# Table of Contents

Summary........................................................................................................................................... 2

Market Return History .......................................................................................................................... 3

Convergence........................................................................................................................................ 4

Correlation.......................................................................................................................................... 5

Low Interest Rates .............................................................................................................................. 6

Lower Forward Returns ...................................................................................................................... 7

Risk .................................................................................................................................................. 8

90% Stock : 10% Bond/Cash Portfolio .............................................................................................. 10

Risk Management - Tactical Asset Allocation ................................................................................. 12
Summary

We demonstrate how even a simple, low turnover implementation of tactical asset allocation can improve performance and reduce risk. Income is a retiree’s primary concern.

The biggest risk that many retirees face is that their savings will not be able to support their income needs in retirement.

Ironically, the wealth management industry has traditionally focused on a different problem — asset allocation. Clients are routinely “risk profiled” and assigned to categories such as “conservative,” “moderate,” “balanced” or “growth.” Their asset allocation is matched to their risk profile, not their income needs.

This wasn’t such a problem in the past. But the current low interest rate environment has created a situation where the gap between the portfolio required to meet a retiree’s income needs and a portfolio designed to suit a retiree’s stated risk preferences is arguably as wide as it’s ever been.

The secular decline in interest rates has also resulted in convergence between the returns of stocks, bonds and cash. This has provided a tailwind for the asset allocation/risk profiling approach since client portfolios have enjoyed similar returns regardless of asset allocation.

Convergence across asset allocation returns has arguably made risk management less important. But a world in which most asset classes deliver similar returns is the exception, not the rule. Risk management will be critical should asset class returns diverge.

At the same time, the risk that retirees may run out of money has been increased by longevity gains and retirees’ costs of living rising faster than CPI.

Americans are living longer and so their investment horizon is also getting longer.

Consequently, retirees should consider a larger allocation to growth assets. True, such a portfolio is more volatile. But then it is arguably less risky if the retiree is focused on creating an inflation-adjusted income stream in retirement. This income stream can be enhanced by a tilt toward companies with sustainable and growing dividends.

A larger allocation to growth assets increases retirees’ exposure to sequencing risk — the order of investment returns matters if you are making regular withdrawals.

We believe that sequencing risk can be managed using tactical asset allocation. We provide an example of how a Ned Davis Research (NDR) tactical asset allocation modeling process can be combined with a larger allocation to growth assets to manage risk in a retirement portfolio.

Key takeaways from this white paper:

» Low interest rates and long duration make future income potential problematic.

» Consequently, holding large allocation to growth assets needs to be considered.

» NDR asset allocation implementations have shown added value over observed time periods, as a bolt-on to your client’s strategic asset allocation.

This version of the paper has been revised to clarify the wording on page 12, and other related locations. The changes clarify that the model readings used for the analysis were the actual and full-period real-time values of the Stock/Bond component of the NDR Global Balanced Account Model since 2012, applied to a theoretical 60/40 benchmark and related model with a weighting schema for illustration purposes.
Market Return

Over the last 92 years, the long-term real returns (i.e. net of inflation) for U.S. assets were:

» 7% per annum for Equities
» 2.44% per annum for Bonds
» 0.5% per annum for Bills

Balanced portfolios (e.g. 60% equity, 35% bond and 5% cash) delivered a real return in the range of 4-5% per annum. Investors could withdraw 4% of their balance each year without reducing the purchasing power of their investments.

Real returns for stocks, bonds, and cash since 1926

2000-2018 annualized real stock returns declined over previous periods, but bond returns increased.
Convergence

The returns of stocks and bonds have converged over time (yellow circle). Currently, there is little difference between the 20-year annualized return for U.S. stocks and bonds. Why is this important? It means that strategic asset allocation hasn’t made much of a difference over the last 20 years.

From a return perspective, it didn’t matter much if the allocation to stocks was 40%, 60% or 80% as each growth/defensive mix delivered a similar result.

Why strategic asset allocation hasn't mattered much

— S&P 500 Index Returns
— Corporate Bonds Returns
— Long-Term Treasury Bonds Returns

Bond total returns use Ibbotson data prior to 1973.
Source: Ned Davis Research, Inc., S&P Dow Jones Indices
Correlation

The last 20 years has also been noteworthy due to a shift in the correlation between stocks and bonds. Prior to the late 1990s, stock returns and bond yields were negatively correlated. The correlation has flipped and the return on stocks and bond yields have been positively correlated.

This matters for two reasons. First, it’s meant that the diversification benefits of holding bonds have been much greater than they have been historically. If bond yields are positively correlated with stocks, bond returns are negatively correlated. This hasn’t always been the case (see late 60s-90s in chart below).

Second, it explains why strategic asset allocation hasn’t mattered much over the last 20 years. Poor equity returns were offset by higher bond returns and vice versa (bond yields go down; bond prices go up). The long-term buy-and-hold returns of both assets were similar; making the allocation mix less important.

The combination of similar long-term returns and a positive correlation between stock returns and bond yields create the ideal environment for complacency.

What if the correlation between stocks and yields turns negative?

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Rolling one-year correlation of daily % change in the S&P 500 Index and 10-year treasury yield.

Source: Ned Davis Research, Inc.
Low Interest Rates

Low interest rates affect both the potential for the capital gains and the yield of bonds to offset disappointing stock returns.

The strong performance of bonds over recent decades has resulted in a combination of low yield/long duration relative to history. Currently the Barclays US Aggregate has a:

» Yield of 2.1%
» Modified Duration of 5.7 years.

This implies a capital gain of approximately +11.97% (2.1% yield x 5.7 years duration) for bonds if interest rates fell to zero. This would add +4.2% to a balanced portfolio with a 35% allocation to bonds. Probably not enough to offset the negative returns to stocks in a scenario when bond yields have fallen to zero!

Since 1969, investors have earned a real bond yield of 3.7% versus a long term average of 2.4%.

However, today’s environment is much different.

Less income, more interest rate risk, and less diversification benefit for bonds

Source: Bloomberg Barclays Indices
Lower Forward Returns

Historically, Low Interest Rates + High Value = Lower Forward Returns

Long-term returns are heavily dependent on starting valuations. Stocks returns are significantly higher over the 10 years following cheaper valuations. The same is true for bonds where high-starting yield is a sign of cheapness.

What long-term returns can we expect for stocks and bonds? The lesson of history is clear: Lower interest rates have historically resulted in lower future investment returns across both stocks and bonds.

Future returns are heavily dependent on starting valuations

March 1926 to August 2009

Average 10-Year Forward Returns (%)

Cheapest Equities / Highest Bond Yields
Quintile 2
Quintile 3
Quintile 4
Most Expensive Equities / Lowest Bond Yields

S&P 500 Index
Long-Term Treasury Bonds

Bond real returns use Ibbotson data prior to 1973, Barclays data thereafter.
Source: Ned Davis Research, Inc., S&P Dow JonesIndices
Risk

Investors need to decide on a personal definition of risk. But the key types of risk are:

» Volatility
» Shortfall
» Sequencing

**Volatility** is a statistical measure of the dispersion of returns. It is reduced in the short-to-medium-term by increasing the allocation to bonds. Over the longer-term (i.e. periods greater than 10 years) portfolios benefit from a higher weight to stocks and are less risky due to growth in earnings over time.

The volatility reduction offered by bonds has been boosted by the tailwinds of falling interest rates and positive correlations between stock returns and bond yields. It remains to be seen whether bonds will be as effective of a diversifier in the future.

**Shortfall risk** is the likelihood that an investor will outlive their savings. This could be due to living longer than expected, spending more, or the erosion of purchasing power due to inflation. Over the long-term, shortfall risk is reduced through a higher allocation to growth assets such as stocks. This is because the long-term growth rate in corporate earnings has outpaced inflation.

However, an increased allocation to stocks widens the range of possible outcomes (i.e. increases volatility). This doesn’t matter much when an investor is saving for retirement. **But it matters enormously once they start withdrawing funds.**

**Sequencing risk** is just another way of saying that the order — or sequence — of returns matters. The effects of low or negative returns are much worse when an investor is retired and withdrawing income from their portfolio.

With lower interest rates and higher valuations, forward returns are likely to be lower.

Therefore, a portfolio seeking to minimize volatility risk is simultaneously increasing shortfall risk.
Risk Depends on Your Time Horizon

Stocks are also less risky than bonds over longer time horizons. Stocks haven’t had a negative return over a 20-year period since 1946. They haven't had a negative return over a 30-year period since 1956. Bonds have. Remember, retirees will now have to invest over a longer horizon thanks to increases in longevity.

**Stocks hedge better against inflation than bonds**

Isn’t a 90:10 portfolio risky?

Given the current investment regime of potentially lower future returns does one need to rethink their allocation mix?

A 90:10 portfolio reduces shortfall risk over the long term. This is because both stock returns and dividends have outpaced inflation by a wide margin.

Dividends tend to track inflation (middle clip). When they do contract, the contraction is usually short lived. For example, during the 2008-2009 bear market, the value of the S&P 500 was down over 50% while S&P 500 dividends fell by only -25% and quickly recovered.

Depending on your definition of risk a 90% stock / 10% bond/cash portfolio may not be too risky.

Stocks aren't so risky if you're focused on real income

Income is less volatile than capital value

Source: Barron's Newspaper, S&P Dow Jones Indices

S&P 500 Index Year-to-Year % Change
S&P 500 Dividends Year-to-Year % Change
- Average Annualized Dividend Growth Rate: 6.1%

Shaded areas represent NDR-defined bear markets
Risk Management with Tactical Asset Allocation

A 90:10 allocation improves retirees’ chances of meeting their income needs in retirement. But it also increases their exposure to sequencing risk.

One solution could be to allow a portfolio to allocate up to 90% to growth assets when risk adjusted returns are favorable.

This is where a tactical asset allocation strategy can be helpful in managing risk. The next five charts compare the simulated performance of a balanced portfolio (60:40) of U.S. stocks and bonds with a portfolio that can hold up to 90% stocks and 10% bonds/cash, and tactically shifts its asset allocation.

Asset allocation changes are made using a set of simple rules based on a component of NDR’s Global Balanced Account Model (GBAM), a model launched in 2012 and used for global asset allocation. The live (actual) history of the model readings have been used for this simulation. This simulated performance has not been tested prior to the model readings developed in 2012, so results are unknown in market conditions not observed since that time, such as an extended bear market.

The asset allocation (all U.S. based indices) is changed when the NDR model reading crosses one of three threshold levels.

Adjusting your equity exposure based on an objective evaluation of the market environment can help clients better adjust their portfolio risk.

Performance of U.S. tactical vs. passive asset allocation

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</tr>
</thead>
<tbody>
<tr>
<td>Allocation Rules Model Gain/Annum: 11.3%</td>
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<tr>
<td>U.S. 60/40 Portfolio Gain/Annum: 9.4%</td>
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</tr>
<tr>
<td>Model Relative to 60/40 Gain/Annum: 1.6%</td>
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<td></td>
</tr>
<tr>
<td>Shaded areas are NDR-defined bear markets.</td>
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</tr>
</tbody>
</table>

Performance includes reinvested dividends and interest payments but excludes taxes and management fees. Date Range: 8/31/2012- 8/31/2019
The portfolio spends the majority of the time allocated 60:40 portfolio (61%), with the remainder of split roughly equally between a 90:10 allocation (20%) and a 40:60 allocation (19%).

In other words, it is designed to assume more risk than a 60:40 portfolio when the weight-of-evidence suggests that the potential rewards for bearing additional risk are attractive. Conversely, the portfolio is designed to assume less risk when such risk is projected to go unrewarded.

Not only does this result in out-performance but the sequence of 12-month rolling returns is smoother. This is important because it shows that the tactical asset allocation overlay is helping to manage sequencing risk.

Tactical asset allocation improves investment returns

Source: Bloomberg Barclays Indices, S&P Dow Jones Indices
Not surprisingly, the volatility of 12-month returns is also lower.

Tactical asset allocation reduces investment volatility

Average Rolling 12-Month Std Dev of Monthly Returns:
- Model = 2.05%
- Balanced = 2.02%

Rolling 12-Month Standard Deviation of Monthly Returns (%)

Sources: Bloomberg Barclays Indices, S&P Dow Jones Indices

— U.S. Tactical Allocation Using Model Readings
-- U.S. 60/40 Balanced Portfolio
The tactical asset allocation overlay also helps the risk managed portfolio reduce the severity and length of drawdowns.

**Drawdowns are shorter and less severe with tactical asset allocation**

- **Average Drawdown:**
  - Model = -2.31%
  - Balanced Portfolio = -2.47%

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**Source:** Bloomberg Barclays Indices, S&P Dow Jones Indices
The reduction in risk can also be seen by comparing the monthly return distributions of the two portfolios. The risk managed portfolio has a higher mean return and is positively skewed, i.e. fewer months with big negative returns, unlike the balanced portfolio.

**Average monthly return and Skew:**
- Model = .90% / .03
- Balanced Portfolio = .76% / -.53

**Source:** Bloomberg Barclays Indices, S&P Dow Jones Indices

**U.S. Tactical Allocation Using Model Readings**
- U.S. 60/40 Balanced Portfolio
The tactical asset allocation overlay results in some of the upside being sacrificed, 91.18% upside capture vs 100% for the balanced portfolio. But it more than makes up for this by avoiding more than half of the downside (46.2% vs 100%) Remember, it’s the downside that matters due to sequencing risk.

Improved downside protection results in a higher compound annual growth rate (12.08% vs 9.91%), a higher average monthly return (0.98% vs 0.82%) and smaller drawdowns.

### Summary Statistics: Tactical Asset Allocation vs US Domiciled 60:40 Balanced

<table>
<thead>
<tr>
<th>Monthly Return Statistics (U.S.)</th>
<th>Tactical Model</th>
<th>Balanced*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compound Annualized Growth Rate (%pa)</td>
<td>10.92</td>
<td>9</td>
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<tr>
<td>Standard Deviation (%pa)</td>
<td>7.2</td>
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<tr>
<td>Return / Risk (CAGA/StDev)</td>
<td>1.52</td>
<td>1.24</td>
</tr>
<tr>
<td>Average Monthly Return (%pm)</td>
<td>0.9</td>
<td>0.76</td>
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<tr>
<td>Correlation (monthly returns)</td>
<td>0.72</td>
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<tr>
<td>Best Return (%/month)</td>
<td>7.78</td>
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<tr>
<td>Month of Best Return</td>
<td>6/28/13</td>
<td>10/30/15</td>
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<tr>
<td>Worst Return (%/month)</td>
<td>-4.26</td>
<td>-5.27</td>
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<tr>
<td>Month of Worst Return</td>
<td>10/31/18</td>
<td>12/31/18</td>
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<tr>
<td>Positive Monthly Return (%)</td>
<td>69.05</td>
<td>71.43</td>
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<tr>
<td>Worse Drawdown (%)</td>
<td>-4.78</td>
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<td>Beta</td>
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<td>Tracking Error (%pa)</td>
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<td>Information Ratio (re benchmark)</td>
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<td>Upside Capture Ratio (re average)</td>
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<td>Downside Capture Ratio (re average)</td>
<td>59.44</td>
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</table>

Data results from: 8/31/2012 - 8/31/2019 (monthly data)
*Balanced Portfolio = 60% Standard and Poor’s 500 Index / 40% Barclay’s U.S. Aggregate Bond index

Ned Davis Research, Inc.
Global Portfolio Risk Management

We tested the same risk management strategy using a portfolio of global stocks and bonds. The results were similarly impressive.

Performance of global tactical vs. passive asset allocation

Shaded area is NDR-defined bear market.

Stocks: Invested in MSCI All Country World Index
Bonds: Invested in Barclays Global Aggregate Bond Index

Allocation Rules Model Gain/Annum: 8.9%
Global 60/40 Portfolio Gain/Annum: 6.8%
Model Relative to 60/40 Gain/Annum: 2.0%

Monthly Model Readings

Percentage of Time in Each Regime:
Bull 19.5%, Neutral 61.1%, Bear 19.4%

Source: Bloomberg Barclays Indices, MSCI

Performance includes reinvested dividends and interest payments but excludes taxes and management fees. Date Range: 8/31/2012 - 8/31/2019
Global tactical asset allocation also improves returns

Average 12-month Returns:
Model = 8.73%
Balanced Portfolio = 6.15%

Source: Bloomberg Barclays Indices, MSCI
Global tactical asset allocation reduces volatility too

Rolling 12-Month Standard Deviation of Monthly Returns (%)

Average Rolling 12-Month Std Dev of Monthly Returns:

- Model = 2.07%
- Balanced Portfolio = 2.09%

Source: Bloomberg Barclays Indices, MSCI

Global Tactical Allocation Using Model Readings

Global 60/40 Balanced Portfolio
Drawdowns are less severe using global tactical asset allocation

Average Rolling Drawdowns:

Model = -3.86%
Balanced Portfolio = -3.61%

Source: Bloomberg Barclays Indices, MSCI
Monthly Returns Distribution

Average Monthly Returns (%)

Model = .73%
Balanced = .56%

Source: Bloomberg Barclays Indices, MSCI

- Global Tactical Allocation Using Model Readings
- Global 60/40 Balanced Portfolio
### Summary Statistics: Tactical Asset Allocation vs Global Domiciled 60:40 Balanced

<table>
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<th>Monthly Return Statistics (ACWI)</th>
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<tr>
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<td>Return / Risk (CAGA/StDev)</td>
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<td>Correlation (monthly returns)</td>
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<td>Best Return (%/month)</td>
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Data results from: 8/31/2012 - 8/31/2019 (monthly data)
*Balanced Portfolio = 60% MSCI All Country World Total Return Index /
40% Barclay’s Global Aggregate Total Return Bond Index

Ned Davis Research, Inc.
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Guest Editor: Daniel Grioli

Managing Partner of Guiscard Capital

Daniel Grioli is the Managing Partner of Guiscard Capital. Prior to co-founding Guiscard, he was a Portfolio Manager responsible for multi-asset investment strategy with an industry superannuation (pension) fund. Daniel’s responsibilities included developing the fund’s strategic and dynamic asset allocation strategies. He has also held senior investment positions with two other industry superannuation funds where he was responsible for manager selection and portfolio construction across all asset classes. Daniel holds a Bachelor of Business from the Royal Melbourne Institute of Technology and a Masters of Applied Finance from the Financial Services Institution of Australia.

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The model described in this publication is not available to be directly implemented as part of an investment advisory service and should not be taken to be a recommendation of NDR. The results described do not represent actual trading or any type of account or any type of investment vehicle. Except as expressly noted, none of the fees or other expenses associated with actual trading or accounts (e.g. commissions, mark-ups, mark-downs, advisory fees, fund expenses) are reflected in the hypothetical performance described in this publication. These fees and expenses, when compounded over a period of years, would decrease returns.

Our calculation of projected hypothetical performance is based in part on information provided by certain third-party sources which NDR believes to be reliable. NDR makes no warranties or representations of any kind relating to the accuracy, completeness, or timeliness of the data such third-party sources provided and shall not have liability for any damages of any kind relating to such data.

We calculated the hypothetical returns using the monthly closing prices of the stated indexes or data series reflected in the model composition. The hypothetical back-test allocated the month-end weighting to the month-end price after the market close, which would not be possible in an actual trading situation. The allocation then remains in place until the next monthly model reading is utilized at the end of the following month.

IMPORTANT: The model results referenced in this publication are hypothetical in nature, achieved by means of a back-test, do not reflect any actual investment results, and are not an indication or a guarantee of future results.

Actual performance returns may differ materially from the hypothetical performance returns of the model for a variety of reasons, including advisory fees, transaction costs, execution slippage, and tax liabilities on realized capital gains, dividends, interest and other income. Calculation of hypothetical performance using back-tested results has many inherent limitations. There are frequently differences between hypothetical performance results and the actual results subsequently achieved by any particular trading program. One limitation of hypothetical performance results is they are generally prepared with the benefit of hindsight. In addition, hypothetical performance calculations do not involve financial risk, and therefore, do not account for the impact of financial risk associated with actual trading, including the ability to withstand losses or adhere to a particular trading program in spite of trading losses. These are material factors that can adversely affect actual trading results. Numerous other factors cannot be fully accounted for in the preparation of hypothetical performance calculations and can adversely affect actual trading results. NDR has not traded this strategy. Because no actual trading results exist to compare to the hypothetical results, investors should be wary of placing undue reliance on these hypothetical performance results. This hypothetical performance of the model portfolio is likely to differ from any actual investment account, and no representation is being made that any account will or is likely to achieve profits or losses similar to those shown.

The hypothetical performance results do not reflect the deduction of an annual advisory fee or other fees and expenses related to investments in mutual funds and exchange traded funds. Had the results reflected these costs, the hypothetical projected performance would have been lower.

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