Jan. (BP/Mo.)	Feb.-Dec. (BP/Mo.)	Jan. (BP/Mo.)	Feb.-Dec. (BP/Mo.)	Jan. (BP/Mo.)	Feb.-Dec. (BP/Mo.)	Jan. (BP/Mo.) (t-Stat)	Feb.-Dec. (BP/Mo.) (t-Stat)
7/63-12/94	U.S. Stocks	898	73	387	92	228	85	-670 (-7.00) [-4.36]	11 (0.64) [0.12]
1/70-12/94	Countries	497	113	473	80	260	75	-237 (-3.35) [-2.32]	-38 (-2.16) [-0.45]

January represents a dummy variable that takes on the value 1 in January and 0 in other months.

EXHIBIT 4
JANUARY VERSUS NON-JANUARY EVIDENCE
OF THE SIZE EFFECT — REGRESSION OF SIZE
PREMIUM ON JANUARY DUMMY

$$(\text{Big} - \text{Small})(t) = a + b\text{Jan}(t) + e(t)$$

Time Period	Sample	a (BP/Mo.)	t(a)	b (BP/Mo.)	t(b)	R ²
7/63-12/94	U.S. Stocks	11	0.60	-681	-10.28	0.22
1/70-12/94	Countries	-38	-2.12	-199	-3.17	0.03

January represents a dummy variable that takes on the value 1 in January and 0 in other months.

cant (-199 bp/month, t-statistic = -3.17). The intercept (-0.38%/month, t-statistic = -2.12) shows that, while concentrated in January, the size premium for countries remains present in non-January months.

The bottom line is that small countries outperform large countries on average, and, like U.S. stocks, do so most significantly in January.

ARE THE COUNTRY AND STOCK RESULTS INDEPENDENT?

Do the country variables represent a source of predictability independent of the forces that drive individual stock predictability? Exhibit 5 presents the correlations between returns on the corresponding U.S. stock and country BE/ME, ME, and MOM zero-investment portfolios. The correlation between individual stock and country returns are all positive (0.23, 0.22, and 0.13, respectively) and significantly different from zero (t-statistics = 3.56, 3.81, and 2.21, respectively).

Since independence would imply zero correla-

EXHIBIT 5
CORRELATION OF HIGH - LOW PORTFOLIO
RETURNS FOR INDIVIDUAL STOCKS
AND COUNTRIES

	BE/ME (2/75-12/94)	ME (1/70-12/94)	MOM (1/71-12/94)
Country and Stock Correlation	0.23	0.22	0.13
T-Statistic	(3.56)	(3.81)	(2.21)

tion, we reject the hypothesis that the country and stock effects are independent. The correlations are significantly less than one, however, so the forces driving predictability in country returns appear only weakly related to the forces driving predictability in U.S. stocks.

PROFITABILITY

BE/ME and ME

BE/ME, ME, and MOM return premiums can exist in a rational asset pricing framework (Merton [1973], Fama [1994]). Current theory, however, cannot link these characteristics with sensitivities to risk factors. Fama and French [1994] address this issue by documenting connections between firms' BE/ME and ME and their profitability. In particular, they show that high BE/ME and small ME firms exhibit persistently lower earnings on book than low BE/ME and big ME firms. If profitability measures firm distress, and investors in distressed firms are compensated with a risk premium, risk related to distress may explain the return premium we observe on high BE/ME and small ME firms. To the extent that measures of distress capture firms' loadings on a risk factor, Fama and French's results represent a link between BE/ME and ME premiums and rational asset pricing theory.

We examine cross-country parallels in the links between BE/ME and ME and profitability by conducting an exercise. At every month *t*, we form a portfolio of the top-, middle-, and bottom-third BE/ME and ME countries. For each tritile portfolio, we calculate cash flow-to-book equity ratios (CF/BE) three years prior to and three years following the portfolio formation date.³

$$\frac{CF(t + k)}{BE(t + k - 12)} = \frac{\sum_{i=1}^N CF_i(t + k - 12, t + k)}{\sum_{i=1}^N BE_i(t + k - 12)}$$

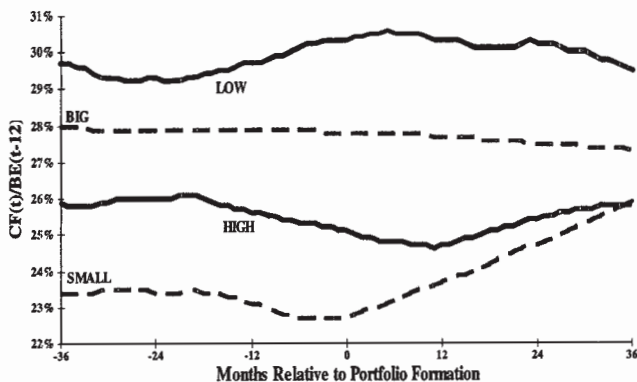
where $CF_i(t + k - 12, t + k)$ represents country *i*'s aggregate cash flow from the end of month *t + k - 12* to the end of month *t + k*; $BE_i(t + k - 12)$ represents country *i*'s aggregate book value at the end of month *t + k - 12*; *N* represents the number of countries in the given tritile portfolio; and *k* represents the month relative to the portfolio formation date (*k* = -36 to +36).

Thus, for each tritile portfolio and each portfolio formation date t , we construct a seventy-three-month time series of CF/BE.

Exhibit 6 presents the month-by-month average CF/BE level for the top and bottom BE/ME and ME country portfolios. As in the result for U.S. stocks, 1) high BE/ME and small ME countries produce lower cash flows on book equity than low BE/ME and big ME countries, and 2) the profitability difference persists for at least three years before and three years following the portfolio formation date.

These results support the argument that high BE/ME and low ME countries are distressed as a result of their poor profitability, and therefore command a risk premium just like high BE/ME and low ME U.S. stocks. Of course, the return premium associated with BE/ME and ME might result from investors' discomfort with holding stocks and countries that exhibit persistently poor profitability.

EXHIBIT 6
CASH FLOW-TO-BOOK EQUITY FOR
TOP-THIRD AND BOTTOM-THIRD TRITILE
PORTFOLIOS SORTED ON ME AND BE/ME



For each portfolio formation month from March 1978 through December 1991 we calculate cash flow-to-book equity ratios $[CF(t+k)/BE(t+k-12)]$ for each of the three portfolios sorted on the basis of BE/ME and ME. The ratios are calculated for thirty-six months prior to and thirty-six months following the portfolio formation month ($k = -36$ to $+36$). $CF(t+k)$ represents the cash flow to the portfolio from month $t+k-12$ to $t+k$. $BE(t+k-12)$ represents the book equity of the portfolio at month $t+k-12$. HIGH (BIG) indicates the portfolio containing the top-third BE/ME (ME) countries. LOW (SMALL) indicates the portfolio containing the bottom-third BE/ME (ME) countries. We present the average of the ratios over the portfolio formation months.

Fama and French [1994] also find an interesting reversal in the earnings behavior of BE/ME and ME portfolios around the portfolio formation date. Earnings of low BE/ME and big ME stocks increase prior to portfolio formation, at which point they begin and then continue to decrease. In contrast, earnings of high BE/ME and small ME stocks decrease prior to portfolio formation, at which point they begin and then continue to increase.

Exhibit 6 shows that the country portfolios produce a similar, but weaker, reversal. High BE/ME countries have persistently low and decreasing profitability prior to the portfolio formation date followed by a profitability increase. In contrast, low BE/ME countries have high and increasing profitability prior to portfolio formation, at which point their profitability begins and then continues to decrease.

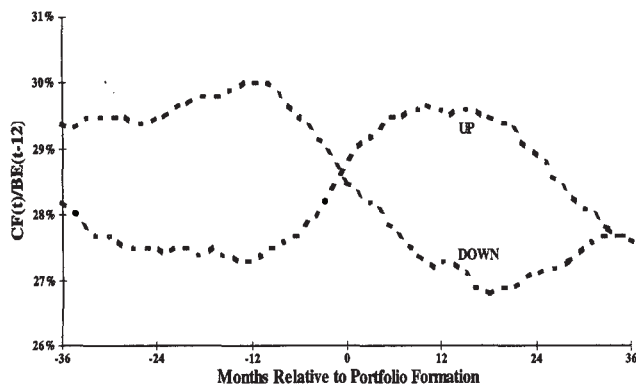
Unlike the U.S. stock results, big ME countries exhibit no profitability reversal, but small ME countries, like small stocks, experience a sharp profitability increase following portfolio formation. Once again, country results parallel individual stock results.

MOM

Exhibit 7 presents CF/BE behavior for the MOM-sorted portfolios. CF/BE exhibits an interesting cross-over pattern. Three years before the portfolio formation date ($t-36$), the down-MOM portfolio produces higher cash flow than the up-MOM portfolio. This difference continues until the year before the portfolio formation date, at which point the pattern reverses. The down-MOM portfolio's cash flow decreases, and the up-MOM portfolio's cash flow increases, so that at the time of the sort CF/BEs of both up- and down-MOM portfolios are almost the same. In the year following the portfolio formation date, the up-MOM portfolio produces higher cash flows than the down-MOM portfolio. The increased profitability of the up-over the down-portfolio lasts for about three years, after which CF/BEs for both converge.

We offer two explanations for the portfolio formation pattern over $t-36$ to $t-12$. First, investors may extrapolate earnings too far into the future (Lakonishok, Shleifer, and Vishny [1994]). When future earnings are not as expected, prices adjust. Thus, the returns to firms with the strongest past earnings tend to be lower than the returns to the firms with the weakest past earnings. By sorting markets on the basis of returns from time $t-12$ to $t-2$, we also tend to sort markets

EXHIBIT 7
CASH FLOW-TO-BOOK EQUITY FOR
TOP-THIRD AND BOTTOM-THIRD
TRITILE PORTFOLIOS SORTED ON MOM



UP indicates the portfolio containing the top-third MOM countries. DOWN indicates the portfolio containing the bottom-third MOM countries. We present the average of the ratios over the portfolio formation months.

on the basis of profitability prior to $t - 12$.

Second, sorting countries on returns from $t - 12$ to $t - 2$ may actually represent a sort on expected return, albeit a very noisy one. Since our BE/ME and ME evidence documents a negative relation between past profitability and expected return, we expect to see strong profits prior to $t - 12$ for $t - 12$ to $t - 2$ losers and weak profits prior to $t - 12$ for $t - 12$ to $t - 2$ winners. Elements of both explanations could contribute to the pattern in profitability observed over $t - 36$ to $t - 12$.

The pattern in profitability from $t - 12$ to t reflects the market's reaction to unexpected increases in earnings over that period. This complements Liew [1995], who documents a positive contemporaneous relation between returns and earnings across twenty-six equity markets.

The post-portfolio formation pattern in profitability may reflect the market's rational forecast of future earnings. Fama [1990], Kothari and Shanken [1992], and Liew [1995] present evidence that measures of future profitability explain from 50% to 80% of annual returns in global stock markets. Therefore, markets with strong (weak) returns from $t - 12$ to $t - 2$ produce strong (weak) cash flows from time t to $t + 36$.

While these arguments explain the pattern in earnings around the portfolio formation date, they do not explain the return premium to owning markets

with upward MOM. At the portfolio formation date, the cash flows of both up- and down-MOM countries are the same. Therefore, we must look elsewhere for links between MOM premiums and fundamentals.

In summary, we document country and stock parallels in the relation between BE/ME, ME, and MOM and measures of profitability. Across both countries and stocks, low BE/ME and high ME portfolios produce consistently higher profits than high BE/ME and low ME portfolios. Moreover, patterns in profitability for MOM-sorted country portfolios are consistent with documented relations between profitability and returns for U.S. stocks.

CONCLUSION

Book-to-market ratios, market equity, and one-year past return help explain cross-sectional differences in expected returns among U.S. stocks. While these results suggest that stock returns may be predictable, investors should interpret the evidence with caution. Black states:

Most of the so-called anomalies that have plagued the literature on investments seem likely to be the result of data mining. We have literally thousands of researchers looking for profit opportunities in securities. They are all looking at roughly the same data. Once in a while, just by chance, a strategy will seem to have worked consistently in the past. The researcher who finds it writes it up, and we have a new anomaly. But it generally vanishes as soon as it's discovered [1993, p. 9].

Tests of BE/ME, ME, and MOM's predictive power for assets other than U.S. stocks address these concerns.

We examine differences in expected returns among equity markets as a whole. We find some striking similarities between the explanatory power of BE/ME, ME, and MOM for individual stocks and for countries. First, country versions of BE/ME, ME, and MOM help explain the cross-section of expected country returns. Second, the January seasonal effect in ME's explanatory power for stocks also appears for countries. Third, portfolios formed by sorting stocks and countries on these variables produce similar patterns in profitability for stocks and for countries.

Parallel evidence from stocks and countries

bolsters the case that the observed BE/ME-, ME-, and MOM-related premiums are not a consequence of data mining. Understanding the economic underpinnings of these parallels remains an important topic of future research.

APPENDIX

To construct tritile portfolios for BE/ME, ME, and MOM for individual stocks in the U.S., we first obtain individual stock return and ME data for NYSE, AMEX, and Nasdaq stocks from July 1963 through December 1994 from the Center for Research in Security Prices at the University of Chicago. We obtain BE data for the same firms and time period from Compustat. Next, we construct the three ex ante indicators as follows:

1. BE/ME represents the ratio of a firm's book equity to its market equity. We update BE/ME monthly using each stock's prior-year BE and end-of-month ME. We update each stock's BE in July of each year to ensure that the accounting data are available to market participants.
2. ME represents a firm's market equity. We update ME every month based on the product of the CRSP reported price and the reported number of shares outstanding for the prior month's end.
3. MOM represents our measure of stock price momentum. Following Asness [1995], MOM represents the return to a given stock over the previous twelve-month period excluding the last month. Asness excludes the last month's return to avoid any bias due to the strong short-run contrarian effects found at the one-month level (Jegadeesh [1990], Lehmann [1990], and Conrad and Kaul [1988]). Ball, Kothari, and Wasley [1992, 1995] and Asness [1995] argue that the short-run contrarian effects are based on measurement problems induced by the bid-ask spread.

At the end of each month we sort our universe of stocks into thirds based on each of these predictors (BE/ME, ME, and MOM) with break points based on only NYSE firms. We then calculate returns over the next month and create three equal-weight portfolios (high, medium, and low) for each variable. Repeating this procedure each month creates a time series of returns for these portfolios.

To construct tritile portfolios for BE/ME, ME, and MOM for countries, we obtain local currency returns, ME, and BE/ME data for value-weight indexes for eighteen countries from Morgan Stanley Capital International (MSCI). The returns and ME data begin in January 1970, while the BE/ME data begin in January 1975. We employ analogous versions of the variables we used for individual stocks.⁴

1. BE/ME represents the sum of the book equity for the stocks in a country's index divided by the total market capitalization in the prior month. MSCI employs the most recently available

accounting statements for a firm's book equity, so the numbers already account for any publication lag.

2. ME represents the sum of the market equity for all of the stocks in a country index. Note that our measure of ME measures the size of the country's market, and not the average size of firms in a given country.
3. MOM represents the local return on the market index over the last twelve months excluding the last month.

We use the same portfolio formation procedure for countries that we use for stocks. At the end of each month, we sort our universe of countries into thirds on the basis of each of our three predictors (BE/ME, ME, and MOM). We then calculate returns to equal-weight portfolios over the next month. Repeating this procedure each month, we construct a time series of returns for the tritile portfolios.

ENDNOTES

The comments of Eugene Fama, Kenneth French, Leila Heckman, Brian Hurst, Robert Krail, James Peterson, Robert Porter, and Mark Swankowski are gratefully acknowledged.

¹See the appendix for a description of the data sources and portfolio construction method.

²The annual Sharpe ratio equals the annualized average return difference between the high and low portfolios divided by the annualized standard deviation of the return difference. Unlike the t-statistic, this measure is invariant to the sample size. Our sample size for individual stocks is 378 months; for countries, it varies from 239 months (BE/ME) to 300 months (ME).

³We obtain similar results with earnings-to-book equity ratios.

⁴We use local currency returns to maximize the sample size. Local currency returns are available from January 1970 to the present. We obtain similar results using currency-hedged returns over the shorter period when the data are available.

REFERENCES

- Asness, Cliff. "The Power of Past Stock Returns to Explain Future Stock Returns." Goldman Sachs Asset Management, 1995.
- Ball, Ray, S.P. Kothari, and Charles Wasley. "Can We Implement Research on Stock Trading Rules?" *Journal of Portfolio Management*, Winter 1995, pp. 54-63.
- . "Short-Term Contrarian Returns: Bid Ask Bias or Overreaction." Working paper, University of Rochester, 1992.
- Banz, Rolf W. "The Relationship between Return and Market Value of Common Stocks." *Journal of Financial Economics*, 9 (1981), pp. 3-18.
- Black, Fischer. "Beta and Return." *Journal of Portfolio Management*, Fall 1993.

- Brown, P., D. Keim, A. Kleidon, and T. Marsh. "New Evidence on the Nature of Size Related Anomalies in Stock Prices." *Journal of Financial Economics*, 12 (1983), pp. 105-128.
- Capaul, Carlo, Ian Rowley, and William Sharpe. "International Value and Growth Stock Returns." *Financial Analysts Journal*, February 1993.
- Conrad, J., and G. Kaul. "Time Variation in Expected Returns." *Journal of Business*, Vol. 61, No. 4 (1988), pp. 409-425.
- Fama, Eugene F. "Multifactor Portfolio Efficiency and Multifactor Asset Pricing." CRSP Working paper, University of Chicago, 1994.
- . "Stock Returns, Expected Returns, and Real Activity." *Journal of Finance*, 45 (1990), pp. 1089-1108.
- Fama, Eugene F., and Kenneth R. French. "Common Risk Factors in the Returns on Stocks and Bonds." *Journal of Financial Economics*, 33 (1993), pp. 3-56.
- . "The Cross Section of Expected Returns." *Journal of Finance*, 47 (1992), pp. 427-465.
- . "Size and Book-to-Market Factors in Earnings and Returns." Working paper, University of Chicago, 1994.
- Haugen, R., and J. Lakonishok. *The Incredible January Effect*. Homewood, IL: Dow Jones-Irwin, 1987.
- Hawawini, Gabriel, and Donald Keim. "On the Predictability of Common Stock Returns: World-Wide Evidence." Working paper, University of Pennsylvania, 1994.
- Heckman, Leila, John Mullin, and Holly Sze. "Valuation Ratios and Cross-Country Equity Allocation." *Journal of Investing*, Summer 1996.
- Jegadeesh, Narasimhan. "Evidence of Predictable Behavior of Security Returns." *Journal of Finance*, 45 (1990), pp. 881-898.
- Jegadeesh, Narasimhan, and Sheridan Titman. "Returns to Buying Winners and Selling Losers: Implications for Stock Market Efficiency." *Journal of Finance*, 1993, pp. 65-91.
- . "Short Horizon Return Reversals and the Bid Ask Spread." Working paper, University of California at Los Angeles, 1991.
- Keim, Donald B. "Size-Related Anomalies and Stock Market Seasonality." *Journal of Financial Economics*, 12 (1983), pp. 13-32.
- Keppler, Mike, and Heydon Traub. "The Small-Country Effect: Small Markets Beat Large Markets." *Journal of Investing*, Fall 1993.
- Kothari, S.P., and Jay Shanken. "Stock Return Variation and Expected Dividends: A Time-Series and Cross-Sectional Analysis." *Journal of Financial Economics*, 31 (1992), pp. 177-210.
- Lakonishok, Josef, Andrei Shleifer, and Robert W. Vishny. "Contrarian Investment, Extrapolation, and Risk." *Journal of Finance*, 1994, pp. 1541-1578.
- Lehmann, Bruce N. "Fads, Martingales, and Market Efficiency." *Quarterly Journal of Economics*, 60 (1990), pp. 1-28.
- Liew, John. "Global Return Variation." Goldman Sachs Asset Management, 1995.
- Macedo, Rosemary. "Value, Relative Strength, and Volatility in Global Equity Country Selection." *Financial Analysts Journal*, March-April 1995.
- Merton, Robert. "An Intertemporal Capital Asset Pricing Model." *Econometrica*, 41 (1973), pp. 867-887.
- Stattman, D. "Book Values and Expected Stock Returns." Unpublished MBA paper, University of Chicago, 1980.