

Socially responsible indexes: Composition and performance

by

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Abstract

One purpose of this study is to explore the characteristics that define socially responsible companies by comparing the content of the S&P 500 Index of conventional companies to the contents of four indexes of socially responsible companies, the Domini 400 Social Index (DS 400 Index), the Calvert Social Index, the Citizens Index, and the U.S. portion of the Dow Jones Sustainability Index. A second purpose of the study is to compare the returns of the four SRI indexes to those of the conventional S&P 500 Index, and to examine the tracking errors of the SRI indexes relative to the S&P 500 Index.

We find that SRI indexes vary in composition and social responsibility scores but the mean social scores of each is higher than that of the S&P 500 Index. Socially responsible indexes differ in the emphasis they place on social characteristics. For example the DS 400 Index is the strongest among all indexes on the environment while the Calvert Index is strongest on corporate governance.

We find that the returns of the DS 400 Index were higher than those of the S&P 500 Index during the overall May 1990 – April 2004 but not in every sub-period. In general, SRI indexes did better than the S&P 500 Index during the boom of the late 1990s but lagged it during the bust of the early 2000s.

The correlations between the returns of SRI indexes and those of the S&P 500 Index are high, ranging from 0.939 of the DJ Sustainability Index during January 1995 – April 2004 to the 0.985 of the DS 400 Index during September 1999 – April 2004. But tracking errors are substantial. For example, the expected difference between 12-month returns of the DS 400 Index and the S&P 500 Index, based on correlation and standard deviations during May 1990 – April 2004, was 2.84% and the realized mean difference was 2.49%.

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“Integrating personal values and societal concerns with investment decisions is called Socially Responsible Investing (SRI)” says the Social Investment forum (1999). But what does it mean? “Social responsibility is in the eye of the beholder,” wrote Damato (2000). She noted that two SRI indexes, the Calvert Social Index, and Citizens Index, excluded Wal-Mart but a third, the Domini 400 Social Index, included it. Damato quoted John Blanchard Jr. of the Calvert Group, saying that Calvert excluded Wal-Mart from its index because “we have a practice of excluding retailers who sell firearms.” However, while KLD, the company that assembles the Domini Index, “has some reservations about Wal-Mart’s activities, it has chosen to address them by engaging Wal-Mart management in discussions and by submitting proxy resolutions.” John Shields, the President of Citizens Funds at the time, said that while all three indexes evaluate stocks using several of the same criteria, the application of those criteria “gets down to judgment calls.”

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The characteristics of SRI

The Social Investment Forum (1999) traced the origins of socially responsible investing to religion. “In the mid-1700s, the founder of Methodism, John Wesley, emphasized the fact that the use of money was the second most important subject of New Testament teachings. As Quakers settled North America, they refused to invest in weapons and slavery.” (p. 7). However, it added that modern socially responsible investing was born in “the impassioned political climate of the 1960s,” when movements

for civil rights, women's rights, anti-war and pro-environment "served to escalate awareness around issues of social responsibility." Opposition to Apartheid in South Africa was a rallying cry that brought many into the SRI movement in the late 1970s and the movement continues to grow today as emphasis shifts to corporate governance. A 2004 Calvert advertisement says "Honesty is the best corporate strategy. At Calvert Mutual Funds, we also think it's the best financial strategy... After the corporate scandals of the past two years we think you may agree."

Investors do not agree on the boundaries of SRI. While the origins of SRI are in religion, the mainstream of today's SRI community excludes some mutual funds that follow religious principles. For example, the Social Investment Forum excludes from its list of SRI mutual funds the Amana and Timothy funds. The Amana funds follow Islamic principles, including a prohibition on interest (riba), so Amana avoids bonds and other interest bearing securities. The Timothy funds follow "Judeo-Christian principles," and Timothy presents itself as "America's first pro-life, pro-family, biblically-based mutual fund group."

Disagreement about the place of religiously conservative and socially progressive characteristics on the list of SRI characteristics is on display in the exchange between two posters on the Yahoo SRI message board. MainiacJoe (2002) emphasized religiously conservative characteristics:

The ethical concerns I have are of religiously conservative nature more than a socially progressive nature. As such, in addition to the typical alcohol, gambling and tobacco screens I am more concerned about investing in companies that are involved with abortion and pornography than those associated with nuclear power or military technology. By these guidelines the common social funds such as Domini and Calvert are indistinguishable from a broad index fund."

But marionvb (2002) responded with an emphasis on environmental concerns:

I personally am more concerned about not being able to breathe the air than whether or not someone else has an abortion.

Disagreements about the boundaries of SRI go beyond religion. Can companies that outsource jobs be included on the list of socially responsible companies? Phil Thompson (2004) does not think so. He wrote to the editor of Consumer Reports

I was disconcerted that you recommended the Vanguard Calvert Social Index fund. While this fund claims to be socially conscious, the holding your listed (Microsoft, Pfizer, Intel, and IBM) are involved in the mass exporting/offshoring of U.S. jobs. I'm not sure I see what is socially conscious about putting Americans out of work.

While Thompson wants exclude from the SRI list companies that export U.S. jobs,

Langford (1998) wants include in it companies that provide nuclear power.

I continue to be amazed at the use of the term "socially responsible" ... when applied to funds that do not invest in the nuclear power industry. Helping convert from pollution-producing coal and oil to nuclear energy is very socially responsible; in fact, this safest of all electricity-producing methods will some day produce most of our needs (as it does right now in France, South Korea, and several other countries)! It makes moral, social, and financial sense to promote, not discourage, nuclear power.

Organizations that construct SRI indexes agree on some SRI characteristics but disagree on others. KLD, which compiles the DS 400 Index, excludes from it companies that derive any revenues from the manufacture of alcoholic or tobacco products, companies that derive any revenues from the provision of gaming products or services, electric utilities with interests in nuclear power plants, and companies that derive two percent or more of sales from military weapon systems. Next, KLD evaluates companies in areas such as the environment, diversity and employee relations. Problems in one area

do not necessarily lead to the exclusion of a company from the DS 400 Index. Rather, KLD excludes from the index companies whose records, on balance, are negative.

Calvert evaluates company performance on the environment, workplace, product safety and impact, international operations and human rights, community relations and indigenous people's rights. For example, Calvert favors Starbucks because it was the first agricultural commodities company in the U.S. to develop a code of conduct for coffee plantation workers. Calvert excludes companies with interests in gambling, tobacco, and military weapons but includes companies with interests in alcohol, firearms, and nuclear power, unless such interests are substantial. So, for example, Calvert includes in its index the Darden Corporation which operates Red Lobster and Olive Garden restaurants because the alcohol portion of their revenues falls below its 20 percent cutoff proportion.

Citizens excludes from its index companies with any interests in tobacco or alcohol, companies that produce power from nuclear power plants, have material interests in the manufacture of weapons, have gambling as a main line off business, or lack diversity in the board or senior management. Citizens prefers companies with good records on corporate governance, environmental performance, human rights, diversity, employee relations and not testing on animal testing unless required by law.

The Dow Jones Sustainability Index (DJSI) is different from the other three because it uses best-in-class selection rules in its construction. The DJSI it does not exclude all companies in the tobacco, gambling, alcohol and similar industries that are excluded from the other three indexes. Rather, it includes the best companies in each industry.

The Dow Jones Sustainability Indexes comprise the leading companies from each industry in terms of a detailed set of economic, environmental and social criteria covering general as well as industry-specific sustainability trends. The DJSI includes corporate sustainability leaders who “achieve long-term shareholder value by gearing their strategies and management to harness the market’s potential for sustainability products and services while at the same time successfully reducing and avoiding sustainability costs and risks.” Such companies set “the highest standards for corporate governance and stakeholder engagement, including corporate codes of conduct and public reporting” and they manage “human resources to maintain workforce capabilities and employee satisfaction through best-in-class organizational learning and knowledge management practices and remuneration and benefit programs.” We examine the US-companies part of the DJ Sustainability Index –US. That index does not exclude companies that have interests in alcohol, gambling, tobacco or firearms but the DJ Sustainability Index-US-Ex-All index excludes all such companies.

Rating companies by SRI characteristics

KLD Research and Analysis, Inc supplies social investment research, benchmarks, compliances and consulting services. KLD’s Socrates database of company characteristics as of December 31, 2002 included more than 3,000 companies and the list of characteristics consisted of:

- Corporate Governance
- Community
- Diversity
- Employee Relations
- Environment
- Human Rights
- Product
- Alcohol

Firearms
Gambling
Military
Nuclear
Tobacco

Each characteristic has a set of indicators. For example, the diversity characteristic has eight indicators of strengths and three indicators of concerns.

STRENGTHS

1. **CEO** The company's chief executive officer is a woman or a member of a minority group.
2. **Promotion** The company has made notable progress in the promotion of women and minorities, particularly to line positions with profit-and-loss responsibilities in the corporation.
3. **Board of Directors** Women, minorities, and/or the disabled hold four seats or more (with no double counting) on the board of directors, or one-third or more of the board seats if the board numbers less than 12.
4. **Family Benefits** The company has outstanding employee benefits or other programs addressing work/family concerns, *e.g.*, childcare, elder care, or flextime.
5. **Women/Minority Contracting** The company does at least 5% of its subcontracting, or otherwise has a demonstrably strong record on purchasing or contracting, with women- and/or minority-owned businesses.
6. **Employment of the Disabled** The company has implemented innovative hiring programs, other innovative human resource programs for the disabled, or otherwise has a superior reputation as an employer of the disabled.
7. **Progressive Gay/Lesbian Policies** The company has implemented notably progressive policies toward its gay and lesbian employees. In particular, it provides benefits to the domestic partners of its employees. KLD began assigning strengths for this issue in 1995.
8. **Other Strength** The company has made noteworthy diversity achievements that do not fall under other KLD categories.

CONCERNS

1. **Controversies** The company has either paid substantial fines or civil penalties as a result of affirmative action controversies, or has otherwise been involved in major controversies related to affirmative action issues.

2. ***Non-Representation*** The company has no women on its board of directors or among its senior line managers. KLD began assigning concerns for this issue in 1993.
3. ***Other Concern*** The company has other notable diversity problems.

The overall score of a company is the sum of its scores on the indicators, where a strength adds a point and a concern subtracts a point. For example, the overall score of Lucent Technologies, Inc at the end of 2002 was seven, composed of one positive point for community, two negative points for corporate governance, seven positive points and one negative one for diversity, two positive points and a negative one for employee relations, one positive point for environment and a one positive point and one negative point for products.

Composition of SRI indexes

The four SRI indexes and the conventional S&P 500 Index share some companies but not all. For example, Harrah's Entertainment, Inc., with interests in gambling, is in the S&P 500 Index and the DJ Sustainability Index-US Index but not in Calvert, Citizens, DS 400 or DJ Sustainability Index-US-Ex-All indexes. Anheuser-Busch Corporation, a company with interests in alcohol and Boeing, a company with interests in military, is in the S&P 500 Index but in none of the socially responsible indexes. Whole Foods Market, Inc, a supermarket specializing in organic foods, is not in the S&P 500 Index but it is in the DS 400 and Calvert indexes, and Intel and Johnson & Johnson are in all indexes. The social scores of the companies in the S&P 500 Index ranged from the -10 low of FirstEnergy Corporation and Occidental Petroleum Corporation to the 8 high of Procter & Gamble Company, Intel Corporation, Fannie Mae and Xerox Corporation. The mean score of the S&P 500 Index companies was -0.26. (See Table 1)

Investors are likely to continue to debate to characteristics that make a company socially responsible, but KLD's scores highlights the observation that companies are arrayed in a range; no company is perfectly socially responsible or irresponsible. Moreover, companies with the same overall score differ in their scores by characteristics. Table 2 shows, for example, that FirstEnergy, a company with a low overall score, scored better on corporate governance than Intel or Procter & Gamble, companies with a high overall score. Similarly, Intel, a company with an overall score identical to that of Procter & Gamble, did better than Procter & Gamble, on employee relations, but lagged it on diversity.

The scores of companies in the DS 400 index were generally better than those in the S&P 500 Index, ranging from the -5 low of Donnelley (R.R.) & Sons Company and Albertson's, Inc, to the 8 high of the top four companies in the S&P 500 Index. The mean score of the DS 400 index companies was 1.24.

The S&P 500 Index included 7 companies with interests in alcohol, one in firearms, 8 in gambling, 27 in military, 22 in nuclear and 5 in tobacco. None of them were in the DS 400 Index. Companies in the DS 400 Index scored better, on average, than companies in the S&P 500 Index in all characteristics. For example, while the mean environment score for DS 400 companies was 0.15, the mean score for the S&P 500 companies was minus 0.26, and the exclusion of companies in tobacco, alcohol, firearms, gambling, military, and nuclear from the DS 400 Index is evident. Still, there is much overlap. Two-hundred-forty-seven of the 500 companies in the S&P 500 index are among the 400 in the DS 400 index. The distribution of the scores of the companies in S&P 500 index and the DS 400 index are presented in Figure 1.

The mean social score was 0.40 for the Citizens Index, 0.42 for the Calvert Index, and 1.02 for the DJ Sustainability Index-US. They are all higher than the mean score of the S&P 500 Index. (See Table 1).

Socially responsible indexes vary in the emphasis they place on social characteristics. For example, the Calvert Index scored higher than any other index on corporate governance, while the DS 400 index scored higher than any other index on environment. (See Table 3). The mean score of the DJ Sustainability Index-US is higher than the mean score of the DJ Sustainability Index-US-Ex-All and that difference highlights the tradeoff among characteristics. The DJ Sustainability Index-US-Ex-All excludes eight of the companies in the DJ Sustainability Index-US Index, seven for firearm (military) operations and one, Harrah's Entertainment, Inc. for gambling operations. But some of the excluded companies have high overall scores. For example, the score of Agilent Technologies, Inc. is 7 and the score of Texas Instruments Inc. is 5.

Performance of SRI indexes

Socially responsible investors care about their social causes, but they also care about their investment returns. Inahaze (2003) wrote on the Motley Fool SRI board that she chose to invest in the Women's Equity fund because "I was highly impressed with the holdings..." but added that she choose the fund because "(yes, I admit it, I pay attention to ratings) it has 5 stars from Morningstar." Inahaze is not alone in the desire to combine socially responsible investing with high-return investing. A Yankelovich survey reported that 80 percent of investors would not consider investing in socially responsible mutual funds unless their returns were at least equal to those of conventional mutual funds (Krumsiek 1997). Managers of SRI mutual funds respond to the desire of investors

for both social responsibility and high returns, as illustrated by Schurr's (2003) report on the Parnassus Equity Income fund, an SRI mutual fund.

Hunting for value companies is always tricky. Hunting for companies with values makes the job nearly impossible.

That's what makes the Parnassus Equity Income fund's record doubly impressive. The fund follows socially responsible investing guidelines, which rules out Big Tobacco, nuclear power and a host of other "sin" industries. Meantime, the fund also maintains a strict discipline: It only buys stocks that are trading at a discount to their intrinsic value.

Schurr wrote that Parnassus' Equity Income fund provided higher returns than those of most conventional funds; its one, three and five-year average returns ranked in the top 1% of all large-cap blend funds. But is the performance of Parnassus the rule or the exception? Should we expect stocks of socially responsible companies to earn higher returns or lower returns than stocks of conventional companies?

Hamilton, Jo and Statman (1993) and Statman (2000) presented three alternative hypotheses about the relative returns of socially responsible companies and conventional companies. The first hypothesis is that the (risk-adjusted) expected returns of socially responsible stocks are equal to the (risk-adjusted) expected returns of conventional stocks. This is consistent with a world where the social responsibility feature of stocks is not priced. In such a world, socially responsible investors who buy stocks of socially responsible companies find enough conventional investors ready to sell them, such that stock prices do not rise. Because expected returns to investors are also the cost of capital to the company, this hypothesis implies that socially responsible investors do not reduce the relative cost of capital to socially responsible companies by favoring their stocks.

The second hypothesis is that the expected returns of socially responsible portfolios are lower than the expected returns of conventional portfolios. This hypothesis implies that socially responsible investors have an impact on stock prices. In particular, they increase the valuation of socially responsible companies relative to the valuation of conventional companies by driving down the cost of capital of socially responsible companies. Heinkel, Kraus and Zechner (2001) developed an equilibrium model where socially responsible investors do just that when their proportion among investors is sufficiently high.

The last hypothesis is that the expected returns of stocks of socially responsible portfolios are higher than those of conventional portfolios. This is the case of “doing well while doing good.” This is possible if a sufficiently high proportion of investors consistently underestimate the benefits of being socially responsible or overestimate its costs. The hypothesis is articulated, for example, by Donna Marsh (2000), the public relations manager of Citizens Fund: “We believe that social screening enhances financial performance, eliminating from investment consideration companies that, due to their questionable business practice, may present significant risk to their investors. Screening out companies with potentially troublesome practices such as tobacco companies and nuclear power utilities has steered many SRI funds away from some the market’s worst performers in recent years” (p. 15).

Studies of the performance of U.S. mutual funds by Hamilton, Jo and Statman (1993), Goldmyer and Diltz (1999), Statman (2000) and Bauer, Koedijk and Otten (2002) show no statistically significant relationship between the returns of socially responsible mutual funds and those of conventional funds. While useful, these studies teach us little

about the relative returns of stocks of socially responsible companies since expenses create gaps between the returns of stocks and the returns of mutual funds that contain these stocks, and these gaps vary from fund to fund. We can learn more about the relationship between the returns of stocks of socially responsible companies and the returns of stocks of conventional companies by comparing indexes of stocks of socially responsible companies to indexes of stocks of conventional companies. Two studies compared the performance of SRI index, the DS 400 Index, to the S&P 500 Index of conventional companies one by Sauer (1997) and one by Statman (2000). The DS 400 Index was initiated in May 1990 and Sauer examined it through December 1994, while Statman examined it through September 1998.

Both Sauer and Statman employed Jensen's alpha and Sharpe's ratio as measures of performance and both found that the returns of the DS 400 Index were higher than those of the S&P 500 Index although differences were not statistically significant. This study improves on those by Sauer and Statman in three ways. First, we extend the time horizon through April 2004. Second, we use Fama and French's 3-factor model in the analysis of returns. Third, we analyze the returns of three SRI indexes in addition to the DS 400 Index.

Returns of SRI Indexes

The DS 400 Index did better than the S&P 500 Index during the overall period from its initiation in May 1990 through April 2004. Table 4 shows that the mean monthly return of the DS 400 Index was 1.10%, exceeding by 0.10% the return of the S&P 500 Index. The monthly alpha of the DS 400 Index was 0.11%, exceeding by 0.09% the monthly alpha of the S&P 500 Index. However the t-statistic of the alpha of the DS 400

Index is 1.39, short of the usual critical levels of statistical significance. Beta and the CRSP 1-10 standard deviation of the returns of the DS 400 Index were both higher than those of the S&P 500 Index. The S&P 500 Index was tilted substantially toward large capitalization stocks and somewhat toward value stocks. The DS 400 Index was tilted toward large capitalization stocks and growth stocks when measured relative to the tilts of S&P 500 Index.

The Sharpe ratio of the DS 400 Index was also higher than that of the S&P 500 Index. Alpha-s (α_s) is a modified version of the Sharpe ratio presented in Statman (1987):

$$\alpha_s = R_F + \left[\frac{R_{DS} - R_F}{SD_{DS}} \right] SD_{SP} - R_{SP}$$

Where R_F is the T-bill return, R_{DS} is the return on the DS 400 Index, R_{SP} is the return on the S&P 500 Index, SD_{DS} is standard deviation of the return of the DS 400 Index and SD_{SP} is the standard deviation of the return of the S&P 500 Index. The α_s of the DS 400 Index is the excess return of the DS 400 Index over the return of the S&P 500 Index, where the DS 400 is leveraged to have the S&P 500 Index's standard deviation.

Figure 2a shows that the DS 400 Index did not do better than the S&P 500 Index in every period. The figure shows differences in 12-month moving averages of the monthly returns of the DS 400 Index and those of the S&P Index. In particular, note the relatively high returns of the DS 400 Index during the late 1990s and the relatively low returns during the early 2000s. For example, the return of the DS 400 Index exceeded

that of the S&P 500 Index by 8.01% during the 12-months ending in January 1999 but lagged by 5.54% during the 12 months ending in February 2001.

Much of the difference between the returns of the DS 400 Index and those of the S&P 500 Index is due to differences in industry weights. For example, the weights of information technology and telecommunication services are higher in the DS 400 Index than in the S&P 500 Index while the weights of energy and industrials are lower. (See Table 4)

To see the effect of industry weights on the relative returns of the DS 400 Index and the S&P 500 Index consider a DS Industry-Weights Index that is constructed as the weighted average of industry returns, weighted by the market value of each industry in the DS 400 Index as of December 31, 2002. Consider a S&P Industry-Weights Index that is constructed similarly, but weighted by the market value of each industry in the S&P 500 Index. Figure 3 shows the close correspondence of differences between the returns of the DS 400 Index and the S&P 500 Index and differences between the DS Industry-Weights Index and the S&P Industry -Weights Index. Note, however, that the higher average return of the DS 400 Index is not due to differences in industry weights between it and the S&P 500 Index. While the mean difference in monthly returns between the DS 400 Index and the S&P 500 Index during May 1990 - April 2004 is 0.10%, the difference between the DS Industry-Weights Index and the S&P Industry-Weights Index virtually zero.

Differences in returns between the DS 400 Index and the S&P 500 Index are likely to understate differences between the returns of stocks of socially responsible companies and stocks of conventional companies because the two indexes share

approximately 250 companies. However, there is no data on the returns of the portion of the DS 400 Index that does not overlap with the S&P 500 Index.

The Citizens Index, introduced in January 1995, did better than the S&P 500 Index during the period ending in April 2004. The monthly alpha of the Citizens Index was 0.05%, exceeding by 0.01% the alpha of the S&P 500 Index but lagging by 0.08% the alpha of the DS 400 Index. Figure 2b shows differences in 12-month moving averages of the returns of the Citizens Index and the S&P 500 Index.

The DJ Sustainability Index-US, introduced in September 1999, lagged the S&P 500 Index, the DS 400 Index and the Citizens Index during the period ending in April 2004. This is also a period where the DS 400 Index and the Citizens Index lagged the S&P 500 Index. The monthly alpha of the S&P 500 Index was higher than those of the DS 400 Index, the Citizens Index and the DS Sustainability Index by 0.01%, 0.20% and 0.34% respectively. Figure 2c shows differences in 12-month moving averages between the returns of the DJ Sustainability Index and the S&P 500 Index.

The Calvert Index, introduced in May 2000, lagged the S&P 500 Index during the period ending in April 2004 but exceeded the other SRI indexes. The mean monthly alpha of the Calvert Index lagged that of the S&P 500 Index by 0.05% while the corresponding figures for the DS 400 Index, the Citizens Index and the DJ Sustainability Index are 0.06%, 0.18% and 0.22%. Figure 2d shows differences in 12-month moving averages between the returns of the Calvert Index and the S&P 500 Index, and Figure 2e shows differences between the returns of each SRI index and the S&P 500 Index.

Tracking errors

The correlation between the returns of the DS 400 Index and those of the S&P 500 Index during May 1990 – April 2004 was high, 0.983, but differences between the returns of the two indexes were substantial during many periods. The mean difference between the returns of the two indexes during 12-month periods was 2.49% and the maximum difference was 8.01% by which the return of the DS 400 Index exceeded that of the S&P 500 Index during the 12 months ending in January 1999. (See Figure 4)

Dispersion, in the case of two assets, is the difference between the return of each asset and a portfolio that combines the two in equal proportions. Expected dispersion is derived from the correlation between the returns of the two assets and on the standard deviations of the returns. In particular, as in Statman and Scheid (2004):

$$\text{Expected dispersion} = \sigma \sqrt{(1-\rho)/2}$$

Where σ is the mean standard deviation of the returns of the two assets and ρ is the correlation between their returns. In our case, dispersion is the deviation of the return of a socially responsible index from the return of a portfolio composed of equal proportions of the socially responsible index and the S&P 500 Index. The tracking error of a socially responsible index relative to the S&P 500 Index is twice the dispersion figure.

Table 6 shows that expected tracking errors ranged between 2.83% for the DS 400 Index during January 1995 – April 2004 and 6.42 for that DJ Sustainability Index during September 1999 – April 2004. The mean realized 2.49% tracking error of the DS 400 Index in 12-month periods during May 1990 – April 2004 was not far from the 2.84% expected tracking error.

Indexes and index funds

Index funds emulate three of the four socially responsible indexes, the DS 400 Index, the Calvert Index and the Citizens Index, as the Vanguard 500 Fund emulates the S&P 500 Index. The Domini Social Index Fund emulates the DS 400 Index. Table 7 shows that the Vanguard 500 Fund lagged the S&P 500 Index by an annualized 0.07% during the ten years May 1994 – April 2004 while the Domini Social Index Fund lagged the DS 400 Index by 1.25%. The relatively low cost of Vanguard index funds is especially evident in the comparison between the two index funds that emulate the Calvert Index, the Calvert Fund provided by Calvert and the Vanguard Calvert fund provided by Vanguard. The Calvert Fund lagged the Calvert Index by an annualized 0.80% during the period when both funds existed, July 2000 – April 2004, while the Vanguard Calvert Fund lagged the Calvert Index by only 0.26%.

Data on the Citizens 300 Fund that emulates the Citizens Index are limited to the September 2003 - April 2004 period. The fund lagged the index by an annualized 1.32%, while corresponding figures for the Domini Social Equity Fund and the Calvert Fund were 1.09% and 0.90%.

Conclusion

Does concern for the environment define socially responsible companies? Or is it concern for human rights? Debates about characteristics that define socially responsible companies are sure to continue but KLD offers social scores of companies by characteristics such as diversity, environment and human rights. We examine the composition of four socially responsible indexes and compare them to the composition of the conventional S&P 500 Index. We find that the mean social scores of the socially

responsible indexes differ and they vary in the emphasis they place on particular characteristics. But the mean score of each is higher than that of the S&P 500 Index. Still, there is a wide range of scores of the companies within each socially responsible index and much overlap between the lists of companies in socially responsible indexes and the S&P 500 Index.

Returns of socially responsible indexes were generally higher than those of the S&P 500 Index. For example, the monthly alpha of the DS 400 Index during the 14 years May 1990 – April 2004 exceeded that of the S&P 500 Index by 0.09%. However, none of the alphas are statistically significant. We cannot reject the hypothesis that returns of socially responsible companies are equal to those of conventional companies. The correlations between the returns of socially responsible indexes and the S&P 500 Index are high but tracking errors can be substantial. For example, the mean difference between the returns of the DS 400 Index and the S&P 500 Index in 12-month periods was 2.49% and the maximum difference was 8.01%.

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Table 1: A comparison of the social scores of companies in socially responsible indexes and the S&P 500 Index as of December 31, 2002

	Calvert Index	Citizens Index	DJ Sustainability Index-US	DS 400 Index	S&P 500 Index
Mean social score	0.42	0.40	1.02	1.24	-0.26
Median social score	0	0	1	1	0
Mode social score	0	0	0	1	-1
Standard Deviation	1.97	2.33	3.15	2.19	2.97
Range of social scores	13	17	15	13	18
Minimum of social scores	-5	-9	-7	-5	-10
Maximum of social scores	8	8	8	8	8
Number of Index Companies	635	300	61	400	500
Number of Companies available in the KLD Database	527	287	61	400	500

Table 2: Scores on social characteristics of companies with high and low overall scores.

Social Characterisitc	Occidental Petroleum		Procter & Gamble	
	FirstEnergy Corp	Corp.	Intel Corp.	Co.
Community	0	-1	1	2
Corporate Governance	0	-3	-1	-1
Diversity	0	0	3	5
Employee Relations	-3	1	3	1
Environment	-4	-3	2	1
Human Rights	-1	-2	0	0
Product	-1	-2	0	0
Alcohol	0	0	0	0
Firearms	0	0	0	0
Gambling	0	0	0	0
Military	0	0	0	0
Nuclear	-1	0	0	0
Tobacco	0	0	0	0
Overall Score	-10	-10	8	8

Table 3: A comparison of the social scores of companies in Socially Responsible Indexes and the S&P 500 Index¹

Social Characteristics	Difference between the mean score of companies in the DS 400 Index Companies and the mean score of the S&P 500 Index companies	Difference between the mean score of companies in the Calvert Index and the mean score of the S&P 500 Index companies	Difference between the mean score of companies in the Citizens Index and the mean score of the S&P 500 Index companies	Difference between the mean score of companies in the DJ Sustainability Index and the mean score of the S&P 500 Index companies
Community	0.04	-0.11	-0.03	0.15
Corporate Governance	0.28	0.34	0.15	-0.09
Diversity	0.06	-0.31	-0.23	0.90
Employee Relations	0.14	-0.03	0.09	0.36
Environment	0.41	0.31	0.24	0.12
Human Rights	0.08	0.12	0.05	-0.03
Products	0.35	0.30	0.24	-0.13
Alcohol	0.01	0.01	0.01	0.01
Firearms	0.00	0.00	0.00	0.00
Gambling	0.02	0.01	0.00	0.00
Military	0.05	0.03	0.03	-0.03
Nuclear	0.04	0.04	0.04	0.01
Tobacco	0.01	0.01	0.01	0.01
Overall Mean Social Score	1.50	0.68	0.66	1.28

¹The largest difference for each social characteristic is in bold numbers.

Table 4: Monthly returns of socially responsible indexes and the S&P 500 Index

	Mean Monthly Returns (percent)	Standard Deviation of Returns	α	α_s
May 1990 - April 2004				
DS 400 Index	1.10	4.58	0.11 (1.39)	0.01
S&P 500 Index	1.00	4.03	0.02 (0.63)	
DS minus S&P	0.10	0.55	0.09	
January 1995 - April 2004				
DS 400 Index	1.13	4.89	0.13 (1.28)	0.05
Citizens Index	1.14	5.71	0.05 (0.36)	-0.05
S&P 500 Index	1.04	4.64	0.04 (0.97)	
DS minus S&P	0.09	0.25	0.09	
Citizens minus S&P	0.10	1.07	0.01	
September 1999 - April 2004				
DS 400 Index	-0.08	5.16	-0.01 (-0.05)	0.00
Citizens Index	-0.30	6.31	-0.20 (-0.85)	-0.11
DJ Sustainability Index - US	-0.39	5.66	-0.34 (-1.09)	-0.24
S&P 500 Index	-0.07	4.99	0.00 (-0.06)	
DS minus S&P	-0.01	0.17	-0.01	
Citizens minus S&P	-0.23	1.32	-0.20	
DJSI-US minus S&P	-0.32	0.67	-0.34	

Table 4: Monthly returns of socially responsible indexes and the S&P 500 Index

	Mean Monthly Returns (percent)	Standard Deviation of Returns	α	α_s
May 2000 - April 2004				
DS 400 Index	-0.37	5.02	-0.12 (-0.63)	-0.03
Citizens Index	-0.71	6.27	-0.24 (-0.86)	-0.19
DJ Sustainability Index - US	-0.65	5.66	-0.28 (-0.79)	-0.21
Calvert Index	-0.48	5.76	-0.11 (-0.08)	-0.06
S&P 500 Index	-0.32	4.90	-0.06 (-0.80)	
DS minus S&P	-0.05	0.12	-0.06	
Citizens minus S&P	-0.39	1.37	-0.22	
DJSI minus S&P	-0.33	0.76	-0.18	
Calvert minus S&P	-0.16	0.86	-0.05	

*t-statistics in parentheses except for β where standard errors are in parentheses.

α is the excess return using the 3-factor model.

α is measured relative to the CRSP 1-10 Index

α_s is the excess return using a variation of the Sharpe ratio:

$$\alpha_s = R_F + \left[\frac{R_{SRI} - R_F}{SD_{SRI}} \right] SD_{SP} - R_{SP}$$

Where R_F is the T-bill return, R_{SRI} is the return on an SRI index, R_{SP} is the return on the S&P 500 Index, SD_{SRI} is standard deviation of the return of an SRI index and SD_{SP} is the standard deviation of the return of the S&P 500 Index. The α_s of an SRI index is the excess return of the SRI index over the return of the S&P 500 Index, where the SRI index is leveraged to have the S&P 500 Index's standard deviation.

Table 5: Industry weights in the DS 400 Index and the S&P 500 Index by market value of equity as of December 31, 2002.

Industry	Weight in the DS 400 Index	Weight in the S&P 500 Index	Difference in Weights
Consumer Discretionary	12.75%	12.49%	0.26%
Consumer Staples	13.10%	9.58%	3.52%
Energy	0.98%	6.13%	-5.15%
Financials	25.28%	20.77%	4.51%
Health Care	13.28%	15.24%	-1.97%
Industrials	6.68%	11.17%	-4.48%
Information Technology	18.73%	14.55%	4.18%
Materials	1.45%	2.90%	-1.44%
Telecommunication Services	6.78%	4.27%	2.51%
Utilities	0.98%	2.91%	-1.94%
	100.00%	100.00%	0.00%

Table 6: Tracking errors of socially responsible indexes from the S&P 500 Index

	SD of Monthly Returns	Mean SD of Monthly Returns of an SRI Index and the S&P 500 Index	Correlation of Monthly Returns of an SRI Index and the S&P 500 Index	Monthly Dispersion	12-month Dispersion	Expected Difference between the 12-month returns of an SRI index and the S&P 500 Index
May 1990 - April 2004						
DS 400	4.579	4.440	0.983	0.410	1.420	2.84%
S&P 500	4.302					
January 1995 - April 2004						
DS 400	4.894	4.768	0.985	0.409	1.416	2.83%
Citizens	5.711	5.176	0.962	0.715	2.476	4.95%
S&P 500	4.642					
September 1999 - April 2004						
DS 400	5.163	5.061	0.984	0.458	1.586	3.17%
Citizens	6.307	5.633	0.962	0.778	2.694	5.39%
DJSI	5.663	5.311	0.939	0.927	3.211	6.42%
S&P 500	4.959					
May 2000 - April 2004						
DS 400	5.022	4.960	0.983	0.460	1.592	3.18%
Citizens	6.271	5.585	0.958	0.814	2.820	5.64%
DJSI	5.663	5.281	0.939	0.925	3.204	6.41%
Calvert	5.759	5.329	0.984	0.480	1.663	3.33%
S&P 500	4.899					

12-month dispersion = $\sqrt{12}$ monthly dispersion

Expected difference = 2 * 12-month dispersion

Table 7: Differences in returns between indexes and index funds.

June 1996 - April 2004	Annualized Returns
S&P 500 Index	9.42
S&P 500 Fund	9.36
Difference between Index & Fund	0.06
DS Index	10.82
DS Fund	9.47
DS Institutional Fund (DSI)	10.02
Difference between Index & DS	1.36
Difference between Index & DSI	0.80

July 2000 - April 2004:	Annualized Returns
S&P 500 Index	-4.10
Vanguard S&P 500 Fund	-4.20
Difference between Index & Fund	0.10
DS Index	-4.42
DS Fund	-5.32
DS Institutional Fund (DSI)	-4.79
Difference between Index & DS	0.90
Difference between Index & DSI	0.36
Calvert Index	-6.11
Calvert Fund (C)	-6.91
Vanguard Calvert Fund (VC)	-6.37
Difference between Index & C	0.80
Difference between Index & VC	0.26

September 2003 - April 2004	Annualized Returns
S&P 500 Index	16.31
Vanguard S&P 500 Fund	16.14
Difference between Index & Fund	0.16
DS Index	15.93
DS Fund	14.84
DS Institutional Fund (DSI)	15.53
Difference between Index & DS	1.09
Difference between Index & DSI	0.40
Calvert Index	14.49
Calvert Fund (C)	13.59
Vanguard Calvert Fund (VC)	14.33
Difference between Index & C	0.90
Difference between Index & VC	0.17
Citizens Index	14.57
Citizens 300 Fund	13.25
Difference between Index & Fund	1.32

Figure 1: Distribution of the social scores of companies in the DS 400 Index and the S&P 500 Index: December 31, 2002

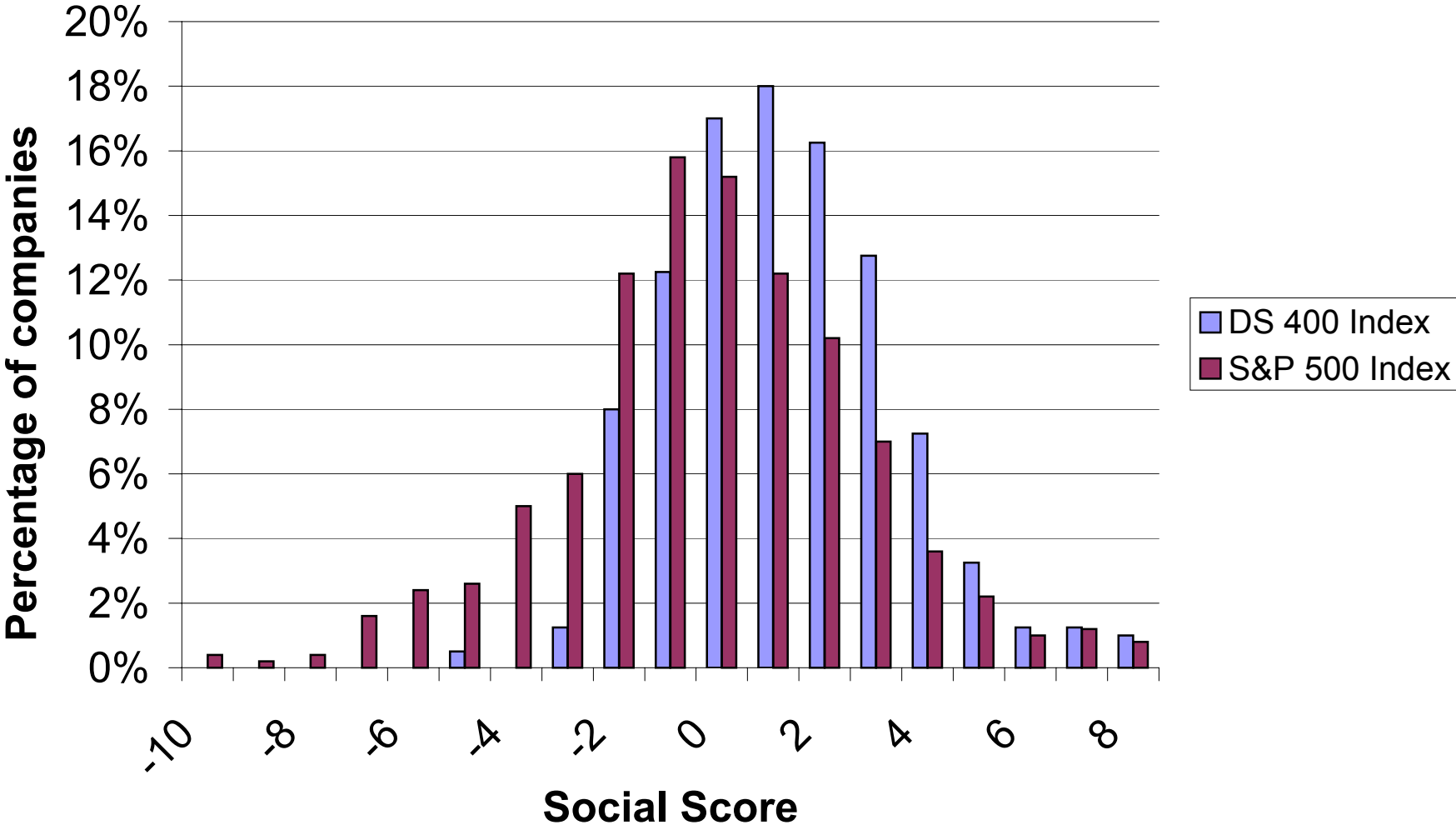


Figure 2a: 12-month moving average of the difference between the monthly returns of the DS 400 Index and those of the S&P 500 Index.

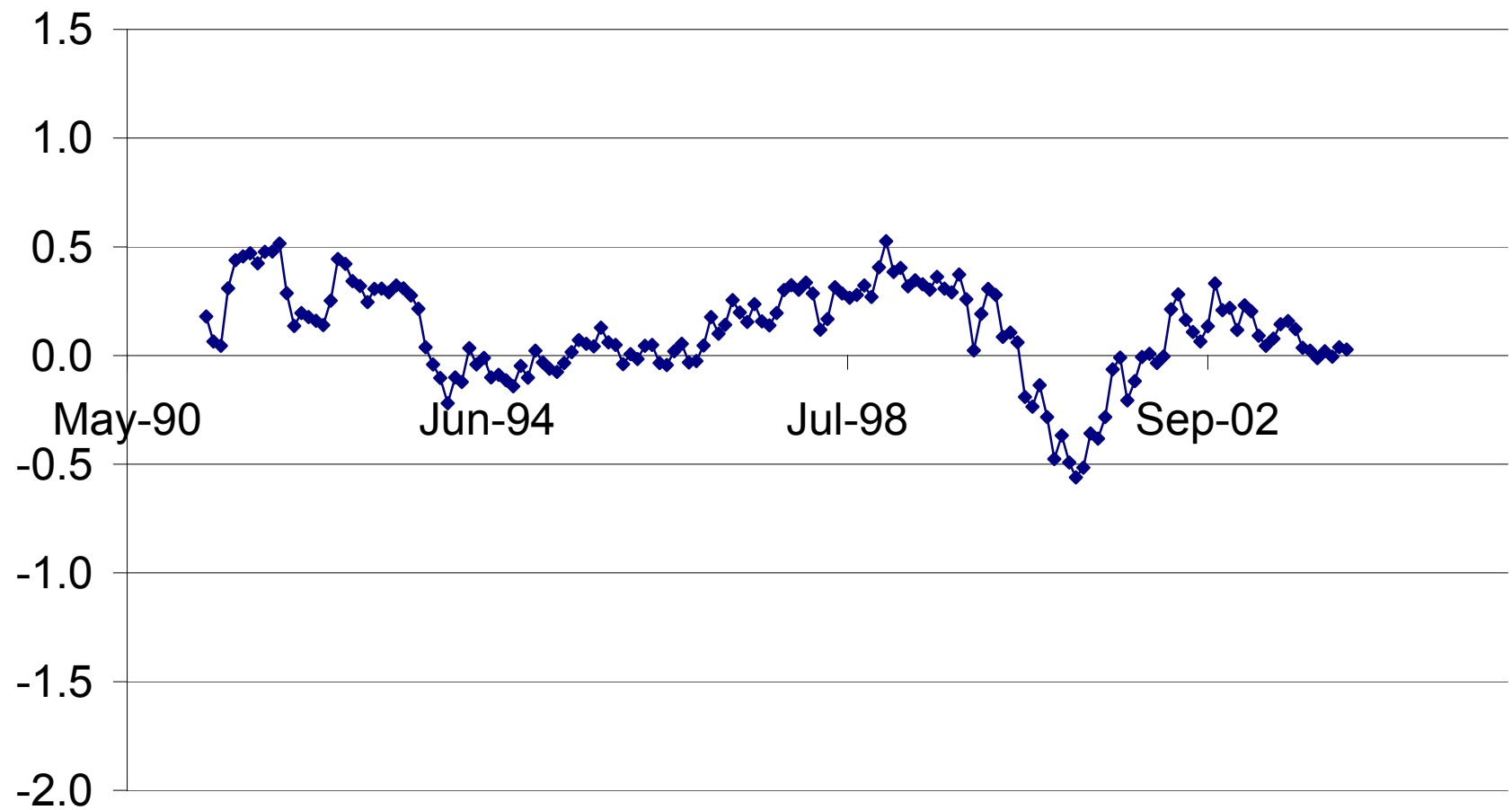


Figure 2b: 12-month moving average of the difference between the monthly returns of the Citizens Index and those of the S&P 500 Index.

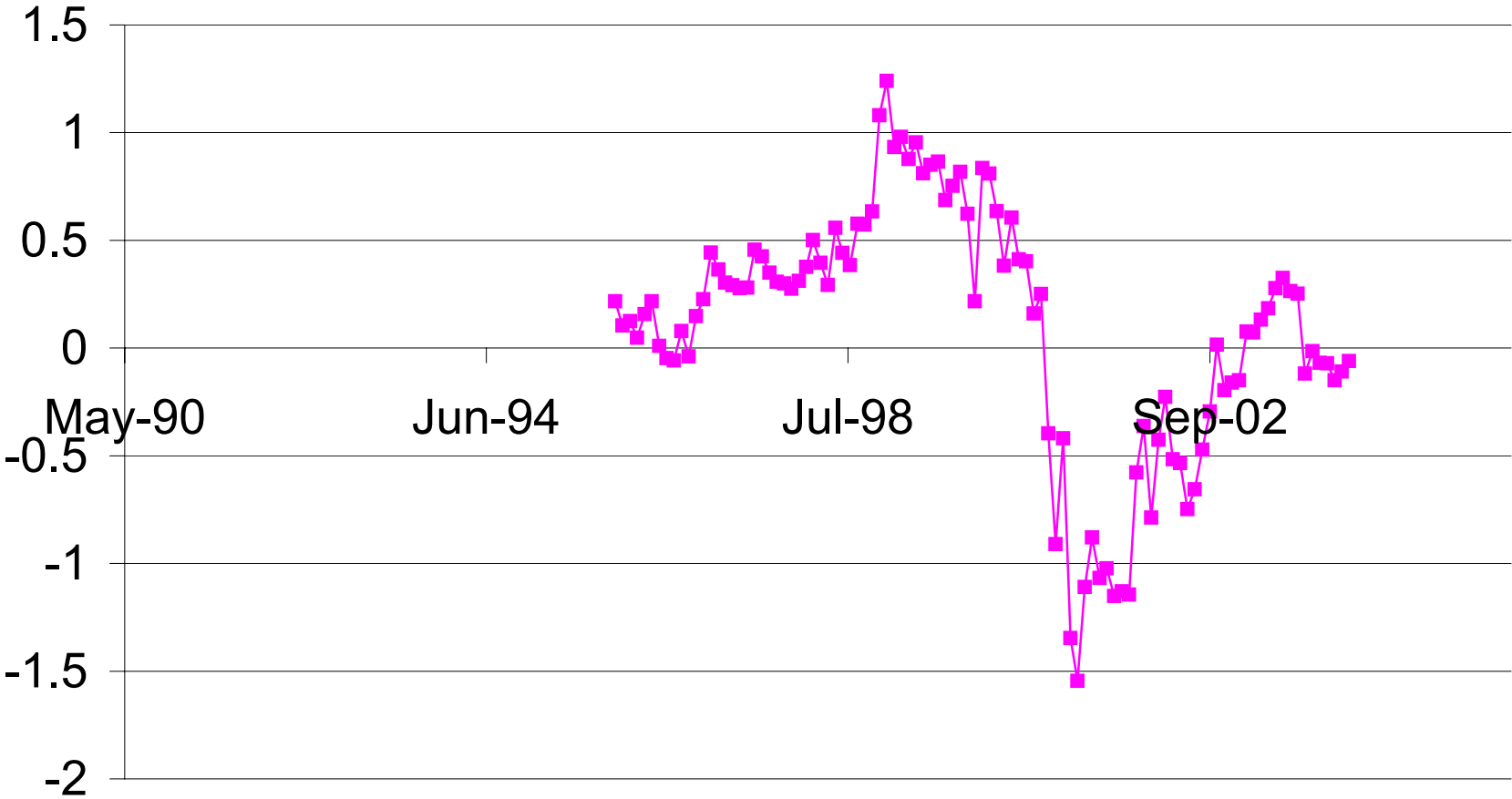


Figure 2c: 12-month moving average of the difference between the monthly returns of the DJ Sustainability Index and those of the S&P 500 Index.

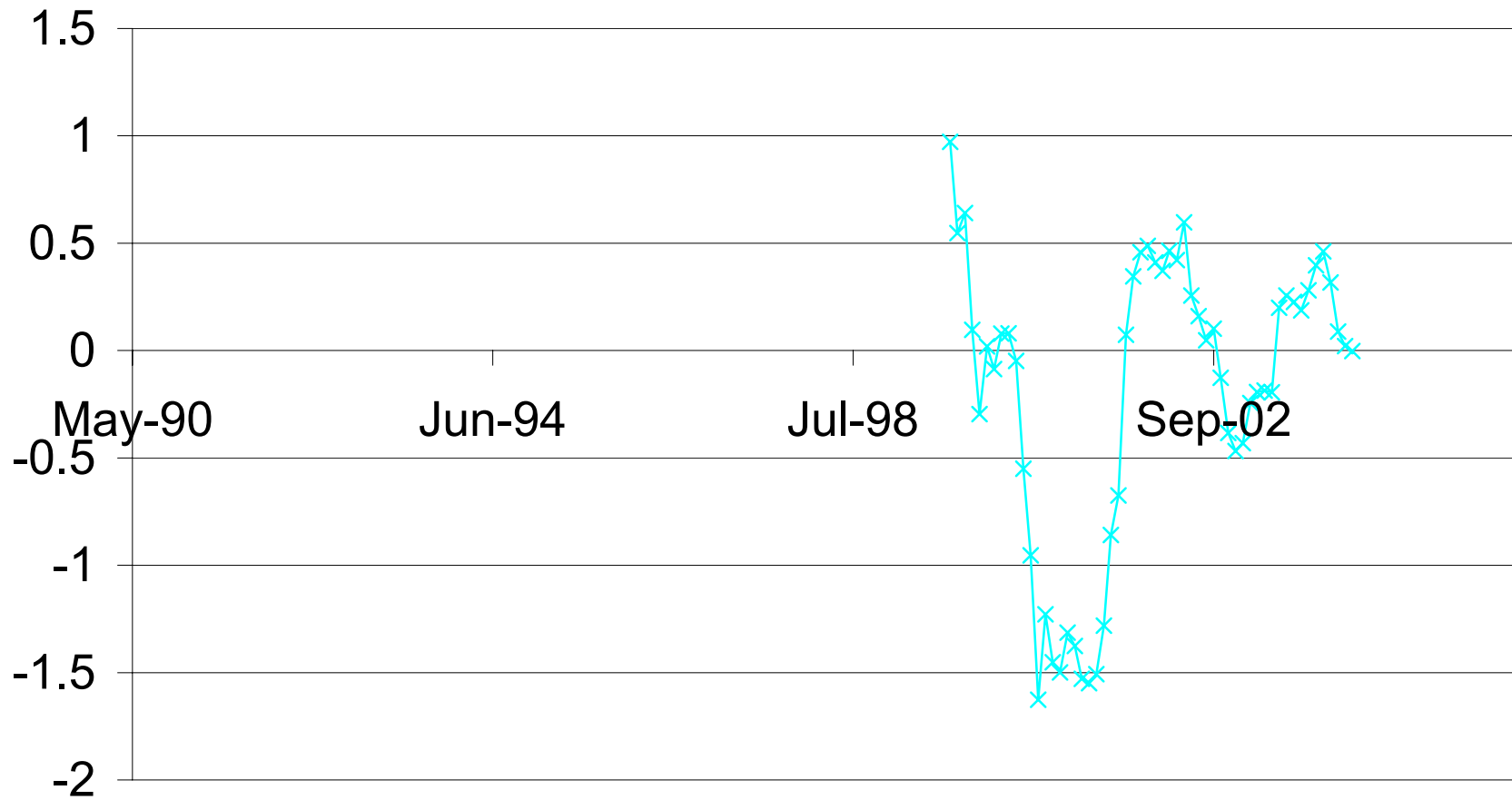


Figure 2d: 12-month moving average of the difference between the monthly returns of the Calvert Index and those of the S&P 500 Index.

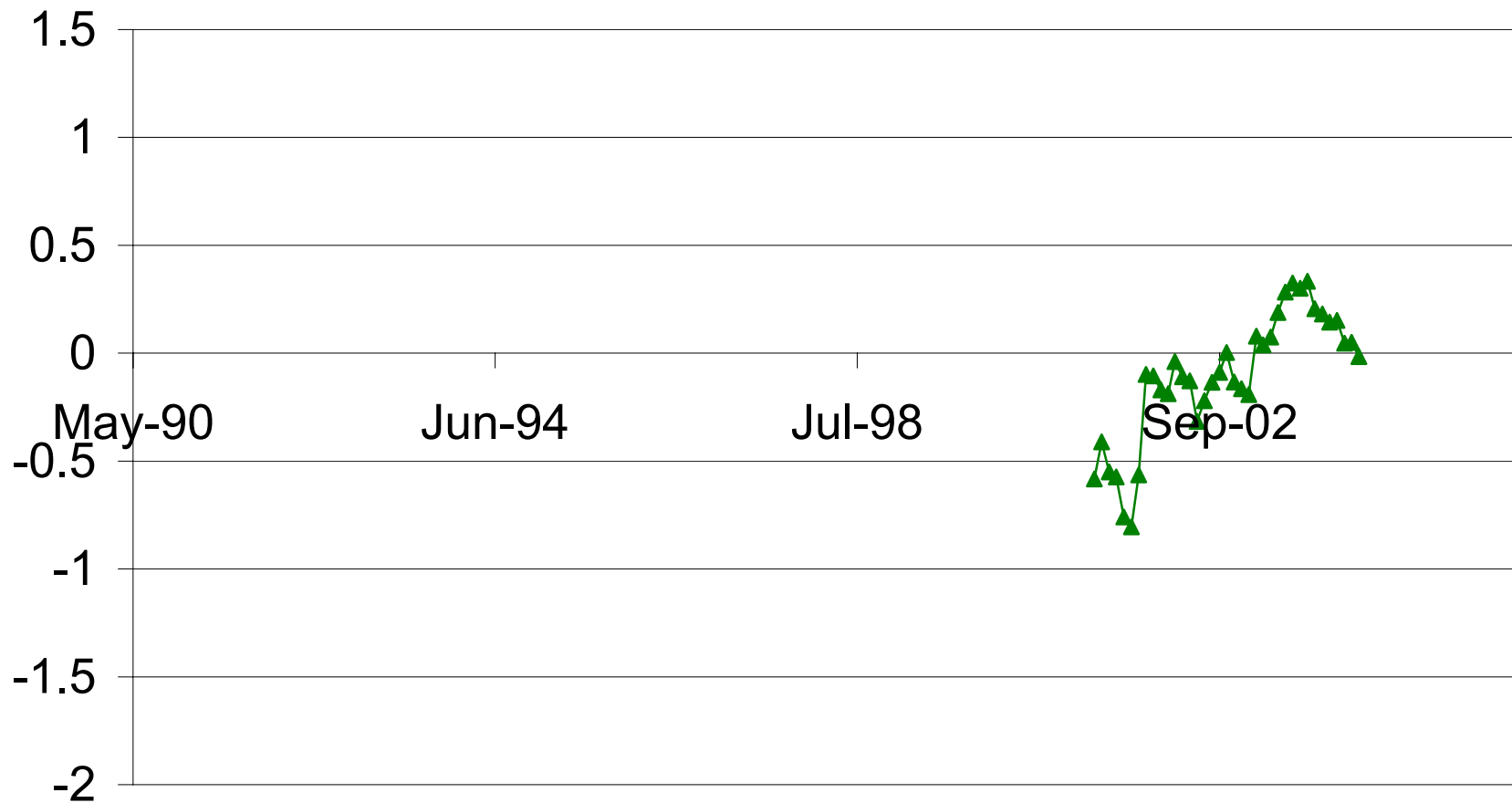


Figure 2e: 12-month moving average of the difference between the monthly returns of socially responsible indexes and those of the S&P 500 Index

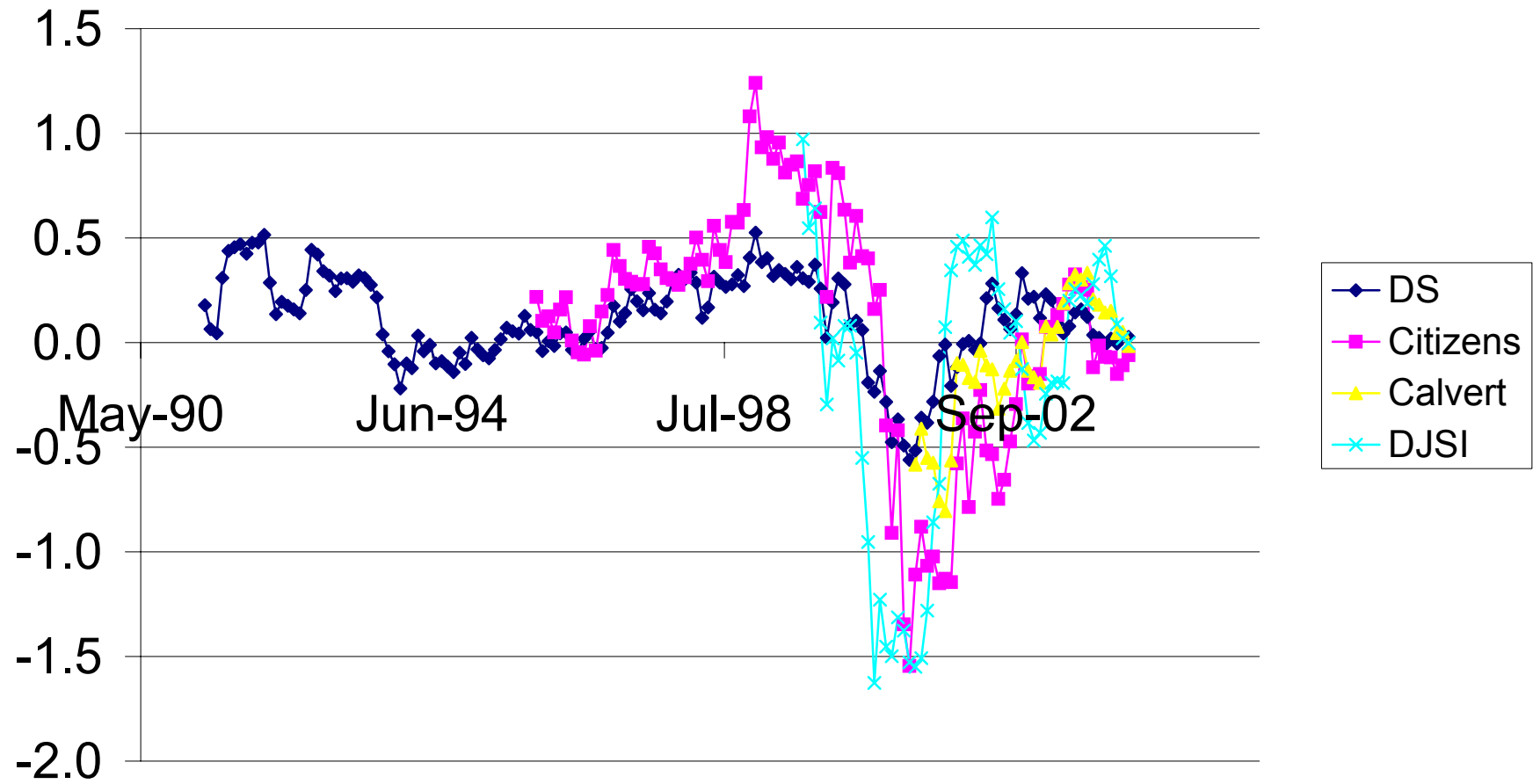


Figure 3: A comparison of differences in 12-month moving averages of the returns of the DS 400 Index and those of the S&P 500 Index to differences in indexes created by weighting industry returns by the weights of industries in each index

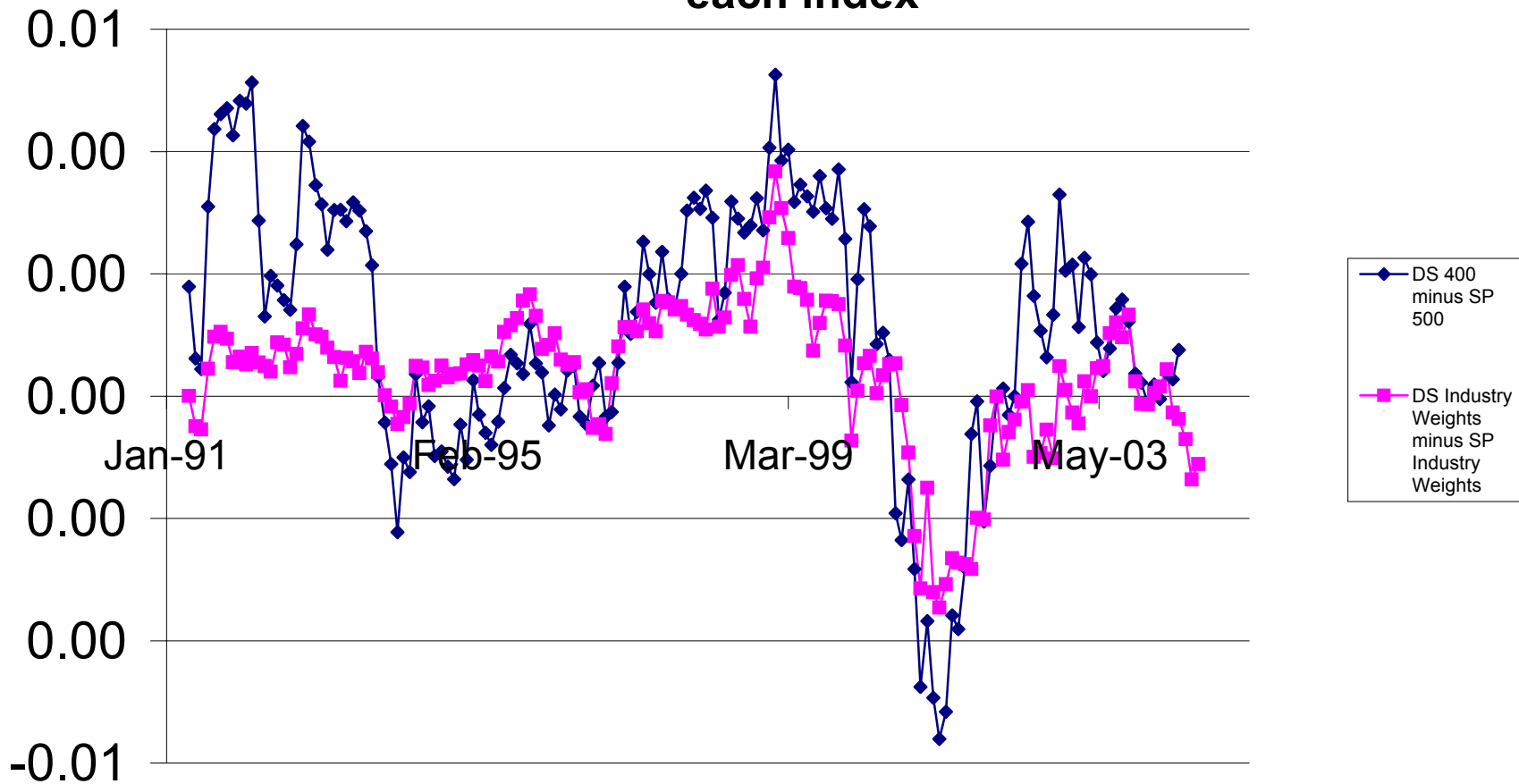


Figure 4: Tracking errors of the DS 400 Index relative to the S&P 500 Index in 12-month periods during May 1990 - April 2004¹

