

Buffett's Asset Allocation Advice: *Take It ... with a Twist*

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Retirees need to carefully balance the risk of spending too much and outliving their savings with the risk of spending too little and lowering their lifestyle unnecessarily. The two main tools they can use to avoid falling off either side of the cliff are the portfolio's withdrawal rate and asset allocation. Regarding the latter, in his 2013 letter to Berkshire Hathaway shareholders, Warren Buffett discussed the simple advice he gave to the trustee who will manage the bequest his wife will receive:

What I advise here is essentially identical to certain instructions I've laid out in my will. One bequest provides that cash will be delivered to a trustee for my wife's benefit ... My advice to the trustee could not be more simple: Put 10% of the cash in short-term government bonds and 90% in a very low-cost S&P 500 index fund. (I suggest Vanguard's.) I believe the trust's long-term results from this policy will be superior to those attained by most investors—whether pension funds, institutions or individuals—who employ high-fee managers. Buffett [2013, p. 20]

Buffett does suggest in his letter that investors should follow a simple approach by

passively investing in a broadly diversified, low-cost portfolio; he does not suggest or imply, however, that investors should have a 90/10 stock/bond allocation. Nonetheless, his comment begs the question: Is the asset allocation Buffett advised for his wife appropriate for other investors? If yes, why? If not, why not?

An obvious distinction between Buffett's wife and the average investor quickly comes to mind: The average investor needs to implement an asset allocation that carefully balances the two risks already mentioned—overspending and underspending. Buffett's wife, however, is likely to receive a nest egg large enough that she will not have to worry about either risk. In other words, nearly any asset allocation will enable Buffett's wife to live comfortably and still outlive her portfolio, which is not the case for most investors.

That said, this article evaluates the merits of the 90/10 allocation that Buffett advised for his wife, relative to other static allocations with different stock/bond proportions, for investors at large. Furthermore, it explores two minor twists to the 90/10 allocation: one accounting for the behavior of the stock market, and the other accounting for the relative behavior of the stock and bond markets.

In a nutshell, the evidence discussed here suggests that, aside from having a very low failure rate, the 90/10 allocation results

in an interesting middle ground between the upside potential of more aggressive static allocations and the downside protection of more conservative static allocations. Perhaps more interestingly, the minor twists considered here result in two very simple dynamic strategies that increase both the upside potential and the downside protection of the 90/10 allocation suggested by Buffett.

The rest of the article is organized as follows. The next section discusses in more detail the issue at stake; the section after that discusses the evidence, first considering several static strategies, and then considering two simple twists to the 90/10 allocation; and a concluding section provides an assessment of the results.

THE ISSUE

The two main variables retirees can adjust when managing their nest egg, the portfolio's withdrawal rate and asset allocation, have both received considerable attention from academics and practitioners. Bengen [1994] pioneered the research on sustainable withdrawal rates by introducing the '4% rule' for withdrawals, and much literature soon followed in his wake.¹ Academic interest in asset allocation during retirement is a more recent development but has also received wide attention. Estrada [2016] reviews and discusses both issues in some detail.

In terms of asset allocation, retirees can choose between static or dynamic strategies. The former implies a constant proportion of stocks and bonds to which the portfolio is rebalanced periodically; the 60/40 stock/bond allocation arguably is the most popular of these strategies. The latter implies an asset allocation that changes over time, which may be implemented in at least two ways. One is to have the asset allocation evolve in a predetermined fashion, such as in the 'age-in-bonds rule'²; the other is to have the asset allocation tied to valuation, typically (but not exclusively) focused on the stock market, so that the weight of stocks is relatively high (low) when the market is cheap (expensive).

Needless to say, both static and dynamic strategies have their respective pros and cons. Static strategies are simple and require little information. However, they may prove increasingly difficult for retirees to maintain if the allocation is aggressive (for example, a 90/10 split for a 70-year-old individual with a modest portfolio) and ignore valuation considerations even in extreme situations (as in December 1999).

Dynamic strategies, on the other hand, seem to "feel right" in the sense that they may become progressively more conservative (as in the age-in-bonds rule) or take valuation considerations into account, thus aiming to avoid high exposure to overvalued assets. However, they may be difficult for retirees to implement and require information about valuation that retirees may not have or understand.

Both static and dynamic strategies are considered in this article. Among the former, eight asset allocations with varying stock/bond proportions were evaluated, with special attention paid to the 90/10 split suggested by Buffett. Among the latter, two minor (valuation-based) twists to the 90/10 allocation were evaluated and compared to both the 90/10 and the 60/40 allocations; the first twist focuses on the valuation of the stock market and the second on the relative valuation of the stock and bond markets.

Importantly, the two dynamic twists considered in this article are trivial to implement: Retirees only need information about the performance of stocks, or that of stocks and bonds, over the previous year, which is publicly and widely available. Retirees do not need to know tools of fundamental analysis (such as the price-earnings ratio [P/E] or cyclically adjusted price-to-earnings ratio [CAPE]) or technical analysis (such as moving averages or charts), nor do they need to make judgments on the valuation of stocks and bonds.

EVIDENCE

This section discusses the evidence as it applies to the U.S. market over the 115-year period between 1900 and 2014. The first subsection discusses the data and methodology; the second evaluates static strategies; and the third evaluates two simple dynamic twists to the 90/10 allocation.

Data and Methodology

The analysis used here was based on the two asset classes suggested by Buffett: stocks and short-term government bonds (U.S. Treasury bills), both represented by Dimson–Marsh–Staunton indexes, described in detail by Dimson, Marsh, and Staunton [2002, 2015]. Returns were annual, adjusted by inflation, and account for capital gains/losses and cash flows. Over the 1900–2014 period considered here, stocks and bonds had mean

annual compound (real) returns of 6.5% and 0.9%, with annual volatility of 20.0% and 4.6%.

Because Buffett did not intend to recommend the 90/10 allocation to all investors and therefore was light on details, a few assumptions were made to evaluate the performance of this strategy. It was assumed, first, that Buffett suggests maintaining a constant 90/10 allocation over time; second, that the portfolio is rebalanced once a year to maintain the 90/10 allocation constant; and third, that the annual withdrawal is made proportional to the asset allocation, which implies withdrawing 90% from stocks and 10% from bonds. The last two assumptions, annual rebalancing and proportional withdrawals, were applied to all the other static strategies considered. The second assumption, annual rebalancing, was also applied to the two dynamic twists to the 90/10 allocation.

The analysis was based on a \$1,000 nest egg at the beginning of retirement, an initial withdrawal of 4% of the nest egg, subsequent withdrawals annually adjusted by inflation, and a 30-year retirement period. At the beginning of each year the annual withdrawal was made, the portfolio was then rebalanced (should the strategy call for rebalancing) to the target allocation for the year, and then it was compounded at the observed return of stocks and bonds for that year. This process was repeated at the beginning of each year during the 30-year retirement period, at the end of which the portfolio had a terminal wealth or bequest that may have been positive or zero. The first 30-year retirement period considered was 1900–1929 and the last one was 1985–2014, for a total of 86 rolling (overlapping) periods.

The analysis focused on the failure rate as well as the upside potential and downside protection provided by the strategies considered. The failure rate was defined as the proportion of the 86 retirement periods considered in which the portfolio was depleted before 30 years; if history is any guide, this failure rate should serve as a good proxy for the probability of portfolio failure. Both upside potential and downside protection were assessed from the distribution of terminal wealth or bequest, which results from aggregating the 86 wealth levels at the end of each of the 86 periods considered.

Static Strategies

The first step in assessing Buffett's advice was to consider several static stock/bond allocations that can be compared to the 90/10 allocation suggested by Buffett.

To that purpose, Exhibit 1 reports the results for eight static strategies with stock/bond allocations ranging from 100/0 to 30/70, in all cases rebalanced annually to the stated proportions. The analysis of upside potential and downside protection follows the course suggested by Estrada [2014a, 2014b, 2014c, 2016].

The strategies that call for equity holdings between 100% and 40% have very similar failure rates, none higher than 3.5%. Only when the proportion of stocks is at or below 30% does the failure rate increase considerably, in all cases above 10%.³ Although opinions are varied regarding what failure rates are acceptable, most practitioners seem to agree that failure rates below 5% should be viewed as acceptable by most retirees. In short, although the 60/40 strategy never failed, the 100/0 and 40/60 failed 3.5% of the time, and Buffett's 90/10 failed 2.3% of the time, there does not seem to be a substantial difference in the failure rates of portfolios holding at least 40% in stocks.

The mean and median bequest of the strategies with a failure rate lower than 5% increase monotonically

EXHIBIT 1

Static Strategies

Stocks/ Bonds	100/0	90/10	80/20	70/30	60/40	50/50	40/60	30/70
Failure	3.5	2.3	2.3	1.2	0.0	1.2	3.5	12.8
Mean	3,232	2,638	2,116	1,661	1,267	930	647	423
Median	2,881	2,485	2,005	1,494	1,129	746	557	282
P99	12,064	8,625	5,990	4,011	3,208	2,493	1,875	1,355
P95	10,882	7,820	5,529	3,943	2,837	2,161	1,613	1,196
P90	8,997	6,695	4,930	3,620	2,647	2,007	1,507	1,104
SD	2,747	2,022	1,476	1,073	786	589	456	352
P1	0	0	0	0	2	0	0	0
P5	20	42	58	86	93	38	1	0
P10	182	219	236	241	204	152	36	0

Notes: This exhibit shows summary statistics for eight static strategies evaluated over 86 rolling 30-year retirement periods, beginning with 1900–1929 and ending with 1985–2014. All strategies consider a starting capital of \$1,000, annual withdrawals of \$40 in real terms, and annual rebalancing to the stock/bond allocations indicated in the first row. The failure rate (Failure) is the proportion of the 86 retirement periods in which the portfolio was depleted before 30 years. The statistics that describe the distribution of terminal wealth across the 86 retirement periods include the mean; median; standard deviation (SD); average bequest in the lower 1% (P1), 5% (P5), and 10% (P10) tail; and average bequest in the upper 1% (P99), 5% (P95), and 10% (P90) tail. Returns over the 1900–2014 period are annual, real, and account for capital gains/losses and cash flows. All figures are in U.S. dollars except for failure rates (in %).

with the proportion of stocks in the portfolio; put differently, the higher the proportion of stocks in the portfolio, the higher the expected bequest. The same is true for the upside potential in particularly good retirement periods (those occurring less than 1%, 5%, or 10% of the time and quantified by P99, P95, and P90 in Exhibit 1), which monotonically increases with the proportion of stocks in the portfolio. In short, the upside potential variables favor portfolios heavily invested in stocks, which implies that, from this perspective, Buffett's suggested strategy ranks second only to an all-equity portfolio.

Needless to say, risk is an essential component in the evaluation of any investment strategy. Exhibit 1 quantifies risk in two ways. The first measure is the standard deviation of the distribution of terminal wealth (SD), which measures uncertainty about the bequest and suggests that the higher the proportion of stocks in the portfolio, the more uncertain a retiree will be about his or her bequest. In this regard, it is important to keep in mind that deviations from the mean in either direction increase the standard deviation; hence, the high upside potential of strategies heavily invested in stocks contributes substantially to the large standard deviations of these strategies.

For this reason, a more plausible method of assessing the risk of the strategies considered here is by focusing on the terminal wealth in particularly bad retirement periods (those occurring less than 1%, 5%, or 10% of the time and quantified by P1, P5, and P10 in Exhibit 1), which provides a measure of downside protection when tail risks strike.⁴ As the exhibit shows, if risk is assessed this way, the 60/40 and 70/30 strategies have a slight edge over other strategies. In the worst 1% of retirement periods (which, in our case, is the worst-case scenario), all strategies except the 60/40 allocation fail; in the worst 5% of retirement periods, the 60/40 allocation yields the highest terminal wealth; and in the worst 10% of retirement periods, the 70/30 allocation yields the highest terminal wealth.

Importantly, the 90/10 strategy suggested by Buffett does not perform much worse in terms of downside protection. To put the aforementioned figures into perspective, recall that the analysis was performed in real terms and that the annual withdrawal was \$40. Hence, in the worst 5% of retirement periods (P5), the 90/10 allocation underperforms the 60/40 split by only slightly more than the value of one annual withdrawal (i.e., comparing \$42 to \$93); and in the worst 10% of retire-

ment periods (P10), the 90/10 allocation underperforms the 70/30 split only slightly more than the value of half an annual withdrawal (i.e., comparing \$219 to \$241).

In short, as far as static strategies are concerned, Buffett's suggested allocation has a very low (although not the lowest) failure rate; a very high (although not the highest) upside potential; and provides very good (but not the best) downside protection when tail risks strike. In other words, Buffett's suggested allocation seems to provide a middle ground between the best-performing strategy (100/0) in terms of upside potential and the best-performing strategies (60/40 and 70/30) in terms of downside protection.

Tweaking Buffett's Advice

The evidence discussed so far suggests that Buffett's advice is (perhaps unsurprisingly) sound and simple enough for any retiree to implement, at least as far as static strategies are concerned. That said, it may be worth exploring two minor dynamic twists, both of which are very simple to implement.

The first twist (T1) relates the annual withdrawal to the behavior of the stock market in the previous year. More precisely, if stocks have gone up, the retiree takes the annual withdrawal from stocks and then rebalances the portfolio back to the 90/10 allocation; if stocks have gone down, the retiree takes the annual withdrawal from bonds and does not rebalance the portfolio.

The second twist (T2) relates the annual withdrawal to the *relative* behavior of the stock and bond markets in the previous year. More precisely, if the return of stocks has been higher than that of bonds, the retiree takes the annual withdrawal from stocks and then rebalances the portfolio back to the 90/10 allocation; if the return of stocks has been lower than that of bonds, the retiree takes the annual withdrawal from bonds and does not rebalance the portfolio.

These dynamic twists aim to avoid withdrawing from stocks when they have gone down (T1) or performed worse than bonds (T2). From this perspective, the twists are inspired by the bucket approach widely discussed by Christine Benz in several Morningstar articles and are ultimately based on the concept of mean reversion in stocks. Withdrawing from bonds when stocks have performed badly, in absolute or relative terms, allows stocks time to recover. Exhibit 2 reports the performance of these two dynamic strategies, together

EXHIBIT 2

Tweaking the 90/10 Allocation

	90/10	T1	T2	60/40
Failure	2.3	2.3	2.3	0.0
Mean	2,638	2,726	2,711	1,267
Median	2,485	2,605	2,534	1,129
P99	8,625	8,683	8,770	3,208
P95	7,820	7,919	7,881	2,837
P90	6,695	6,817	6,751	2,647
SD	2,022	2,037	2,011	786
P1	0	0	0	2
P5	42	110	110	93
P10	219	284	300	204

Notes: Exhibit 2 shows summary statistics for four strategies evaluated over 86 rolling 30-year retirement periods, beginning with 1900–1929 and ending with 1985–2014. All strategies consider a starting capital of \$1,000, annual withdrawals of \$40 in real terms, and annual rebalancing. The two dynamic strategies consider the behavior of stocks (T1) and the relative behavior of stocks and bonds (T2) as stated in the text. The failure rate (Failure) is the proportion of the 86 retirement periods in which the portfolio was depleted before 30 years. The statistics that describe the distribution of terminal wealth across the 86 retirement periods include the mean; median; standard deviation (SD); average bequest in the lower 1% (P1), 5% (P5), and 10% (P10) tail; and average bequest in the upper 1% (P99), 5% (P95), and 10% (P90) tail. Returns over the 1900–2014 period are annual, real, and account for capital gains/losses and cash flows. All figures are in U.S. dollars except for failure rates (in %).

with the benchmark 90/10 split and the pervasive 60/40 allocation.

The results of the two twists considered are very similar. Both strategies have the same failure rate (2.3%), T1 has a slightly higher overall upside potential, and T2 provides a slightly better overall downside protection. Regarding the upside potential, the only exception to the slightly better performance of T1 is noted in the best 1% of retirement periods (\$8,683 versus \$8,770). In terms of downside protection, T1 and T2 yield the same terminal wealth in the worst 1% and 5% of retirement periods, but T2 offers a slightly better protection in the worst 10% of retirement periods (\$300 versus \$284).

More interestingly, both T1 and T2 outperform the 90/10 allocation. Although the three strategies have the same failure rate (2.3%), T1 and T2 provide retirees with both a higher upside potential (as measured by the mean, median, P90, P95, and P99) and better downside protection (as measured by P5 and P10) than does the 90/10 allocation. In terms of the expected bequest, the outperformance of T1 over 90/10 is slightly more than

two to three annual withdrawals (\$88 and \$120, as measured by the mean and median). In terms of downside protection, the outperformance of T2 over 90/10 is slightly more than 1.5 to two annual withdrawals (\$68 and \$81, as measured by P5 and P10).

Also interestingly, both T1 and T2 outperform the 60/40 allocation. Although the two dynamic strategies have a slightly higher failure rate than the 60/40 allocation (2.3% versus 0%), they provide retirees with more than twice as large an expected bequest, and upside potential in particularly good retirement periods is well over twice as large. Furthermore, except in the worst retirement period (P1), T1 and T2 provide retirees with better downside protection.

Finally, although it can hardly be argued that observing the performance of the stock and bond markets is challenging, it is in fact simpler to observe the performance of the stock market alone (information on which, in general, is more readily available than that for the bond market). Thus, given the very similar performance of the two twists considered, T1, which only requires an investor to observe the performance of stocks, may be viewed as having a slight edge over T2, which requires an investor to observe the performance of both stocks and bonds.

ASSESSMENT

A great deal of literature discusses two of the most important financial decisions retirees need to make: the withdrawal rate and the asset allocation of their portfolios. This article focused on the latter, and more specifically on the performance of the 90/10 allocation Warren Buffett advised a trustee to implement for the bequest his wife will receive.

This 90/10 allocation was evaluated first relative to other static strategies, and then relative to two very simple, dynamic, valuation-based strategies. Each of the latter strategies only added a minor twist to the allocation suggested by Buffett, based on the performance of stocks or the relative performance of stocks and bonds.

When compared to other static allocations, the 90/10 split suggested by Buffett performs well in terms of the failure rate, upside potential, and downside protection. In fact, it provides a middle ground between the upside potential of more aggressive static allocations and the downside protection of more conservative static

allocations. Put differently, Buffett's advice proves to be (unsurprisingly) not only simple but also sound.

That said, the two simple twists considered here improve both the upside potential and the downside protection of the 90/10 allocation. These two twists require retirees neither to collect vast amounts of information nor to make any valuation judgments but only to observe the performance of the stock market or the relative performance of the stock and bond markets. In either circumstance, retirees can, with little effort, improve upon the results of the 90/10 allocation. In fact, because the performance of the two twists is so similar, retirees may want to lean toward T1 and simply adjust their asset allocation according to the observed performance of stocks.

Buffett's asset allocation advice is sound and simple, and yet many retirees may balk at the thought of holding such an aggressive portfolio. If that is the case, the two twists considered here may help a little, but probably not enough. However, those retirees who find a 90/10 portfolio acceptable are likely to find that, with the unsubstantial additional effort of observing the performance of stocks and implementing the first twist discussed, they may improve the performance of their portfolios.

ENDNOTES

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¹The 4% rule refers to an initial withdrawal of 4% of the nest egg, followed by withdrawals annually adjusted by inflation.

²This rule suggests that the proportion of bonds in an investor's portfolio should be equal to his or her age, and the proportion of stocks equal to 100 minus his or her age. As a result, the proportion of bonds (stocks) increases (decreases) at the rate of one percentage point per year.

³As Exhibit 1 shows, the 30/70 strategy has a failure rate of 12.8%. Strategies with a lower proportion of stocks (20/80, 10/90, and 0/100) have substantially higher failure rates (25.6%, 43.0%, 67.4%) and are neither reported in the exhibit nor further considered in the analysis.

⁴Estrada [2014b, 2014c] defines these figures as *lower-tail terminal wealth*, a measure of long-term risk that focuses on extreme and unlikely adverse scenarios.

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