Dynamic Asset Allocation and Safe Withdrawal Rates

As the market turmoil continues, and we reflect back on the experience of retired clients over the past several years, many planners have begun to raise questions about the value of using safe withdrawal rates in volatile market environments, and whether there's anything that could have been done to help protect clients from the financial distress that some have experienced.

We explore these issues in this month's newsletter by extending some new research further exploring the implications of incorporating market valuation into planning for retirement income. Is there a way to forecast above- and below-average market returns over a reasonable time period? Is there a way to systematically manage portfolio allocations to help clients achieve more retirement income, and/or better sustain their current income goals?

Building upon recent issues of The Kitces Report regarding market valuation and safe withdrawal rates, and the opportunities for risk management through evaluating market valuation, this research explores the link between taking proactive steps to manage portfolio risk and its implications on sustainable retirement income.

About the Author

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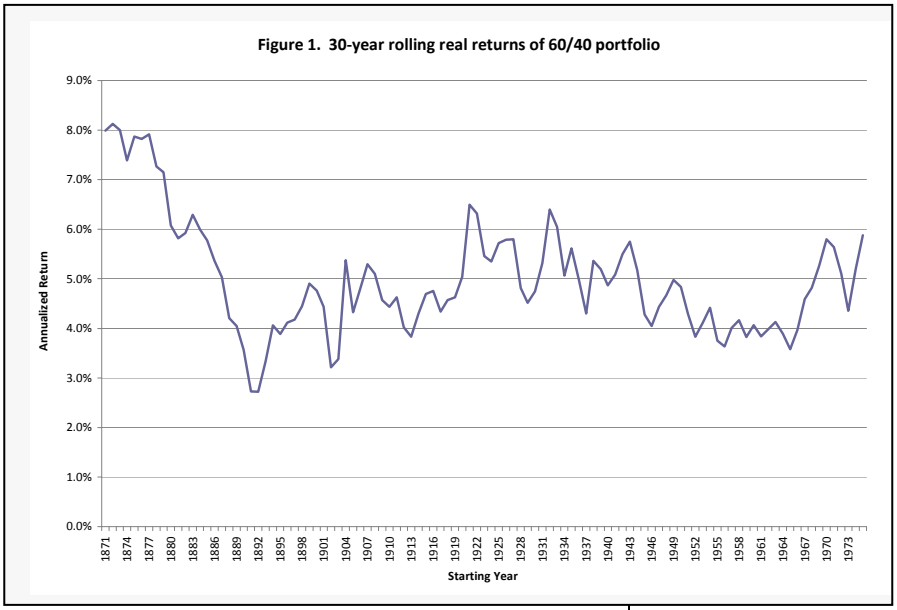
Introduction

As the stock market volatility of the past year has reminded us, there can be a very large difference between a "long-term average return" and the growth rate (or lack thereof) that a client portfolio experiences in any particular year. In a portfolio that has no cash flows coming in or going out, this kind of volatility doesn't necessarily matter – as long as the returns "eventually" create the average annual compound growth rate I had expected, my account balance today will grow to the same future amount, regardless of the fact that it was achieved in a volatile manner or with an unknown return sequence.

Of course, sometimes we don't have a long-enough time window to reach "average" returns in the first place. As Figure 1 (top of next page) shows, even over a time period as long as 30 years, the real (inflation-adjusted) 30-year average annual compound growth rate on a 60/40 stock/bond portfolio has varied from over 8% to less than 3% at various points in the past 140 years.

But assuming we *do* reach a reasonable approximation of the long-term average through some sequence of returns, that sequence itself still has no impact when there are no cash flows in or out of the portfolio. However, as soon as a client becomes a "retired client" that needs to sustain ongoing withdrawals, the volatility and sequence of returns becomes highly relevant. This mathematical truth was, in essence, the underlying reason why the entire "safe withdrawal rate" body of research came about – because a volatile market with an unfavorable sequence of bad returns, stacked on top of ongoing withdrawals, can cause a client to run out of money before the good returns finally come. Even if the client achieved the anticipated long-term average return over the entire time period! And of course, if the client had retired in a time period that also gave below-average long-term returns, the pain could be even worse.

This reality is reflected in Figure 2 (next page), which shows how the safe withdrawal rate (defined as a percentage of the portfolio in year 1, converted into

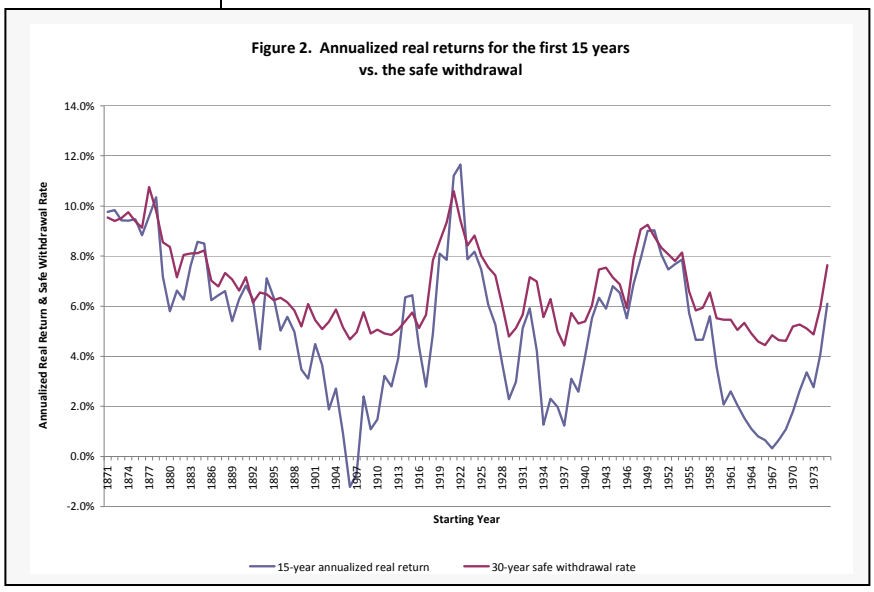


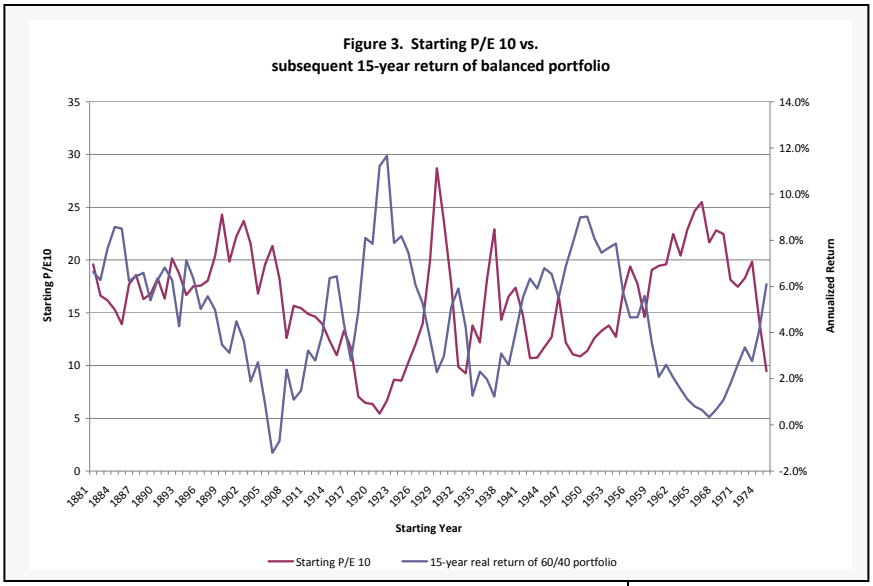
dollars and adjusted for inflation in each subsequent year) exhibits a very strong correlation to the first 15 years of real returns for the 60/40 portfolio (assuming a 30-year retirement time horizon). The worse the real returns are in the first 15 years (note that they vary from over 10% to as low as -1%!), the lower the safe withdrawal rate must be to preserve capital until the good returns finally arrive.

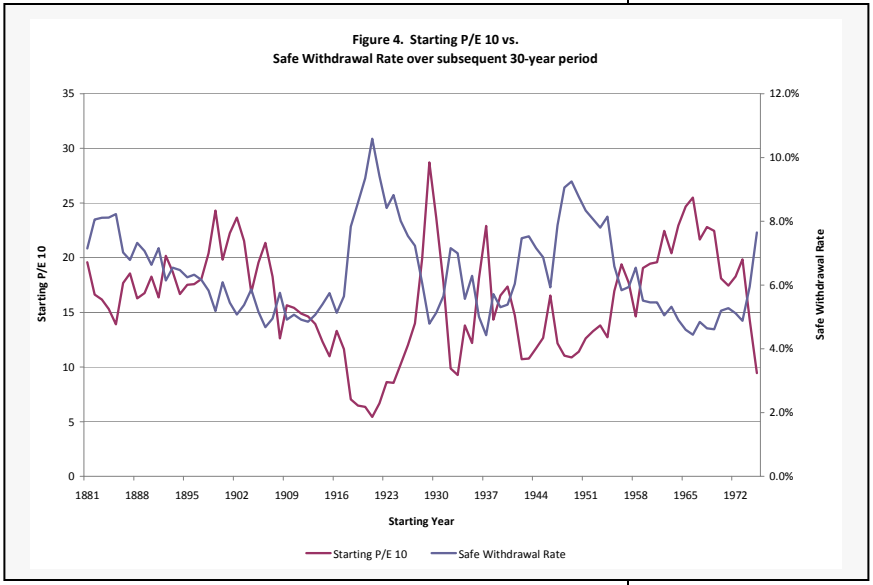
In point of fact, it is notable that the *average* successful withdrawal rate of this entire time period is almost 6.5% (and peaks as high as 10%!). Nonetheless, the recommended "safe" withdrawal rate is only about 4.5%, to account for the possibility of below-average returns and/or an unfavorable sequence. Since "we never know" when the bad returns may come, any client is expected to start retirement at this lowest safe rate, just in case.

However, the pattern of 15-year returns shown in Figure 2 reveals that they are not purely random. Instead, they tend to cycle up and down over the span of many years, in trends that can often be anticipated in advance by examining the market's valuation (as measured by Price/Earnings, or P/E, ratios) at the beginning of the time period. Figure 3 (next page) shows how the starting valuation of the stock market exhibits a strong inverse relationship to the subsequent 15-year returns (i.e., high valuation periods lead to low returns, and vice versa). This data shows how market valuation (measured using an inflation-adjusted 10-year average of trailing earnings to smooth out economic cycles, and thus abbreviated as "P/E10") can be used to help predict subsequent long-term returns (although its value is more limited in the short-term). In turn, because we have already seen earlier that unfavorable returns in the first 15 years are associated with lower withdrawal rates, and that high market valuations (i.e., high P/E multiples) anticipate such returns, we can also see (Figure 4, next page) that market valuation itself also exhibits a strong inverse relationship with safe withdrawal rates themselves.

In the May 2008 issue of *The Kitces Report*, the above data was extrapolated to develop a series of rules about safe withdrawal rates based on the market's valuation at the beginning of the retirement period. These rules were developed in recognition that the most unfavorable safe withdrawal rates are *only* necessary in the most unfavorable valuation environments. As long as valuations are anything *but* highly unfavorable, higher withdrawal rates were safely sustainable in all historical periods. And in fact, if valuations were very favorable at the start of the retirement period, even higher withdrawal rates were always sustainable in all historical market cycles. Figure 5 to the bottom right







shows the summary of these rules.

(Readers who are interested in a more in-depth discussion of the above research summary on safe withdrawal rates in different market valuation environments can email michael@kitces.com to request a copy of the May 2008 issue of *The Kitces Report*.)

What About The Portfolio?

These rules adjusting safe withdrawal rates based on the starting market valuation are effective because the valuation itself is a highly effective tool to predict returns over the subsequent 15-year period. Since returns in the first half of retirement have such a driving force on the second half of retirement, using market valuation to forecast returns for those critical early years aids in predicting when a higher withdrawal rate is actually safe, and when a lower starting withdrawal rate may be necessary.

However, all of the research above still assumes that the client holds the same portfolio throughout retirement, and doesn't make any portfolio changes along the way. The portfolio is assumed to be rebalanced annually back to its target stock/bond allocation, with no other adjustments. Although such an approach is a common way to implement a passive, strategic asset allocation on behalf of a client, it nonetheless begs a critical question – if we can forecast ahead of time when equities are at a high risk to produce below-average returns, wouldn't it make sense to reduce equity exposure in such environments until the risk passes?

Figure 5.
Rules for adjusting Safe Withdrawal Rates

P/E10	Safe withdrawal rate impact
Above 20.0 "overvalued"	Utilize base safe withdrawal rate of 4.5%
Between 12.0 and 20.0 "fairly valued"	Increase safe withdrawal rate by 0.5% to 5.0%
Below 12.0 "undervalued"	Increase safe withdrawal rate by 1.0% to 5.5%

Figure 6. 2-year annualized returns by valuation deciles, with probability of a worse-than-5% annualized decline

Valuation Decile	High	Low	Average	Prob <5% loss
10	35.71%	-44.41%	3.93%	21.71%
9	30.88%	-44.43%	5.16%	7.24%
8	30.58%	-32.83%	5.66%	10.60%
7	39.32%	-31.93%	5.86%	5.96%
6	40.55%	-26.98%	5.51%	3.97%
5	39.34%	-14.52%	7.60%	0.66%
4	40.18%	-9.35%	11.82%	0.00%
3	45.65%	-5.06%	15.09%	0.00%
2	50.46%	-0.53%	18.01%	0.00%
1	52.34%	-10.63%	15.86%	0.66%

Of course, market valuation is not a particularly effective tool to predict shorter-term returns. For example, Figure 6 above shows the subsequent 2-year annualized returns for markets in various valuation environments (a high valuation decile indicates overvalued markets, and a low valuation decile represents an undervalued market). As the figure shows, markets *can* still earn 30%+ annualized returns (that's over 60% of total growth in 2 years!) even in high valuation environments. Nonetheless, the probability of a material 2-year loss increases dramatically as market valuations rise, and overall the average returns are lower and lower as markets become more overvalued.

Thus, the purpose of changing an asset allocation in a high valuation environment is not to "time the market" and sell immediately before a bad return occurs. The purpose is simply to reduce exposure to a *potential* risky decline, because there is a higher probability of sub-standard returns, and *if* the bad returns *do* occur they can be damaging to long-term retirement income sustainability.

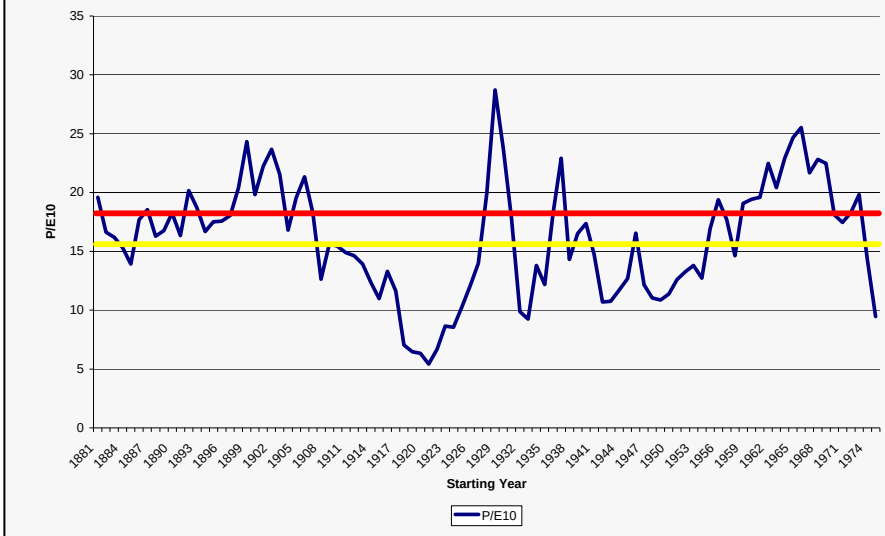
Creating Dynamic Portfolio Allocation Rules

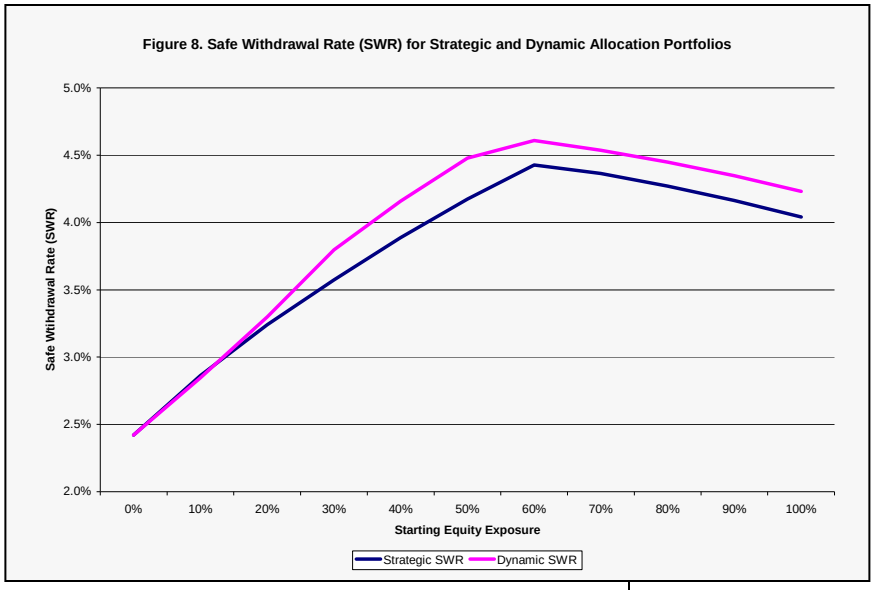
To test the idea of using a dynamic portfolio allocation strategy – where equity exposure is reduced in high valuation environments – a basic set of allocation rules must be developed.

As shown earlier (see Figures 3 and 4), market valuations – especially when measured using longer-term averages of earnings such as P/E10 – generally move in broad trends over the span of many years and even decades. When valuations move to extremely high levels, they inevitably fall back somewhere towards the bottom of the range, before beginning another multi-year (or multi-decade) expansion again.

Thus, the starting rule for a dynamic allocation is simply this: when the P/E10 moves into the top 1/3rd of all historical market valuations (above a P/E10 of 18), the client's equity exposure is reduced by 20% (but not below 0%). Once the client's equity exposure has been reduced, it remains at that lower level until the market's valuation eventually falls back below the long-term median (a P/E10 of ~15.5), and the 20% equity exposure is re-purchased as soon as market valuation falls below this level. Figure 7 below shows the P/E10 of the markets over the past 140 years, and the sale and re-purchase target valuation levels based on these metrics. Thus, the portfolio equity exposure is reduced by 20% anytime market valuation rises above the red line, and remains at that reduced level until valuation drops below the green line and the 20% is re-purchased. (Note: The thresholds used to trigger sales in this approach are different than the valuation quintiles used to evaluate market valuation and safe withdrawal rates as discussed in the introduction. The reason for the change is simply to apply a more conservative approach of reducing equity exposure in a broader range of "moderately overvalued" environments.)

Figure 7. Historical P/E10 ratios and buy/sell thresholds





Safe Withdrawal Rates using Dynamic Portfolio Allocations

Figure 8 above shows the safe withdrawal rate for the traditional passive strategic and the dynamically allocated portfolios, at various starting equity exposures. In both cases, the "optimal" portfolio safe withdrawal rate allocation is at 60% equities and 40% fixed; however, the safe withdrawal rate for the dynamic portfolio increases by 0.2% when defensive measures are taken in overvalued markets.

Notably, though, in many cases the safe withdrawal rates were not increased because the defensive portfolio approach generated higher returns. For example, Figure 9 below shows all starting years where the initial safe withdrawal rate was below 5% using the passive strategic approach, and indicates how much the client's safe withdrawal rate and total return over the 30-year period was increased or decreased by using a dynamic asset allocation approach. As the chart reveals, in many cases higher withdrawal rates were achieved even though the portfolio had a *lower* average annual compound growth rate over the entire 30-year period. In many cases the same increase in the safe withdrawal rate was produced both by portfolio sequences where the total return was higher, and lower, emphasizing once again that sustaining retirement income is as much about what happens with bad return sequences as it is about the overall long-term return of the portfolio. Not surprisingly, the biggest change in the safe withdrawal rate occurred when defensive measures were taken in 1929, resulting in an astonishing 6.0% sustainable initial withdrawal rate with the dynamic allocation strategy!

Figure 9. Impact of Dynamic Asset Allocation on Safe Withdrawal Rates and Total Returns in Key Low Withdrawal Rate Years

Starting Year	*Original SWR*	*SWR Change w/ Dynamic Allocation*	*Total Return Change w/ Dynamic Allocation*
1906	4.7%	0.4%	0.7%
1907	5.0%	0.1%	0.5%
1909	4.9%	0.1%	0.7%
1911	4.9%	0.1%	0.7%
1912	4.8%	0.1%	0.7%
1929	4.8%	1.2%	1.0%
1937	4.4%	0.3%	0.1%
1964	4.9%	0.0%	0.0%
1965	4.6%	0.1%	0.1%
1966	4.4%	0.2%	-0.1%
1967	4.8%	0.1%	-0.3%
1968	4.6%	0.1%	-0.4%
1969	4.6%	0.2%	-0.5%
1973	4.9%	0.2%	-0.1%
Average		**0.2%**	**0.2%**

In fact, across the entire series of rolling 30-year retirement periods, the average increase in the annual compound return was only 0.11%/year (for a 60/40 starting portfolio) with the dynamic allocation strategy, and the *median* successful withdrawal rate actually *declined* by 0.21%. Nonetheless, *safe* withdrawal rates improved with the dynamic allocation strategy, allowing for greater lifetime spending while defending against worst-case scenarios. These results emphasize the reality that defending against the risks of depleting retirement cash flows is more about avoiding risky declines and maximizing success, than it is about maximizing returns.

Dynamic Allocation SWRs in Different Valuation Environments

The charts on the previous page show how being defensive in higher risk valuation environments can improve safe withdrawal rates, even if market returns themselves are not necessarily materially enhanced over the long run. However, as we've seen earlier, the starting market valuation of the retirement time period is also highly relevant to the overall sustainable withdrawal rate. Thus, for instance, the dynamic allocation strategy may be more helpful for retirees who begin in a high valuation environment, than for those who begin in a low valuation environment and then reach a risky environment later in retirement.

Figure 10. SWRs for Strategic and Dynamic Approaches in Various Valuation Environments

Valuation Environment	P/E10	Strategic SWR	Dynamic SWR
Favorable	<13	5.1%	5.4%
Moderate	13-18	4.8%	5.0%
Risky	>18	4.4%	4.6%

To examine this, Figure 10 above shows how the safe withdrawal rates compare, depending on whether the client uses the strategic or dynamic allocation approach *and* the starting valuation environment.

As the results reveal, not only does the safe withdrawal rate improve any time the client does not retire in an overvalued environment, but the act of taking defensive measures in the face of a higher valuation market appears to help *regardless of the starting market valuation*. In all three valuation environments, the safe withdrawal rate is enhanced by 0.2% to 0.3% when the client is willing to reduce equity exposure in risky market environments. In other words, whether it's at the start of retirement or at some later point, if the markets ever become overvalued, playing defense helps.

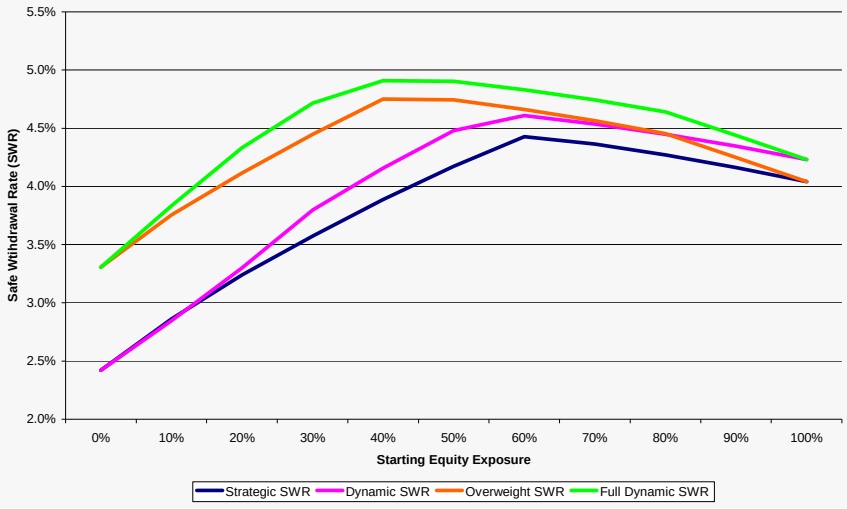
Making Dynamic Allocation Changes in Under- *and* Over-valued Markets

The principle of underweighting equities in certain valuation environments is because, as we have seen, markets tend to produce below-average returns and have a higher probability of a material adverse price decline. However, markets also tend to produce above-average returns if purchased when valuations are low and favorable.

Consequently, a natural extension of the dynamic asset allocation approach is to overweight equity exposure in favorable valuation environments, in addition to underweighting at high risk times. Using the same criteria as earlier, the full dynamic approach is assumed to overweight equities by 20% in favorable valuation environments (i.e., when valuations fall into the bottom 1/3rd of historical levels, or below a P/E10 of 13) in addition to reducing exposure in high risk environments; as with the underweighting approach, these stock overweights are assumed to remain in place until market valuations move back to the historical median (a P/E10 of ~15.5).

Figure 11 below shows the incremental advantage of the overweight (in favorable valuation environments) SWR approach, as well as the benefits of the full dynamic approach (including overweights and underweights), when compared to using passive strategic asset allocation or the dynamic (underweight risky markets) approach.

Figure 11. Safe Withdrawal Rate (SWR) for Strategic, Dynamic, Overweight, and Full Dynamic Allocation Portfolios



As the results show, not only is the overweight strategy also effective, it actually has a greater positive impact than the underweight (dynamic) strategy for all but the most aggressive portfolios (where it is difficult to materially overweight because equity exposure is already so high). In addition, the chart reveals that the benefits are additive – the full dynamic asset allocation approach, which both overweights and underweights as necessary based on the valuation environment, yields an even higher series of safe withdrawal rates than either approach does on its own.

It is also notable that with the full dynamic strategy, the optimal asset allocation point shifts. With the strategic strategy or the dynamic strategy – where there are no overweights – the optimal asset allocation is 60% in equities to maximize the safe withdrawal rate. However, once overweighting is introduced, the optimal equity exposure is revealed to be much lower. Instead of owning a 60% equity policy that is reduced to 40% in risky environments, the optimal portfolio becomes a base 40% equity exposure, which is actually reduced to only 20% in risky environments, but may rise up to 60% in favorable valuation environments. Thus, in essence, the results imply that only very modest equity exposures are needed to sustain retirement safe withdrawal rates, *as long as* the portfolio can be overweighted in the select valuation environments where the strongest returns are generated.

This is further emphasized by looking back to Figure 6, which showed that the 2-year *average* annual return in low valuation environments was a whopping 15%+ per year. In fact, the trend is even more pronounced over longer periods of time. Figure 12 (top of next column) shows that in reality, the *only* time stocks are *expected* to average double-digit returns (i.e., 10% or more) over a 10-year period is when the starting valuation levels are favorable. This is not to say that good returns are impossible in other times – in point of fact, double-digit 10-year returns *have* occurred at every starting valuation decile shown in the chart.

Nonetheless, the returns only *average* in the double-digits in favorable valuation environments – exactly when the full dynamic strategy systematically overweights stock exposure.

Figure 12. 10-year annualized returns by valuation deciles, with probability of a less-than-3% annualized growth event.

Valuation Decile	High	Low	Average	Prob <3% gain
10	10.04%	-4.83%	3.72%	36.17%
9	12.29%	-2.42%	6.38%	14.18%
8	16.16%	-0.79%	6.38%	17.61%
7	16.79%	0.01%	7.29%	13.38%
6	17.68%	0.83%	7.03%	14.79%
5	17.41%	1.43%	7.30%	11.27%
4	16.22%	3.08%	8.51%	0.00%
3	15.84%	4.01%	10.70%	0.00%
2	17.88%	4.12%	11.94%	0.00%
1	16.56%	3.45%	11.31%	0.00%

Planning Implications

Figure 13 (next page) summarizes all of the safe withdrawal rates for the passive, dynamic (underweight risky environments), and full dynamic (underweight and overweight) investment approaches, divided up based on the starting valuation level of the market at the time of retirement (where favorable is a P/E10 below 13, moderate is 13-18, and risky is a P/E10 greater than 18).

The results of this research – to increase equity exposure when valuation is favorable, and decrease it in unfavorable high valuation environments – indicate that clients can sustain safe withdrawal rates much higher than the 4%-4.5% of the existing research that does not incorporate market valuation. Merely looking to the starting market valuation itself defines environments where a client could sustain a withdrawal rate that is 0.4% to 0.7% higher. In addition, incorporating a full dynamic asset allocation approach that overweights and underweights in appropriate valuation environments can also increase the safe

Out and About

- Michael will be presenting "The Impact of Market Valuation on Safe Withdrawal Rates" at FPA Retreat in Palm Springs, CA, on April 28th

- Michael will also be presenting at the Mokan Trust & Financial Services Regional Conference on May 7th on "Understanding the Credit Crisis"

- Michael will be speaking on "Rethinking Risk Tolerance" at the FPA NorCal conference on April May 26th

Interested in booking Michael for your own conference or live training event? Contact him directly at ***speaking@kitces.com***, or see his list of available presentations at www.kitces.com/presentations.php.

Figure 13. SWRs for Strategic and Dynamic Asset Allocation in Various Valuation Environments

Starting Valuation	60% Strat.	60% Dyn.	60% Full Dyn.	40% Full Dyn.
Favorable	5.1%	5.4%	5.7%	5.5%
Moderate	4.8%	5.0%	5.2%	5.1%
Risky	4.4%	4.6%	4.8%	4.9%

withdrawal rate by approximately 0.4% - 0.5%. Through this methodology, clients can actually sustain safe withdrawal rates closer to the 5% - 5.5%+ range, simply by making periodic asset allocation changes based on valuation and looking to the market's starting valuation in the first place.

Although spending increases like 0.4% to 0.7% may not seem significant, it is important to view them in relation to the initial withdrawal amount in the first place. An increase of 0.4% to a 4.4% safe withdrawal rate allows a client with $1,000,000 to spend $48,000 in the first year instead of only $44,000, which represents a spending increase of 9%. Moreover, because safe withdrawal rate spending is assumed to remain at a constant real (inflation-adjusted) level throughout retirement, this 9% spending increase applies for every year of the client's retirement. Thus, a client who started with a $1,000,000 portfolio will enjoy the opportunity to spend nearly $200,000 of additional cash flows over the span of a 30-year retirement. This can have a highly material impact on a client's retirement standard of living. For the client who retires using a full dynamic allocation approach and begins in a favorable valuation environment, the safe withdrawal rate increase is more than a full 1%, which represents a *lifetime* spending increase of more than 20% per year, every year, for the entire retirement time period!

Viewed another way, by incorporating the full dynamic portfolio allocation strategy, and examining the valuation environment at the start of a client's retirement time period, a client's safe withdrawal rate rises as high as 5.2% any time the market's valuation level is *not* in the worst 1/3rd of valuation environments. In other words, by only relying on a purely passive approach and ignoring market valuation – which would apply a 4.4% withdrawal rate in all situations – our clients are actually missing out on an 18% spending increase that should actually apply 2/3rds of the time! This would represent nearly $400,000 of additional retirement spending for a client's initial $1,000,000 portfolio over the span of 30 years!

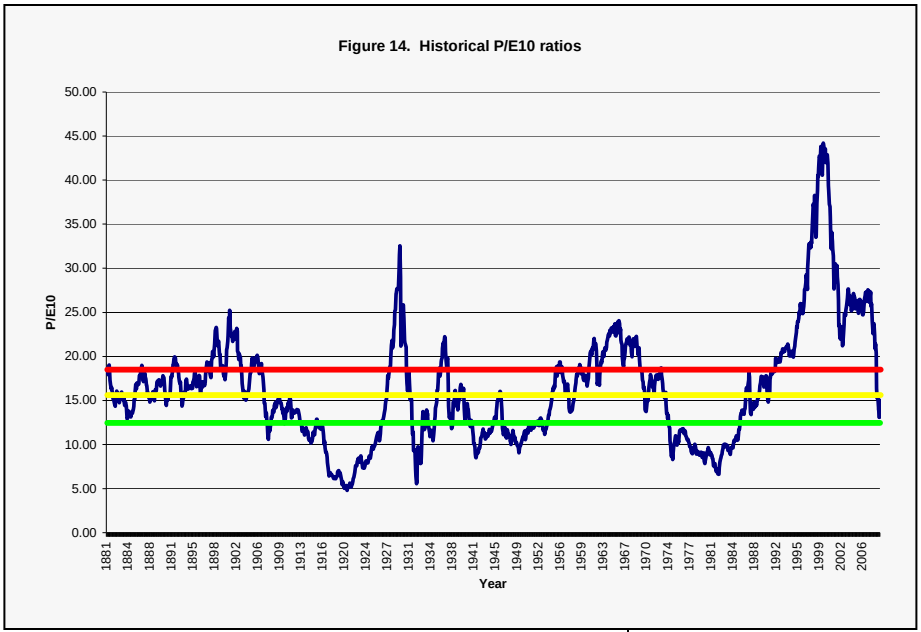
In addition, it's important to bear in mind that a safe withdrawal rate still represents a *minimum* level of sustainable spending. It is based on looking at the *worst case* 30-year retirement time period (or worst-case based on certain starting valuation levels, and/or certain rules-based allocation changes), and adjusting the initial spending level to be low enough to have survived even that "worst case" scenario. Consequently, retiring using a safe withdrawal rate initial spending level would, by definition, result in an excess of leftover retirement dollars at the end of 30-year in the other ~99% of retirement scenarios. This means that safe withdrawal rates are *not* intended to be a recommendation of an "auto-pilot" level of spending; to the contrary, they represent a minimum floor of spending, which can and should be adjusted upwards every few years as long as the client is *not* heading down a worst-case-scenario retirement path. Only in the worst case scenario does the safe withdrawal rate spending level actually become the true target spending level for the client's entire retirement time period. Thus, annual monitoring of the client's retirement plan is still crucial and necessary, if only to help clarify when it is "safe" for the client to *increase* his/her spending level because the potential disaster scenario did not actually manifest. Of course, with the full dynamic asset allocation strategy, annual monitoring also becomes required to identify situations where the valuation levels necessitate an equity exposure change.

Where Are We Now?

After spending more than a decade and a half in a high risk valuation environment (and as evidenced by the tremendous stock market volatility of the past 10 years), the declines of the past year have brought the market down from the overvalued range back into the neutral center zone. Figure 14 (top of next page) shows the market's historical P/E10, with markers for the thresholds of risky and favorable valuation (over a P/E10 of 18 and under 13, respectively).

Notably, though, the market has not yet fallen into the favorable valuation area (although it is now close), although it did decline below the median during the first quarter.

Nonetheless, with market valuations back in the median territory (below 18, but still above 13), this research would suggest that client safe withdrawal rates should be increased to at least 4.8%, and as much as 5.0% to 5.2% if the planner is prepared to adopt a dynamic or full dynamic asset allocation approach. For clients who



were considering retirement in the midst of this market turmoil, these higher withdrawal rates may help to support their original spending goal (e.g., a 5.2% withdrawal rate on an $850,000 portfolio is comparable to a 4.4% withdrawal rate on an original $1,000,000 portfolio). If the planner had been implementing the dynamic allocation strategy all along, the transition back to median levels this January would have signaled a "buy" transaction to move the portfolio from underweight back to neutral (but not yet overweight).

It is important to remember as well that this research assumes that the planner does not actively monitor market valuation throughout the year, and only assesses market valuation when annually rebalancing is done at the start of the year. Consequently, although the market fell further after January, and/or may decline further during this year, a trade would not necessarily be triggered simply because the market declined from overvalued to a level below the median in the middle of the year.

Is This Market Timing?

To many planners, the thought of making allocation changes based on a forecast of future market returns will remind them of the industry taboo "market timing."

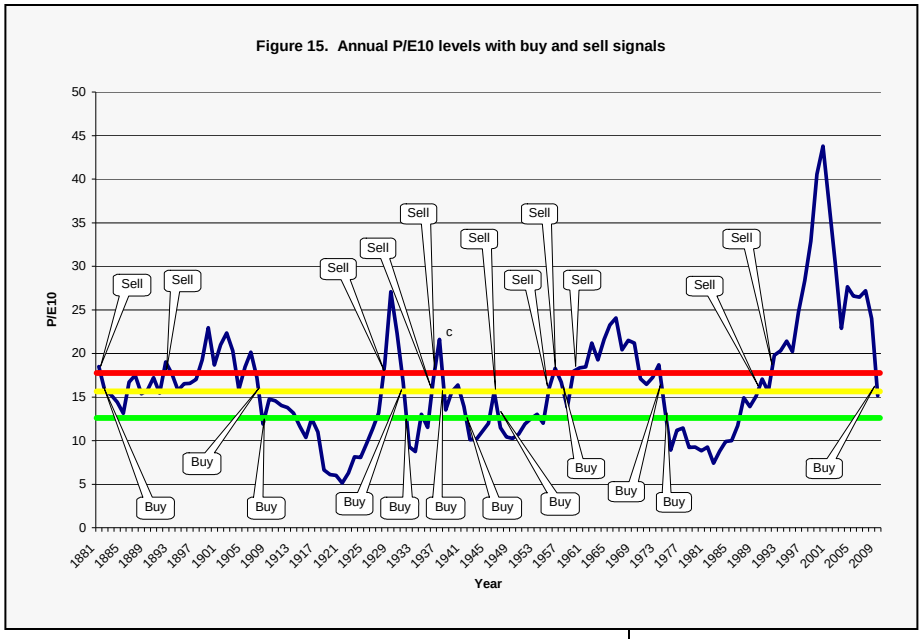
However, while it is true that the portfolio changes established in this methodology do literally require a trade to be executed at some "time" in the progression of the markets, the approach shares little in common with the typical "market timing" strategy.

First and foremost, the dynamic (and full dynamic) asset allocation strategy in this research considers trades only once per year – on January 1st, when annual rebalancing is likely to be done anyway. Thus, even the passive, strategic investor who "just" rebalances would execute trades at the same time as the dynamic approach; the dynamic trades may simply be larger in magnitude if certain thresholds are crossed.

Secondly, the strategy is *not intended* to time market tops or bottoms with any particular level of precision. As shown earlier, in many cases the transactions which underweight the markets in overvalued environments are so "early" that they do not even generate superior long-term returns. Nonetheless, because the high impact adverse decline is mitigated with reduced equity exposure (whenever it "eventually" comes), the client's retirement income is more sustainable *even if returns do not materially increase.*

Furthermore, the sheer number of trades is actually far less than the planner might expect. Figure 15 (top of next page) shows the "Buy" and "Sell" transactions that would have occurred historically using the dynamic asset allocation approach discussed here, where P/E10 is evaluated at the start of each year. Although the number of purchases and sales may seem like a lot, bear in mind that this chart covers nearly 140 years of data. With a total of 11 "sell" and 12 "buy" events, in reality the entire full dynamic approach typically averages no more than two trades (one buy and one sell) *per decade*!

In addition, to further mitigate the impact of the timing of particular trades, the buy and sell transactions could be executed incrementally over the span of several weeks or even months. For instance, the planner might implement the 20% equity exposure change as 5% per week over the span of a month, 5% per month for four months, or even 5% per quarter over the span of a year, to partially reduce the "risk" of a potential timing issue. Of course, it is notable as well that the dynamic and full dynamic strategies explored here were conducted using historical data *ignoring the precise timing besides once-*



per-year valuation and still yielded successful results. Theoretically, a planner who sought to execute transaction timing more carefully might even further enhance results from this base, although the precise timing of these execution strategies has not been tested in this research.

A key point of the preceding paragraph also bears repeating: because market valuations tend to move in long-term trends, the dynamic asset allocation strategy is *not* likely, nor intended, to time a market bottom or top. Instead, as is shown in Figure 14, many of the sales tend to occur years before a valuation peak is reached, and purchases often occur long before a bottom is seen. In fact, the purpose of the broadly constructed valuation ranges is to cause a trade to be executed *before* a top or bottom occurs – in the case of bull markets and rising valuations in particular, the transaction may even occur *years* before the market top is reached. Nonetheless, the systematic process does ultimately cause equities to be sold at above-average valuations and purchased at below-average valuations; as long as the market continues to move in cycles and revert towards the mean. Consequently, over time, the process will buy at lower valuations and sell at higher valuations, reducing risk and enhancing retirement income sustainability (as well as potentially but not necessarily improving returns also).

Further Research

Of course, the framework used in this research for a dynamic asset allocation approach was fairly simplistic. This was done deliberately, as it is a model that could theoretically be incorporated into an otherwise passive, strategic investment approach simply as a part of its annual rebalancing process.

Nonetheless, further research may explore whether the valuation purchase and sale triggers would be more effective if evaluated more frequently – for instance, on a monthly basis instead of an annual basis. By checking valuation more frequently, planners may be able to take both the defensive and proactive investment steps described in this research more effectively than waiting to see if a threshold is crossed on the somewhat arbitrary measuring date of January 1st.

A more elaborate approach might also explore the dynamic asset allocation strategy using multiple asset classes and evaluating each asset class relative to its own historical valuation. The research contained here uses only two asset classes – large cap stocks, and short-term bonds – and simply makes broad changes to stock allocation percentages. To the extent that individual asset classes sometimes diverge in their valuations (e.g., large cap stocks versus small cap stocks in early 2000), applying a dynamic asset allocation strategy based on the market valuation of each asset class, evaluated independently, may be more effective than simply making overall equity exposure changes. However, such an approach would also dramatically increase the research and tracking requirements, as valuation would have to be monitored for each asset class on its own.

In addition, different equity allocation percentage changes might be tested as well. This research chose 20% as the amount of the equity allocation to shift, intended to be large enough to be material but not so large that it causes a client to feel as though they're "all in" or "all out" of the markets. It may be that a more moderate equity exposure change (e.g., 10% equity shifts) is still sufficient to achieve the same results, or alternatively that even more dramatic equity exposure changes may be more effective (e.g., even higher safe

withdrawal rates when the equity allocation change is 30%).

Summary

This research is intended to help explore the link between market valuation, forecasting returns, portfolio allocations, and safe withdrawal rates. By focusing on reducing equity exposure in higher risk environments, as defined by long-term market valuation, the results show that taking basic defensive steps can enhance safe withdrawal rates. In addition, increasing equity exposure in favorable valuation environments can further support higher lifetime spending in a systematic and reliable manner.

The purpose of these shifts is not to perfectly "time" the markets, but simply to have a systematic process that reduces a client's exposure to risk *in advance of* the risky event happening. Even if the risk does not manifest – the decline does not occur – and the client potentially gives up a portion of upside returns, the strategy still improves the probability of achieving the client's goals, in the same manner that purchasing insurance helps to ensure financial goals even though it is a financial loss if the insured risk never occurs. In addition, by having a process that allows the client to overweight equities in valuation environments that typify above-average long-term returns, a client's probability of success and sustainable retirement income is improved further.

When combining these strategies with an evaluation of a client's sustainable spending based on the initial market valuation environment at the time the client retires, planners can help guide clients down a path that safely allows a significant increase in retirement spending over the implementation of safe withdrawal rates using purely passive and strategic investment approaches.

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