

A Refutation of the Existence of the Other January Effect

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Abstract

Cooper, McConnell and Ovtchinnikov (2006) report US evidence of the “other January effect”, where returns in January are shown to have predictive power for returns over the subsequent 11 months. We re-examine the latest sub-period that they examine and find that the results using excess returns are not unique to January and that the effect for January is not apparent for raw returns. Further, using excess (raw) return data for 38 (44) other countries, limited support is found for the other January effect, with eight (five) of the remaining 11 months demonstrating a statistically significant effect in at least as many countries as exhibited the “other January effect”. Further, there is no evidence to suggest that different tax-year ends across countries can explain the result.[‡]

JEL Classification: G10; G14

Key Words: Other January Effect, International Evidence, Asset Pricing

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Abstract

Cooper, McConnell and Ovtchinnikov (2006) report US evidence of the “other January effect”, where returns in January are shown to have predictive power for returns over the subsequent 11 months. We re-examine the latest sub-period that they examine and find that the results using excess returns are not unique to January and that the effect for January is not apparent for raw returns. Further, using excess (raw) return data for 38 (44) other countries, limited support is found for the other January effect, with eight (five) of the remaining 11 months demonstrating a statistically significant effect in at least as many countries as exhibited the “other January effect”. Further, there is no evidence to suggest that different tax-year ends across countries can explain the result.

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1.0 Introduction

Cooper, McConnell and Ovtchinnikov (2006) report US evidence of the so-called “other January effect”, where returns in January are shown to have predictive power for returns over the subsequent 11 months. Specifically, they found that over the period 1940 to 2003, when the value-weighted market return in January is positive, the average return over the subsequent 11 months is 14.82%, whilst the 11-month average return is only 2.92% when the January return is negative. This statistically significant difference in returns increases when an equally-weighted index is substituted for a value-weighted index and where the analysis is conducted using excess returns rather than raw returns.

Cooper *et al* assert that their findings have three implications. They state (2006, p. 338) that: “First, (the other January effect) appears to be a powerful tool in predicting the market and other portfolios and, thus it should prove to be an important tool to portfolio managers or other managers engaged in hedging market or size premium risk. In a related manner, this suggests that incorporating the Other January Effect into asset pricing benchmarks would be reasonable from the perspective of evaluating portfolio managers’ performance. Finally, our results could serve to heighten the debate over the source of the risk premiums in the Fama-French three-factor model.”

Given the absence of theoretical support for the existence of such an affect, its usage as suggested by Cooper *et al* would be strengthened by its existence across sub-periods and across different markets. As noted, for example, by Schwert (2003), before an affect such as that reported by Cooper *et al* can be interpreted as evidence indicative of the predictability of stock returns, it needs to be tested across independent samples.

We re-examine the results of Cooper *et al* over the most recent sub-period that they examined. Cooper *et al* report a significant effect for the sub-period 1973 to 2003 using excess returns but do

not report the sub-period results using raw returns. Given that the motivation for the paper is provided by quotations of “financial market street-lore” (p. 318), quotations that discuss index returns, it might have been expected that the emphasis of the analysis would have been on raw returns rather than excess returns. Further, Cooper *et al* did not examine using sub-period analysis whether the apparent effect was unique to January. We find that the results using excess returns are not unique to January and that the effect for January is not apparent when raw returns are used.

International evidence such as that provided by Brown, Keim, Kleidon and Marsh (1983), Berges, McConnell and Schlarbaum (1984), Gultekin and Gultekin (1983) and Reinganum and Shapiro (1987) with respect to the January effect, and Rouwenhorst (1998) and Griffin, Ji and Martin (2003) with respect to momentum strategies, might also be used to support the implications for asset pricing drawn by Cooper *et al*. However, using data for 38 other countries very limited support is found for the other January effect outside of the US market.

The analysis of US returns over the period 1973 to 2003, and the absence of supporting international evidence, casts considerable doubt as to the existence of the so-called “other January effect”.

The paper is organised as follows. Section 2 provides a discussion of the collection and the results are presented in Section 3. Section 4 provides a summary.

2.0 Data

To replicate the Cooper *et al* analysis, US share market returns were obtained from CRSP. Value-weighted total return indices in local currencies for 44 other countries were obtained from the Datastream and Compustat Global databases. Where indices were available from both databases, the index covering the longest time period was used.

The estimation of monthly excess returns also required proxies for the one-month risk-free rate of return. Given the heterogeneous nature of the debt markets of the constituent countries, the nature of the data varied across the sample. Interest rates were obtained from the Datastream database and the *IFS Online* database maintained by the International Monetary Fund. Where possible, the rate of return offered on a short-term government security (that is, less than or equal to half a year) was used as the interest rate proxy. Where yields on government securities were not available, short-term money market rates were used.¹ To be included in the analysis, data for a country were required for a minimum of a ten-year period.

3.0 Results

Table 1 provides an analysis of excess market returns in the subsequent 11 months following positive and negative excess returns in January across 39 countries. The findings for the US market are very similar to those reported by Cooper *et al*, both for the period 1940 to 2003 and the sub-period 1973 to 2003, with the difference between 11-month holding period returns following positive Januarys being significantly greater than the 11-month holding period returns following negative Januarys.

However, across the other 38 countries, the spread is only significantly different from zero at the 0.05 level for Italy, Norway, Thailand and Zimbabwe. While finding a difference in returns in five of the 39 countries might at first view be greater than is to be expected by chance, for a finding in support of an international “other January effect” to be sustained, the difference in returns for January would need to be greater than the difference in returns for any other month.

¹ Extensive sensitivity analysis was performed where multiple proxies for the one-month risk-free rate of return were available. The results were not sensitive.

Table 2 provides an analysis of excess market returns in the subsequent 11 months following positive and negative excess returns in any of the 12 months.² Across international markets any affect is more apparent for the months of April, June and October than for January. For 17 of the 39 countries examined, the difference in excess returns in the 11 months following positive excess returns in April compared with those following negative excess returns in April are significantly different from zero at the 0.05 level. This includes the US market where the CRSP value-weighted index is used as the measure of market returns over the 1973 to 2003 sub-period. Furthermore, eight of the remaining 11 months demonstrate a statistically significant effect in at least as many countries as exhibit the “other January effect”.

However, it may be possible to explain the findings of Cooper *et al* in terms of characteristics that are specific to the US market, or all least not able to be generalized to other markets. One such explanation is the different tax-year ends across countries. The positive returns in January (and in subsequent months) might be due to a combination of tax-loss selling at tax year-end and momentum effects. To examine this possible explanation, Table 3 provides for those countries with tax-year starts other than January an analysis of excess market returns in the subsequent eleven months following positive and negative excess returns in the first month of the tax year. In only two of those seven countries (New Zealand and the United Kingdom) was the difference in excess returns in the eleven months following positive excess returns in the first month of the tax year significantly greater than in the eleven months following negative excess returns in the first month of the tax year. It may also be noted that a tax-loss selling explanation cannot be used to explain the findings for the months of June and October in Table 2, and may only explain the findings for the month of April for New Zealand and the United Kingdom.

² The methodology used here follows that of Cooper *et al*. However, as shown by Richardson and Stock (1989) amongst others, care should be taken when drawing inferences from multi-year returns.

Table 4 provides an analysis of market returns in the subsequent 11 months following positive and negative raw returns in January. Again, the findings over the period 1940 to 2003 are very similar to those reported by Cooper *et al.* However, Cooper *et al.* do not report results using raw returns for the 1973 to 2003 sub-period. As shown in Table 4 there is no evidence of an effect using either a value-weighted or equally-weighted index.

With respect to the other 44 countries in the sample, the spread is positive and significantly different from zero at the 0.05 level for Chile, Finland, Italy, Nigeria, Norway, the Philippines, Thailand, the United Kingdom, and Zimbabwe. However, just as for the analysis using excess returns, for a finding in support of an international “other January effect” to be sustained, the difference in returns for January would need to be greater than the difference in returns for any other month.

Table 5 provides an analysis of market returns in the subsequent 11 months following positive and negative raw returns in any of the 12 months. Across international markets the effect is also more apparent for April. For 17 of the 45 countries examined, the difference in returns in the 11 months following positive returns in April compared with those following negative returns in April are significantly different from zero at the 0.05 level. Furthermore, in the US market for the 1973 to 2003 sub-period where no result for January was found, we find a statistically significant result for April when the value-weighted index was used to measure returns. The lack of international evidence in support of the other January effect may be noted by observing that five of the remaining 11 months demonstrated a statistically significant effect in at least as many countries as exhibited the “other January effect”.³

4.0 Summary

We re-examine the results of Cooper *et al* over the most recent sub-period that they examined. Cooper *et al* report a significant effect for the sub-period 1973 to 2003 using excess returns but do not report the sub-period results using raw returns. Further, Cooper *et al* did not examine using sub-period analysis whether the apparent effect was unique to January. We find that the results using excess returns are not unique to January and that the effect for January is not apparent when raw returns are used.

Further, using excess (raw) return data for 38 (44) other countries, very limited support is found for the other January effect, with eight (five) of the remaining 11 months demonstrating a statistically significant effect in at least as many countries as exhibited the “other January effect”. Further, there is no evidence to suggest that different tax-year ends across countries can explain the result.

The analysis of US returns over the period 1973 to 2003, and the absence of supporting international evidence, casts considerable doubt as to the existence of the so-called “other January effect”.

³ Tax-loss selling is also unable to explain the results reported in Table 5. For the seven countries with tax-year starts other than January, in only the United Kingdom was the difference in returns in the 11 months following positive returns in the first month of the tax year significantly greater than in the 11 months following negative returns in the first month of the tax year.

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Table 1:

11-month holding period excess returns following Januarys with positive and negative excess returns. Total market returns and the T-Bill rate for the US were obtained from the CRSP database. Total market returns for countries other than the US were obtained from both the Datastream and Compustat Global databases, while proxies for the risk-free interest rate were obtained from the *IFS Online* database maintained by the International Monetary Fund. Where more than one total market return proxy was available, the database with the longest history was used, and sensitivity analysis was performed over the common years to ensure that results were not sensitive to the choice made. Interest rates from short-term government securities were selected where possible, and where these were not available, yields from other government securities or alternatively, from the short-term money market, were used. P-values are for the two-tailed t-test of the null hypothesis that the mean difference between the 11-month holding period excess returns following positive and negative excess returns in January is equal to zero. P-values less than 5% are denoted in bold.

| Country | Start Year | Sample N | Average 11-month excess return following a positive January | Sub-sample N | Average 11-month excess return following a negative January | Sub-sample N | Difference | P-value |
|----------------------------------|------------|----------|---|--------------|---|--------------|------------|--------------|
| Australia | 1974 | 32 | 0.0488 | 19 | 0.0513 | 13 | -0.0025 | 0.963 |
| Austria | 1974 | 25 | 0.1430 | 10 | -0.0419 | 15 | 0.1850 | 0.223 |
| Belgium | 1974 | 32 | 0.0463 | 20 | 0.0151 | 12 | 0.0312 | 0.576 |
| Canada | 1974 | 32 | 0.0223 | 18 | 0.0484 | 14 | -0.0261 | 0.561 |
| Chile | 1994 | 12 | 0.0546 | 4 | 0.1174 | 8 | -0.0628 | 0.433 |
| Columbia | 1993 | 13 | 0.0482 | 9 | -0.1104 | 4 | 0.1586 | 0.251 |
| Czech Republic | 1994 | 12 | 0.0595 | 10 | -0.1653 | 2 | 0.2247 | 0.086 |
| Denmark | 1974 | 32 | 0.0562 | 21 | -0.0295 | 11 | 0.0857 | 0.252 |
| Finland | 1989 | 17 | 0.1682 | 12 | -0.0934 | 5 | 0.2616 | 0.054 |
| France | 1974 | 30 | 0.0231 | 19 | 0.0880 | 11 | -0.0649 | 0.406 |
| Germany | 1974 | 32 | 0.0727 | 20 | 0.0005 | 12 | 0.0722 | 0.236 |
| Greece | 1986 | 15 | 0.1390 | 9 | 0.1071 | 6 | 0.0319 | 0.832 |
| Hong Kong | 1986 | 20 | 0.1735 | 10 | 0.0874 | 10 | 0.0861 | 0.423 |
| Hungary | 1992 | 14 | 0.0098 | 9 | 0.0625 | 5 | -0.0528 | 0.647 |
| Indonesia | 1991 | 15 | -0.0356 | 10 | -0.1404 | 5 | 0.1049 | 0.466 |
| Ireland | 1979 | 27 | 0.0240 | 20 | 0.1362 | 7 | -0.1121 | 0.167 |
| Italy | 1974 | 32 | 0.0411 | 23 | -0.1227 | 9 | 0.1638 | 0.028 |
| Japan | 1974 | 32 | 0.0395 | 19 | 0.0198 | 13 | 0.0197 | 0.734 |
| Korea | 1977 | 26 | 0.0477 | 16 | -0.1055 | 10 | 0.1532 | 0.136 |
| Malaysia | 1987 | 19 | 0.0360 | 15 | 0.1152 | 4 | -0.0792 | 0.353 |
| Mexico | 1978 | 24 | 0.2203 | 13 | 0.0251 | 11 | 0.1952 | 0.311 |
| Netherlands | 1979 | 27 | 0.1053 | 18 | 0.0229 | 9 | 0.0824 | 0.104 |
| New Zealand | 1989 | 17 | 0.0551 | 11 | -0.0107 | 6 | 0.0659 | 0.32 |
| Nigeria | 1992 | 11 | 0.3090 | 7 | 0.0333 | 4 | 0.2757 | 0.091 |
| Norway | 1981 | 25 | 0.1491 | 15 | -0.0885 | 10 | 0.2376 | 0.004 |
| Pakistan | 1985 | 18 | 0.1483 | 11 | 0.0378 | 7 | 0.1106 | 0.434 |
| Philippines | 1985 | 18 | 0.1797 | 12 | -0.1243 | 6 | 0.3040 | 0.119 |
| Poland | 1995 | 11 | -0.0407 | 6 | 0.0111 | 5 | -0.0517 | 0.623 |
| Singapore | 1974 | 32 | 0.0219 | 24 | 0.0241 | 8 | -0.0023 | 0.974 |
| South Africa | 1974 | 32 | 0.0342 | 17 | 0.1738 | 15 | -0.1395 | 0.052 |
| Spain | 1988 | 18 | 0.0779 | 13 | -0.0424 | 5 | 0.1203 | 0.084 |
| Sri Lanka | 1993 | 10 | -0.1832 | 3 | 0.0202 | 7 | -0.2034 | 0.137 |
| Switzerland | 1974 | 32 | 0.0825 | 21 | 0.0099 | 11 | 0.0726 | 0.207 |
| Taiwan | 1985 | 18 | -0.0140 | 11 | 0.1910 | 7 | -0.2051 | 0.261 |
| Thailand | 1977 | 26 | 0.1536 | 15 | -0.1599 | 11 | 0.3136 | 0.013 |
| United Kingdom | 1974 | 32 | 0.0771 | 22 | -0.0327 | 10 | 0.1098 | 0.064 |
| U.S. - CRSP - (value-weighted) | 1940 | 64 | 0.1179 | 40 | -0.0262 | 24 | 0.1441 | 0.000 |
| U.S. - CRSP - (value-weighted) | 1973 | 31 | 0.0864 | 18 | -0.0370 | 13 | 0.1233 | 0.048 |
| U.S. - CRSP - (equally-weighted) | 1940 | 64 | 0.1460 | 50 | -0.0477 | 14 | 0.1937 | 0.001 |
| U.S. - CRSP - (equally-weighted) | 1973 | 31 | 0.1179 | 25 | -0.0224 | 6 | 0.1404 | 0.215 |
| Venezuela | 1995 | 11 | -0.1318 | 2 | 0.2322 | 9 | -0.3640 | 0.246 |
| Zimbabwe | 1979 | 24 | 0.2800 | 17 | -0.1522 | 7 | 0.4322 | 0.006 |

Table 2:

11-month holding period excess returns following months with positive and negative excess returns. Total market returns and the T-Bill rate for the US were obtained from the CRSP database. Total market returns for countries other than the US were obtained from both the Datastream and Compustat Global databases, while proxies for the risk free-interest rate were obtained from the *IFS Online* database maintained by the International Monetary Fund. Where more than one total market return proxy was available, the database with the longest history was used, and sensitivity analysis was performed over the common years to ensure that results were not sensitive to the choice made. Interest rates from short-term government securities were selected where possible, and where these were not available, yields from other government securities or alternatively, from the short-term money market, were used instead. P-values reported in the second row for each country are for the two-tailed t-test of the null hypothesis that the mean difference between the 11-month holding period returns following positive and negative conditioning months is equal to zero. P-values less than 5% are denoted in bold.

| Country | Start Year | Sample N | January | February | March | April | May | June | July | August | September | October | November | December |
|----------------|------------|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Australia | 1974 | 32 | -0.0025 | 0.1063 | 0.0312 | 0.1218 | -0.0072 | -0.0458 | -0.0482 | 0.0560 | 0.0654 | -0.0283 | 0.0276 | 0.0663 |
| | | | 0.963 | 0.078 | 0.611 | 0.015 | 0.869 | 0.297 | 0.389 | 0.366 | 0.329 | 0.688 | 0.642 | 0.230 |
| Austria | 1974 | 25 | 0.1850 | 0.1446 | 0.2198 | 0.0151 | 0.1702 | 0.1205 | 0.2314 | 0.0456 | 0.2487 | 0.1537 | -0.0692 | 0.0518 |
| | | | 0.223 | 0.154 | 0.045 | 0.863 | 0.060 | 0.256 | 0.100 | 0.641 | 0.057 | 0.346 | 0.456 | 0.572 |
| Belgium | 1974 | 32 | 0.0312 | 0.0985 | -0.0473 | 0.0245 | 0.0387 | 0.0162 | 0.0462 | 0.1277 | 0.0758 | -0.0204 | 0.0625 | 0.0063 |
| | | | 0.576 | 0.061 | 0.408 | 0.620 | 0.518 | 0.767 | 0.387 | 0.022 | 0.221 | 0.748 | 0.252 | 0.910 |
| Canada | 1974 | 32 | -0.0261 | 0.0094 | -0.0347 | 0.1088 | -0.0278 | -0.0433 | -0.0147 | 0.0314 | -0.0356 | 0.1036 | 0.0748 | 0.0968 |
| | | | 0.561 | 0.837 | 0.508 | 0.023 | 0.556 | 0.401 | 0.800 | 0.620 | 0.655 | 0.067 | 0.109 | 0.016 |
| Chile | 1994 | 12 | -0.0628 | 0.0228 | 0.0206 | 0.0534 | -0.1082 | -0.1180 | -0.0703 | 0.0493 | -0.1547 | 0.1552 | 0.1312 | 0.0484 |
| | | | 0.433 | 0.797 | 0.858 | 0.349 | 0.155 | 0.179 | 0.419 | 0.520 | 0.261 | 0.106 | 0.166 | 0.616 |
| Columbia | 1993 | 13 | 0.1586 | 0.0831 | 0.0769 | 0.5449 | -0.0736 | 0.1623 | 0.0470 | 0.2487 | 0.1578 | 0.5146 | 0.4607 | 0.1266 |
| | | | 0.251 | 0.589 | 0.658 | 0.001 | 0.622 | 0.308 | 0.828 | 0.297 | 0.418 | 0.000 | 0.003 | 0.332 |
| Czech Republic | 1994 | 12 | 0.2247 | 0.1562 | 0.3271 | 0.3546 | 0.2468 | 0.1059 | 0.0652 | -0.0378 | -0.0169 | 0.2202 | 0.1999 | -0.2646 |
| | | | 0.086 | 0.296 | 0.064 | 0.023 | 0.020 | 0.534 | 0.576 | 0.800 | 0.960 | 0.226 | 0.061 | 0.022 |
| Denmark | 1974 | 32 | 0.0857 | 0.0538 | -0.0202 | 0.2584 | 0.0890 | 0.1178 | 0.0000 | -0.0241 | 0.0390 | -0.0185 | 0.1255 | 0.0524 |
| | | | 0.252 | 0.717 | 0.805 | 0.000 | 0.147 | 0.055 | 0.999 | 0.759 | 0.704 | 0.811 | 0.081 | 0.476 |
| Finland | 1989 | 17 | 0.2616 | 0.0616 | 0.1286 | 0.2008 | 0.0714 | 0.3032 | 0.0051 | -0.1016 | 0.5301 | 0.2613 | 0.2153 | -0.0653 |
| | | | 0.054 | 0.671 | 0.539 | 0.166 | 0.635 | 0.039 | 0.968 | 0.501 | 0.001 | 0.060 | 0.105 | 0.703 |
| France | 1974 | 30 | -0.0649 | 0.0573 | 0.0610 | 0.0806 | 0.0773 | 0.1494 | -0.0046 | -0.0224 | 0.0356 | -0.0110 | 0.0464 | -0.0387 |
| | | | 0.406 | 0.465 | 0.342 | 0.230 | 0.289 | 0.022 | 0.941 | 0.740 | 0.612 | 0.891 | 0.499 | 0.605 |
| Germany | 1974 | 32 | 0.0722 | 0.1040 | -0.1146 | 0.1389 | 0.0994 | 0.1432 | -0.0899 | -0.0081 | 0.1249 | -0.0255 | 0.1094 | 0.0890 |
| | | | 0.236 | 0.090 | 0.137 | 0.030 | 0.120 | 0.003 | 0.090 | 0.893 | 0.011 | 0.647 | 0.036 | 0.104 |
| Greece | 1986 | 15 | 0.0319 | 0.0171 | 0.4264 | 0.3629 | 0.3366 | -0.4063 | 0.3734 | 0.0933 | 0.0582 | 0.3240 | -0.1179 | -0.1086 |
| | | | 0.832 | 0.911 | 0.022 | 0.024 | 0.058 | 0.030 | 0.094 | 0.734 | 0.867 | 0.304 | 0.640 | 0.550 |
| Hong Kong | 1986 | 20 | 0.0861 | 0.1717 | 0.1086 | 0.0136 | 0.0123 | -0.2519 | -0.0960 | 0.0594 | -0.0262 | 0.3500 | -0.0844 | -0.3478 |
| | | | 0.423 | 0.069 | 0.271 | 0.875 | 0.870 | 0.021 | 0.410 | 0.597 | 0.851 | 0.000 | 0.239 | 0.001 |
| Hungary | 1992 | 14 | -0.0528 | 0.2965 | -0.0321 | 0.3946 | 0.5019 | 0.2554 | 0.0035 | 0.2717 | 0.0117 | 0.0905 | 0.0704 | 0.1604 |
| | | | 0.647 | 0.114 | 0.862 | 0.009 | 0.000 | 0.101 | 0.978 | 0.082 | 0.946 | 0.388 | 0.521 | 0.192 |
| Indonesia | 1991 | 15 | 0.1049 | 0.3479 | -0.1516 | 0.1027 | 0.1936 | -0.0613 | 0.2259 | 0.1199 | -0.1771 | 0.1854 | 0.1563 | -0.1824 |
| | | | 0.466 | 0.040 | 0.658 | 0.498 | 0.143 | 0.644 | 0.026 | 0.184 | 0.422 | 0.216 | 0.199 | 0.124 |
| Ireland | 1979 | 27 | -0.1121 | 0.1318 | 0.0542 | 0.1016 | 0.1119 | 0.1192 | 0.1467 | -0.0576 | 0.0322 | 0.1187 | -0.0932 | -0.0587 |
| | | | 0.167 | 0.121 | 0.513 | 0.194 | 0.218 | 0.059 | 0.015 | 0.393 | 0.629 | 0.101 | 0.18 | 0.423 |
| Italy | 1974 | 32 | 0.1638 | 0.1532 | -0.1678 | 0.1982 | 0.1010 | 0.2469 | 0.1467 | 0.0666 | 0.3007 | -0.0955 | -0.0473 | -0.0143 |
| | | | 0.028 | 0.054 | 0.059 | 0.112 | 0.480 | 0.065 | 0.102 | 0.456 | 0.003 | 0.303 | 0.576 | 0.862 |
| Japan | 1974 | 32 | 0.0197 | 0.0483 | 0.0241 | -0.0008 | -0.0149 | 0.0806 | -0.0226 | 0.1053 | -0.0129 | -0.0771 | 0.0850 | -0.0138 |
| | | | 0.734 | 0.460 | 0.659 | 0.989 | 0.836 | 0.141 | 0.724 | 0.042 | 0.835 | 0.228 | 0.147 | 0.810 |
| Korea | 1977 | 26 | 0.1532 | -0.0337 | -0.0387 | -0.0992 | -0.0552 | -0.1271 | 0.0340 | -0.0262 | -0.0810 | 0.3020 | 0.0949 | 0.1759 |
| | | | 0.136 | 0.730 | 0.710 | 0.410 | 0.657 | 0.392 | 0.847 | 0.912 | 0.664 | 0.021 | 0.413 | 0.128 |
| Malaysia | 1987 | 19 | -0.0792 | 0.0195 | -0.3393 | 0.0733 | -0.0087 | -0.0141 | 0.1610 | 0.0399 | 0.0822 | -0.0642 | 0.1341 | 0.0002 |
| | | | 0.353 | 0.835 | 0.006 | 0.534 | 0.925 | 0.892 | 0.104 | 0.662 | 0.540 | 0.726 | 0.125 | 0.999 |
| Mexico | 1978 | 24 | 0.1952 | -0.2929 | -0.1192 | -0.3308 | 0.5891 | 0.8771 | 0.5892 | 0.5354 | 0.8327 | 0.9707 | 0.2356 | -0.6004 |

| | | | | | | | | | | | | | | |
|-------------------------------------|------|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------|--------------|--------------|--------------|--------------|
| | | | 0.311 | 0.197 | 0.676 | 0.399 | 0.266 | 0.215 | 0.368 | 0.369 | 0.302 | 0.182 | 0.393 | 0.005 |
| Netherlands | 1979 | 27 | 0.0824 | 0.0805 | -0.0184 | 0.1868 | 0.0032 | -0.0047 | -0.0184 | 0.0271 | 0.1395 | -0.0500 | -0.0216 | 0.1355 |
| | | | 0.104 | 0.157 | 0.764 | 0.002 | 0.954 | 0.928 | 0.748 | 0.677 | 0.020 | 0.426 | 0.696 | 0.006 |
| New Zealand | 1989 | 17 | 0.0659 | 0.0671 | 0.0970 | 0.1149 | -0.0420 | 0.0218 | -0.0918 | -0.0568 | -0.0933 | 0.1054 | 0.0533 | -0.0028 |
| | | | 0.320 | 0.325 | 0.078 | 0.015 | 0.601 | 0.594 | 0.045 | 0.380 | 0.422 | 0.099 | 0.392 | 0.964 |
| Nigeria | 1992 | 11 | 0.2757 | 0.1912 | -0.0074 | 0.0411 | 0.5513 | 0.7061 | 0.1126 | -0.0246 | 0.1319 | 0.3934 | 0.1080 | 0.3279 |
| | | | 0.091 | 0.255 | 0.970 | 0.797 | 0.001 | 0.000 | 0.278 | 0.813 | 0.493 | 0.032 | 0.508 | 0.083 |
| Norway | 1981 | 25 | 0.2376 | 0.1520 | 0.0331 | 0.1563 | -0.0032 | 0.1867 | -0.1075 | 0.1086 | -0.0283 | 0.1034 | 0.0595 | -0.0261 |
| | | | 0.004 | 0.119 | 0.727 | 0.030 | 0.967 | 0.006 | 0.174 | 0.207 | 0.809 | 0.311 | 0.470 | 0.748 |
| Philippines | 1985 | 18 | 0.3040 | 0.3224 | -0.0102 | -0.0681 | -0.1880 | -0.0162 | 0.1147 | 0.3781 | 0.4919 | 0.3201 | -0.3125 | 0.1362 |
| | | | 0.119 | 0.100 | 0.953 | 0.589 | 0.282 | 0.939 | 0.584 | 0.241 | 0.073 | 0.213 | 0.134 | 0.440 |
| Poland | 1995 | 11 | -0.0517 | -0.1960 | 0.3159 | 0.5250 | -0.0527 | 0.2537 | -0.0823 | -0.0822 | 0.0079 | 0.0576 | -0.2446 | -0.2349 |
| | | | 0.623 | 0.179 | 0.014 | 0.002 | 0.781 | 0.005 | 0.662 | 0.465 | 0.967 | 0.544 | 0.023 | 0.056 |
| Singapore | 1974 | 32 | -0.0023 | 0.0497 | 0.0919 | -0.0079 | 0.1014 | -0.0010 | 0.0418 | -0.0425 | 0.0109 | 0.1199 | -0.0584 | 0.0191 |
| | | | 0.974 | 0.514 | 0.268 | 0.910 | 0.187 | 0.990 | 0.615 | 0.641 | 0.930 | 0.158 | 0.516 | 0.820 |
| South Africa | 1974 | 32 | -0.1395 | -0.0064 | -0.0984 | -0.1036 | -0.0091 | 0.0078 | 0.0117 | -0.0224 | 0.1600 | 0.0816 | 0.0727 | 0.0306 |
| | | | 0.052 | 0.929 | 0.176 | 0.180 | 0.897 | 0.907 | 0.869 | 0.737 | 0.032 | 0.189 | 0.201 | 0.551 |
| Spain | 1988 | 18 | 0.1203 | 0.0816 | -0.0753 | 0.1798 | 0.1647 | 0.1256 | -0.0181 | -0.0845 | -0.1303 | 0.1930 | 0.1676 | 0.1248 |
| | | | 0.084 | 0.263 | 0.458 | 0.029 | 0.014 | 0.035 | 0.756 | 0.313 | 0.357 | 0.025 | 0.016 | 0.068 |
| Sri Lanka | 1993 | 10 | -0.2034 | -0.1774 | 0.1648 | -0.1463 | 0.4837 | 0.1644 | -0.0817 | -0.1288 | -0.1909 | 0.6502 | 0.2562 | 0.2676 |
| | | | 0.137 | 0.353 | 0.504 | 0.342 | 0.123 | 0.499 | 0.664 | 0.746 | 0.445 | 0.003 | 0.165 | 0.068 |
| Switzerland | 1974 | 32 | 0.0726 | 0.0949 | -0.0457 | 0.1771 | 0.0068 | 0.0568 | -0.0062 | -0.0072 | 0.0485 | 0.0282 | 0.0518 | -0.0106 |
| | | | 0.207 | 0.121 | 0.424 | 0.001 | 0.914 | 0.161 | 0.901 | 0.890 | 0.434 | 0.550 | 0.257 | 0.829 |
| Taiwan | 1985 | 18 | -0.2051 | 0.4607 | 0.1114 | 0.2510 | -0.0446 | -0.0607 | -0.1029 | 0.1522 | 0.0020 | 0.1037 | 0.2699 | -0.4757 |
| | | | 0.261 | 0.006 | 0.523 | 0.060 | 0.846 | 0.734 | 0.629 | 0.372 | 0.991 | 0.672 | 0.060 | 0.011 |
| Thailand | 1977 | 26 | 0.3136 | 0.0848 | 0.1582 | 0.2164 | -0.0634 | 0.2370 | -0.0234 | 0.2026 | 0.1568 | 0.0333 | -0.0495 | -0.1194 |
| | | | 0.013 | 0.459 | 0.136 | 0.041 | 0.603 | 0.051 | 0.894 | 0.088 | 0.324 | 0.788 | 0.654 | 0.381 |
| United Kingdom | 1974 | 32 | 0.1098 | 0.0734 | -0.0653 | 0.1275 | -0.0042 | -0.0288 | -0.0480 | -0.0211 | -0.1117 | -0.0395 | -0.0121 | 0.0310 |
| | | | 0.064 | 0.098 | 0.151 | 0.008 | 0.932 | 0.553 | 0.367 | 0.699 | 0.149 | 0.580 | 0.868 | 0.660 |
| U.S. - CRSP - (value-weighted) | 1940 | 64 | 0.1441 | 0.0270 | -0.0387 | 0.0197 | -0.0203 | 0.0594 | 0.0067 | 0.0151 | 0.0206 | -0.0114 | 0.0072 | -0.0214 |
| | | | 0.000 | 0.494 | 0.391 | 0.685 | 0.631 | 0.203 | 0.886 | 0.741 | 0.660 | 0.806 | 0.875 | 0.725 |
| U.S. - CRSP - (value-weighted) | 1973 | 31 | 0.1233 | 0.0164 | -0.0319 | 0.1420 | 0.0054 | -0.0001 | -0.0558 | 0.0063 | -0.0440 | 0.0914 | -0.0279 | -0.0411 |
| | | | 0.048 | 0.782 | 0.649 | 0.022 | 0.928 | 0.999 | 0.380 | 0.927 | 0.588 | 0.214 | 0.702 | 0.586 |
| U.S. - CRSP - (equally-weighted) | 1940 | 64 | 0.1937 | -0.0245 | -0.0597 | 0.0491 | 0.0027 | 0.0795 | 0.0294 | 0.0212 | 0.0601 | -0.0418 | 0.0266 | 0.0037 |
| | | | 0.001 | 0.685 | 0.364 | 0.424 | 0.964 | 0.227 | 0.662 | 0.724 | 0.312 | 0.496 | 0.643 | 0.954 |
| U.S. - CRSP - (equally-weighted) | 1973 | 31 | 0.1404 | -0.0717 | -0.0784 | 0.1512 | 0.0423 | -0.0136 | -0.0306 | -0.0096 | 0.0009 | 0.0504 | 0.1371 | 0.0116 |
| | | | 0.215 | 0.430 | 0.454 | 0.055 | 0.586 | 0.879 | 0.730 | 0.912 | 0.993 | 0.582 | 0.079 | 0.890 |
| Venezuela | 1995 | 11 | -0.3640 | 0.0302 | -0.1929 | 0.1421 | 0.1152 | -0.1213 | -0.3637 | -0.2477 | -0.3938 | 0.6010 | 0.6782 | 0.1482 |
| | | | 0.246 | 0.853 | 0.629 | 0.698 | 0.490 | 0.747 | 0.418 | 0.522 | 0.165 | 0.025 | 0.004 | 0.434 |
| Zimbabwe | 1979 | 24 | 0.4322 | 0.2517 | 0.3512 | 0.1723 | 0.2797 | -0.0277 | 0.2307 | 0.1778 | 0.3042 | 0.1380 | 0.1434 | 0.4327 |
| | | | 0.006 | 0.149 | 0.043 | 0.326 | 0.066 | 0.879 | 0.199 | 0.278 | 0.094 | 0.480 | 0.460 | 0.009 |

Table 3:

11-month holding period excess returns following tax-year starts with positive and negative excess returns. Total market returns were obtained from both the Datastream and Compustat Global databases, while proxies for the risk-free interest rate were obtained from the *IFS Online* database maintained by the International Monetary Fund. Where more than one total market return proxy was available, the database with the longest history was used, and sensitivity analysis was performed over the common years to ensure that results were not sensitive to the choice made. Interest rates from short-term government securities were selected where possible, and where these were not available, yields from other government securities or alternatively, from the short-term money market, were used. P-values are for the two-tailed t-test of the null hypothesis that the mean difference between the 11-month holding period excess returns following positive and negative excess returns in January is equal to zero. P-values less than 5% are denoted in bold.

| Country | Start Year | Tax Year Start | Sample N | Average 11-month excess return following a positive tax year start | Sub-sample N | Average 11-month excess return following a negative tax year start | Sub-sample N | Difference | P-value |
|----------------|------------|----------------|----------|--|--------------|--|--------------|------------|--------------|
| Australia | 1974 | July | 32 | 0.0334 | 20 | 0.0816 | 12 | -0.0482 | 0.389 |
| Hong Kong | 1986 | April | 19 | 0.1253 | 10 | 0.1117 | 9 | 0.0136 | 0.875 |
| New Zealand | 1989 | April | 17 | 0.0563 | 11 | -0.0586 | 6 | 0.1149 | 0.015 |
| Pakistan | 1985 | July | 17 | 0.0958 | 10 | 0.0498 | 7 | 0.0459 | 0.752 |
| South Africa | 1974 | March | 32 | 0.0469 | 20 | 0.1454 | 12 | -0.0984 | 0.176 |
| Sri Lanka | 1993 | April | 10 | -0.1434 | 4 | 0.0029 | 6 | -0.1463 | 0.342 |
| United Kingdom | 1974 | April* | 32 | 0.0756 | 23 | -0.0408 | 9 | 0.1164 | 0.007 |

*The United Kingdom results were estimated using a month start date of April 6th so as to coincide with the beginning of the tax year.

Table 4:

11-month holding period raw returns following Januarys with positive and negative returns. Total market returns for the US were obtained from the CRSP database. Total market returns for countries other than the US were obtained from both the Datastream and Compustat Global databases. Where more than one total market return proxy was available, the database with the longest history was used, and sensitivity analysis was performed over the common years to ensure that results were not sensitive to the choice made. P-values are for the two-tailed t-test of the null hypothesis that the mean difference between the 11-month holding period returns following positive and negative Januarys is equal to zero. P-values less than 5% are denoted in bold

| Country | Start Year | Sample N | Average 11-month return following a positive January | Sub-sample N | Average 11-month return following a negative January | Sub-sample N | Difference | P-value |
|----------------------------------|------------|----------|--|--------------|--|--------------|------------|--------------|
| Australia | 1974 | 32 | 0.1361 | 21 | 0.1373 | 11 | -0.0012 | 0.984 |
| Austria | 1974 | 32 | 0.2698 | 15 | 0.0205 | 17 | 0.2493 | 0.102 |
| Belgium | 1974 | 32 | 0.1300 | 20 | 0.0769 | 12 | 0.0531 | 0.370 |
| Brazil | 1976 | 27 | 5.6753 | 17 | 1.7138 | 10 | 3.9615 | 0.140 |
| Canada | 1974 | 32 | 0.0902 | 18 | 0.1315 | 14 | -0.0412 | 0.409 |
| Chile | 1976 | 27 | 0.7854 | 18 | 0.0617 | 9 | 0.7238 | 0.003 |
| China | 1994 | 12 | 0.7587 | 2 | 0.0459 | 10 | 0.7128 | 0.094 |
| Columbia | 1985 | 18 | 0.5650 | 13 | 0.1380 | 5 | 0.4266 | 0.085 |
| Czech Republic | 1994 | 12 | 0.1412 | 10 | -0.0864 | 2 | 0.2276 | 0.067 |
| Denmark | 1974 | 32 | 0.1258 | 25 | 0.1639 | 7 | -0.0381 | 0.635 |
| Finland | 1989 | 17 | 0.2852 | 12 | -0.0922 | 5 | 0.3774 | 0.029 |
| France | 1974 | 32 | 0.1267 | 23 | 0.1837 | 9 | -0.0570 | 0.500 |
| Germany | 1974 | 32 | 0.1016 | 23 | 0.1123 | 9 | -0.0106 | 0.869 |
| Greece | 1976 | 25 | 0.2225 | 14 | 0.1650 | 11 | 0.0575 | 0.643 |
| Hong Kong | 1974 | 32 | 0.2084 | 21 | 0.1379 | 11 | 0.0705 | 0.509 |
| Hungary | 1992 | 14 | 0.1671 | 10 | 0.2563 | 4 | -0.0892 | 0.473 |
| India | 1976 | 27 | 0.1367 | 15 | 0.2563 | 12 | -0.1196 | 0.261 |
| Indonesia | 1991 | 15 | 0.1091 | 11 | 0.0771 | 4 | 0.0320 | 0.822 |
| Ireland | 1974 | 32 | 0.1597 | 24 | 0.1838 | 8 | -0.0241 | 0.809 |
| Italy | 1974 | 32 | 0.1464 | 24 | -0.0100 | 8 | 0.1564 | 0.047 |
| Japan | 1974 | 32 | 0.0904 | 19 | 0.0615 | 13 | 0.0289 | 0.648 |
| Jordan | 1979 | 24 | 0.1067 | 12 | 0.1411 | 12 | -0.0344 | 0.623 |
| Korea | 1976 | 27 | 0.1435 | 18 | 0.0626 | 9 | 0.0809 | 0.435 |
| Luxemburg | 1993 | 13 | 0.1266 | 10 | 0.2869 | 3 | -0.1603 | 0.258 |
| Malaysia | 1987 | 19 | 0.1101 | 16 | 0.0101 | 3 | 0.1000 | 0.194 |
| Mexico | 1976 | 27 | 0.4523 | 18 | 0.5344 | 9 | -0.0820 | 0.703 |
| Netherlands | 1974 | 32 | 0.1394 | 23 | 0.0713 | 9 | 0.0681 | 0.198 |
| New Zealand | 1989 | 17 | 0.1248 | 11 | 0.0824 | 6 | 0.0424 | 0.534 |
| Nigeria | 1985 | 18 | 0.5147 | 14 | 0.1562 | 4 | 0.3585 | 0.015 |
| Norway | 1981 | 25 | 0.2186 | 17 | 0.0011 | 8 | 0.2175 | 0.016 |
| Pakistan | 1985 | 18 | 0.3381 | 13 | -0.0271 | 5 | 0.3652 | 0.057 |
| Peru | 1995 | 11 | 0.1494 | 8 | 0.1335 | 3 | 0.0159 | 0.870 |
| Philippines | 1988 | 18 | 0.2599 | 14 | -0.1058 | 4 | 0.3657 | 0.020 |
| Poland | 1995 | 11 | 0.0729 | 7 | 0.1688 | 4 | -0.0959 | 0.365 |
| Singapore | 1974 | 32 | 0.0821 | 24 | 0.0561 | 8 | 0.0260 | 0.728 |
| South Africa | 1974 | 32 | 0.1552 | 20 | 0.3397 | 12 | -0.1845 | 0.034 |
| Spain | 1988 | 18 | 0.1539 | 13 | 0.0207 | 5 | 0.1332 | 0.066 |
| Sri Lanka | 1993 | 10 | -0.0235 | 3 | 0.2658 | 7 | -0.2893 | 0.051 |
| Switzerland | 1974 | 32 | 0.1325 | 22 | 0.0384 | 10 | 0.0941 | 0.106 |
| Taiwan | 1985 | 18 | 0.0457 | 11 | 0.2746 | 7 | -0.2289 | 0.177 |
| Thailand | 1976 | 27 | 0.2737 | 15 | -0.0373 | 12 | 0.3110 | 0.023 |
| United Kingdom | 1974 | 32 | 0.1513 | 20 | 0.0432 | 12 | 0.1081 | 0.014 |
| U.S. - CRSP - (value-weighted) | 1940 | 64 | 0.1480 | 42 | 0.0293 | 22 | 0.1186 | 0.001 |
| U.S. - CRSP - (value-weighted) | 1973 | 31 | 0.1303 | 20 | 0.0427 | 11 | 0.0877 | 0.158 |
| U.S. - CRSP - (equally-weighted) | 1940 | 64 | 0.1416 | 52 | -0.0395 | 12 | 0.1811 | 0.005 |
| U.S. - CRSP - (equally-weighted) | 1973 | 31 | 0.1094 | 27 | 0.0088 | 4 | 0.1006 | 0.542 |
| Venezuela | 1985 | 18 | 0.4205 | 10 | 1.2361 | 8 | -0.8156 | 0.155 |
| Zimbabwe | 1976 | 27 | 0.6026 | 18 | -0.0131 | 9 | 0.6158 | 0.001 |

Table 5:

11-month holding period raw returns following months with positive and negative returns. Total market returns for the US were obtained from the CRSP database. Total market returns for countries other than the US were obtained from both the Datastream and Compustat Global databases. Where more than one total market return proxy was available, the database with the longest history was used, and sensitivity analysis was performed over the common years to ensure that results were not sensitive to the choice made. P-values reported in the second row for each country are for the two-tailed t-test of the null hypothesis that the mean difference between the 11-month holding period returns following positive and negative conditioning months is equal to zero. P-values less than 5% are denoted in bold

| Country | Start Year | Sample N | January | February | March | April | May | June | July | August | September | October | November | December |
|------------|------------|----------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Australia | 1974 | 32 | -0.0012 | 0.0763 | 0.0596 | 0.1220 | -0.0884 | -0.0789 | -0.0553 | 0.0640 | 0.1132 | -0.0192 | -0.0186 | -0.0036 |
| | | | 0.984 | 0.288 | 0.400 | 0.021 | 0.098 | 0.172 | 0.413 | 0.395 | 0.120 | 0.802 | 0.797 | 0.956 |
| Austria | 1974 | 32 | 0.2493 | 0.1899 | 0.2158 | 0.0028 | 0.2432 | 0.2859 | 0.2809 | 0.1434 | 0.2200 | 0.2382 | 0.1275 | 0.0226 |
| | | | 0.102 | 0.047 | 0.039 | 0.973 | 0.069 | 0.036 | 0.054 | 0.251 | 0.144 | 0.078 | 0.215 | 0.832 |
| Belgium | 1974 | 32 | 0.0531 | 0.0834 | -0.0415 | -0.0550 | 0.0665 | -0.0338 | 0.0700 | 0.1269 | 0.1390 | -0.0534 | 0.0498 | -0.0080 |
| | | | 0.370 | 0.141 | 0.484 | 0.331 | 0.270 | 0.583 | 0.224 | 0.043 | 0.025 | 0.428 | 0.401 | 0.895 |
| Brazil | 1976 | 27 | 3.9615 | 2.2272 | 0.5318 | 3.3637 | 1.6809 | -1.8005 | 3.6120 | 2.1322 | 3.0105 | 2.3530 | 5.1819 | 5.0391 |
| | | | 0.140 | 0.107 | 0.803 | 0.003 | 0.262 | 0.370 | 0.018 | 0.222 | 0.056 | 0.281 | 0.031 | 0.060 |
| Canada | 1974 | 32 | -0.0412 | -0.0418 | -0.0332 | 0.1049 | -0.0752 | -0.0657 | 0.0092 | 0.0325 | -0.0024 | 0.0814 | 0.0848 | 0.0732 |
| | | | 0.409 | 0.418 | 0.560 | 0.035 | 0.191 | 0.271 | 0.886 | 0.614 | 0.973 | 0.177 | 0.054 | 0.049 |
| Chile | 1976 | 27 | 0.7238 | 0.5117 | 0.2870 | 0.1212 | 0.0903 | 0.1207 | 0.7070 | 0.3906 | 0.1349 | 0.2594 | 0.0954 | 0.4172 |
| | | | 0.003 | 0.014 | 0.357 | 0.605 | 0.731 | 0.668 | 0.017 | 0.208 | 0.544 | 0.319 | 0.671 | 0.009 |
| China | 1994 | 12 | 0.7128 | -0.3930 | -0.1446 | 0.3254 | 0.0746 | 0.4131 | -0.3319 | -0.3134 | -0.0464 | 0.0544 | 0.1403 | -0.0264 |
| | | | 0.094 | 0.031 | 0.334 | 0.118 | 0.607 | 0.051 | 0.086 | 0.115 | 0.796 | 0.535 | 0.364 | 0.885 |
| Columbia | 1985 | 18 | 0.4266 | 0.5402 | -0.1941 | -0.1503 | 0.4322 | 0.2413 | 0.5927 | 0.7548 | 0.2168 | 0.4816 | 0.5290 | -0.7017 |
| | | | 0.085 | 0.170 | 0.446 | 0.566 | 0.105 | 0.479 | 0.059 | 0.108 | 0.593 | 0.089 | 0.014 | 0.019 |
| Czech Rep. | 1994 | 12 | 0.2276 | 0.1252 | 0.3327 | 0.2188 | 0.2160 | 0.1186 | -0.0218 | 0.0056 | 0.0552 | 0.1803 | 0.2043 | -0.2699 |
| | | | 0.067 | 0.398 | 0.068 | 0.204 | 0.037 | 0.517 | 0.840 | 0.970 | 0.874 | 0.315 | 0.075 | 0.036 |
| Denmark | 1974 | 32 | -0.0381 | 0.0295 | -0.0060 | 0.2292 | 0.0843 | 0.1033 | 0.1257 | -0.0595 | 0.0494 | -0.1360 | 0.1346 | 0.0483 |
| | | | 0.635 | 0.729 | 0.943 | 0.002 | 0.235 | 0.140 | 0.050 | 0.474 | 0.642 | 0.124 | 0.104 | 0.563 |
| Finland | 1989 | 17 | 0.3774 | 0.0360 | 0.2326 | 0.3695 | 0.0736 | 0.3376 | -0.1545 | -0.2063 | 0.5376 | 0.3011 | 0.2101 | -0.0412 |
| | | | 0.029 | 0.845 | 0.356 | 0.022 | 0.679 | 0.072 | 0.289 | 0.270 | 0.019 | 0.052 | 0.177 | 0.840 |
| France | 1974 | 32 | -0.0570 | 0.0719 | 0.0522 | 0.0800 | 0.0444 | 0.0250 | -0.0200 | -0.0139 | 0.0371 | 0.0090 | 0.0962 | -0.1028 |
| | | | 0.500 | 0.361 | 0.463 | 0.250 | 0.569 | 0.735 | 0.775 | 0.858 | 0.629 | 0.902 | 0.173 | 0.206 |
| Germany | 1974 | 32 | -0.0106 | 0.0990 | -0.1013 | 0.1504 | 0.1373 | 0.1424 | -0.1137 | 0.0524 | 0.1234 | -0.0321 | 0.0936 | 0.1038 |
| | | | 0.869 | 0.119 | 0.161 | 0.021 | 0.042 | 0.005 | 0.056 | 0.411 | 0.021 | 0.574 | 0.080 | 0.061 |
| Greece | 1976 | 25 | 0.0575 | 0.0368 | 0.3307 | -0.0047 | 0.3251 | -0.2890 | 0.2897 | 0.0510 | 0.0593 | 0.4946 | -0.0547 | 0.1224 |
| | | | 0.643 | 0.786 | 0.061 | 0.973 | 0.070 | 0.128 | 0.267 | 0.826 | 0.772 | 0.180 | 0.753 | 0.387 |
| Hong Kong | 1974 | 32 | 0.0705 | 0.1513 | 0.1924 | 0.1554 | -0.1244 | -0.2195 | -0.1486 | 0.0871 | 0.1308 | 0.1075 | -0.0063 | -0.1117 |
| | | | 0.509 | 0.182 | 0.084 | 0.054 | 0.175 | 0.034 | 0.212 | 0.463 | 0.292 | 0.233 | 0.953 | 0.330 |
| Hungary | 1992 | 14 | -0.0892 | 0.3215 | 0.0184 | 0.2578 | 0.6219 | 0.3209 | -0.0094 | 0.2570 | 0.3845 | 0.2355 | 0.2604 | 0.1854 |
| | | | 0.473 | 0.177 | 0.938 | 0.184 | 0.001 | 0.103 | 0.958 | 0.143 | 0.106 | 0.200 | 0.141 | 0.143 |
| India | 1976 | 27 | -0.1196 | -0.1743 | 0.0056 | 0.1441 | 0.2446 | -0.1019 | 0.1562 | -0.0706 | 0.1327 | 0.2243 | -0.1845 | 0.0683 |
| | | | 0.261 | 0.135 | 0.971 | 0.404 | 0.088 | 0.348 | 0.109 | 0.502 | 0.191 | 0.063 | 0.080 | 0.471 |
| Indonesia | 1991 | 15 | 0.0320 | 0.2742 | 0.0221 | 0.0259 | 0.1094 | 0.0071 | 0.2378 | 0.0694 | -0.1337 | 0.1457 | 0.1605 | -0.1832 |
| | | | 0.822 | 0.067 | 0.907 | 0.866 | 0.363 | 0.953 | 0.022 | 0.497 | 0.398 | 0.333 | 0.166 | 0.131 |
| Ireland | 1974 | 32 | -0.0241 | 0.1819 | 0.0858 | 0.1690 | 0.1603 | 0.0594 | 0.1186 | -0.0669 | -0.0874 | -0.0535 | -0.0628 | 0.0835 |
| | | | 0.809 | 0.058 | 0.331 | 0.037 | 0.087 | 0.426 | 0.092 | 0.414 | 0.309 | 0.602 | 0.565 | 0.471 |
| Italy | 1974 | 32 | 0.1564 | 0.1846 | -0.2822 | 0.2622 | 0.1915 | 0.2706 | 0.1493 | 0.0781 | 0.3439 | -0.1522 | 0.0180 | -0.0561 |
| | | | 0.047 | 0.069 | 0.036 | 0.145 | 0.316 | 0.166 | 0.179 | 0.458 | 0.009 | 0.140 | 0.869 | 0.591 |
| Japan | 1974 | 32 | 0.0289 | 0.0764 | 0.0327 | -0.0092 | -0.0478 | 0.0928 | -0.0346 | 0.1161 | 0.0248 | -0.0904 | 0.0923 | 0.0041 |
| | | | 0.648 | 0.256 | 0.552 | 0.886 | 0.495 | 0.122 | 0.598 | 0.034 | 0.704 | 0.210 | 0.119 | 0.945 |
| Jordan | 1979 | 24 | -0.0344 | 0.1096 | 0.1495 | 0.1872 | 0.1010 | 0.0434 | 0.0645 | -0.0034 | 0.0616 | -0.0711 | -0.0042 | -0.0361 |
| | | | 0.623 | 0.214 | 0.074 | 0.008 | 0.168 | 0.547 | 0.408 | 0.969 | 0.311 | 0.274 | 0.947 | 0.565 |
| Korea | 1976 | 27 | 0.0809 | 0.0179 | 0.0147 | -0.1340 | -0.1660 | -0.0344 | 0.0495 | 0.1160 | 0.0889 | 0.3461 | 0.1250 | 0.2284 |
| | | | 0.435 | 0.873 | 0.886 | 0.280 | 0.227 | 0.832 | 0.818 | 0.689 | 0.673 | 0.034 | 0.289 | 0.070 |

| | | | | | | | | | | | | | | |
|----------------------------------|------|----|--------------|--------------|--------------|--------------|--------------|--------------|--------------|---------|--------------|--------------|--------------|--------------|
| Luxemburg | 1993 | 13 | -0.1603 | 0.1516 | 0.0877 | 0.1847 | 0.0977 | 0.0548 | -0.0290 | -0.0459 | 0.3120 | 0.0481 | -0.0416 | -0.2768 |
| | | | 0.258 | 0.289 | 0.607 | 0.175 | 0.403 | 0.660 | 0.841 | 0.696 | 0.004 | 0.659 | 0.700 | 0.028 |
| Malaysia | 1987 | 19 | 0.1000 | -0.0465 | -0.3061 | 0.0887 | -0.0307 | 0.0158 | 0.1690 | -0.0752 | -0.0622 | -0.0138 | 0.1556 | 0.0579 |
| | | | 0.194 | 0.683 | 0.018 | 0.504 | 0.773 | 0.892 | 0.142 | 0.514 | 0.701 | 0.942 | 0.110 | 0.613 |
| Mexico | 1976 | 27 | -0.0820 | 0.3351 | -0.3730 | -0.3284 | 0.4231 | 0.8794 | 0.6857 | 0.7945 | 0.9216 | 0.8096 | 0.1782 | -1.0321 |
| | | | 0.703 | 0.183 | 0.324 | 0.452 | 0.400 | 0.098 | 0.173 | 0.142 | 0.149 | 0.273 | 0.471 | 0.004 |
| Netherlands | 1974 | 32 | 0.0681 | 0.1224 | -0.0271 | 0.1690 | 0.0367 | 0.0201 | -0.0041 | 0.0477 | 0.1564 | -0.0011 | -0.0115 | 0.1060 |
| | | | 0.198 | 0.037 | 0.643 | 0.004 | 0.525 | 0.717 | 0.947 | 0.510 | 0.016 | 0.987 | 0.841 | 0.028 |
| New Zealand | 1989 | 17 | 0.0424 | 0.0746 | 0.0680 | 0.0584 | -0.0081 | 0.0214 | -0.1136 | -0.0574 | -0.1136 | 0.0782 | -0.0891 | -0.0308 |
| | | | 0.534 | 0.329 | 0.259 | 0.171 | 0.894 | 0.621 | 0.025 | 0.356 | 0.322 | 0.256 | 0.290 | 0.662 |
| Nigeria | 1985 | 18 | 0.3585 | 0.1250 | 0.2325 | 0.1434 | 0.4443 | 0.7114 | 0.3035 | 0.0165 | 0.4736 | 0.6189 | 0.2245 | 0.3386 |
| | | | 0.015 | 0.326 | 0.114 | 0.313 | 0.001 | 0.000 | 0.025 | 0.919 | 0.009 | 0.000 | 0.188 | 0.055 |
| Norway | 1981 | 25 | 0.2175 | 0.1572 | 0.1152 | 0.1686 | -0.0748 | 0.1918 | -0.1336 | 0.0359 | 0.0330 | 0.2152 | 0.0642 | 0.1137 |
| | | | 0.016 | 0.153 | 0.279 | 0.035 | 0.405 | 0.021 | 0.151 | 0.729 | 0.812 | 0.060 | 0.494 | 0.215 |
| Pakistan | 1985 | 18 | 0.3652 | -0.4994 | 0.0147 | 0.2682 | 0.3322 | -0.0123 | 0.0806 | 0.2098 | -0.1569 | 0.2363 | 0.1431 | -0.0256 |
| | | | 0.057 | 0.014 | 0.932 | 0.097 | 0.105 | 0.952 | 0.574 | 0.131 | 0.258 | 0.039 | 0.148 | 0.872 |
| Peru | 1995 | 11 | 0.0159 | 0.1530 | 0.0837 | -0.0179 | 0.2417 | 0.0593 | 0.0892 | 0.1397 | -0.1713 | 0.1560 | 0.0746 | 0.0284 |
| | | | 0.870 | 0.091 | 0.453 | 0.859 | 0.004 | 0.452 | 0.342 | 0.102 | 0.099 | 0.137 | 0.528 | 0.816 |
| Philippines | 1988 | 18 | 0.3657 | 0.1244 | 0.0098 | 0.2994 | 0.0414 | -0.0468 | 0.1898 | -0.1332 | -0.0290 | 0.2079 | -0.3223 | -0.1425 |
| | | | 0.020 | 0.406 | 0.939 | 0.005 | 0.721 | 0.743 | 0.097 | 0.543 | 0.868 | 0.216 | 0.063 | 0.368 |
| Poland | 1995 | 11 | -0.0959 | -0.0082 | 0.3547 | 0.4287 | -0.1661 | 0.2611 | 0.1133 | -0.1309 | 0.1660 | -0.0680 | -0.0145 | -0.2800 |
| | | | 0.365 | 0.956 | 0.061 | 0.005 | 0.316 | 0.007 | 0.510 | 0.237 | 0.362 | 0.549 | 0.908 | 0.040 |
| Singapore | 1974 | 32 | 0.0260 | 0.0951 | 0.0993 | 0.0432 | 0.0742 | 0.0417 | 0.2313 | -0.0750 | 0.0193 | 0.0806 | -0.0501 | 0.0234 |
| | | | 0.728 | 0.291 | 0.276 | 0.611 | 0.408 | 0.673 | 0.012 | 0.487 | 0.879 | 0.302 | 0.619 | 0.793 |
| South Africa | 1974 | 32 | -0.1845 | -0.0198 | -0.0674 | -0.1102 | -0.0511 | -0.0515 | 0.0405 | -0.0106 | 0.1957 | 0.0715 | 0.0171 | 0.0747 |
| | | | 0.034 | 0.824 | 0.440 | 0.241 | 0.574 | 0.586 | 0.630 | 0.900 | 0.034 | 0.352 | 0.809 | 0.239 |
| Spain | 1988 | 18 | 0.1332 | 0.1743 | -0.0665 | 0.2047 | 0.1890 | 0.1785 | -0.0860 | -0.1273 | -0.1543 | 0.1837 | 0.1244 | 0.1111 |
| | | | 0.066 | 0.029 | 0.575 | 0.024 | 0.007 | 0.004 | 0.226 | 0.181 | 0.190 | 0.048 | 0.103 | 0.123 |
| Sri Lanka | 1993 | 10 | -0.2893 | 0.3225 | 0.1836 | -0.3270 | 0.3974 | 0.2443 | -0.3637 | 0.1386 | -0.2033 | 0.5663 | 0.2674 | 0.1523 |
| | | | 0.051 | 0.143 | 0.539 | 0.076 | 0.191 | 0.349 | 0.075 | 0.676 | 0.371 | 0.012 | 0.105 | 0.181 |
| Switzerland | 1974 | 32 | 0.0941 | 0.0843 | 0.0209 | 0.1997 | -0.0015 | 0.0929 | -0.0085 | 0.0171 | 0.0136 | 0.0215 | 0.1052 | -0.0058 |
| | | | 0.106 | 0.200 | 0.724 | 0.000 | 0.982 | 0.042 | 0.878 | 0.776 | 0.850 | 0.689 | 0.038 | 0.917 |
| Taiwan | 1985 | 18 | -0.2289 | 0.4538 | 0.0865 | 0.2403 | -0.0072 | -0.0106 | -0.1604 | -0.0447 | 0.0394 | 0.1888 | 0.1206 | -0.5467 |
| | | | 0.177 | 0.004 | 0.619 | 0.052 | 0.972 | 0.957 | 0.425 | 0.804 | 0.847 | 0.572 | 0.426 | 0.015 |
| Thailand | 1976 | 27 | 0.3110 | 0.0688 | 0.1216 | 0.2967 | -0.1245 | 0.2188 | 0.0855 | 0.1920 | 0.1683 | 0.1316 | -0.1376 | 0.0125 |
| | | | 0.023 | 0.607 | 0.275 | 0.003 | 0.312 | 0.072 | 0.555 | 0.163 | 0.231 | 0.379 | 0.310 | 0.928 |
| United Kingdom | 1974 | 32 | 0.1081 | 0.0749 | -0.0347 | 0.1909 | 0.0397 | 0.0102 | -0.0530 | -0.0368 | -0.0313 | 0.1334 | -0.0043 | -0.0734 |
| | | | 0.014 | 0.090 | 0.519 | 0.000 | 0.392 | 0.835 | 0.332 | 0.515 | 0.641 | 0.008 | 0.926 | 0.152 |
| U.S. - CRSP - (value-weighted) | 1940 | 64 | 0.1186 | 0.0104 | -0.0428 | 0.0234 | -0.0232 | 0.0450 | -0.0055 | -0.0029 | 0.0287 | -0.0035 | -0.0062 | -0.0347 |
| | | | 0.001 | 0.790 | 0.339 | 0.636 | 0.589 | 0.267 | 0.891 | 0.948 | 0.511 | 0.938 | 0.891 | 0.526 |
| U.S. - CRSP - (value-weighted) | 1973 | 31 | 0.0877 | -0.0152 | -0.0373 | 0.1590 | 0.0132 | -0.0013 | -0.0536 | -0.0217 | -0.0300 | 0.0780 | -0.0240 | -0.0605 |
| | | | 0.158 | 0.808 | 0.606 | 0.016 | 0.841 | 0.984 | 0.389 | 0.748 | 0.678 | 0.290 | 0.743 | 0.371 |
| U.S. - CRSP - (equally-weighted) | 1940 | 64 | 0.1811 | -0.0476 | -0.0614 | 0.0062 | -0.0034 | 0.0823 | 0.0290 | 0.0129 | 0.0330 | -0.0778 | 0.0491 | 0.0064 |
| | | | 0.005 | 0.448 | 0.362 | 0.920 | 0.955 | 0.223 | 0.680 | 0.830 | 0.579 | 0.203 | 0.399 | 0.923 |
| U.S. - CRSP - (equally-weighted) | 1973 | 31 | 0.1006 | -0.1200 | -0.0786 | 0.1526 | 0.0367 | -0.0075 | -0.0353 | -0.0101 | -0.0752 | -0.0262 | 0.1373 | 0.0159 |
| | | | 0.542 | 0.220 | 0.455 | 0.053 | 0.654 | 0.941 | 0.719 | 0.908 | 0.415 | 0.780 | 0.079 | 0.856 |
| Venezuela | 1985 | 18 | -0.8156 | 1.1700 | 0.7599 | 0.2781 | 0.0415 | 0.1368 | 0.0049 | 0.2477 | -0.1308 | 0.9757 | 0.1415 | -1.9016 |
| | | | 0.155 | 0.130 | 0.201 | 0.493 | 0.911 | 0.756 | 0.990 | 0.423 | 0.651 | 0.024 | 0.725 | 0.008 |
| Zimbabwe | 1976 | 27 | 0.6158 | 0.5437 | 0.8003 | -0.0470 | 0.4024 | -0.1461 | 0.4027 | 0.1409 | 0.0265 | 0.3984 | 0.4699 | 0.6331 |
| | | | 0.001 | 0.032 | 0.003 | 0.859 | 0.068 | 0.618 | 0.081 | 0.529 | 0.912 | 0.088 | 0.064 | 0.002 |