

# Berkshire Hathaway versus the S&P 500: 1990–2009

John C. Alexander, Jr., Ph.D.\*

*Breazeale Professor of Investments, Department of Finance, 301 Surrine Hall, Clemson University,  
Clemson, SC 29634, USA*

---

## Abstract

We examine whether Berkshire Hathaway, one of America's premier actively managed portfolios, can outperform the S&P 500. We find that the returns of Berkshire Hathaway appear higher than the S&P 500 from 1990 to 2009. However, when adjusted for risk, we find that the return per unit of risk of Berkshire Hathaway is equivalent to the S&P 500. The relatively low correlation between the two portfolios suggests that an investor may benefit from holding both portfolios rather than either portfolio in isolation. Similar results are found when using the Vanguard 500 Index Fund to proxy the S&P 500. © 2010 Academy of Financial Services. All rights reserved.

*JEL classification:* D14; G10; G11; G23

*Keywords:* Active versus passive management; Index management

---

## 1. Introduction

For over three decades financial planners and individual investors have weighted the costs and benefits of active management relative to passive management. There is a substantial body of evidence in both the academic and practitioner press. Most of this evidence tends to aggregate active managers. Our current analysis examines the question of the relative benefits of active versus passive management, but from somewhat of a different perspective. We take a very close look at a well known active manager, who has been highly touted over a number of decades, and compare it to one of the world's most well known benchmarks. The results of the analysis may provide the financial planner or individual investor with a more complementary view of these two different investment philosophies, passive versus active.

---

\* Corresponding author. Tel.: 1-864-656-0547; fax: 1-864-656-4892.

*E-mail address:* alexanj@clemson.edu.

Berkshire Hathaway is considered one of America's premier actively managed portfolios. This study seeks to compare the performance of Berkshire Hathaway over two decades, to America's premier domestic benchmark for performance, that being the S&P 500. Berkshire Hathaway may be relatively unique among actively managed portfolios, since it has the same person at helm for our entire 20 year sample period. The selection of the S&P 500 as the appropriate benchmark for comparison is reinforced by the fact that Berkshire Hathaway has consistently published a comparison of their historical annual performance relative to the S&P 500 in the first few pages of their Annual Report. Using simple statistical tools, such as return, standard deviation, and correlation, this study examines the relative performance of these two portfolios. We also examine whether there were significant style shifts in the allocations within these two portfolios over time. Findings indicate that when returns are adjusted for risk, an investor would have fared no worse over the 1990–2009 period being invested in the S&P 500, rather than Berkshire Hathaway. In fact, there appears to be diversification benefits to being invested in both portfolios.

## **2. Prior work**

There have been a number of studies that examine the relative performance of active management relative to indexes or passive management. Sharpe (1991) suggests that the active management will result in more frequent trading and higher research costs than passive management. Milkiel (1996) notes that ~70% of all active equity managers underperform the returns of the S&P 500 Index. Bogle (1995) and Gruber (1996) find similar results. Wermers (2000) finds that equity mutual funds outperform the market index, but once expenses and transaction costs are taken into account they are equivalent in performance. Bogle (2000) finds index funds outperform the average equity mutual fund because of the lower management and brokerage costs, sales charges, and tax advantages associated with the index funds. Arnott, Berkin, and Ye (2000) find that the Vanguard 500 Index Fund outperforms the average equity fund. Fortin and Michelson (2002) find that on average index funds outperform actively managed mutual funds for most equity and all bond funds. However, actively managed mutual funds in both small company equity and international equity funds outperform the index funds. Arnott and Darnell (2003) provides an interesting group of factors to consider in evaluating the relative merits of either active or passive management.<sup>1</sup> Holmes (2007) finds that in general, index funds outperformed active management not only in Large Cap (Blend, Value, and Growth), but also in Small Cap Value and Growth. Active management is found to outperform indexed management in Small Cap Blend and International Mid/Small Cap Blend. Within the practitioner research, Standard & Poor's periodically examines the performance of active management relative to their indices which continues to reach similar conclusions as those reached by the academic research.<sup>2</sup>

This paper asks a similar question, but from a different perspective. We take a more in depth look into the relative performance of one of America's top investors compared to one of America's top equity indexes. In so doing, we may provide the financial planner or individual investor insights that may not be gleaned through studying active managers in aggregate. Although prior work suggests that there may be complementary passive and

active investment strategies across market capitalization segments (passive for Large Cap companies, active for Small Cap companies), our study examines whether there may be complementary active and passive investments strategies within a market capitalization segment, such as Large Cap.

### **3. The history of Berkshire Hathaway and S&P 500**

#### *3.1. Berkshire Hathaway*

Berkshire Hathaway has been considered one of America's premier actively managed portfolios for over a decade. In addition to the reputation of excellent portfolio performance, Warren Buffett, the CEO and largest shareholder of Berkshire Hathaway, has frequently been in the spotlight and is often touted as America's most savvy investor. In a 1999 survey by the Carson Group, Warren Buffett was named the top money manager of the 20th century, ahead of Peter Lynch and John Templeton.<sup>3</sup> In 2007, he was listed among the *Time's* 100 Most Influential People in the world. He continues to be a frequent speaker in many different forums, both financial and political.

Berkshire Hathaway has two classes of shares, Class A, which began trading on October 14, 1976, for \$19 per share, and Class B that began trading on May 31, 2006. Class B shares were sold by Berkshire Hathaway to combat potential competition, and to provide a low cost way for people to invest with the company. Class B shares have the rights of 1/30 of a Class A share, except for voting, in which they only share 1/200 of the voting rights. Class B shares do not participate in the shareholder designated contribution plan. Class A shares can be converted to 30 Class B shares at the discretion of the shareholder; however, this conversion feature does not extend in the opposite direction. We have chosen Class A, as it gives us the longest period of comparison and trades over our entire sample period (1990–2009).

Berkshire Hathaway is a holding company owning a number of subsidiaries that engage in a diverse group of business activities including property and casualty insurance and reinsurance, utilities and energy, finance, manufacturing, services, and retailing. Investment portfolios of their insurance subsidiaries include substantial ownership in public equity and fixed income securities. Initially, Berkshire Hathaway invested in American public companies, primarily equity, but also fixed income.<sup>4</sup> As we move from the 1990s into the current decade, financial markets became more sophisticated and global, and so did the Berkshire Hathaway portfolio. For example, in the 2008 financial statements Berkshire lists equity investments in France, Ireland, Korea, Switzerland, and the United Kingdom. In addition, the company had significant investments in derivative contracts. Thus, as time passes it becomes increasingly more difficult to justify comparison of Berkshire Hathaway to publically traded long-only unleveraged domestic equity index such as the S&P 500.

#### *3.2. Standard & Poors 500*

The Standard & Poors Company can trace its heritage to the publication of *The History of Railroads and Canals in the United States* by Henry Varnum Poor in 1860. This was the

first attempt at providing a comprehensive account of the financial and operational details of U.S. Railroads, which was America's most capital intensive industry. Later that decade Poor's Company was formed, which primarily published manuals tracking the Railroad industry. In concert, in 1906 Luther Lee Blake formed the Standard Statistics Bureau to provide a centralized source for accurate financial information for investors across all industries. By the early 1920s both Poor's Company and Standard Statistics were rating corporate bonds and municipal securities. In 1926 Standard Statistics created their first stock index, which was a 90 share composite index. In 1941 Standard Statistics and Poor's Company merged forming the Standard and Poor's Corporation.

In 1957 the Standard and Poor's Corporation created a domestic equity index that they called the S&P 500. The S&P 500 is comprised of America's largest publically traded companies spanning all the different business sectors. The index is long-only, and uses no leverage. Over the last 20 years, the S&P 500 has been considered America's premier passively managed index.

The S&P 500 index was chosen as the most appropriate benchmark to compare the Berkshire Hathaway portfolio with over this sample period. Both portfolios invest in large capitalization companies. The Berkshire Hathaway portfolio does not pay dividends, but reinvests dividends in the fund. In contrast, the S&P 500 index does pay some dividends, but these dividends are reinvested in the return we use for the analysis. As further justification for the use of the S&P 500 is the fact that it is the benchmark Berkshire Hathaway selects for performance comparisons.

#### 4. Method and findings

We examine monthly returns obtained from Bloomberg from 1990 through 2009. The S&P 500 with dividends reinvested is selected as the benchmark for comparison. We do not take into account transaction costs associated with buying or selling Berkshire Hathaway or the S&P 500. Geometric mean monthly returns are formed for the entire period and several subperiods. Table 1 shows the return statistics for the entire period and several subperiods. Panel A summarizes the statistics for the entire sample period (1990–2009). The correlation of monthly returns between Berkshire Hathaway and the S&P 500 for the entire period is only 0.4550. Using a traditional  $t$  test, we find all reported correlations are significantly different than zero. This relatively low correlation (.4550) suggests that there may be significant differences in the composition of the two portfolios. Further, it indicates that holding a portfolio of both Berkshire and the S&P 500 could benefit an investor who was thinking of holding only portfolio one or the other.

Examining returns, Berkshire Hathaway has a mean monthly return of 1.02% compared to the S&P 500 that has a mean monthly return of 0.66%.<sup>5</sup> Using a traditional two tailed  $t$  test we fail to find a significant difference in these means. It appears that an investor would have benefited from the additional 0.36% monthly return provided by Berkshire Hathaway. For many years the Annual Reports of Berkshire Hathaway consistently references their superior return performance relative to the S&P 500.<sup>6</sup> For example, in the 2006 Berkshire Hathaway Annual Report they show a compounded annual return of the book value of their

Table 1 Monthly returns of Berkshire Hathaway (BRKA) compared to the S&amp;P 500 Index, for the total sample period and several sub-periods\*

	BRKA	S&P 500	<i>t</i> test, <i>p</i> -value
Panel A:			
01/1990–12/2009			
Return	1.02%	.66%	.221, .824
Standard deviation	6.31%	4.32%	
Return/standard deviation	.20%	.21%	
Correlation of BRKA and S&P 500		.4550	7.882, .000
Panel B:			
1/1990–12/1999			
Return	1.57%	1.40%	.557, .578
Standard deviation	6.85%	3.86%	
Return/standard deviation	.23%	.36%	
Correlation of BRKA and S&P 500		.5080	6.407, .000
1/2000–12/2009			
Return	.48%	–.080%	.251, .802
Standard deviation	5.66%	4.63%	
Return/standard deviation	.08%	–.02%	
Correlation of BRKA and S&P 500		.4028	4.780, .000
Panel C:			
1/1990–12/1994			
Return	1.44%	.70%	.182, .857
Standard deviation	6.02%	3.57%	
Return/standard deviation	.24%	.19%	
Correlation of BRKA and S&P 500		.5965	5.660, .000
1/1995–12/1999			
Return	1.70%	2.11%	.811, .421
Standard deviation	7.58%	3.99%	
Return/standard deviation	.22%	.53%	
Correlation of BRKA and S&P 500		.4536	3.876, .000
1/2000–12/2004			
Return	.75%	–.19%	.238, .813
Standard deviation	6.14%	4.68%	
Return/standard deviation	.12%	–.04%	
Correlation of BRKA and S&P 500		.2942	2.345, .022
1/2005–12/2009			
Return	.20%	.03%	.756, .453
Standard deviation	5.13%	4.59%	
Return/standard deviation	.04%	.01%	
Correlation of BRKA and S&P 500		.5423	4.916, .000

\*Berkshire Hathaway Shares are Class A. S&P 500 Returns are with dividends reinvested.

stock from 1965 to 2006 of 21.4%, compared to a compounded annual return of the market value of the S&P 500 of only 10.4%. Of course our returns for Berkshire are calculated using the market value of equity, rather than the book value.

It would be a mistake to consider the returns associated with these investments in isolation of their risk, as investors expect to get compensated for additional risk. As such, we need to

examine the standard deviation of returns. The standard deviation of the monthly returns is 6.31% for Berkshire Hathaway, and only 4.32% for the S&P 500, which suggest a significant difference in the risk of these two portfolios. For ease of comparison, interpretation, and discussion, we divide the mean monthly return by the standard deviation, which is actually the inverse of the coefficient of variation.<sup>7</sup> This gives us the return per unit of risk. Examining the return per unit of risk of these portfolios, we find that Berkshire Hathaway has a 0.20% return per each unit of risk, whereas the S&P 500 has a 0.21% return per each unit of risk. This suggests on a risk adjusted basis that an investor would have been equally well off over this time period by being invested in the S&P 500.

In Panel B of Table 1, we break the sample down into two time periods of 120 months each, January 1990 through December 1999, and January 2000 through December 2009. We find that the correlation between Berkshire and the S&P 500 for the earlier period (1990–1999) appears marginally higher (.5080) than the correlation for the later period (.4028).<sup>8</sup> This suggests that one of the portfolios, most likely Berkshire, may have changed in composition over the sample period. Examining the return per unit of risk, we find that from 1990 through 1999, Berkshire has a 0.23% return per unit of risk, compared to the S&P 500 return per unit of risk of 0.36%. For the period from 2000 through 2009 we find a smaller difference. The return per unit of risk for Berkshire is 0.08%, whereas the S&P 500 is –0.02%. This suggests that the relative return per unit of risk of these two portfolios may not be persistent over time.

Overall 1990 through 2009 was a very interesting period in the market, encompassing both strong bull and bear markets. The market showed an annual increase from 1990 through 1994 below historical averages, whereas 1995 through 1999 was one of our nation's strongest bull markets. The latter half of the sample period (2000–2009), included two pullbacks in the market of greater than 50%, and exhibited relatively high market volatility.

To get a better understanding of the comparison of the return per unit of risk in the two-subperiods, we divide the entire sample into four subperiods, which equate to 60 months each. We find higher risk adjusted performance of the S&P 500 over Berkshire during 1995 through 1999. This is the subperiod in which the S&P 500 exhibited the greatest returns. In contrast, the highest relative risk adjusted performance of Berkshire occurs from 2000 through 2004, which was not only a period of overall decline for the S&P 500, but also one of the highest periods of volatility for the index.

We find that the increased correlation in the first half of the sample period between the Berkshire and the S&P 500 is primarily attributed to the first quarter of the sample period, as the correlation in the first 60 months (1990–1994) of the sample period is 0.5965. In contrast the reduced correlation in the second half of the sample period is caused by the relatively low correlation (.2942) observed for 2000 through 2004.<sup>9</sup>

Recall that the Berkshire portfolio is a diversified portfolio, not only including publicly traded domestic equity, but also international equity, private equity, fixed income, and derivatives. Although the increased diversification of Berkshire relative to the S&P 500 Index did not necessarily enhance the relative return per unit of risk during the rising market of 1990 through 1999, the diversification did appear to benefit the return per unit of risk during the more volatile bear market periods (2000–2009).

Table 2 performs a similar analysis as summarized in Table 1, but it breaks the S&P 500

Table 2 Monthly returns of Berkshire Hathaway (BRKA) compared to the S&P 500 Barra Growth Index and Barra Value Index, for the total sample period and several sub-periods (Barra returns are with dividends reinvested)

	BRKA	S&P 500 Barra Growth	S&P 500 Barra Value
01/1990–12/2009			
Return	1.02%	.67%	.64%
<i>t</i> test, <i>p</i> -value (vs. BRKA)		.006, .995	.002, .998
Standard deviation	6.31%	4.58%	4.47%
Return/standard deviation	.20%	.15%	.14%
Correlation of BRKA and S&P 500		.3830	.4960
<i>t</i> test, <i>p</i> -value, difference in correlations			3.433, .001
1/1990–12/1999			
Return	1.57%	1.57%	1.20%
<i>t</i> test, <i>p</i> -value (vs. BRKA)		.000, .999	.000, .999
Standard deviation	6.85%	4.19%	3.81%
Return/standard deviation	.23%	.38%	.31
Correlation of BRKA and S&P 500		.4561	.5310
<i>t</i> test, <i>p</i> -value, difference in correlations			1.735, .085
1/2000–12/2009			
Return	.48%	−.24%	.08%
<i>t</i> test, <i>p</i> -value (vs. BRKA)		.561, .576	.518, .606
Standard deviation	5.66%	4.19%	4.98%
Return/standard deviation	.08%	−.06%	.01
Correlation of BRKA and S&P 500		.2960	.4780
<i>t</i> test, <i>p</i> -value, difference in correlations			3.764, .000
1/1990–12/1994			
Return	1.44%	.71%	.66%
<i>t</i> test, <i>p</i> -value (vs. BRKA)		.132, .896	.114, .910
Standard deviation	6.02%	3.95%	3.46%
Return/standard deviation	.24%	.18%	.19
Correlation of BRKA and S&P 500		.5638	.5896
<i>t</i> test, <i>p</i> -value, difference in correlations			.450, .654
1/1995–12/1999			
Return	1.70%	2.45%	1.74%
<i>t</i> test, <i>p</i> -value (vs. BRKA)		.000, .999	.001, .999
Standard deviation	7.58%	4.25%	4.06%
Return/standard deviation	.22%	.57%	.43%
Correlation of BRKA and S&P 500		.3873	.4949
<i>t</i> test, <i>p</i> -value, difference in correlations			1.659, .102
1/2000–12/2004			
Return	.75%	−.61%	.20%
<i>t</i> test, <i>p</i> -value (vs. BRKA)		.482, .631	.611, .544
Standard deviation	6.14%	5.16%	4.83%
Return/standard deviation	.12%	−.12%	.04%
Correlation of BRKA and S&P 500		.1654	.4081
<i>t</i> test, <i>p</i> -value, difference in correlations			2.921, .005
1/2005–12/2009			
Return	.20%	.14%	−.04%
<i>t</i> test, <i>p</i> -value (vs. BRKA)		.610, .544	.481, .632
Standard deviation	5.13%	4.32%	5.12%
Return/standard deviation	.04%	.03%	−.01%
Correlation of BRKA and S&P 500		.4950	.5632
<i>t</i> test, <i>p</i> -value, difference in correlations			1.484, .143

into Value and Growth based upon the Barra designation.<sup>10</sup> The mean monthly return of Berkshire over the entire period appears higher than that of either the S&P 500 Barra Growth or Barra Value, however, the difference is not significant. We observe similar risk adjusted returns for both the S&P 500 Growth and Value portfolios, but both appear slightly lower than Berkshire. We report the test of the differences of the two nonindependent correlation coefficients associated with Berkshire and the S&P 500 Value, and Berkshire and the S&P 500 Growth. The S&P 500 Value has a higher correlation to Berkshire (.4960) than the S&P 500 Growth (.3830), suggesting a Value bias relative to style of the Berkshire Hathaway portfolio over the entire sample period.

Examining the subperiods, we fail to find any significant difference in mean monthly returns between the Berkshire and either the Growth or Value portfolios. Similar to the results associated with Table 1, we find that the return per unit of risk of the S&P 500 Value and Growth subcomponents appears higher than Berkshire for the first half of the sample period. In contrast, in the last half of the sample period the return per unit of risk S&P 500 Growth and Value components are lower than in the first half, and also the correlations with Berkshire are lower. Berkshire has a significantly lower correlation ( $p$ -value is 0.08) with the S&P Growth in the second half (.2960) of the sample period than was observed in the first half (.4561). This is not necessarily a surprise, as this was a weaker period for the equity markets.

Examining the quarter periods, we find that the apparent difference in the return per unit of risk between the Value and Growth components when compared to Berkshire documented in the first half of the sample period, primarily stems from the period extending from 1995 through 1999. This was similar to what we found in Table 1. We also note that the correlation between Berkshire and the S&P 500 Growth is lowest in the 2000 through 2004 period. As such, the allocation of Berkshire might have further underweighted Growth during this period. We do not find as large of underweight of Growth during the 2005 through 2009 pullback in the market, but equity in financials and real estate were substantially weak during that period.

## 5. Additional analysis

To lend additional robustness to our findings, we redo our analyses associated with Table 1 by comparing the performance of Berkshire Hathaway to an S&P 500 Index Fund. The fund chosen for the analysis is the Vanguard 500 Fund, Investor Share Class, which is a no load, passively managed, S&P 500 Index Fund. This fund originated in August 31, 1976, and is a popular traded proxy for the S&P 500.

Comparing findings in Table 1 with Table 3, across most of the time periods the returns of the Vanguard 500 Fund are no greater, and often slightly less than the S&P 500 Index. This is to be expected, as the Investor Share Class, has an annual expense ratio of just under 20 basis points.<sup>11</sup> In every single time period, when comparing the Vanguard 500 Fund to Berkshire Hathaway, the conclusions drawn to the relative return, return per unit of risk, and correlation are similar to our findings comparing the S&P 500 Index with Berkshire Hathaway. Given that the Vanguard 500 Fund is a no load fund, and our returns on Berkshire

Table 3 Monthly returns of Berkshire Hathaway (BRKA) compared to the Vanguard S&amp;P 500 Index Mutual Fund (Investor Class), for the total sample period and several sub-periods\*

	BRKA	Vanguard 500	t-test, p-value
Panel A:			
01/1990–12/2009			
Return	1.02%	.65%	215, .830
Standard deviation	6.31%	4.33%	
Return/standard deviation	.20%	.21%	
Correlation of BRKA and Vanguard		.4549	7.881, .000
Panel B:			
1/1990–12/1999			
Return	1.57%	1.39%	.547, .585
Standard deviation	6.85%	3.86%	
Return/standard deviation	.23%	.36%	
Correlation of BRKA and Vanguard		.5077	6.402, .000
1/2000–12/2009			
Return	.48%	−.085%	.246, .805
Standard deviation	5.66%	4.63%	
Return/standard deviation	.08%	−.02%	
Correlation of BRKA and Vanguard		.4029	4.781, .000
Panel C:			
1/1990–12/1994			
Return	1.44%	.68%	.174, .862
Standard deviation	6.02%	3.58%	
Return/standard deviation	.24%	.19%	
Correlation of BRKA and Vanguard		.5970	5.668, .000
1/1995–12/1999			
Return	1.70%	2.11%	.813, .419
Standard deviation	7.58%	3.99%	
Return/standard deviation	.22%	.53%	
Correlation of BRKA and Vanguard		.4529	3.869, .000
1/2000–12/2004			
Return	.75%	−.20%	.234, .815
Standard deviation	6.14%	4.68%	
Return/standard deviation	.12%	−.04%	
Correlation of BRKA and Vanguard		.2944	2.346, .022
1/2005–12/2009			
Return	.20%	.03%	.751, .456
Standard deviation	5.13%	4.59%	
Return/standard deviation	.04%	.01%	
Correlation of BRKA and Vanguard		.5424	4.917, .000

\*Berkshire Hathaway Shares are Class A. Vanguard 500 Returns are with dividends reinvested.

Hathaway do not include transaction costs, this may be an additional factor for financial planners or investors to consider.

Overall our findings suggest that financial planners and investors may lower risk and improve return my investing in a portfolio of both Berkshire Hathaway and the Vanguard 500 Fund. In performing a classic Markowitz Portfolio Optimization over the entire sample

period, we find that the optimal combination would have been to hold 64% Berkshire and 36% Vanguard 500 Fund. However, the optimal combination can consist of almost entirely one fund or the other when the sample period is divided into smaller subperiods.

## 6. Conclusion

Financial planners and individual investors continue to weigh the benefits of active versus passive portfolio management. Participating in this debate have been members of both the academic and practitioner research communities. Much of the analyses have concentrated on aggregating performance across active managers. We approach the question of active versus passive from an individual manager perspective. We examine the performance of one of the most highly touted actively managed portfolios, Berkshire Hathaway, with the performance of one of the most well known indices in the world, the S&P 500.

The analysis brings a different perspective to the debate which financial planners might appreciate. We examine the relative return and risk of each portfolio, and associate these attributes to movements in the market. In addition, we examine any growth or value biases that might be present in the actively managed portfolio during the sample period.

Over the period from 1990 to 2009, the geometric mean returns of Berkshire Hathaway appear to be higher than those of the S&P 500 Index. However, the standard deviation in the monthly returns of Berkshire Hathaway is also higher than those of the S&P 500. When examining the return per unit of risk, Berkshire Hathaway does not outperform the S&P 500 during the 20 year period.

When breaking the sample period into two halves (1990–1999 and 2000–2009) it appears that the return per unit of risk of the S&P 500 tends to lead the Berkshire during rising markets. In contrast, during the two bear markets that were so prevalent in the latter half of the sample period, the return per unit of risk of the S&P 500 tends to lag Berkshire. This finding associated with the market declines is no surprise, as the Berkshire portfolio is more highly diversified than the S&P 500.

Examining the correlations between Berkshire Hathaway and the S&P 500 Index, we find a relatively low correlation of 0.455 for the entire sample period. When comparing the S&P 500 Growth and Value indices to Berkshire, we find that over all periods that the Berkshire tends to be more highly correlated with the S&P 500 Value index, rather than the S&P 500 Growth index. When the time period is broken into four five-year periods, we find that the Berkshire portfolio was much less correlated with the S&P 500 Growth during the market decline occurring over 2000–2004, than for the market decline occurring over 2005–2009.

The findings relative to return per unit of risk and correlation over the entire sample period suggest that an investor will benefit if they are hold both Berkshire Hathaway and the S&P 500. Although financial planners are aware that that there may be complementary active and passive investment management strategies across market capitalization segments (Large Cap vs. Small Cap), we document complementary active and investment management strategies within the Large Cap market capitalization segment.

Additional analysis compares the performance of the Vanguard 500 Index Fund with Berkshire Hathaway. In every time period the conclusions drawn relative to the return per

unit of risk and correlation of the S&P 500 and Berkshire Hathaway are duplicated when comparing the Vanguard 500 Index Fund with Berkshire Hathaway. This allows financial planners to apply the research findings to an investable combination of the active and passive portfolios in hopes of adding value to their client portfolios.

### Notes

1. Shankar (2007) suggests that all index funds may not be passively managed because of index construction and maintenance.
2. The Standard & Poor's Indices Versus Active Funds (SPIVA) Scorecard is produced semiannually.
3. Warren Buffett and Peter Lynch voted top money managers of the century. *Business Wire*, November 22, 1999.
4. Examining the 1999 Annual Report to Shareholders we no significant foreign equity investments.
5. Compounded annualized returns from 1990–2009 for Berkshire Hathaway and the S&P 500 are 12.95% and 8.21%, respectively.
6. It is interesting to note that in the 1999 Annual Report, Buffett indicates that he expects the gain in Berkshire's intrinsic value over the next decade to only modestly exceed the gain from the S&P 500.
7. It could also be considered a modification of the Sharpe Ratio, which divides the portfolio return minus the risk free rate by the standard deviation. Because the risk free rate would be the same across both portfolios, simply dividing the return by the standard deviation provides a simpler calculation.
8. A Fisher r-to-z one-tailed test of differences of the two correlation coefficients has a  $p$ -value of 0.15.
9. A Fisher r-to-z one-tailed test of differences between the correlation coefficients from 1990–1994 and 2000–2004 results in a  $p$ -value of 0.02.
10. After December of 2005 the S&P 500 Barra Growth and Value Indexes became known as the S&P 500 Citigroup Growth and Value Indexes. These indexes are created by dividing the S&P 500 Index based upon seven different factors, to determine which companies are considered growth and which are considered value. About one third of the companies are allocated to both the Growth and Value indices.
11. It should be pointed out that Vanguard had a securities lending program in place during the entire sample period. This would help reduce the difference in performance between the S&P 500 and their fund.

### Acknowledgment

The author would like to thank Frank Bishop and Brandon Cline for helpful comments, and Jordan Griggs for assistance in collecting the data.

## References

- Arnott, R., & Darnell, M. (2003). Active versus passive management: Framing the decision. *Journal of Investing*, 12(1), 31–37.
- Arnott, R., A. Berkin, & Ye, J. (2000). How well have investors been served in the 1980's and 1990's? *Journal of Portfolio Management*, 26(4), 84–91.
- Bogle, J. (1995). The triumph of indexing. *The Vanguard Group*, April, 1–14.
- Bogle, J. (2000). What can active managers learn from index funds? *The Vanguard Group*, from a speech presented to the Bullseye 2000 Conference in Toronto, Canada, December.
- Fortin, R., & Michelson, S. (1999). Mutual fund indexing versus active management. *Journal of Financial Planning*, 12(2), 74–81.
- Gruber, M. J. (1996). Another puzzle: The growth in actively managed mutual funds. *Journal of Finance*, 51(3), 783–810.
- Holmes, M. (2007). Improved study finds index management usually outperforms active management. *Journal of Financial Planning*, 20(1), 48–58.
- Malkiel, B. (1996). Not so random. *Barron's*, April 22, 55.
- Malkiel, B. (1995). Returns from investing in equity mutual funds 1971–1991. *Journal of Finance*, 50(2), 549–572.
- Shankar, S. (2007). Active versus passive index management: A performance comparison of the S&P and the Russell Indexes. *Journal of Investing*, 16(2), 85–95.
- Sharpe, W. (1991). The arithmetic of active management. *Financial Analyst Journal*, 47, 1.
- Standard & Poor's Financial Services. (2010) Standard & Poor's Indices Versus Active Funds (SPIVA) scorecard, year-end 2009. *S&P Indices Research Insights*.
- Wermers, R. (2000). Mutual fund performance: An empirical decomposition into stock picking talent, style, transactions cost and expenses. *Journal of Finance*, 55(4), 1655–1703.