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**An Assessment of Terrorism-Related  
Investing Strategies**

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# **An Assessment of Terrorism-Related Investing Strategies**

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## **Abstract**

Do terrorism-related investing strategies lead to superior investment performance? This study evaluates the risks and returns to two different terrorism-related investment strategies in the U.S. markets over the period from 1994–2006. The first strategy evaluates a sub-portfolio of S&P 500 stocks constructed on the basis of terrorism-related risk scores that measure their operations in countries with a high incidence of terrorism-related activity. The second strategy evaluates a ‘terror-free’ sub-portfolio of S&P 500 stocks in which stocks are screened if they have operations in countries that the U.S. Department of State has designated as state-sponsors of terrorism. I find that the terrorism-related risk exposure portfolio would have earned, on average, an economically small and statistically insignificant 16 basis point premium per month with a tracking error of 2.8% per month and that of the terror-free portfolio an even smaller -1.6 basis point premium per month with a tracking error of 25 basis points per month. Return attribution analysis using a multi-factor model uncovers interesting differences in systematic exposures to market risks, and factors related to size, market-to-book ratios and momentum.

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## **An Assessment of Terrorism-Related Investing Strategies**

Today, six years after the attacks of September 11, 2001 (hereafter “9/11”), the threat of terrorism and politically-motivated violence continues to impose an enormous cost on both U.S. and international companies. Indeed, many corporate executives believe terrorism-related business risks will increase in the coming years. According to a 2006 survey of 434 CFOs in the U.S., Europe and Asia, conducted by Duke University and *CFO* magazine, direct and indirect costs of terrorism have as much as doubled in the past five years ranging now from 1.6% to 2.8% of revenues. These direct costs include insurance premiums for terror-related business interruptions and security-related expenditures and indirect costs include higher costs of oil and energy, reduced executive air travel, lost productivity and lower consumer spending due to terror fears. Lloyd’s of London (2007) reports on another survey of executives in which 54% of respondents predict an increase in the risk of political violence and terrorist activity for their companies.

Academic research on terrorism and its potential consequences for the global economy and capital markets has also blossomed in the past five years. Much has been written on the immediate impact of the 9/11 attacks on bond yields, stock market prices, oil prices, aggregate consumption and aggregate investment activity (OECD, 2002; Lenain, Bonturi and Koen, 2002; Blomberg, Hess and Orphanides, 2004). A number of researchers have examined the effect of the 9/11 event on stock prices, stock price volatility and systematic risks for U.S. markets (Hon, Strauss and Yong, 2003; Burch, Emery and Fuerst, 2003; Choudhry, 2003; Cummins and Lewis, 2003; Poteshman, 2004; and, Kallberg, Liu and Pasquariello, 2005) and even around the regulatory responses to it (Brown, Cummins, Lewis and Wei, 2004; Doherty, Lamm-Tennant and Starks, 2003). Many fewer studies exist of the broader consequences of terrorism activity, in general, and for financial markets, in particular.<sup>1</sup> Consider, for example, Chen and Siems (2004) and Guidolin and La Ferrara (2005), who study the impact of a number of major geopolitical events (e.g., the 1990 Iraqi attack on Kuwait) over the last 60 years for national index returns, Eldor and Melnick (2004) and Berrebi and Klor (2005), who focus on attacks against Israeli companies during the 1998-2000 Palestinian conflict, and Karolyi and Martell (2007) who find large, negative stock price declines (on average, -0.83%) on days of terrorist attacks against 75 U.S. and international companies between 1995 and 2003.

What we still do not know – and what this paper seeks to address – is whether terrorism-related activity has any longer-run consequences for investment returns and risks. Most studies cited above use event-study methodology to assess the wealth impact of specific attacks/geopolitical events; these price reactions, so measured, may be short-term, transitory and possibly even idiosyncratic in nature. Investors

do appear to sell down shares of targeted firms, but we do not know whether these price changes reflect changes in their forecasts of future cash flows due to direct asset losses or changes in market beliefs about the inherent riskiness of that firm's (and possibly other related firms') operations or investment activity. Event-study findings also may partly reflect past management decisions or business conditions existing within the firm or its industry that fostered unusually high exposure to risk of a terrorist attack in the first place. I avoid these difficulties by taking a long-horizon investment approach. Do stocks of firms that have higher ex ante exposure to terrorism-related risks earn higher returns? Do portfolios of such firms have measurably different market-related or other systematic market risks? How much tracking error is assumed by portfolios that seek to limit their exposure to stocks with high terrorism-related risk?

To answer these and other questions, I construct a new terrorism risk score for every constituent of the S&P 500 index over the period from 1994 to 2006. Specifically, a firm's exposure score compiles the number of terrorism incidents over the preceding 12 months in a given country for each country in which the firm has business operations or investment activity. Determination of which countries in which firms have foreign operations is hand-collected from various issues of Uniworld Business Publications' *Directory of American Firms Operating in Foreign Countries* (1994-2005). Terrorism event counts are drawn from two sources: (a) *Patterns of Global Terrorism* Report, prepared by Office of the Coordinator for Counterterrorism of the U.S. Department of State in compliance with a mandate from U.S. Congress (Title 22 of the U.S. Code, Section 2656f(a)); and (b) Terrorism.com's "Terrorist Attack Archives," which is compiled by the Terrorism Research Center, Inc., an independent institute dedicated to research of terrorism. I construct monthly returns for portfolios constructed from these scores and use performance-attribution time-series regression analysis to assess return and systematic risk differences between high and low terrorism risk exposure portfolios. What I find is that the terrorism-related risk exposure portfolio would have earned, on average, an economically small and statistically insignificant 17.8 basis point premium per month with a modest tracking error of 2.8% per month. There exist interesting differences in systematic exposures to market risks, and factors related to size, market-to-book ratios and momentum. Notwithstanding a battery of robustness tests based on subperiod analysis, alternative attribution model specifications, and different terrorism-score and portfolio-construction approaches, it appears that terrorism is not a systematic risk that is priced in financial markets.

One interesting by-product of our analysis is that it also allows us to assess the investment performance of so-called "terror-free" portfolios. Such investment portfolios screen out individual holdings of companies that are determined to have operations in countries that have been designated by U.S. Department of State as state sponsors of terrorism (such as, North Korea, Syria, Sudan, and Iran). These portfolios have become very popular recently. In 2006, the Missouri Investment Trust, in

conjunction with the Conflict Securities Advisory Group ([www.conflictsecurities.com](http://www.conflictsecurities.com)) became the first public agency in the U.S. to implement a terror-free investment fund.<sup>2</sup> Indeed, today, over 20 U.S. states (including California, Florida, Ohio, Connecticut, Illinois and New Jersey) have legislation passed, proposed or pending to force their public pension funds to divest holdings from Iran or Sudan.<sup>3</sup> As a result, I evaluate a second strategy of a “terror-free” portfolio of S&P 500 stocks in which stocks are screened if they have operations in the State Department’s list of designated countries. Typically, there are only 15 to 20 U.S. stocks so identified in a given year, though they are large in market capitalization and draw large investment weights in our value-weighted strategy. However, I find that the terror-free portfolio earns a very small -1.6 basis point discount per month with a trivial tracking error of 21 basis points per month relative to the S&P 500 index.<sup>4</sup>

The remainder of the paper is organized as follows. Section 1 describes the data sources and the construction of the terrorism exposures scores. Summary statistics of the stocks with highest and lowest scores are discussed in Section 2 and the performance-attribution regression analysis is presented in Section 3. Section 4 provides an assessment of the terror-free investment strategy. Conclusions, including a discussion of many of the limitations of my approach, follow.

## **1. Data Sources and the Construction of Terrorism Exposure Scores**

### **A. Data**

We use three major data sources in this study: one database determines in which countries that constituent stocks in the S&P 500 index have foreign operations, and two different databases count the number of terrorism incidents in a given country each year for each country in which the firm of interest has operations.

Uniworld Business Publications ([www.uniworldbp.com](http://www.uniworldbp.com)) has compiled their *Directory of American Firms Operating in Foreign Countries* since 1955. The most recent edition (18<sup>th</sup>, 2005) has been compiled electronically, but each of the early editions we use (from the 13<sup>th</sup> edition, 1994) are available only in print form. The directory includes over 4,000 U.S. firms with 63,000 foreign subsidiaries and affiliates in 191 countries. Each entry contains the company’s U.S. address, contact information, principal product/service and lists the foreign countries in which it has a branch, subsidiary or affiliate with specific contact information, in turn. The primary sources of information are “questionnaires complete by the U.S. parent company, annual reports and other publications. Direct telephone and fax contact is used for verification and clarification. Each firm in the previous edition is sent an announcement of a new revised edition along with its former entry to provide current data. If no

response is received and if there is no evidence that the firm has gone out of business, the previous entry is carried forward.” No doubt this approach induces a risk of survivorship bias and there may be a bias toward larger stocks for which higher quality data arises, but it is the most comprehensive source that we know. The biggest deficiency of the data is that it does not try to quantify the extent of the operations in terms of the assets in place or the fraction of foreign sales. For some firms, it will be sizeable in terms of property, plant and equipment, but, for many others, operations may simply reflect an address for a sales office in the country. This will naturally create much noise in the scores and rankings. Typically, about two-thirds of our S&P 500 index constituents had a record in Uniworld; some overseas-based constituents, such as Schlumberger (Netherland Antilles), Royal Dutch Shell (U.K., Netherlands), would have no records and the remainder were deemed domestic companies.

We obtain terrorist attack counts by country and by year from the annual “Patterns of Global Terrorism” report prepared by the Counterterrorism Office of the U.S. Department of State. This report is available since 1995 and includes a chronological appendix that lists details of all terrorist incidents classified by the Department of State. This report is submitted in compliance with Title 22 of the U.S. Code, Section 2656f(a), which requires the department to provide Congress a full and complete annual report on terrorism. One advantage of the data is that Counterterrorism Office provides an explicit definition of “terrorism” in terms of politically-motivated violence “perpetrated against noncombatant targets by subnational groups or clandestine agents” including another appendix listing these groups by name and home country each year. We collected the information from all the appendices available (1995-2003). There are, in total, 1,057 acts of terrorism listed.<sup>5</sup>

The Terrorism Research Center, an independent institute dedicated to the research of terrorism, information warfare and security and founded in 1996, has created its own website ([www.terrorism.com](http://www.terrorism.com)) in which it offers electronically a searchable “Terrorist Attack Archive” with dates of attacks, country and a description of the terrorist incident. (They also provide intelligence reports, including country, terrorist group and even counter terrorism profiles.) We obtain data on attacks that killed at least one person and sort by year and country. We seek out this alternative source for terrorism counts to check the robustness of the Counterterrorism office appendices. Terrorism.com’s archive is better because it has a longer time series back to 1946, but it is restrictive in what is defined to be an attack by human deaths. In fact, we count a total of 1,268 incidents from 1995 to 2005.

The most recent S&P 500 components, including additions and deletions, were extracted from the Standard & Poor website from 2000 and it is supplemented back to 1994 from a list of “S&P 500 Additions and Deletions 1976-2000” available from Jeff Wurgler at New York University

(<http://pages.stern.nyu.edu/~jwurgler/>). The exclusive focus on the S&P 500 as our investment universe is, of course, an arbitrary choice. I recognize the trade-off of the benefit of a well-known, easily-investible investment strategy with the most actively-traded stocks in the U.S. against the cost of possibly inadequate dispersion in the resulting terrorism exposure scores. (The terror-free strategy will also be hampered by this choice, as many of the targeted stocks on the Department of State's "black-list" of firms in designated terrorist-sponsoring countries are domiciled outside the U.S.)

#### B. Construction of Terrorism Exposure Scores

The terrorism exposure scores are computed for each of the stocks in the S&P 500 index constituent list each year. The scores sum the number of terrorism incidents in a country for each country in which the firm has operations. Determination of which countries in which firms have foreign operations is from Uniworld's directory. Terrorism event counts are from either the Department of State's Counterterrorism Office report or Terrorism.com's terrorist attack archives. I conduct all of the analysis that follows using the "raw" scores as well as "adjusted" scores in which the raw score is deflated by the number of countries in which the company operates. The adjustment is made in order to control for the possibility that the terrorism exposure scores simply manifest themselves as scores for multi-nationality. That is, stocks will be ranked according to not just whether they have foreign operations in countries with higher levels of terrorist activity but also whether they have strategically chosen foreign operations in those countries relative to other firms which strategically choose to avoid them.

The terrorism exposure scores are known before portfolio construction takes place. For the monthly returns of the stocks that are sorted into portfolios for year  $t$ , the terrorism counts used in the scores for ranking purposes are drawn from year  $t-1$  and whether the firm has foreign operations in a given country is drawn from Uniworld's directory based on the pre-existing edition (years  $t-1$  or  $t-2$ , as the directories are published almost biannually). The stocks are re-sorted once a year based on these scores as at the end of each calendar year. If firms are added to the S&P 500 index during a calendar year, I do not compute their scores nor include them in the portfolios until the end of that calendar year for portfolios for the next year. If firms are deleted from the S&P 500 index during a calendar year, they are dropped from the portfolios in that month and the portfolio is rebalanced accordingly. The portfolios are value-weighted and are rebalanced each month using end of month market capitalizations.

Figure 1 presents the distribution of terrorism events over the entire period of analysis by country of attack for both the Department of State data and Terrorism.com data. The country with the largest number of incidents using the Department of State data is India (279, 26% of total), followed by Colombia (103, 10%), Israel (54, 5%), Yemen (53, 5%) and Angola (30, 3%). Terrorism.com's highest

count occurs in Iraq (300, 23%), followed by India (184, 14%), Israel (100, 8%), Afghanistan (83, 7%) and Colombia (70, 6%). Note that the State Department data extends only through 2003 and does not include 2004-2005 for which Terrorism.com's archives shows many incidents in Afghanistan and Iraq (in fact, comprising 347 of the 656 incidents in those years). That these are predominantly emerging economies is not surprising given findings in Krueger and Laitin (2003) and Krueger and Maleckova (2003) that the origins of terrorist activity exist in countries that suffer political oppression and underdeveloped economies. There is considerable consistency in the distribution of incident counts across countries in these two different sources. Figure 2 illustrates how the count of the number of terrorism events has evolved over the past 12 years. Terrorism.com's count averages around or below 50 per year until 2000 after which it increases exponentially to 400 incidents in 2005. The State Department count rises from 1995 and peaks in 1999 and 2003 again with a modest decline in between those peak years.

Table 1 presents summary statistics of the terrorism exposure scores across firms and years. Panel A reports distributional statistics for the raw and adjusted scores using the Terrorism.com attack counts and Panel B reports the same using the State Department counts. In each panel, we report statistics on the number of firms in the S&P 500 lists each year for which there is some record in Uniworld of foreign operations, the number for which there are no records because the constituents are foreign domiciled and the remaining number which we designate as domestic firms. Note that terrorism scores of the firms with records of foreign operations may still be zero in count as no terrorist attacks may have taken place in those countries. Typically, there are between 300 and 400 companies in the S&P 500 list for which there is a record of foreign operations. The average raw scores are clearly increasing over time with the overall level of terrorist activity (Figure 2). The scores in both panels average around 3 in 1994-1995 and rise to as high as 30 in 2003-2005. The correlation in any given year of the scores based on the two sources averages around 0.90. The cross-sectional dispersion in the scores across firms also rises over time (coefficient of variation exceeds one). The maximum scores by the end of the sample period are as high as 302 for the Terrorism.com scores and 133 for the State Department scores. More interesting, perhaps, are the adjusted scores which control for the degree of multi-nationality and focus on the strategic choice of firms in which to locate foreign operations by level of terrorist activity. The companies with the highest raw scores typically have listed foreign operations in 20 different countries, while those with lowest raw scores have operations in less than ten. As a result, the adjusted scores average about one-tenth the magnitude, ranging from 0.20 in 1994-1995 to 1.20 in 2003-2005. The correlations between the raw and adjusted scores (using either count data source) in any given year average around 0.55. There still appears

to be considerable cross-sectional variation in the adjusted scores (coefficient of variation well over one) – a critical ingredient for successful portfolio sorting - and it also increases over the sample period.

I list the names of the firms with the highest terrorism exposure scores (top 10, adjusted scores only) by select years (1995, 1999 and 2003) in Table 2. There is considerable correlation – though not perfect - in the top-10 names for the two panels and especially in the recent years. Several names, many highly recognizable, with high adjusted scores repeat across years, including Alltel, Deluxe Corp., Cendant, and Qualcomm. Some of the scores may be misleading. Alltel, for example, has operations listed in three foreign countries: U.K., Hong Kong and India; its high score clearly stems from the exposure of its Indian operations. As noted above, Uniworld does not furnish data on the scope of operations, but 10-K, 10-Q, 8-K SEC filings and media reports suggest it is considerable.<sup>6</sup> Sigma Aldrich, a biotechnology and chemicals firm, operates primarily in India and Israel with units also in Brazil and China, their focus countries (see their December 31, 2006 10-K/A filing). There is no obvious industry concentration among these top firms; the whole portfolios are similarly dispersed.

## **2. Summary Statistics**

We will construct portfolios of stocks sorted by terrorism exposure scores. We will do so in a number of ways, but focus initially on quintile portfolios. That is, among the stocks in the S&P 500 each year with a record of foreign operations (usually two-thirds of the sample), we will sort them from highest to lowest and construct value-weighted portfolios of the top (bottom) 20% of stocks. We will also construct value-weighted portfolios of the remaining domestic stocks.

Table 3 furnishes preliminary descriptive statistics on various financial and accounting measures (averaged across firm-years) of firms in the quintile of firms with the highest and lowest terrorism exposure scores (adjusted) using the U.S. Department of State data on the count of terrorism incidents. I also report statistics for domestic firms for which no record of foreign operations exist in Uniworld. The financial and accounting measures are obtained from the Center for Research on Security Prices monthly files and S&P Compustat. Detailed data definitions and their sources are reported in the appendix. We report distributional statistics across firms and years for the following variables: log market capitalization, book-to-market ratio, the price level, earnings-to-price ratio, dividend yield, common shares traded in millions of shares per year, Tobin's  $q$ , or the ratio of market value of assets to its book value, the number of countries in which firms have foreign operations, the compounded gross returns for preceding months  $t-12$  to  $t-1$ , and the standard deviation of the monthly returns in the preceding year. We also present results of two-sided t-tests of differences of means between the highest and lowest scoring groups,

between the highest scoring group and domestic stocks and, finally, between the lowest scoring group and domestic stocks.

The firms with the highest terrorism scores are larger in market capitalization, have lower book-to-market ratios (0.41 versus 0.54), higher Tobin's  $q$  ratios (2.39 versus 1.80) and are much more actively traded (657 millions shares versus 413 million shares) than either the stocks with low terrorism scores or the domestic stocks. They are larger and have a growth-orientation. It is more difficult to discern the value-growth "tilt" using the earnings or dividend yield ratios, which are not significantly different. As noted earlier, the highest scoring stocks are still more multi-national than the others, even though the sorting takes place on the basis of adjusted scores. The highest scoring stocks operate in 21 countries, on average, and range up to as high as 58 countries, while the lowest scoring stocks have operations in 4.5 countries and reach a maximum of 31. Finally, there is no difference across the three groups of stocks by recent year's compounded return (a proxy for stock price momentum) or by the recent year's unconditional volatility.

The most important lesson from this preliminary analysis of the attributes and profiles of these stocks is that we need to control for size, value and (though less so) momentum in any multi-factor model we use in our performance attribution analysis. Though we have argued that there is no obvious industry concentration, we may need to control for different market risk exposures according to changing macroeconomic conditions. We perform performance attribution analysis using an alternative multi-factor specification for this purpose.

### **3. Performance-Attribution Analysis of Terrorism-Related Investing**

In this section, I assess the relationship between terrorism exposure scores and subsequent returns. Table 4 presents summary statistics on the monthly returns of value-weighted portfolios of stocks with the highest and lowest quintile of terrorism exposure scores from the previous year. I report the mean, standard deviation, skewness and kurtosis coefficients of these portfolio returns, as well as for the domestic portfolios. Results are reported separately in Panel A using the Terrorism.com incident counts and in Panel B using the State Department counts and, also separately, based on raw and adjusted scores. Finally, in each experiment, we report returns statistics for "hedge portfolios" that take a long position in the portfolio of stocks with the highest terrorism exposure scores and a short position in that with the lowest scores or in that of the domestic portfolio. The statistics are reported for the longer period of analysis (1995-2006, 144 monthly returns) with the Terrorism.com data and a shorter period (1996-2004, 108 monthly returns) with the State Department data.

The first important result is that the returns on the portfolios with the highest terrorism exposure scores are, on average, lower than those with the lowest scores and the domestic portfolio. These findings are consistent in both panels and for those based on raw or adjusted scores. For example, using the Terrorism.com counts in adjusted form, the average return over the period is 0.78% per month for the highest terrorism score portfolio and 0.92% for the lowest terrorism portfolio. This is a difference of 14 basis points per month, or 1.69% on an annualized basis. It is statistically indistinguishable from zero (t-statistic of 0.79, not reported) and economically small. This is the smallest return spread reported, but even the difference of 31 basis points per month (3.78% annualized) using the raw scores and the State Department data (Panel B) is a small one. The volatility of the highest terrorism score portfolio is modestly lower than that of the lowest score portfolio or the domestic portfolio. I offer additional evidence that the returns are somewhat more negatively skewed and less fat-tailed (lower positive excess kurtosis).

One possible explanation for the absence of large performance differences in returns is that they mask differences in the riskiness or “style” of the different portfolios. Researchers have identified several equity characteristics that explain differences in realized returns. In addition to differences in exposure to the market factor (“beta”), a firm’s market capitalization, book-to-market ratio (or other “value characteristics) and immediate past returns (“momentum”) have all been shown to significantly forecast future returns.<sup>7</sup> Table 3 has shown that the stocks in the highest and lowest terrorism score portfolios do have different such characteristics. It may be that the highest terrorism score portfolio returns are higher than those of the lowest terrorism score portfolio once these style differences are taken into account. That is, small, value firms may have significantly outperformed large, growth stocks over the 1995-2006 period to such an extent that their preponderance in the lowest terrorism score portfolio may have overwhelmed the returns performance,

Several methods have been developed to account for these style differences in a performance-attribution system. I employ one method here and use another in some robustness tests. The multi-factor model of Fama and French (1993) extended by Carhart (1997) is estimated by:

$$R_{it} - r_{ft} = \alpha_i + \beta_i [R_{mt} - r_{ft}] + s_i \text{SMB}_t + h_i \text{HML}_t + m_i \text{MOM}_t + \varepsilon_{it},$$

where  $R_{it}$ ,  $R_{mt}$ , and  $r_{ft}$  are the monthly returns to some asset  $i$ , the value-weighted market portfolio and the risk-free rate, respectively, the terms  $\text{SMB}_t$  (small minus big),  $\text{HML}_t$  (high minus low) and  $\text{MOM}_t$  (winner minus losers momentum) are monthly returns on zero-investment factor portfolios designed to capture

size, book-to-market and momentum effects, respectively. There is on-going debate about whether these factors proxy for risk, but I take no position other than to employ this model for performance attribution by firm characteristics. I do interpret  $\alpha_i$ , the estimated intercept coefficient in this time-series regression, as the abnormal return in excess of what could have been achieved by passive investments in the four factor portfolios.<sup>8</sup>

Table 4 presents the results of this performance-attribution regression analysis. The coefficient estimates are reported with the associated p-values (below) as well as the adjusted  $R^2$  and residual standard error of the regression ( $\sigma_\varepsilon$ ). I interpret  $\sigma_\varepsilon$  as one form of portfolio “tracking error” relative to a combination portfolio of the four factor portfolios. The results show that the portfolios of stocks with the highest terrorism scores have statistically significantly lower market risks ( $\beta_i$ ), significantly larger (in absolute terms) negative SMB coefficients ( $s_i$ ), significantly larger (in absolute terms) negative HML coefficients ( $h_i$ ) than corresponding portfolios with lowest terrorism scores or domestic portfolios. There is no reliable difference among the portfolios in MOM coefficients. These findings confirm our hunches in Table 3 that the highest terrorism score stocks are larger, growth-oriented stocks. These differences are most easily noted for the “spread” portfolios that take a long position in the highest score portfolio and a short position in the lowest score portfolio or the domestic portfolio: for the raw scores using Terrorism.com counts (Panel A), the market risks are smaller by 0.15, the SMB coefficients larger negative (large-cap) “tilts” of 0.14 and the HML coefficients larger negative (growth-oriented) tilts of 0.29. The magnitudes of these differences among coefficients are smaller using the adjusted than raw exposure scores. It is difficult to see any differences in inferences between Panels A and B.

The most important outcome of this attribution analysis is that the abnormal returns,  $\alpha_i$ , are now larger for the highest terrorism score portfolios in almost every experiment. However, once again, there is no precision to this statement as these differences in abnormal returns are statistically indistinguishable from zero. The largest difference in abnormal returns arises in Panel B using raw scores of 0.16% per month (1.97% annualized) between the highest and lowest terrorism score portfolios. It is interesting to note the differences in tracking error among the terrorism portfolios. Typically, they are larger for the domestic or lowest terrorism score portfolios. For the “spread” portfolios that might actively seek to capitalize on the differences in terrorism scores, the abnormal returns - already small in magnitude - are overwhelmed by the large tracking error ranging between 2.54% and 2.82% on a monthly basis (annualized 8.79% to 9.77%).

Table 5 reports on several variations of the performance attribution results. Specifically, I provide additional robustness tests using alternative portfolio construction methods, different subperiod analysis

(both in Panel A) and an alternative model specification (Panel B). The first two experiments construct spread portfolios based on the highest and lowest terrorism scores using the more-extreme, top and bottom deciles (10%) and less-extreme, top and bottom triciles (30%). For these tests, I consider only adjusted scores and only using the State Department data. I also report the spread portfolio returns/regressions relative to the domestic portfolio. The basic inferences about the insignificance of the abnormal returns to the spread portfolios do not change from Table 4, although the  $\alpha_i$  estimates become negative (-0.14%) with the decile portfolios and larger positive (0.28%) with the tricile portfolios compared with those earlier. The findings that the high terrorism score portfolios have lower market risk exposures (negative spread portfolio  $\beta_i$ ) and a stronger growth orientation (negative spread portfolio  $h_i$  coefficients on HML) continue to be robust. There are still no significant differences by size exposure ( $c_i$  coefficient) or momentum ( $m_i$ ). As expected, the level of tracking error associated with the spread portfolio based on more-extreme terrorism exposure scores is higher (4.02% per month for deciles versus 2.34% per month for triciles).

A second experiment (also shown in Panel A) repeats the results for the high/low terrorism score spread portfolios (again, based on quintiles), but now for two arbitrary subperiods (1996-2000 and 2001-2004). I am interested in finding out whether there is the possibility of parameter instability over time that may affect the inferences from the performance attribution, although I recognize that even greater imprecision is likely with shorter subperiods. The overall inferences about the insignificance of the abnormal returns again do not change from Table 4. However, the lower market risk exposures appear to be concentrated in the earlier period, while the growth orientation (negative spread portfolio  $h_i$ ) is significant only in the second period. The tracking error is larger in the first subperiod.

The third robustness experiment I consider is that of an alternative model specification from that of Fama and French (1993) and Carhart (1997) above. Instead of using a multi-factor model with factors based on firm-level fundamentals, I propose a single-factor market model, but one that allows market risk exposures to vary over time with macroeconomic conditions (Ferson and Schadt, 1996; Lewellen and Nagel, 2006). The model is estimated by:

$$R_{it} - r_{ft} = \alpha_i + \beta_i' [R_{mt} - r_{ft}] \underline{Z}_{t-1} + \varepsilon_{it},$$

where  $R_{it}$ ,  $R_{mt}$ , and  $r_{ft}$  are as before, the  $\alpha_i$  is still interpreted as an abnormal return, but now the market risk exposure coefficient is a vector of coefficients,  $\beta_i$ , associated with a vector of predetermined (previous month) macroeconomic variables as instruments,  $\underline{Z}_{t-1}$ . ( $\underline{Z}_{t-1}$  also includes a constant for which

the coefficient is the unconditional  $\beta_i$  as in Table 4.) The macroeconomic variables I use are the monthly growth rate in industrial production, unexpected inflation, trade-weighted exchange rate changes, oil price changes, and changes in the term spread (long-term Treasury Bond yields less short-term Treasury Bill yields) and default premium (corporate bond yields for bonds rated by Moody's at Baa or lower less long-term Treasury Bond yields). Most of these series are obtained from the Federal Reserve Bank of St. Louis or Board of Governors of the Federal Reserve System websites and their construction is detailed in the appendix. The macroeconomic series are demeaned using the full sample period in order to interpret their respective coefficients as differences relative to the unconditional  $\beta_i$ . In other words, I ask whether the market risk exposures for portfolios of stocks with high or low terrorism scores are higher or lower than average when the economy is growing or slowing, when the U.S. dollar depreciates or appreciates, and whether the yield curve is sloped or flat, and so on.

Panel B of Table 5 presents results for this alternative specification in the same format as those of Table 4, but only for terrorism scores using the State Department data. The stocks with high terrorism scores have a lower unconditional market risk ( $\beta_i$  of 0.92 versus 0.98 for stocks with low terrorism scores, but this difference is not statistically significant. As before, there are no statistically significant differences in abnormal returns between the two portfolios. What is interesting is that there are significant differences in how the market risk exposures of the two portfolios respond to innovations in inflation, default risk premiums and especially oil price shocks. In the case of oil prices, the low terrorism score stocks experience significant increases in market risk exposures around oil price shocks ( $\beta_i$  coefficient associated with  $\text{Mkt-Rf} \times \text{OIL}_{t-1}$  of 0.13), whereas that is not the case for high terrorism score portfolios. A number of the companies with high terrorism stocks are oil producers in regions with political instability and are naturally "hedged" against oil price shocks. At least that is one hypothesis consistent with this result.

What do we know, so far? The performance attribution analysis indicates that there are no differences in abnormal returns for portfolios of stocks with high versus low terrorism exposures. The result is robust to different calculations of terrorism exposure scores, different portfolio construction methods, different subperiods and even different multi-factor models for benchmarking. There are, however, some interesting differences in terms of systematic risk exposures relative to fundamental factors, in their variation over time, and in terms of tracking error relative to passive investments relative to the market and various known factor portfolios.

#### 4. Terror-Free Investing

‘Terror-free’ investment portfolios that screen out individual holdings of companies that are determined to have operations in countries that have been designated by U.S. Department of State as state sponsors of terrorism (such as, North Korea, Syria, Sudan, and Iran) have become popular recently. Over 20 U.S. states (including California, Florida, Ohio, Connecticut, Illinois and New Jersey) have legislation passed, proposed or pending to mandate their public pension funds to divest holdings from Iran or Sudan, in particular. In this section, I ask whether there are any risk or return consequences to screening out such holdings. My investment universe is the S&P 500 and I identify the list of stocks that have foreign operations – according to Uniworld - in one of the countries that the Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003) has designated as state sponsors or terrorism. By year of designation, the countries are: Cuba (1982 to present), Iran (1984 to present), Iraq (1990-2004, removed in September 2004), Libya (1979-2006, rescinded status in May 2006), North Korea (1988 to present), Sudan (1993 to present) and Syria (1979 to present).

At the outset, it is important to point out that the S&P 500 universe is not ideal for this experiment as there are, in fact, very few U.S. companies that do business in those countries. Independent of my efforts below, the U.S. Securities and Exchange Commission’s decision to post on their investor information website (<http://www.sec.gov/edgar/edgartlistfilings.htm>) a list of companies that they deem to do business in one of these countries also confirms very few U.S. companies do business there. Several are not included in the S&P 500 constituent list for one reason or another, but, among those that are in both my and their list, they have large market capitalizations and command a sizeable weight in the index. Table 6 provides lists of the names, for select years, in the S&P 500 that Uniworld reports as having operations in one of the designated terrorist-sponsoring countries. Many of these companies are well recognized names. A number of them appear continuously in each year of the sample period.

Table 7 reports the results of a performance-attribution analysis for the terror-free portfolio. The horizon is the 132 months from 1996 to 2006. I compare the regression results with the full, unconstrained S&P 500 portfolio as well as the domestic portfolio, familiar from analysis in Tables 4 and 5, which includes only those stocks which have no recorded foreign operations according to Uniworld. The terror-free portfolio has a very similar market risk exposure to that of the S&P and the domestic portfolio ( $\beta_i$  of 0.96 versus 0.97); the same is true for the coefficients on the momentum ( $m_i$ ) factor. The only systematic exposures that are significantly different are those for the terror-free portfolio relative to the S&P 500 for size, in which its negative coefficient, or large-cap bias, is smaller in absolute terms ( $s_i$  is -0.18 versus -0.20) and relative to the domestic portfolio for value-growth, in which its positive

coefficient, or value-bias, is smaller in absolute terms ( $h_i$  is 0.04 versus 0.24). The abnormal returns are positive, but statistically indistinguishable from zero and, based on the spread portfolio returns of the terror-free portfolio relative to each of the other benchmarks, statistically indistinguishable from each other. The spread portfolio between the terror-free and S&P 500 does uncover a small tracking error judged relative to the market and these three other passive investment portfolios of only 25 basis points per month or 87 basis points on an annualized basis.

## **5. Conclusions**

This study evaluates the risks and returns to two different terrorism-related investment strategies in the U.S. markets over the period from 1994-2006. The first strategy evaluates a sub-portfolio of S&P 500 stocks constructed on the basis of a terrorism-related risk scores that measure their operations in countries with a high incidence of terrorism-related activity. The second strategy evaluates a ‘terror-free’ sub-portfolio of S&P 500 stocks in which stocks are screened if they have operations in countries that the U.S. Department of State has designated as state-sponsors of terrorism. I find that the terrorism-related risk exposure portfolio would have earned, on average, an economically small and statistically insignificant 16 basis point premium per month with a tracking error of 2.8% per month and that of the terror-free portfolio an even smaller -1.6 basis point premium per month with a modest tracking error of 25 basis points per month. Return attribution analysis using a multi-factor model uncovers interesting differences in systematic exposures to market risks, and fundamental factors related to size, market-to-book ratios and momentum. The results are robust to different subperiods, different portfolio construction methods and even different multi-factor models.

These results contribute importantly to on-going research on terrorism and stock markets as they complement the existing findings of economically-significant stock price declines associated with terrorist attacks. The stock market consequences to such events are short-term, transitory and idiosyncratic in nature. Longer-term investment strategies formulated based on the ex ante exposures of stocks to terrorist activity show no statistically or economically significant consequences. The results also contribute to the current public policy debate about the costs of implementing ‘terror-free’ investing strategies. There do not appear to be any economically meaningful differences in the risk or return attributes of portfolios of stocks screened on the basis of their foreign operations in countries designated as state sponsors of terrorism.

It is tempting to conclude that terrorism-related investing is much ado about nothing. But cautions abound for such a pre-mature verdict. One concern about my effort to now is that the terrorism exposure

scores rely on just an identification of foreign operations for U.S. firms in a country with terrorism activity with no detailed information about the breadth and scope of the operations in terms of property, plant, equipment or even human capital assets at risk of loss. Some firms, in fact, may have no assets in place not do business directly, but sell their products in such countries through independent non-U.S. distributors. Moreover, though our source on foreign operations, Uniworld, gives an address for the location of a local office for the U.S. firm in the country of interest, there is no information about where the primary assets are geographically located, and especially in relation to where the primary sources of terrorism activity are located within the country.

Another concern, especially for an assessment of ‘terror-free’ investing strategies, stems from our exclusive focus on U.S. markets. There are simply few U.S. firms that do business in countries designated as state-sponsors of terrorism. It is not surprising as the U.S. Department of the Treasury’s Office of Foreign Assets Control administers laws and regulations that impose penalties on U.S. citizens and business entities for conducting business in such countries. Whether such laws apply to foreign firms is not clear and the fact is that many public and private pension funds and endowments have global investment mandates that include stocks of foreign firms that do business in these designated countries, possibly with significant investment weights. Broadening the analysis to incorporate a global investment strategy may render different results and conclusions.

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**Table 1**  
**Summary Statistics of Terrorism Exposure Scores Across Years**

The terrorism exposure scores are computed for each of the stocks in the S&P 500 index each year. The most recent components, including additions and deletions, were extracted from the Standard & Poor website from 2000 and it is supplemented from a list of “S&P 500 Additions and Deletions 1976-2000” available from Jeff Wurgler (<http://pages.stern.nyu.edu/~jwurgler/>). The exposure scores for each stock sum the number of terrorism incidents in a country for each country in which the firm has operations. Determination of which countries in which firms have foreign operations is from Uniworld Business Publications *Directory of American Firms Operating in Foreign Countries* (various issues, 1994-2005). Terrorism event counts are from two sources: (a) *Patterns of Global Terrorism* Report, Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003) in Panel A; and (b) Terrorism.com’s “Terrorist Attack Archives” including any attacks killing at least one person, in Panel B. Each score is reported in “raw” form and “adjusted” form in which the raw score is deflated by the number of countries in which the company operates. The data appendix provides more details.

**Panel A: Terrorism.com Exposure Scores**

	# of Firms Operating Abroad	# of Unlisted Foreign Firms	# of Domestic Firms	Average	Median	Standard Deviation	Max	Skewness	Average	Median	Standard Deviation	Max	Skewness
				Raw Scores					Adjusted Scores				
1994	320	8	172	1.93	1.00	2.31	16.00	2.01	0.12	0.11	0.20	3.00	9.70
1995	310	11	179	4.12	3.00	4.25	27.00	1.60	0.26	0.25	0.21	2.00	2.28
1996	317	10	173	6.29	5.00	6.33	28.00	1.38	0.41	0.38	0.33	4.00	4.34
1997	308	10	182	2.00	1.00	2.79	13.00	1.84	0.10	0.08	0.20	3.00	9.90
1998	299	8	193	5.92	1.00	9.48	36.00	1.59	0.29	0.14	0.39	2.71	2.34
1999	334	9	157	8.82	1.00	11.42	40.00	0.92	0.38	0.13	0.67	6.33	5.05
2000	314	8	178	13.53	4.00	16.37	62.00	0.93	0.62	0.33	0.92	8.33	4.48
2001	370	9	121	13.43	2.00	16.68	60.00	0.91	0.59	0.18	1.21	17.00	8.26
2002	368	3	129	26.27	8.00	32.60	120.00	1.03	1.09	0.61	1.91	28.00	8.48
2003	385	2	113	24.39	14.00	30.23	113.00	1.12	1.04	0.69	1.39	16.00	4.64
2004	379	2	119	23.78	10.00	29.91	126.00	1.33	1.04	0.91	1.19	15.00	5.30
2005	380	2	118	29.68	17.00	37.21	302.00	1.96	1.16	1.07	1.21	17.00	6.12

**Panel B: U.S. Department of State Terrorism Exposure Scores**

	# of Firms Operating Abroad	# of Unlisted Foreign Firms	# of Domestic Firms	Average	Median	Standard Deviation	Max	Skewness	Average	Median	Standard Deviation	Max	Skewness
				Raw Scores					Adjusted Scores				
1995	310	11	179	3.81	3.00	4.48	16.00	1.17	0.22	0.17	0.25	2.00	2.73
1996	317	10	173	12.91	10.00	12.58	52.00	1.15	0.86	0.80	0.61	5.00	1.98
1997	308	10	182	8.84	2.00	13.06	56.00	1.64	0.39	0.20	0.50	3.67	2.70
1998	299	8	193	15.72	3.00	23.03	92.00	1.54	0.76	0.40	0.85	5.43	1.86
1999	334	9	157	32.15	14.50	34.87	148.00	1.06	1.50	1.25	1.35	12.67	3.82
2000	314	8	178	22.47	5.00	28.21	120.00	1.05	0.99	0.45	1.56	14.67	5.03
2001	370	9	121	22.80	6.50	28.20	107.00	0.93	0.91	0.49	1.37	12.67	4.55
2002	368	3	129	33.89	6.00	41.97	130.00	0.83	1.44	0.63	2.26	22.67	5.72
2003	385	2	113	29.36	6.00	37.14	133.00	1.03	1.28	0.61	2.02	20.00	5.37

**Table 2**  
**Firms with Highest Terrorism Exposure Scores By Year**

The terrorism exposure scores are computed for each of the stocks in the S&P 500 index each year. The most recent components, including additions and deletions, were extracted from the Standard & Poor website from 2000 and it is supplemented from a list of “S&P 500 Additions and Deletions 1976-2000” available from Jeff Wurgler (<http://pages.stern.nyu.edu/~jwurgler/>). The exposure scores for each stock sum the number of terrorism incidents in a country for each country in which the firm has operations. Determination of which countries in which firms have foreign operations is from Uniworld Business Publications *Directory of American Firms Operating in Foreign Countries* (various issues, 1994-2005). Terrorism event counts are from two sources: (a) *Patterns of Global Terrorism* Report, Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003) in Panel A; and (b) Terrorism.com’s “Terrorist Attack Archives” including any attacks killing at least one person, in Panel B. We present names of the stocks with the highest scores in “raw” form and “adjusted” form in which the raw score is deflated by the number of countries in which the company operates. The data appendix provides more details.

Panel A: Terrorism.com Exposure Scores

Company Name	Adjusted	Company Name	Adjusted	Company Name	Adjusted
<b>1995</b>		<b>1999</b>		<b>2003</b>	
SIGMA ALDRICH CORP	2.00	ALLTEL CORP	6.33	SIGMA ALDRICH CORP	16.00
HONEYWELL	1.00	DELUXE CORP	6.33	ALLTEL CORP	8.33
BEVERLY ENTERPRISES	1.00	FIRST UNION CORP.	3.17	DELUXE CORP	8.33
KAUFMAN AND BROAD HOME	1.00	CENDANT CORP	3.00	BIOMET INC	8.00
ECOLAB INC	1.00	QUALCOMM INC	2.71	LINCOLN NATIONAL CORP IN	6.00
COMPUTER SCIENCES CORP	0.80	US WEST	2.18	CENTERPOINT ENERGY INC	5.43
GENERAL MILLS INC	0.71	PENNEY J C CO INC	2.11	CENDANT CORP	4.78
KNIGHT RIDDER INC	0.71	MCGRAW HILL COS INC	1.82	QUALCOMM INC	4.21
TELEDYNE INC	0.67	CUMMINGS ENGINE CO INC	1.73	OFFICE DEPOT INC	3.88
USF&G CORP.	0.67	EMERSON ELECTRIC CO	1.58	HERSHEY CO	3.60

Panel B: U.S. Department of State Terrorism Exposure Scores

Company Name	Adjusted	Company Name	Adjusted	Company Name	Adjusted
<b>1995</b>		<b>1999</b>		<b>2003</b>	
ECOLAB INC	2.00	ALLTEL CORP	12.67	SIGMA ALDRICH CORP	20.00
LOUISIANA LAND & EXPLORATION	1.75	DELUXE CORP	12.67	ALLTEL CORP	17.67
HELMERICH & PAYNE	1.17	FIRST UNION CORP.	6.50	DELUXE CORP	17.67
CAPITAL CITIES/ABC	1.11	QUALCOMM INC	5.14	BIOMET INC	10.00
US AIRWAYS CORP INC	1.00	CENDANT CORP	5.13	CENTERPOINT ENERGY INC	8.43
ALCO STANDARD CORP	1.00	CUMMINGS ENGINE CO INC	4.80	CENDANT CORP	6.00
BALL CORP	1.00	CHEVRON CORP	4.50	PUBLIC SERVICE ENTERPRISE	5.90
GIDDINGS & LEWIS	1.00	OWENS-ILLINOIS	4.24	ANALOG DEVICES INC	5.57
ORACLE CORP	0.83	US WEST	4.18	QUALCOMM INC	5.43
ALLERGAN INC	0.83	PENNEY J C CO INC	4.11	PENNEY J C CO INC	5.40
ARMCO INC	0.78	MCGRAW HILL COS INC	4.00	VERIZON COMMUNICATIONS	5.25

**Table 3**  
**Summary Statistics of Firm Attributes**

This table gives descriptive statistics on various financial and accounting measures (averaged across firm-years) of firms in the quintile of firms with the highest and lowest terrorism exposure scores using the U.S. Department of State data on the count of terrorism incidents. The exposure scores for each stock sum the number of terrorism incidents in a country for each country in which the firm has operations. Determination of which countries in which firms have foreign operations is from Uniworld Business Publications *Directory of American Firms Operating in Foreign Countries* (various issues, 1994-2005). Terrorism event counts are from the *Patterns of Global Terrorism Report*, Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003). We also report statistics for domestic firms for which no record of foreign operations exist in Uniworld Business Publications. The financial and accounting measures are obtained from the Center for Research on Security Prices monthly files and S&P Compustat. Data definitions are given in the appendix. B/M is book-to-market ratio, E/P, earnings-to-price ratio, D/P, dividend yield, # of countries with ops is the number of countries in which firms have foreign operations, Prev year return is the compounded gross returns for preceding months t-12 to t-1, Std dev(Prev Yr) is the standard deviation of the monthly returns in the preceding year. <sup>\*</sup>, <sup>\*\*</sup>, <sup>\*\*\*</sup> indicate statistically significant differences at 10%, 5% and 1%, respectively, between highest and least exposed firms based on two-sided t-test of means; <sup>#</sup>, <sup>##</sup>, <sup>###</sup> are same between most exposed and domestic firms; <sup>+</sup>, <sup>++</sup>, <sup>+++</sup> are same between least exposed and domestic firms.

Panel A: Most Exposed Firms By Adjusted Score (599 observations)

	Mean	Median	Std Dev	Quantiles			
				1%	25%	75%	99%
LN(Market Cap)	9.07 <sup>***,###</sup>	8.99	1.35	6.34	8.06	10.03	12.01
B/M	0.41 <sup>***,###</sup>	0.35	0.36	(0.33)	0.20	0.53	1.67
Price	47.36 <sup>***,###</sup>	42.16	38.10	4.31	27.86	59.63	143.08
E/P	0.007 <sup>###</sup>	0.041	0.277	(0.713)	0.019	0.064	0.150
D/P	0.018 <sup>**</sup>	0.016	0.016	-	0.005	0.027	0.068
Common Shares Traded	629 <sup>***,###</sup>	229	1,413	23	106	637	8,307
Tobin's q	2.386 <sup>***,###</sup>	1.675	2.148	0.854	1.246	2.631	11.160
# of Countries with Ops	21.0 <sup>***,###</sup>	21.5	14.0	-	8.3	30.0	58.1
Prev Year Return	20.3% <sup>*</sup>	13.5%	115.3%	-65.4%	-12.3%	37.5%	190.0%
Std Dev (Prev Yr)	10.5%	9.2%	6.0%	3.6%	6.6%	12.3%	33.4%

Panel B: Least Exposed Firms By Adjusted Score (594 observations)

	Mean	Median	Std Dev	Quantiles			
				1%	25%	75%	99%
LN(Market Cap)	8.74 <sup>+++</sup>	8.72	1.10	6.51	8.03	9.44	11.63
B/M	0.54	0.44	0.37	0.03	0.27	0.72	1.58
Price	41.35	38.67	22.68	4.58	26.00	53.64	107.68
E/P	0.024 <sup>+</sup>	0.049	0.172	(0.408)	0.027	0.069	0.147
D/P	0.016 <sup>+++</sup>	0.015	0.014	-	0.005	0.024	0.060
Common Shares Traded	413	185	834	10	92	410	3,161
Tobin's q	1.799 <sup>+++</sup>	1.348	1.172	0.846	1.092	2.074	6.255
# of Countries with Ops	4.5	3.0	5.6	-	1.0	5.0	31.1
Prev Year Return	12.5% <sup>++</sup>	9.2%	41.7%	-69.3%	-12.4%	33.3%	136.8%
Std Dev (Prev Yr)	10.1%	8.8%	5.4%	3.5%	6.5%	12.0%	29.9%

Panel C: Domestic Firms (1,385 observations)

	Mean	Median	Std Dev	Quantiles			
				1%	25%	75%	99%
LN(Market Cap)	8.73	8.74	1.00	6.27	8.13	9.30	11.10
B/M	0.52	0.45	0.41	0.03	0.24	0.71	1.82
Price	40.84	36.38	24.80	5.47	25.92	50.28	114.92
E/P	0.037	0.050	0.128	(0.363)	0.029	0.071	0.181
D/P	0.019	0.012	0.020	-	0.000	0.030	0.075
Common Shares Traded	365	182	557	14	96	392	2,910
Tobin's q	2.048	1.334	1.929	0.814	1.090	21.60	10.187
# of Countries with Ops							
Prev Year Return	19.5%	15.3%	45.8%	-76.9%	-8.0%	41.8%	161.4%
Std Dev (Prev Yr)	10.1%	8.4%	6.2%	3.1%	6.1%	12.2%	34.8%

**Table 4**  
**Performance Attribution Regressions for Terrorism Exposure Portfolios**

Four factor regressions of value-weighted monthly returns for portfolios of firms sorted by terrorism exposure scores. The firms are sorted into the quintiles with the highest (Top 20%) and lowest (Bottom 20%) terrorism exposure scores. The exposure scores for each stock sum the number of terrorism incidents in a country for each country in which the firm has operations. Determination of which countries in which firms have foreign operations is from Uniworld Business Publications *Directory of American Firms Operating in Foreign Countries* (various issues, 1994-2005). Terrorism event counts are from two sources: (a) *Patterns of Global Terrorism* Report, Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003) in Panel A; and (b) Terrorism.com's "Terrorist Attack Archives" including any attacks killing at least one person, in Panel B. We present names of the stocks with the highest scores in "raw" form and "adjusted" form in which the raw score is deflated by the number of countries in which the company operates. The explanatory variables are market risk premium (Mkt-Rf), and the returns to zero-investment portfolios designed to capture size (SMB), book-to-market (HML) and momentum (MOM) effects, respectively. Consult Fama and French (1993) and Carhart (1997) on the construction of these factors. They are obtained from Kenneth French's website at ([http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)). The data appendix provides more details. Coefficients and associated p-values (below) are reported with adjusted R<sup>2</sup>, standard error of the regression ( $\sigma_\epsilon$ ) and summary statistics for the excess returns. \*, \*\*, \*\*\* indicate statistically significant differences at 10%, 5% and 1%, respectively.

Panel A: Terrorism.com Exposure Scores (1995-2006, 144 monthly returns)

	Raw Exposure Scores					Adjusted Exposure Scores			
	Domestic Portfolio	Least Exposed	Highest Exposed	Highest – Least	Highest – Domestic	Least Exposed	Highest Exposed	Highest – Least	Highest – Domestic
A	0.16%	0.24%	0.23%*	-0.01%	0.07%	0.22%	0.17%	-0.05%	0.01%
	0.28	0.21	0.06	0.98	0.77	0.25	0.32	0.85	0.98
Mkt-Rf	0.97***	1.07***	0.93***	-0.15**	-0.04	1.07***	1.02***	-0.04	0.05
	0.00	0.00	0.00	0.02	0.49	0.00	0.00	0.52	0.37
SMB	-0.14***	-0.20***	-0.33***	-0.14**	-0.19***	-0.19***	-0.29***	-0.10	-0.15**
	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.13	0.01
HML	0.23***	0.13**	-0.17***	-0.29***	-0.40***	0.13*	-0.01	-0.14	-0.24***
	0.00	0.04	0.00	0.00	0.00	0.05	0.86	0.12	0.00
MOM	0.005	-0.102***	-0.029	0.073*	-0.03	-0.11***	-0.07**	0.04	-0.07*
	0.87	0.00	0.20	0.09	0.43	0.00	0.03	0.41	0.07
R <sup>2</sup>	0.83	0.82	0.91	0.10	0.16	0.82	0.85	0.00	0.13
$\sigma_\epsilon$	1.67%	2.07%	1.35%	2.56%	2.54%	2.09%	1.90%	2.82%	2.47%
Mean	0.94%	0.94%	0.72%	-0.22%	-0.22%	0.92%	0.78%	-0.14%	-0.16%
Std. Dev.	4.11%	4.95%	4.46%	2.70%	2.77%	4.95%	4.83%	2.82%	2.65%
Skewness	(0.56)	(0.29)	(0.46)	(0.46)	(0.48)	(0.27)	(0.50)	(0.35)	0.18
Kurtosis	0.98	1.47	0.39	0.47	3.89	1.47	0.94	0.46	1.52

Panel B: U.S. Department of State Terrorism Exposure Scores (1996-2004, 108 monthly returns)

	Raw Exposure Scores					Adjusted Exposure Scores			
	Domestic Portfolio	Least Exposed	Highest Exposed	Highest – Least	Highest – Domestic	Least Exposed	Highest Exposed	Highest – Least	Highest – Domestic
$\alpha$	0.25%	0.16%	0.33%**	0.16%	0.07%	0.24%	0.25%	0.01%	0.01%
	0.17	0.45	0.03	0.54	0.78	0.28	0.16	0.96	0.99
Mkt-Rf	0.99***	1.10***	0.88***	-0.22***	-0.11*	1.05***	0.94***	-0.12*	-0.05
	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.09	0.38
SMB	-0.14***	-0.17***	-0.33***	-0.15**	-0.19***	-0.18***	-0.22***	-0.02	-0.07
	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.75	0.26
HML	0.27***	0.38***	-0.13***	-0.52***	-0.40***	0.36***	0.07	-0.30***	-0.20***
	0.00	0.00	0.01	0.00	0.00	0.00	0.26	0.00	0.01
MOM	0.02	0.04	-0.04*	-0.09*	-0.06	-0.01	-0.04	-0.03	-0.06
	0.58	0.25	0.07	0.06	0.16	0.85	0.19	0.49	0.18
R <sup>2</sup>	0.86	0.84	0.91	0.27	0.21	0.81	0.87	0.11	0.08
$\sigma_\epsilon$	1.81%	2.08%	1.39%	2.54%	2.48%	2.23%	1.84%	2.77%	2.37%
Mean	0.91%	0.94%	0.63%	-0.31%	-0.28%	0.94%	0.72%	-0.22%	-0.19%
Std. Dev.	4.59%	5.03%	4.76%	2.98%	2.72%	4.98%	4.74%	2.87%	2.49%
Skewness	(0.52)	(0.29)	(0.43)	(0.36)	(0.29)	(0.28)	(0.53)	(0.52)	0.09
Kurtosis	0.39	0.75	-0.01	0.46	2.27	0.69	0.22	1.59	0.89

**Table 5**  
**Performance Attribution Regressions for Terrorism Exposure Portfolios:**  
**Robustness to Alternative Portfolio Construction, Model Specification and Subperiods**

Four factor regressions of value-weighted monthly returns for portfolios of firms sorted by terrorism exposure scores. The firms are sorted into the deciles (Top/Bottom 10%), quintiles (Top/Bottom 20%, default if not indicated otherwise) and triciles (Top/Bottom 30%) with the highest and lowest terrorism exposure scores. The exposure scores for each stock sum the number of terrorism incidents in a country for each country in which the firm has operations. Determination of which countries in which firms have foreign operations is from Uniworld Business Publications *Directory of American Firms Operating in Foreign Countries* (various issues, 1994-2005). Terrorism event counts are from *Patterns of Global Terrorism* Report, Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003). Portfolios are constructed from scores in “adjusted” form in which the raw score is deflated by the number of countries in which the company operates. The explanatory variables in Panel A are as in Tables 3 and 4. The model in Panel B includes the market risk premium (Mkt-Rf) with interactions with one-month lagged macroeconomic variables (demeaned over period), including industrial production (IND), unexpected inflation (UI), trade-weighted exchange rate (FX), oil prices (OIL), term spread (TERM) and default premium (DEF). The data appendix provides more details. Coefficients and associated p-values (below) are reported with adjusted R<sup>2</sup>, standard error of the regression ( $\sigma_\epsilon$ ) and summary statistics for the excess returns. \*, \*\*, \*\*\*, indicate statistically significant differences at 10%, 5% and 1%, respectively.

Panel A: Alternative Portfolio Construction and Subperiods

	Highest – Least By Decile	Highest – Domestic By Decile	Highest – Least By Tricile	Highest – Domestic By Tricile	Highest – Least 1996-2000	Highest – Domestic 1996-2000	Highest – Least 2001-2004	Highest – Domestic 2001-2004
$\alpha$	-0.14%	-0.32%	0.28%	0.02%	0.22%	0.23%	-0.12%	0.03%
	0.73	0.34	0.23	0.93	0.49	0.51	0.72	0.95
Mkt-Rf	-0.22**	-0.00	-0.15***	-0.08	-0.22**	-0.15*	0.06	0.11
	0.03	0.97	0.01	0.22	0.05	0.07	0.52	0.30
SMB	-0.01	-0.07	-0.11*	-0.10	0.01	-0.02	-0.13	-0.29**
	0.95	0.37	0.06	0.15	0.94	0.82	0.21	0.02
HML	-0.35***	-0.27***	-0.27***	-0.32***	-0.25	-0.24**	-0.35***	-0.12
	0.01	0.01	0.00	0.00	0.13	0.05	0.00	0.35
MOM	-0.08	-0.09	0.06	-0.02	0.04	-0.06	0.03	-0.05
	0.25	0.11	0.13	0.69	0.68	0.42	0.76	0.56
R <sup>2</sup>	0.09	0.11	0.15	0.13	0.21	0.09	0.27	0.21
$\sigma_\epsilon$	4.02%	3.29%	2.34%	2.59%	3.12%	2.39%	2.11%	2.40%
Mean	-0.49%	-0.54%	0.09%	-0.21%	0.03%	-0.05%	-0.53%	-0.36%
Std. Dev.	4.07%	3.44%	2.45%	2.75%	3.23%	2.42%	2.35%	2.59%
Skewness	-0.18	0.34	-0.28	-0.24	-0.31	-0.17	-1.56	0.38
Kurtosis	0.85	1.99	0.08	2.29	0.14	1.08	6.44	1.04

Panel B: Alternative Model Specification

	Raw Exposure Scores					Adjusted Exposure Scores			
	Domestic Portfolio	Least Exposed	Highest Exposed	Highest – Least	Highest – Domestic	Least Exposed	Highest Exposed	Highest – Least	Highest – Domestic
$\alpha$	0.30%	0.29%	0.09%	-0.20%	-0.21%	0.26%	0.14%	-0.12%	-0.16%
	0.15	0.24	0.64	0.49	0.44	0.29	0.47	0.65	0.51
Mkt-Rf	0.89***	0.98***	0.92***	-0.08	0.02	0.97***	0.92***	-0.05	0.03
	0.00	0.00	0.00	0.24	0.80	0.00	0.00	0.45	0.61
Mkt-Rf × IND <sub>t-1</sub>	-0.02	-0.03	0.04	0.07	0.06	-0.04	0.05	0.09*	0.07
	0.72	0.60	0.30	0.24	0.29	0.41	0.22	0.10	0.20
Mkt-Rf × UI <sub>t-1</sub>	0.05	-0.11*	0.00	0.12	-0.05	-0.12*	0.08	0.19***	0.03
	0.39	0.09	0.94	0.13	0.54	0.10	0.17	0.01	0.70
Mkt-Rf × FX <sub>t-1</sub>	-0.07	-0.06	0.06	0.11*	0.13**	-0.07	0.02	0.09	0.09*
	0.11	0.30	0.20	0.07	0.03	0.23	0.66	0.15	0.09
Mkt-Rf × OIL <sub>t-1</sub>	-0.09*	0.16***	0.04	-0.11*	0.13**	0.13**	-0.00	-0.13**	0.09
	0.05	0.00	0.32	0.07	0.03	0.03	0.95	0.04	0.11
Mkt-Rf × TERM <sub>t</sub>	0.14**	0.23***	0.04	-0.19***	-0.10	0.31***	0.18***	-0.12	0.04
	0.02	0.00	0.44	0.01	0.18	0.00	0.00	0.11	0.53
Mkt-Rf × DEF <sub>t-1</sub>	-0.16***	-0.22***	-0.00	0.21***	0.15**	-0.25***	-0.06	0.19***	0.10
	0.00	0.00	0.94	0.00	0.03	0.00	0.28	0.01	0.11
R <sup>2</sup>	0.81	0.78	0.83	0.16	0.14	0.76	0.84	0.16	0.12
$\sigma_\epsilon$	2.11%	2.51%	1.98%	2.76%	2.70%	2.49%	1.99%	2.66%	2.40%

**Table 6**  
**S&P 500 Firms with Operations in Countries Designated State Sponsors of Terrorism**

S&P 500 companies operating in countries designated by the U.S. Department of State's Counterterrorism Office as State Sponsors of Terrorism are listed by year. The most recent S&P 500 components, including additions and deletions, were extracted from the Standard & Poor website from 2000 and it is supplemented from a list of "S&P 500 Additions and Deletions 1976-2000" available from Jeff Wurgler (<http://pages.stern.nyu.edu/~jwurgler/>). Determination of which countries in which firms have foreign operations is from Uniworld Business Publications *Directory of American Firms Operating in Foreign Countries* (various issues, 1994-2005). The Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003) has designated the following countries as state sponsors or terrorism (by year or full sample): Cuba (1996-2005), Iran (1997-2005), Iraq (1998-2004), Libya (1999-2005), North Korea (2000-2005), Sudan (2001-2005) and Syria (2002-2005).

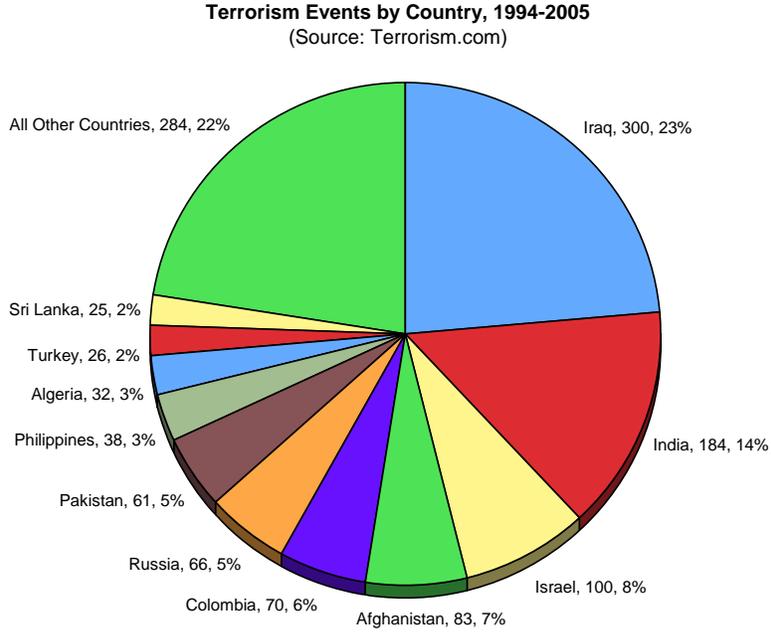
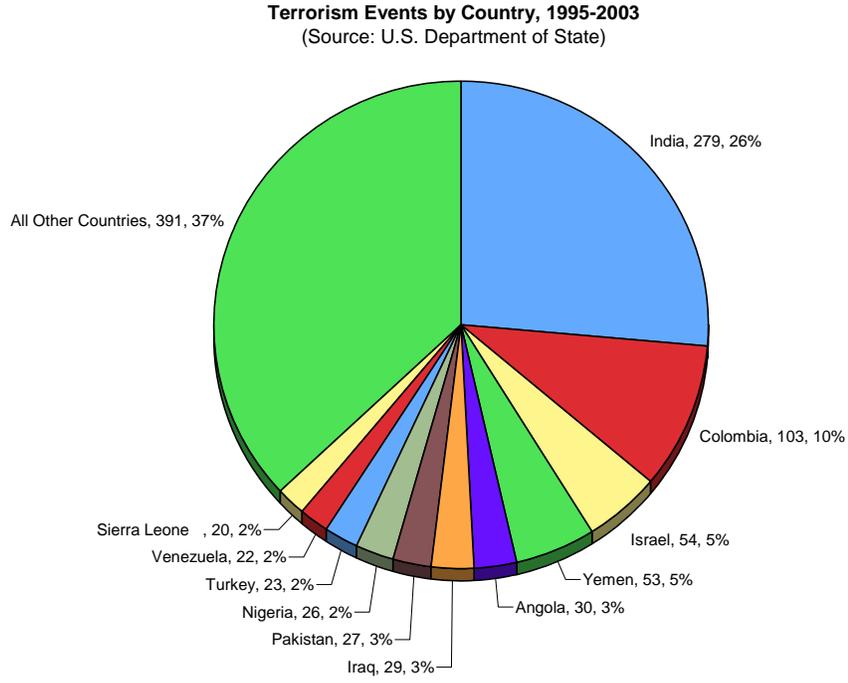
Company Name	Company Name	Company Name
<b>1996</b>	<b>2000</b>	<b>2006</b>
BAKER HUGHES INC	BAKER HUGHES INC	CITIGROUP INC
C I G N A CORP	CHASE MANHATTAN CORP	DOVER CORP
CHASE MANHATTAN (OLD)	CITIGROUP INC	GENERAL ELECTRIC CO
CITICORP INC	GENERAL ELECTRIC CO	HILTON HOTELS CORP
I T T INDUSTRIES INC IND	HILTON HOTELS CORP	INTERNATIONAL BUSINESS MACHS
ITT CORP	INTERNATIONAL BUSINESS MACHS	JPMORGAN CHASE & CO
MOBIL CORP	USX-MARATHON GROUP	STARWOOD HOTELS & REST WLDWD
USX-MARATHON GROUP	XEROX CORP	XEROX CORP
WESTERN ATLAS		

**Table 7**  
**Performance Attribution Regressions for “Terror-free” Portfolios**

Four factor regressions of value-weighted monthly returns for portfolios with and without (“terror-free”) S&P 500 companies operating in countries designated by the U.S. Department of State’s Counterterrorism Office as State Sponsors of Terrorism are listed by year. The most recent S&P 500 components, including additions and deletions, were extracted from the Standard & Poor website from 2000 and it is supplemented from a list of “S&P 500 Additions and Deletions 1976-2000” available from Jeff Wurgler (<http://pages.stern.nyu.edu/~jwurgler/>). Determination of which countries in which firms have foreign operations is from Uniworld Business Publications *Directory of American Firms Operating in Foreign Countries* (various issues, 1994-2005). The Office of the Coordinator for Counterterrorism of the U.S. Department of State (various reports, 1995-2003) has designated the following countries as state sponsors or terrorism (by year or full sample): Cuba (1996-2005), Iran (1997-2005), Iraq (1998-2004), Libya (1999-2005), North Korea (2000-2005), Sudan (2001-2005) and Syria (2002-2005). The explanatory variables are market risk premium (Mkt-Rf), and the returns to zero-investment portfolios designed to capture size (SMB), book-to-market (HML) and momentum (MOM) effects, respectively. Consult Fama and French (1993) and Carhart (1997) on the construction of these factors. They are obtained from Kenneth French’s website at Dartmouth College ([http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html)). The data appendix provides more details. Coefficients and associated p-values (below) are reported with adjusted R<sup>2</sup>, standard error of the regression ( $\sigma_\epsilon$ ) and summary statistics for the excess returns. \*, \*\*, \*\*\*, indicate statistically significant differences at 10%, 5% and 1%, respectively. The regressions include 132 months (1996-2006).

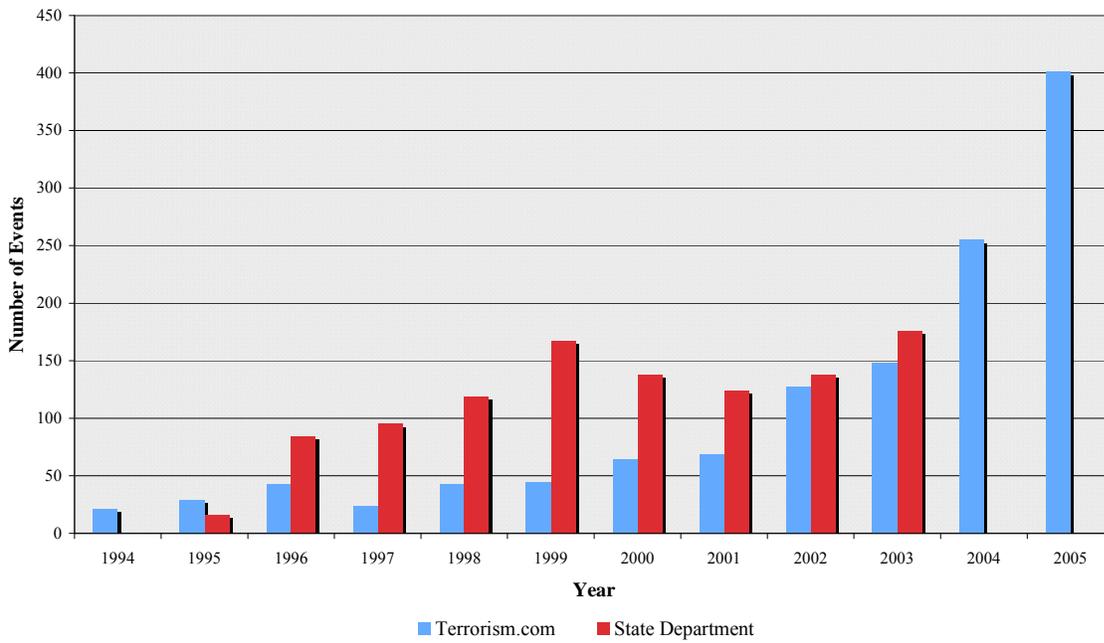
	Domestic Portfolio	Full S&P 500	Terror-Free Portfolio	Terror-Free – Domestic	Terror-Free – Full S&P
$\alpha$	0.17%	0.08%	0.06%	-0.11%	-0.02%
	0.28	0.11	0.26	0.49	0.43
Mkt-Rf	0.97***	0.97***	0.96***	-0.01	-0.00
	0.00	0.00	0.00	0.92	0.52
SMB	-0.14***	-0.20***	-0.18***	-0.05	0.02**
	0.00	0.00	0.00	0.30	0.03
HML	0.24***	0.02	0.04**	-0.20***	0.02*
	0.00	0.15	0.05	0.00	0.06
MOM	0.01	-0.04***	-0.02***	-0.03	0.02***
	0.83	0.00	0.01	0.29	0.00
R <sup>2</sup>	0.84	0.99	0.98	0.14	0.18
$\sigma_\epsilon$	1.71%	0.48%	0.65%	1.77%	0.25%
Mean	0.83%	0.57%	0.57%	-0.25%	0.00%
Std. Dev.	4.24%	4.29%	4.24%	1.87%	0.23%
Skewness	-0.49	-0.55	-0.57	-1.09	0.04
Kurtosis	0.77	0.64	0.56	7.29	2.17

**Figure 1**  
**Terrorism Events by Country**



**Figure 2**  
**Terrorism Events by Year**

**Number of Terrorism Events by Year**  
(Source: Terrorism.com; U.S. Department of State)



## Appendix Data Summary

### Standard & Poor 500 Components Data

Source: Standard and Poor's web site ([www.standardandpoor.com](http://www.standardandpoor.com)) and "S&P 500 Additions and deletions 1976-2000", Jeffrey Wurgler's web site (<http://pages.stern.nyu.edu/~jwurgler/>).

Description: The most recent components, additions and deletions, and name and ticker changes of the S&P 500 Index were extracted from the website going back until January of 2000. From this data a list of the S&P 500 component companies could be created on any date. This data was then manually matched with CRSP permanent numbers for each of the companies and combined with Jeffrey Wurgler's, "S&P 500 Additions and Deletions 1976-2000" data.

### Return Data

Source: CRSP Monthly Stock Database

Description: Monthly stock returns, shares outstanding, closing price on the last trading day of each month, and delisting returns were obtained from this database for each company that was a member of the S&P 500 Index as of the last day of the previous year for each year from 1996 through 2006.

### Terrorism Event Data

Source: Patterns of Global Terrorism, 1995-2003, Office of the Coordinator for Counterterrorism, U.S. Department of State.

Description: The data is taken from these reports are from the "Chronology of Significant Terrorist Incidents" section of the reports. The data lists the date, country, and a description of the terrorist incident.

Source: Terrorism.com, Terrorist Attack Archives  
(<http://www.terrorism.com/modules.php?op=modload&name=Attacks&file=index>)

Description: Data taken from this site listed date, country and a description of the attack. Only attacks killing at least one person were included. The data were then sorted by year and by country.

### State Sponsors of Terrorism Data

Source: Country Reports on Terrorism, 2005-2006, Office of the Coordinator for Counterterrorism, U.S. Department of State.

Description: Data taken from "Chapter 6—State Sponsors of Terror Overview" of these reports. "State Sponsors of Terror" are defined as "countries determined by the Secretary of State to have repeatedly provided support for acts of international terrorism are designated pursuant to three laws: section 6(j) of the Export Administration Act, section 40 of the Arms Export Control Act, and section 620A of the Foreign Assistance Act. Taken together, the four main categories of sanctions resulting from designation under these authorities include restrictions on U.S. foreign assistance; a ban on defense exports and sales; certain controls over exports of dual use items; and miscellaneous financial and other restrictions."

Source: Patterns of Global Terrorism, 1995-2003, Office of the Coordinator for Counterterrorism, U.S. Department of State.

Description: Data is the same as above.

### Foreign Operations of American Companies Data

Source: *Directory of American Firms Operating in Foreign Countries*. (18<sup>th</sup> ed). (2005). New York, NY: Uniworld Business Publications, Inc.

*Directory of American Firms Operating in Foreign Countries*. (17<sup>th</sup> ed). (2003). New York, NY: Uniworld Business Publications, Inc.

*Directory of American Firms Operating in Foreign Countries*. (16<sup>th</sup> ed). (2001). New York, NY: Uniworld Business Publications, Inc.

*Directory of American Firms Operating in Foreign Countries*. (15<sup>th</sup> ed). (1999). New York, NY: Uniworld Business Publications, Inc.

*Directory of American Firms Operating in Foreign Countries*. (14<sup>th</sup> ed). (1996). New York, NY: Uniworld Business Publications, Inc.

*Directory of American Firms Operating in Foreign Countries*. (13<sup>th</sup> ed). (1994). New York, NY: Uniworld Business Publications, Inc.

Description: “Lists in alphabetical order, American firms that have operations abroad. Each entry contains the company’s U.S. address, telephone/fax, and principal product/service, and lists the foreign countries in which it has a branch, subsidiary, or affiliate.”  
“The primary sources of information were questionnaires completed by the U.S. parent company, annual reports and other publications. Direct telephone and fax contact was used extensively for verification and clarification. Each firm in the previous edition was sent an announcement of the new revised edition, along with a printout of its former entry, and asked to provide current data. It was stated that if we did not receive a response from a firm, and there was no evidence that it had gone out of business, the previous entry would be carried forward to this edition.”

### **Fama-French Research Portfolios and Factors Data**

Source: [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html) (Kenneth French’s web site at Dartmouth College).

Description: The Fama-French Portfolios are constructed from the intersections of two portfolios formed on size, as measured by market equity (ME), and three portfolios using the ratio of book equity to market equity (BE/ME) as a proxy for value. Returns from these portfolios are used to construct the Fama-French Factors. Eugene Fama and Kenneth French showed that their factors capture a statistically significant fraction of the variation in stock returns (see "Common Risk Factors in the Returns on Stocks and Bonds", Journal of Financial Economics 33, 1993).

### **Firm Fundamental Data**

Source: Center for Research in Security Prices (CRSP) and S&P Compustat

Descriptions:

**Ln(Market Cap)** is the natural log of the market capitalization in millions of dollars at year end

**B/M** is the ratio of book value of common equity (Compustat item 60) plus deferred taxes (Compustat item 74) to market value of common equity

**Price** is the price level at year end (Compustat item 24)

**E/P** is the ratio of earnings (Compustat item 18) to market capitalization measured at year end

**D/P** is the ratio of dividends in the previous fiscal year (Compustat item 21) to market capitalization measured at year end

**Common shares traded** is the average number of shares traded per year (Compustat item 28) in millions

**Total assets** is Compustat item 6 in millions of dollars

**Total debt** is total long-term debt (Compustat item 9) in millions of dollars

**BV of common equity** is book value of common equity (Compustat item 60) plus deferred taxes (Compustat item 74)

**Tobin’s q** is the market value of assets divided by the book value of common equity (Compustat item 60) plus deferred taxes (Compustat item 74) where the market value of assets is book value of assets (Compustat item 6) plus market value of common stock less sum of book value of common stock

**# of countries with ops** is the number of countries in which the firm has foreign operations from Uniworld Business Publications (various issues)

**Prev year return** is the compounded return from month t-12 to t-1

**St Dev(Prev Yr)** is the standard deviation of monthly returns over t-12 to t-1

### **Risk-Free Return Rate Data**

Source: [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html) (Kenneth French’s web site at Dartmouth College).

Description: Ibbotson One Month Treasury Bill Rate

## Macroeconomic Factors Data

Source: Federal Reserve Bank of St. Louis web site, online economic data, (<http://research.stlouisfed.org/fred2/>).

Descriptions:

### CPI

Series ID: CPIAUCSL  
Source(s): U.S. Department of Labor: Bureau of Labor Statistics  
Release: Consumer Price Index  
Units: Index 1982-84=100  
Frequency: Monthly  
Seasonal Adjustment: Seasonally Adjusted  
Observation Range: 1947-01-01 to 2007-03-01  
Last Updated: 2007-04-17  
Notes: Handbook of Methods - ([http://stats.bls.gov:80/pub/hom/homch17\\_itc.htm](http://stats.bls.gov:80/pub/hom/homch17_itc.htm))  
Understanding the CPI: FAQs (<http://stats.bls.gov:80/cpi/cpifaq.htm>)

### Industrial Production

Series: INDPRO, Industrial Production Index  
Series ID: INDPRO  
Source(s): Board of Governors of the Federal Reserve System  
Release: G.17 Industrial Production and Capacity Utilization  
Units: Index 2002=100  
Frequency: Monthly  
Seasonal Adjustment: Seasonally Adjusted  
Observation Range: 1921-01-01 to 2007-03-01  
Last Updated: 2007-04-17

### Expected Inflation

Series: MICH, University of Michigan Inflation Expectation  
Series ID: MICH  
Source(s): Survey Research Center: University of Michigan  
Release: Surveys of Consumers  
Units: Percent  
Frequency: Monthly  
Seasonal Adjustment: Not Applicable  
Observation Range: 1978-01-01 to 2007-03-01  
Last Updated: 2007-04-13  
Notes: Median expected price change next 12 months, Survey of Consumers. The most recent value is not shown due to an agreement with the source.

### Oil Price

Series: OILPRICE, Spot Oil Price: West Texas Intermediate  
Series ID: OILPRICE  
Source(s): Dow Jones & Company  
Release: Wall Street Journal  
Units: Dollars per Barrel  
Frequency: Monthly  
Seasonal Adjustment: Not Applicable  
Observation Range: 1946-01-01 to 2007-03-01  
Last Updated: 2007-04-02  
Notes: Prior to 1982 equals the posted price.

### Exchange Rate

Series: TWEXBMTH, Trade Weighted Exchange Index: Broad  
Series ID: TWEXBMTH

Source(s): Board of Governors of the Federal Reserve System  
Release: G.5 Foreign Exchange Rates  
Units: Index January 1997=100  
Frequency: Monthly  
Seasonal Adjustment: Not Applicable  
Observation Range: 1973-01-01 to 2007-03-01  
Last Updated: 2007-04-02  
Notes: Averages of daily figures. A weighted average of the foreign exchange value of the U.S. dollar against the currencies of a broad group of major U.S. trading partners.  
Broad currency index includes the Euro Area, Canada, Japan, Mexico, China, United Kingdom, Taiwan, Korea, Singapore, Hong Kong, Malaysia, Brazil, Switzerland, Thailand, Philippines, Australia, Indonesia, India, Israel, Saudi Arabia, Russia, Sweden, Argentina, Venezuela, Chile and Colombia.  
For more information about trade-weighted indexes see  
[http://www.federalreserve.gov/pubs/bulletin/2005/winter05\\_index.pdf](http://www.federalreserve.gov/pubs/bulletin/2005/winter05_index.pdf)

**Term Spread (10YR – 2YR)**

Series: GS10, 10-Year Treasury Constant Maturity Rate  
Series ID: GS10  
Source(s): Board of Governors of the Federal Reserve System  
Release: H.15 Selected Interest Rates  
Units: Percent  
Frequency: Monthly  
Seasonal Adjustment: Not Applicable  
Observation Range: 1953-04-01 to 2007-03-01  
Last Updated: 2007-04-03  
Notes: Averages of business days. For further information regarding treasury constant maturity data, please refer to  
<http://www.federalreserve.gov/releases/h15/current/h15.pdf> and  
<http://www.treas.gov/offices/domestic-finance/debt-management/interest-rate/index.html>

Series: GS2, 2-Year Treasury Constant Maturity Rate  
Series ID: GS2  
Source(s): Board of Governors of the Federal Reserve System  
Release: H.15 Selected Interest Rates  
Units: Percent  
Frequency: Monthly  
Seasonal Adjustment: Not Applicable  
Observation Range: 1976-06-01 to 2007-03-01  
Last Updated: 2007-04-03  
Notes: Averages of business days. For further information regarding treasury constant maturity data, please refer to  
<http://www.federalreserve.gov/releases/h15/current/h15.pdf> and  
<http://www.treas.gov/offices/domestic-finance/debt-management/interest-rate/index.html>

**Quality Spread (Baa - 10YR)**

Series: BAA, Moody's Seasoned Baa Corporate Bond Yield  
Series ID: BAA  
Source(s): Board of Governors of the Federal Reserve System  
Release: H.15 Selected Interest Rates  
Units: Percent  
Frequency: Monthly

Seasonal Adjustment: Not Applicable  
Observation Range: 1919-01-01 to 2007-03-01  
Last Updated: 2007-04-03  
Notes: Averages of daily data. Reprinted with permission from Moody's Investors  
Services. Copyright.  
Other Formats: Daily, Weekly

## End Notes

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<sup>1</sup> Scholars in economics, sociology and political science have been actively researching for over two decades the patterns in terrorist activity over time and around the world. The earliest studies were facilitated the construction of a publicly-available chronology of international terrorist events - ITERATE (“International Terrorism: Attributes of Terrorist Events”) and International Crisis Behavior databases - compiled by Mickolus (1980) at the Inter-University Consortium for Political and Social Research at the University of Michigan. Studies that have drawn on these data include, among many others: Hamilton and Hamilton (1983), who build a social contagion model to show open societies have a harder time weakening the tendency of terrorist acts to incite further violence; Cauley and Im (1988) who use intervention analysis to study the effectiveness of different security measures to deter attacks; Enders and Sandler (1993, 2000) who use vector autoregression (VAR) models to uncover a decreasing trend in attacks in the post-Cold War period due to reduced state sponsorship of more preventative measures; and, Krueger and Laitin (2003) and Krueger and Maleckova (2003) who study potential links among terrorist activity, political oppression, economic growth and democratic institutions.

<sup>2</sup> See “Terror-Free Investing” *Wall Street Journal* (December 14, 2006), “Investors Tick the Box and Go ‘Terror-Free’” *Financial Times* (March 22, 2007), and “Missouri Treasurer’s Demand: Terror-Free Pension Funds” *Wall Street Journal* (June 14, 2007). The Conflict Securities Advisory Group (CSAG) has also created with the Roosevelt Investment Group the first terror-free mutual fund, called the Anti-Terror Multi-Cap mutual fund (Ticker: BULLX).

<sup>3</sup> See “Florida Becomes First State with Law to Divest Pension Funds from Iran, Sudan” *International Herald Tribune* (June 8, 2007), “Should States Sell Stocks to Protest Links to Iran?” *Wall Street Journal* (June 14, 2007). Most recently, the U.S. Securities and Exchange Commission, with the goal of investor protection, created a publicly-available web-based link in order to name and expose U.S. and international companies that they have determined to have operations in countries that are designated by the U.S. Department of State as state-sponsors of terrorism. See “Outrage over SEC Terrorism ‘Blacklist’” *Financial Times* (June 28, 2007) and “Bank Group Says ‘Blacklist’ Could Curtail US Listings” *Financial Times* (July 1, 2007).

<sup>4</sup> This experiment is small in scope, but it is related to the large literature on socially-responsible investing. Important contributions include, among others: Bauer, Koedijk and Otten (2005), Statman (2005), Derwall, Bauer, Guenster, and Koedijk (2005), Geczy, Stambaugh and Levin (2006), Bollen (2007), Renneboog, Horst and Zhang (2007). The performance-based analysis in this literature is clearly mixed. Two papers are even more closely related: Hong and Kacperczyk (2007) provide evidence for the effects of social norms on markets by studying ‘sin’ stocks involved with producing alcohol, tobacco and gaming and show lower institutional investor interest, higher expected returns and greater litigation risk; and, the earlier study by Teoh, Welch and Wazzan (1999), who find, by contrast, no effect of the boycott of South Africa’s apartheid regime on institutional shareholdings or stock prices.

<sup>5</sup> A number of studies use this data (e.g., Karolyi and Martell, 2007). Krueger and Laitin (2004) analyze in detail errors and problems with the statistical appendix of the Patterns of Global Terrorism report. They point to a lack of safeguards and consistent procedures in the data collection, analysis and dissemination process, with a focus to the 2003 report.

<sup>6</sup> In 1998, Alltel was awarded, as part of a consortium with Hughes Electronics and India’s Ispat Industries, a \$200 million contract to build wireless telecommunications systems (2.5 million fixed lines) for Bombay and the state of Maharashtra.

<sup>7</sup> See Banz (1981), Reinganum (1981), Fama and French (1993), and Jegadeesh and Titman (1993), among others.

<sup>8</sup> I thank Kenneth French for providing these data from his website at Dartmouth College: [http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data\\_library.html](http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html). The Fama-French Portfolios are constructed from the intersections of two portfolios formed on size, as measured by market equity (ME), and three portfolios using the ratio of book equity to market equity (BE/ME) as a proxy for value. Returns from these portfolios are used to construct the Fama-French Factors. See Fama and French (1993) for details.