

DRAFT REPORT

ASSET ALLOCATION CLAIMS - TRUTH OR FICTION?

Jennifer A. Nuttall, C.A. and John Nuttall, Ph. D.

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1. INTRODUCTION

In 1986 Brinson and colleagues wrote an article [1] on the “Determinants of Portfolio Performance” (we call it B1) which was followed by an update [2] in 1991 (B2 to us). These articles have attracted a great deal of attention and have been widely quoted in the US and Canada on the web sites and in the promotional literature of mutual fund companies, financial planners, etc., in books on investing, and in articles in newspapers and magazines. We include a list of over 50 such quotations in the Appendix.

Recently Jahnke [3] claimed that the conclusions of Brinson et al. were incorrect and that the interpretation of the conclusions in the quotations was also wrong. This has led to a spirited debate, including contributions from two of the original authors [4, 5], which has been noticed in the financial press [6]. Other detractors are two Canadian articles [7, 8] and a Canadian book [9]. We began a study of the Brinson articles about two years ago and came to our conclusions in ignorance of the views of other writers. We are firmly convinced that:

- the Brinson articles contain four major fallacies plus other errors;
- all but one of the quotations in the Appendix misrepresent the results stated by Brinson in one or more material ways.

This report sets out the reasoning that led to our conclusions, which many might find difficult to accept. In Section 2 we describe the content of the Brinson articles. We include a summary of the results of their calculations based on historical return data from a number of US pension plans. We explain the nature of the fallacies in Section 3. Our arguments do not depend on any particular set of fund data, but some readers may find it helpful to refer to the results of the calculations as they read Section 3. In Section 4 we give a brief discussion of the quotations, allegedly from the Brinson articles, that are listed in the Appendix. The quotations largely speak for themselves.

2. OUTLINE OF THE BRINSON ARTICLES

A summary of each article is presented before the text. The summaries are

B1:

In order to delineate investment responsibility and measure performance contribution, pension plan sponsors and investment managers need a clear and relevant method of attributing returns to those activities that compose the investment management process - investment policy, market timing and security selection. The authors provide a simple framework based on a passive, benchmark portfolio representing the plan’s long-term asset classes, weighted by their long-term allocations. Returns on this “investment policy” portfolio are compared with the actual returns resulting from the combination of investment policy plus market timing (over or underweighting

asset classes relative to the plan benchmark) and security selection (active selection within an asset class).

Data from 91 large US pension plans over the 1974-83 period indicate that investment policy dominates investment strategy (market timing and security selection), explaining on average 93.6% of the variation in total plan return. The actual mean average total return on the portfolio over the period was 9.01%, versus 10.11% for the benchmark portfolio. Active management cost the average plan 1.10% per year. Although investment strategy can result in significant returns, these are dwarfed by the return contribution from investment policy - the selection of asset classes and their normal weights.

B2:

This article presents a framework for determining the contributions of different aspects of the investment management process - asset allocation policy, active asset allocation, and security selection - to the total return of investment portfolios. Data from 82 large pension plans indicate that asset allocation policy, however determined, is the overwhelmingly dominant contributor to total return. Active investment decisions by plan sponsors and managers did little *on average* to improve performance over the 10-year period December 1977 to December 1987. The performance attribution framework is also extended to account for actual and synthetic cash holdings within asset classes.

2.1 Problems and solutions

The first Brinson article, B1, poses and solves two problems, one general and one specific.

Problem 1 Find a method for delineating responsibility among multiple managers of a pension plan by measuring the contribution to performance of those activities that compose the investment process.

Remarks It appears that performance relates to the magnitude of the total portfolio return for the entire period under study and the variance of the return for a number of sub-periods.

B1 defines the investment process as being composed of

- investment policy - comprising two sub-components
 - the choice of asset classes in which to invest
 - the long-term (strategic) choice of asset class weights
- investment strategy - comprising two sub-components
 - market timing - adjusting the asset class weights on a short term basis
 - security selection - the choice of individual securities within each asset class.

B1 states that investment policy is implemented by passive management and investment strategy by active management.

Our analysis does not require the division of investment strategy into its two parts.

Solution 1 B1 solve Problem 1 by providing an analytical framework for decomposing the total return of a portfolio into the sum of the passive return and the active return. To do this the following data are needed:

- list of asset classes which the portfolio may contain (such as stocks, bonds and cash equivalents);
- benchmarks for each asset class (such as the S&P 500 index for stocks);
- portfolio asset class weights for each sub-period and asset class;
- sub-period returns for the portfolio and each benchmark.

For each asset class, B1 calculated a normal weight defined as the average over sub-periods of the corresponding portfolio asset class weights.

The passive portfolio is an artificial portfolio with asset class weights fixed over time equal to the normal weights, and sub-period returns for each asset class given by the benchmark returns. The return for this portfolio is known as the passive return corresponding to the period in question.

The active return for any period is defined as the difference between the actual return and the passive return.

B1 determine the relative impact of investment decisions on total return by comparing time-averaged passive and active sub-period returns. However, there is an indication that B1 believe that CD data also contains information about the importance of investment decisions on return.

B1 declare that the percentage contribution of investment policy to the variance of the portfolio is measured by the coefficient of determination (CD) between the series of sub-period actual returns and the series of passive returns. This because, in a regression analysis of actual sub-period returns against passive returns, the CD measures the proportion of the variance of the actual return that is explained by the passive return.

Problem 2 Apply the method of solution given for Problem 1 to the case of 91 US pension plans for a ten year period beginning in 1974 in order to determine, from this historical data, which investment decisions had the greatest impact on the magnitude of total return and on the variability of that return.

Solution 2 Every plan invested in the same three asset classes, US common stocks, US marketable bonds and US cash equivalents. The plans also had some other types of investments but B1 eliminated their effect and we will disregard them.

The benchmarks were:

- common stocks: S&P Total Return Index;
- bonds: Shearson Lehman Government/Corporate Bond Index;
- cash equivalents: 30 Day US Treasury Bills.

The study was based on quarterly data on the portfolio asset class weights and returns for each plan. The time averaged returns used to determine the impact of investment decisions were time averages of 10 annualized returns (AAR). The portfolio CDs were calculated from the series of 40 quarterly returns.

The second Brinson article, B2, poses the same two problems as in B1 except that the data used in Problem 2 refer to another group of US pension plans during the 10-year period beginning December 1977.

The solutions to the problems also use the same procedure apart from one significant difference. In both articles it is found that, from plan to plan, active AARs vary over a range of values that is more than 75% of the mean (average over plans) of the actual AAR. In B2, the authors assert that, since the active AAR is not statistically different from zero on account of the shape of the distribution of active AAR values, the contribution from active management is most likely attributable to chance, so that active management had no measurable impact on returns. This claim is not made in B1, where it is stated that active management can result in significant returns.

2.2 Results of Brinson calculations

The following information on normal weights was presented. Note that, in the tables below, the mean, minimum, maximum, and standard deviation are taken over the collection of pension funds studied in the article, not over time, and that “mean” is to be interpreted as an average over funds.

Article	Class	Mean	Minimum	Maximum	Std. Dev.
B1	Stocks	62.9%	37.9%	89.3%	10.6%
	Bonds	23.4%	0.0%	51.3%	9.4%
	Cash	13.6%	2.0%	35.0%	5.2%
B2	Stocks	59.6%	36.5%	83.9%	10.5%
	Bonds	26.9%	5.6%	54.0%	10.2%
	Cash	13.6%	3.5%	24.3%	4.9%

Table 1. On normal asset class weights for the various funds.

The article B2 also contains Figure D, a scatter plot of policy bond weight against policy stock weight, and two other interesting scatter plots.

The authors gave the following results for average annualized returns (AARs) of the various funds.

Article	Portfolio	Mean	Minimum	Maximum	Range	Std. Dev.
B1	Passive	10.11%	9.47%	10.57%	1.10%	0.22%
	Actual	9.01%	5.85%	13.40%	7.55%	1.43%
	Active	-1.10%	-4.17%	3.69%	7.86%	1.45%
B2	Passive	13.49%	12.43%	14.56%	2.13%	0.49%
	Actual	13.41%	10.34%	19.95%	9.61%	1.75%
	Active	-0.08%	-3.43%	6.73%	10.16%	1.67%

Table 2. On average annualized returns for the various funds.

Beebower et al. [5] provided information in Table 3 about the benchmark AARs that was not given in BB (meaning B1 and B2 collectively).

Article	Cash Equiv.	Bonds	Stocks
B1	8.6%	10.3%	10.6%
B2	9.2%	10.2%	15.3%

Table 3. On benchmark average annualized returns.

For each fund the authors also calculated the coefficient of determination (CD), sometimes called R-squared, between the series of actual quarterly returns and the series of policy returns. This number, which is the square of the correlation coefficient between the two series, lies between 0% and 100%. The following information was presented on CDs.

Article	Mean	Minimum	Maximum	Std. Dev.
B1	93.6%	75.7%	98.6%	4.4%
B2	91.5%	67.7%	98.2%	6.6%

Table 4. On coefficients of determination for the funds.

3. FALLACIES AND OTHER ERRORS

The Brinson articles contain four major fallacies because they incorrectly pose and solve the problems. The fallacies are errors in reasoning, and they do not depend on the values of the numerical results of the calculations from the fund data. In the summaries of the articles, and in the texts, BB present their conclusions. In our discussion of the fallacies we show how, in various respects, the conclusions do not follow from the analysis in the articles. There is a possibility that some of these dubious conclusions could follow from other arguments and data, not included in the articles, but this question does not fall within the scope of this report.

Below we discuss the conclusions of BB in the light of the various fallacies that we have uncovered.

3.1 Fallacy 1: BB measure effect but not cause

The following quotation is typical of several in BB with similar meaning.

“asset allocation policy ... is the overwhelmingly dominant contributor to total return.” B2, summary.

This statement is based on an interpretation of the data as showing that the passive return is much bigger than the active return for all plans or for almost all plans, depending on the intended application of the word “overwhelming”. However, nowhere do BB make any attempt to inform the reader of how much active management was undertaken by the plan managers. We can be certain that a manager who attempted no active management, but used index funds and fixed weights, would produce zero active return. Indeed it is quite possible that many managers used a style close to this. Since BB do not measure the size of the ‘cause’, active management, a statement about the size of the ‘effect’, return, is of no meaning.

We assert that the statement of Problem 1 is incomplete. It should include a requirement that the amount of the activities that comprise the investment management process should also be measured.

3.2 Fallacy 2: BB incorrectly implicitly attribute most of passive return as being due to an investment decision of the manager

Typical claims related to this point are

“Although investment strategy can result in significant returns, these are dwarfed by the return contribution from investment policy - the selection of asset classes and their normal weights.” B1, summary.

“ the normal asset class weights and the passive asset classes themselves ... provide the bulk of the return to a portfolio.” B1, page 42.

The second quotation is equivalent to the first, and it is clear, from its location in the article, that the conclusion is drawn only from the return data in Table 2, not from CD data. The claim must be based on the fact that the passive return is, in some sense, relatively large.

The key point to remember in analyzing the above claims is that the purpose of the article is to find a way of measuring the impact of a manager’s decisions on portfolio performance (in this case return). A component of return that is not influenced by the manager’s decisions, which is influenced only by the decisions of another party, or which is influenced by the manager’s decision but where the decision to make is obvious (a ‘no-brainer’), is of no relevance in measuring the impact of a manager’s decision.

We assert that the major part of passive return is such a component. We present that argument for this point of view in several alternative forms; they all lead to similar results.

1. One of the available asset classes is always going to be cash equivalents, which produce the risk free rate of return. Neither the manager nor the plan sponsor deserve any credit for achieving this return.

2. The above argument can plausibly be extended, as was done in two Canadian articles, published by Carlton and Osborn [7] and Hensel, Ezra and Ilkiw [8] in 1991, that may have escaped the notice of the participants in the recent debate. Using a line of reasoning analogous to the one BB use to define active return, these authors suggest that passive return be written as the sum of

- the return due to a benchmark portfolio with the industry average asset mix [7] or some other naive asset allocation [8], say the market portfolio, plus
- the remainder which will be due to the choice of asset class weights.

We assert that the manager does not deserve credit for the return due to the market portfolio, which will probably be close to the mean passive AAR of Table 2.

The quotation 9B in the Appendix from the 1993 book by Brinson and Ibbotson introduces the same partition of the passive return as the Canadian articles. The authors seem to concede that the contribution of investment policy should be measured relative to the risk free return. They assert that the decision to hold the market portfolio rather than the riskless portfolio (cash equivalents) accounts for a large share of policy portfolio performance.

In B1 the mean AAR for the passive return, a proxy for the market portfolio, was 10.11%, compared to the AAR for cash of 8.6%, a difference of only 1.51% that should be counted, according to Brinson and Ibbotson, as the contribution to investment policy return. In B2 the corresponding contribution is 4.29% compared to a mean passive AAR of 13.49%. Even this

view (measure relative to the risk free rate) undermines the whole thrust of BB, and we think there is a good case for measuring relative to the market portfolio.

3. In BB all the plans used the same three asset classes, presumably at the direction of the plan sponsors. The studies cannot evaluate the effect on portfolio performance of the choice of asset classes when there is only one alternative; a decision means making a choice. To make sense of BB's claim, we must assume that there was an alternative choice of asset classes, namely cash in a safety deposit box earning zero return. In this case it would be reasonable to attribute all the passive return to the manager's decision, but this falls within the category of "no-brainer", and does not count.

4. Incidentally, while BB do not study the individual investor, lots of other financial institutions have implicitly given their managers credit for all the passive return. In fact, it is the decision of the individual to invest in financial assets and not keep her money under the mattress that deserves credit for most of the passive return.

3.3 Fallacy 3: Selective use, without justification, of the Efficient Market Hypothesis

We pointed out, at the end of Section 2.1, that B1 and B2 differ in their interpretation of the significance of the range of active AARs. The following quotations illustrate the difference.

"Active management, while important, describes far less of a plan's returns than investment policy." B1, page 43.

"Individual effects (of active management) varied widely Clearly the contribution of active management is not statistically different from zero (that is, it is most likely attributable to chance). ... Active management ... had no measurable impact on returns" B2, page 44.

It appears that, in B1, the authors thought that active management had a noticeable impact on returns, but not as great a one as that of passive management. While the data showed that three plans had AARs of at least 5.5% above the mean, which must have been due to active management, B2 seem to believe that this is of no consequence when it comes to evaluating the managers' decisions, presumably because the Efficient Market Hypothesis implies that such exceptional returns must be due to chance. They should have stated in the above quotation that active management had no measurable **predictable** impact on returns, or something along these lines.

The EMH may well be valid in this case, but B2 present no evidence on the question. Neither do they explain why, if the EMH applies to active returns, it does not equally well apply to returns due to the choice of normal asset class weights in passive returns.

3.4 Fallacy 4: Incorrectly implying that the coefficient of determination contains information about time averaged returns

For each plan BB performed an analysis where the actual return in quarter J for a plan, ACT(J), was regressed against the corresponding policy return, POL(J), which means that they found constant numbers ALPHA and BETA such that

$$ACT(J) = ALPHA + BETA \times POL(J) + ERROR(J) \quad \text{for } J = 1, 40,$$

where $ERROR(J)$ is the error in the fit of the regression line for quarter J .

The coefficient of determination is calculated in terms of the variances and covariance of the two sets of data, $ACT(J)$ and $POL(J)$. The CD is a measure of the goodness of fit of the regression line to the data. A CD of 100% means that the line passes through all the data.

Information on the results of the CD calculations is given in Section 2.2, Table 4.

The following quotations interpret the CD data in terms of the contribution of passive return to the variance of the quarterly returns, and appear to be related to the second goal of Problem 2, “to determine which investment decisions had the greatest impact on the variability of total return”.

“Data from 91 large US pension plans over the 1974-83 period indicate that investment policy dominates investment strategy (market timing and security selection), explaining on average 93.6% of the variation in total plan return.” B1, summary.

“on average, policy returns accounted for 91.5% of the variance of the actual returns.” B2, page 45.

These claims just express the standard statistical interpretation of the CD and appear to be valid, except that the word “explain” may be a little strong.

However we disagree with the implication of the following quotation, which contains a fallacy.

“Tables VI (return data) and VII (CD data) clearly show that total return to a plan is dominated by investment policy decisions.” B1, page 43.

Because of the way it is defined, the CD contains no information about the time averaged actual and policy quarterly returns. This is a matter of mathematics [10]. There is also no reason to believe that the CD contains any information about AARs listed in the return data. Thus the CD cannot tell us anything about the contribution of passive AAR to actual AAR.

Jahnke expresses this point in another way. Suppose that a constant return, say 1.3%, was added to each quarterly passive return. That would add 1.3% to each actual quarterly return and zero to the active return but the CD would be unchanged. How in view of this fact can the CD be thought of as a measure of the contribution of policy return to actual return?

Suppose the CD was 100%, not far from the case for many of the plans in the studies. Then it can be shown that the error terms are all zero, but this does not mean that time averaged policy and actual returns are equal. The two time averaged returns $POLAV$ and $ACTAV$ are related by

$$ACTAV = ALPHA + BETA \times POLAV.$$

The relation between $POLAV$ and $ACTAV$ depends on the parameters $ALPHA$ and $BETA$ which could have any values, depending on the data. It would have been helpful for BB to present some information about $ALPHA$ and $BETA$, but we know from the return data that the passive AAR is not close to the actual AAR for a many plans.

It is not perhaps surprising that the CD is close to 100% for many of the plans. The CD measures the extent to which the quarterly returns of the two portfolios deviate in step with one another. It

may be that most bonds tend to move together. It is likely that the equity components of many funds were close to the benchmark portfolio (closet indexing), especially in light of the fact that the equity component of some funds was distributed between a number of managers. If there were no active management, then of course the CD would be 100%. To some extent the deviation of the CD from 100% might measure the amount of active management, but it is possible that an actively managed fund could still have a CD near 100%.

As a result of these considerations we have to conclude that, with respect to the CD data, the last quotation is false. The CD data can tell us nothing about returns. We have already shown that it is false as far as return data are concerned.

4. DISCUSSION OF THE QUOTATIONS FROM BB

The statements attributed to BB in the list in the Appendix have all been gathered during the last two years, mostly from web sites. Some of these statements may no longer appear on the sites. In almost all cases the statements refer directly to BB; in a few cases we have inferred that BB was their source.

4.1 The accuracy of the quotations

Almost all the quotations in the Appendix make a statement involving a numerical value of a percentage. These statements must be referring to the following two statements from BB, for these are the only statements in the articles of this form.

“Data from 91 large US pension plans over the 1974-83 period indicate that investment policy dominates investment strategy (market timing and security selection), explaining on average 93.6% of the variation in total plan return.” B1, summary.

“on average, policy returns accounted for 91.5% of the variance of the actual returns.” B2, page 45.

Only one statement in the Appendix, the second quotation in 2C from CIBC, accurately copies what BB write. All the others differ from the BB statements in material respects. The percentages of the numerical quotations in the Appendix that have the various main errors are as follows.

- the quotation refers to XX% of return (or performance, or results) and not variance or variation - 75%
- the quotation omits the words “on average”, which are emphasized by B2 - 95%
- the quotation incorrectly interprets the meaning of “variation” as, for example, a variation over funds - 10%
- the claim is too strong using words such as “proved”, “shown”, etc. without making it clear that the BB results refer to a specific case only - 45%

Most quotations contain at least two errors.

The first error, which may involve the omission of just a few words, completely changes the meaning of the BB statements. BB never made a claim about the numerical value of the contribution of investment policy to total return, even on average. We are fairly sure that BB would have made such a claim if they had thought it justified.

The second error, the omission of the words “on average”, gives a spurious air of scientific precision to the quotation, especially when the percentage is given to three figure accuracy.

NOTES AND REFERENCES

[1] “Determinants of Portfolio Performance”, Gary P. Brinson, L. Randolph Hood and Gilbert P. Beebower, Financial Analysts Journal, July/August 1986, pp 39-44. We denote it by B1.

[2] “Determinants of Portfolio Performance II”, Gary P. Brinson, Brian D. Singer and Gilbert P. Beebower, Financial Analysts Journal, May/June 1991, pp. 40-48. We denote it by B2.

[3] “The Asset Allocation Hoax”, William W. Jahnke, Journal of Financial Planning, February 1997,

[4] "Asset Allocation Hoaxes and the Creation of Straw Men", Brian D. Singer, Journal of Financial Planning, October 1997,

[5] "Asset Allocation: Is it a Hoax?" by Gilbert Beebower, Michael Hogan, Robert Ludwig

[6] “A 93.6% Solution? No, Asset Allocation Isn’t Everything, but It Has an Impact”, Jonathan Clements, Wall Street Journal, October 7, 1997.

“The Trouble With Asset Allocation”, Maggie Topkis, FORTUNE, October 13, 1997.

[7] “The Determinants of Balanced Fund performance”, Colin G. Carlton and John C. Osborn, Canadian Investment Review, Spring 1991, pp. 11-16.

[8] “The Importance of the Asset Allocation Decision”, Chris R. Hensel, D. Don Ezra and John H. Ilkiw, Financial Analysts Journal, July/August 1991, pp. 65-72.

[9] Extract from “The Canadian Mutual Fund Bible”, Mark E. Newsome and Thomas H. Box, Macmillan Canada, found at www.finpipe.com/mutual under the heading “Asset Allocation and Mutual Funds”.

[10]math

APPENDIX - QUOTATIONS FROM BB

US fund managers, financial planners, etc.

1A. Vanguard Group - Vanguard University www.vanguard.com

“Various academic studies have proven that individual stock or fund selections determine only about 5% of your long-term return. The remaining 95% is determined by the way you allocate your assets to stocks, bonds, and cash reserves.” B1, B2

“One study suggests that more than 91 percent of a portfolio's return is attributable to its mix of asset classes. In this study, individual stock selection and market timing together accounted for less than seven percent of a diversified portfolio's return.” B2

2A. Citibank Re: CitiSelect Portfolios Asset Allocation Funds
www.citicorp.com/us/investments

“Financial studies have shown that asset allocation can be responsible for up to 90% of a portfolio’s performance.” B2

3A. SEI Investments - Investment Advisory Group Re: Asset allocation funds
www.seic.com
Chief Economist of SEI is Gilbert Beebower, an author of B1, B2.

“Each fund is based on proven research demonstrating that asset allocation - how investment dollars are divided among stock, bond, and money market funds - is responsible for more than 90% of the ultimate performance of an investment portfolio” B2

4A. Schwab OneSource Portfolios - Allocation funds
www.schwab.com/SchwabNOW/SNLibrary/SNLib033/SN033OnePortAllIntro.html

“Studies show that an asset allocation strategy can enhance return while minimizing risk.” B2

5A. Legg Mason NYSE LM 100 offices, 1000 financial advisors. Re: Strategic Allocator
www.leggmason.com/Invest/AssetAlloc/diverse.html

“Studies ... have shown that as much as **92% of large portfolios’ investment returns are determined by the asset allocation decision.**” B1, B2

6A. First American Financial Corporation NYSE FAF Re: Asset Allocation Investment Program www.firstam.com/trust/html/cust/3200.html

“Successful investor’s (sic) recognize that over 90% of a portfolio’s total return is due to a defined investment percentage of each type of market asset”, Ibbotson Associates, Stocks, Bonds, Bill, and Inflation 1995 Yearbook.

Pie chart heading “Importance of Asset Allocation Determines of a Portfolio’s Total Return”

Asset Allocation Policy	91.5%
Security Selection	4.6%
Market Timing	1.8%
Other Factors	2.1%

7A. Touchstone Advisors Re: Personalized Asset Allocation www.touchstonefunds.com

“Many years of study have shown that the asset allocation decision exercises, by far, the largest impact on overall portfolio performance. A 1991 study (B1) shows that the asset allocation decision alone explains 91.5% of the variation in performance ... That’s why it’s the single-most important factor of any serious investment program and why our country’s largest institutional investors have been using this strategy for over 60 years.”

8A. Asset Dynamics - Financial Planners www.assetdynamics.com

“B2 demonstrated that approximately 93% to 95% of the performance and risk in any investment portfolio can be attributed to the asset classes chosen, and only around 5% to 7% can be attributed to market timing, the style of the manager, or the individual investments selected.”

9A. Comfin - Registered Investment Advisor Re: Asset Allocation Consulting www.comfin.com

“Studies have shown that on average as much as 91% of your investment portfolio’s overall return can be attributed to the asset class selection that you make.” B2

10A. Tim Wallender - Registered Investment Advisor - Re: Strategic Index Money Manager www.ntgrp.com/vanguard/invest.html

“Investment performance is primarily determined by being in the right Asset Class or Index (94% of performance) of stocks rather than trying to pick the right individual stocks (only 4%) or trying to time the market (only 2% of performance).” B1, B2

11A. E. F. Moody - Financial Planner www.efmoody.com/why.html

“93.6% of the return was explained by the movements in the underlying asset classes they were investing in.” B1 “A study by Ibbotson in 1995 noted that 91.5% of the returns were due to the allocation of funds”

12A. Evensky, Prown, Katz & Levitt - Financial Planners - H. Evensky nationally recognized author. www.evensky.com

“The seminal studies B1 and B2 quantified the importance of the decision of how your portfolio is divided among various asset classes and management styles, and demonstrated that over 90% of the variation in returns is directly attributable to the asset class allocation policy decision.”

13A. EducationIRA.com - Strong Funds Distributors

“Asset Allocation has a large impact on investment performance. In fact, according to a study by The Financial Analysts Journal, approximately 91.5% of a portfolio's return depends on how you allocate your money among various types of stock, bond, and money market investments. The other 4.6% and 1.8% are dependent upon security selection and market timing, respectively.” B2.

14A. Al Woodward, CFP, Denver

“A 1986 study of 91 large pension plans by B1 found that 94 percent of their returns could be explained by asset class selection.”

15A. Darwin Abrahamson, retirement planning consultant, Carmel, California.

“B1 demonstrated that, of the 91 pension funds they examined, 93.6 % of the performance was based solely on asset allocation. Even more remarkable was their conclusion that attempts at market timing, with a 2% influence, and individual stock selection, with a 4% percent influence, usually resulted in negative returns.”

16A. BARRA RogersCasey

“Asset allocation is the primary determinant of a fund’s performance. Numerous studies have shown that 90% of a fund’s investment return is the result of the strategic asset allocation.” Brinson, Journal of Portfolio Management.

17A. Goldsmith Mellon DeLosReyes, Inc., Investment Management Consultants

“In a research study of pension plan performance conducted by B1 and updated by B2, it was concluded that asset allocation accounted for 92% of the investment results, 5% from security selection, and 3% from tactical or market timing.”

18A. R. Douglas Pauley, Financial Planner, Texas.

“A study by B1 concluded that approximately 92% of the returns of a portfolio could be attributed to the portfolio's allocation amongst the different asset classes it contained.”

19A. KERN & COMPANY ADVISORY, INC., whose financial planners are Registered Representatives of Mutual Service Corporation,

“The study was conducted by B1 with a later study in 1991 by B2, confirming the earlier findings. These studies show that asset allocation accounts for more than 90% of an investor's return. The rest is determined by market timing, security selection and other factors.

Think about that for a moment. If asset allocation accounts for more than 90% of an investor's return, that means that less than 10% is determined by market timing and security selection and yet where do many investors, the media, and most stock brokers spend most of their time?... worrying about market timing and security selection. We concentrate on asset allocation because, that's where historically more than 90% of investment return is determined.”

20A. KPMG, Strategies for Financial Planning 1998 booklet.

“A 1986 study by B1 indicates that asset allocation and investment policy dominates market timing and security selection to explain roughly 94 percent of portfolio variance. The asset allocation decisions that investors make are by far the single greatest determinant for future investment success.”

21A. HCM Investment Management, Inc., Denver

“The asset allocation decision is by far the most important judgment any investor will make. Various studies have found this factor to contribute up to 95% of a portfolio's return. Security selection, market timing and other elements make up the remainder. So, instead of asking for the right stock or bond at the right time, you should concentrate on the proper mix of asset classes that will give you the greatest return relative to your level of risk. It is important to place emphasis on this because if you're wrong on the 95% factor, you're not going to make up the difference by being right on the other 5% factors.” B1

22A. Wells Fargo Bank

“As illustrated below (pie chart, no numbers), the long term performance of a portfolio depends largely on its asset allocation strategy, not on specific investments selected or when those investments are bought or sold.” B2

23A. Dreyfus Family of Funds

“While the concept of asset allocation may be simple, allocating your assets in an appropriate manner is vitally important to the long-term performance of your investment portfolio. In fact, studies have shown that the way you allocate your assets, not individual security selection, is the single greatest contributor to portfolio performance.” B1

24A. Wheat First Union Strategic Asset-Allocation Review (STAR)

“With decades of market activity to analyze and hundreds of studies to review, we now know the most important factor that affects investment performance isn't the ability to time the market, anticipate global economic changes, or forecast investor psychology. In fact, more than 90% of a portfolio's performance depends on a process known as asset allocation--the science of combining the right categories of investments.

What Drives a Portfolio?

4.6% Security Selection
2.1% Market Timing
1.8% Other Factors
91.5% Asset Allocation.” B2

US newsletters, books, etc.

1B. CIGNA - large insurance company Retirement newsletter
www.cigna.com/retirement/iy/spring96/index.html

“Studies show that over 90% of a portfolio’s total return is the result of asset allocation, and not the selection of individual investments.” B2

2B. Norwest - large bank. Norwest Advantage Newsletter
www.nwadvantage.com/nwa/pg3.html

“One study showed that 92% of the performance of investments is primarily determined by how the assets are allocated, not by the selection of individual securities or funds.” B2

3B. Valic - subsidiary of American General Corporation, large insurance company.
Retirement plan information for employees. www.valic.com/23ea.html

“A landmark study by leading investment analysts B2 showed that more than 91% of the time, the most important factor in determining investment results was the way portfolio assets were allocated among the three asset categories - stocks, bonds and cash equivalents.”

4B. “Bogle on Mutual Funds” 1994, by John C. Bogle, Founder, Chairman and CEO (in 1994) of Vanguard Group, a non-profit organization owned by the funds.

“Asset mix (stocks, bonds, cash) has accounted for an astonishing 94% of the differences in total returns achieved by institutionally managed pension funds. The results of this study have been reaffirmed by countless others.” p. 235 B1

Bogle has now changed his position. In 1997 he wrote

“B1 stated that ‘investment policy dominates investment strategy . . . , explaining on average 93.6% of the variation in total [pension] plan returns.’ This statement may well be the seminal (and surely the most quoted) single citation on the subject of asset allocation.

Properly understood, the conclusion is, I think, beyond challenge. Unfortunately, however, it has been subject to considerable misunderstanding. It is often cited as meaning that asset allocation accounts for the differences in the annual rates of return earned by pension funds, rather than the quarterly variations of returns. I must confess that in my book, ‘Bogle on Mutual Funds,’ I made that error, saying that the allocation of assets among stocks, bonds, and cash ‘has accounted for an astonishing 94% of the differences in total returns achieved by institutionally managed pension funds.’ Happily, I think I rectified that shorthand summary by coming up with the correct conclusion: ‘[L]ong-term fund investors might profit by concentrating more on the allocation of

their investments between stock and bond funds and less on the question of which particular stock and bond funds to hold." I stand by that conclusion today."

5B. "Prudent Investor's Guide to Beating the Market" 1996, by J. J. Bowen, C. H. Reinhardt, A. B. Werba.

"Asset allocation accounted for over 90% of the profit determination." p. 5 B1

6B. "Asset Allocation" 1996, by Roger C. Gibson.

"Dramatic support for the importance of asset allocation is provided by B1. The study sought to attribute the variation in total returns to three factors: asset allocation policy, market timing and security selection. The study dramatically supports the notion that asset allocation policy is the primary determinant of investment performance." p. 12, plus a figure entitled

Determinants of Portfolio Performance	
Asset allocation	91.5%
Market timing	1.8%
Security selection	4.6%
Other	2.1%

7B. "Stocks, Bonds, Bill, and Inflation 1995 Yearbook", Ibbotson Associates. Figure as in 6B.

8B. Ibbotson Associates, Inc. Chicago consulting firm on finance, investments, economics; president Roger G. Ibbotson www.ibbotson.inter.net/to_intro.htm

"Recent research has estimated that the asset allocation decision accounts for 91.5% of the variation between returns of different portfolios." B2

9B. "Global Investing" 1993, by Roger G. Ibbotson (President, Ibbotson Associates and Professor of Finance, Yale University) and Gary P. Brinson (President, Brinson Partners, Inc., Chicago, institutional investment management firm, and an author of B1, B2)

"B2 found that differences in policy allocations accounted for 91.5% of the variations of returns across the sample of portfolios." p. 58

"The decision to adopt an asset allocation policy can be divided into two parts. First, the decision to hold any diversified asset mix (say, the market portfolio), rather than the riskless portfolio, accounts for a large share of the policy portfolio performance. Second, the deviation of the policy mix from the typical or market mix accounts for the rest of the policy portfolio performance." p. 59

10B. Warren Bitters, The New Science of Asset Allocation, 1997

"The book explores the conclusion by B1 that asset allocation policy explains 93.6% of investment return."

11B. Susan Karp, Quicken.com; ex Charles Schwab & Co.

"‘Asset allocation will be the most important decision you're going to make long term,’ says Maria Crawford Scott of the American Association of Individual Investors. Scott's opinion is backed by research done by Ibbotson Associates and Brinson Partners, who have found that asset allocation alone determines 91.5 percent of a portfolio's return.”

12B. Susan Lee, contributing editor, Worth on the Web.

“A 1987 study of big pension plans by Roger Ibbotson and Gary Brinson showed that decisions on asset classes accounted for 93.6 percent of the difference in total returns -- far more than the manager's choice of securities or market-timing maneuvers. Other studies have since confirmed that asset allocation is the single most important determinant of performance.” B1

Canadian fund managers

1C. Bank of Montreal - MatchMaker Strategic Investment Service

“Studies have shown that over 80% of investors’ returns over time came from the mix of asset classes that they invested in. Less than 20% of their return could be traced to choosing the right individual investment.” Repeated often on Web site from January 9, 1996 to the present.

“Studies have shown that between 80 and 90% of an investor’s return can be attributed to having the right asset mix.” First Canadian Funds Newsletter - The Strategic Investor Winter 1997.

The representative of the Bank of Montreal did not know the source of the studies, but included BB in a list of studies on the subject.

2C. CIBC - SAM Strategic Asset Manager

“We agree with other investment experts who say that 90% of portfolio performance is due to the mix of investments in your portfolio.” Newspaper advertisement , about 1 year ago. B1

“In 1986, three researchers published an article in the Financial Analysis Journal (sic) that has had a tremendous impact on the way we invest. In their report, Gary Brinson, L. Randolph Hood, and Gilbert Beebower stated that, on average, more than 90% of the variation in a portfolio's quarterly performance comes from its asset mix - the proportion of savings, income, and growth investments held. Not, in other words, from picking specific securities, like so-called "hot-stocks." The researchers went on to say that investment selection and market timing have only a modest effect on returns. Since then, the 90% result has been challenged, but experts generally agree that asset mix is the key factor in long-term investing success.” CIBC Net Worth, Winter 1998. B1

3C. TD Bank

“Experts estimate that asset mix - the combination of money market, income and growth investments - accounts for more than 80% of a portfolio's return over the longer term. In other words, the allocation of investments to each asset class is far more important than the selection or timing of individual investments.” TD web site relating to Wealth Allocation Model, a simple questionnaire.

“Research has shown that the right mix of assets is the most important factor affecting the return on your investments. Experts (B2) say that over 90% of the variance in portfolio returns is attributable to the asset mix decision with less than 10% due to the specific securities selected.” From brochure for TD Navigator, a service to advise investors with more than \$100,000 in assets.

“Studies consistently show that asset selection produces more than 70% of a portfolio’s return” Green Line News, January, 1998.

4C. Royal Bank - International Strategic Portfolio Account

“Protecting Your Wealth with a Diversified Portfolio: Independent studies have shown that more than 85 percent of your investment returns are determined by the way your asset mix is managed. B1” From Royal Bank web site.

5C. ScotiaBank - Autopilot Asset Allocation Services

“A major part of a successful investment plan is how you decide to divide your investment between Cash Equivalent, Income and Growth categories. This is the asset allocation decision. ... Diversifying an investment portfolio is the best way to reduce risk. Studies have shown that more than 90% of a portfolio's return is based on the asset allocation of the portfolio. It is more important to have the right asset class than it is to have any individual investment.” Web site.

Source not provided despite several requests.

6C. Canada Trust - Investor News, Winter 1997 Colin Carlton, now Chief Investment Officer

“Several studies of institutional investors have clearly shown that the risk and returns in any portfolio can be attributed to three key factors -

- the way the total investment is typically divided among the primary asset categories ... - commonly called asset allocation
- market timing
- the individual stocks or bonds that are selected within each category.

Of these, asset allocation is the dominant factor in controlling risk and optimizing potential returns.”

On request source given by Mr. Carlton as references [7, 8]. Mr. Carlton was an author of reference [7], which appears to agree with our opinion on Fallacy 2.

7C. AGF - Various AGF Asset Allocation Funds including AGF Asset Allocation Service

“The way you allocate your investments has a far greater impact on your portfolio's performance than your choice of investment vehicles. In fact, studies show that investors derive 90% of excess investment returns by allocating assets strategically within a portfolio, not from choosing a particular investment vehicle.”

“Research has shown that asset allocation is responsible for more than 90% of your overall return (the average from six studies performed from 1986 to 1993 in Canada and the US covering various periods between 1974 to 1992. - source William M. Mercer Limited).” This statement appears under the heading “Asset allocation is the number one contributor to investor success.”

“A study examining investment portfolios over many business cycles found that the way assets were allocated within portfolios accounted for over 90% of the difference in performance. The key wasn't which particular stocks were owned, but what percentage of the portfolio was allocated to stocks at different stages of the business cycle.” Extracts from the AGF web site, March, 1998.

Source for all statements - BB + references [7, 8] + 2 other Canadian studies.

8C. MacKenzie - STAR Strategic Asset Allocation Service

“Research has shown that the weighting of holdings among various asset categories accounts for more than 90% of investment returns”

“The single most important factor on the comparative performance of the various pension funds (in the study) was the selection and weighting of various asset types, or strategic asset allocation. The study showed that this factor was responsible for 93.6% of the variation in returns of the pension fund portfolios.” B1. MacKenzie web site pages on STAR.

9C. IFIC - Investment Funds Institute of Canada Advertising Supplement in Maclean's Magazine,

“Studies have shown, and practitioners can attest, that up to 90% of a portfolio's return can be attributed to the asset allocation decisions - the percentages of various classes of assets in the portfolio as distinct from the fund manager's stock-picking ability.” BB. Excerpt from book by Steven Kelman.

Canadian books, magazines, etc.

1D. Michael Nairne, president, The Equion Group, Toronto, in CA Magazine, Jan./Feb. 1994.

“B1 attributed an amazing 93.6% of the portfolios' investment return to the managers' asset allocation decisions.”

2D. David Keeley, Vice President, Phillips, Hager & North, Toronto, in CA Magazine, Apr. 1996.

“B2 showed that ... 91.5% of investment returns were attributed to the managers' long-term asset allocation decisions; less than 5% of overall investment performance was attributed to superior securities selection and market timing.”

3D. George Hartman, Globe and Mail, Toronto, quoted in “Investments”, Canadian edition, Bodie, Kane, Marcus, Perrakis & Ryan, 1993.

“Over 90% of a portfolio's performance can be attributed to how the money was apportioned among cash, bonds and stocks.” B1

4D. William Sharpe, Gordon Alexander & David Fowler, “Investments”, Canadian edition, page 708, appear to endorse BB.

“For evidence suggesting that asset allocation is the most important decision an investor has to make, see B1.”