The Impact of Market Valuation on Safe Withdrawal Rates

By:

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Safe Withdrawal Rates
Basics of Safe Withdrawal Rates

Fundamental client questions:
– How much can I safely spend from this portfolio without needing to worry about the markets?
– If I want to spend $XXX, how much money do I need in the account to safely retire?
Safe Withdrawal Rates
Current Research on Safe Withdrawal Rates

- The challenge of safe withdrawal rates:
  - Given the impact of volatility, how much of a "safety margin" is necessary?
  - Given the historical returns of the markets, how high of a withdrawal rate would have survived any historical market scenario?
  - What is the optimal portfolio allocation to survive the volatility?
- Research:
  - Determine which portfolio mixes sustained what maximum withdrawal rates over rolling historical time periods or using Monte Carlo analysis

Safe Initial Withdrawal Rates by Starting Year w/ 60% equity portfolio

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Safe Withdrawal Rates

Current Research on Safe Withdrawal Rates

- The challenge of safe withdrawal rates:
  - Given the impact of volatility, how much of a "safety margin" is necessary?
    - ~2% less than the historical average
  - Given the historical returns of the markets, how high of a withdrawal rate would have survived any historical market scenario?
    - ~4% - 4.5% of the initial account balance
  - What is the optimal portfolio allocation to survive the volatility?
    - ~60% in equities (varying from 40%-70% in some studies)

Safe Withdrawal Rates

The Timing Paradox

- The Timing Paradox – Sensitivity to Initial Conditions
  - Client A and Client B both have $1,000,000
  - Client A decides to retire this year
    - "Safe" spending is stated to be $45,000
  - Client B continues to work
  - The aggregate portfolio declines by 20%
  - Client B (account balance now down to $800,000) retires at the start of year 2
    - "Safe" spending is stated to be $36,000
    - But Client A's safe spending is up to $46,350!
- Is there anything we can do to predict or adjust?
Safe Withdrawal Rates
The Timing Paradox

Are low safe withdrawal rate scenarios “random”?

Safe Initial Withdrawal Rates by Starting Year w/ 60% equity portfolio

The SWR is heavily influenced by early returns

Annualized real returns of 60/40 for 15 years vs. 30-yr safe withdrawal rate
Safe Withdrawal Rates
The Timing Paradox

- Low safe withdrawal rates are not random
  - Move in broad trends over the span of many years

- Safe withdrawal rates are highly correlated with early returns
  - Safe withdrawal rate has a 0.91 correlation with real returns over the first 15 years
  - Relationship holds for low safe withdrawal rate scenarios, and for high safe withdrawal rate scenarios!

- If early returns can be predicted, safe withdrawal rate trends would be predictable as well

- What can be done to forecast returns?

Safe Withdrawal Rates
Forecasting Market Returns

- Components of long-term stock returns
  - Dividend yield
  - Earnings growth
  - Change in P/E multiple

- Forecasting return components:
  - Earnings growth – in the aggregate, tends to grow at the rate of nominal GDP
  - Dividend yield – stated yield, tends to move inversely with prices (at least in the short-run)
  - P/E multiple – tends to move in long trends over time with market sentiment
Safe Withdrawal Rates
Forecasting Market Returns

- P/E multiples
  - Represents a headwind or tailwind for price returns in the market
    - Tend to have a significant impact on growth over 10-15 years
  - Moves cyclically over multi-year trends
    - Extremes in valuation are ultimately unsustainable
  - May be a material factor in predicting long-term total returns
  - Can be smoothed out using multi-year averages of earnings to adjust for shorter-term market cycles

Safe Withdrawal Rates
Forecasting Market Returns

- P/E ratios strongly related to subsequent returns

Starting P/E 10 vs. subsequent 15-year return of balanced portfolio

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Safe Withdrawal Rates
Forecasting Safe Withdrawal Rates

- Predicting safe withdrawal rate scenarios
  - High P/E ratios inversely correlated to 15-year returns (-0.61)
    - High valuation environments associated low-return periods
    - Low valuation environments associated high-return periods
  - 15-year returns positively correlated to safe withdrawal rates (0.91)
    - Strong 15-year returns associated with higher SWRs
    - Weak 15-year returns associated with lower SWRs
  - Thus, valuation environments are predictive of safe withdrawal rates

Using P/E ratios to predict safe withdrawal rates

Starting P/E 10 vs. Safe Withdrawal Rate over subsequent 30-year period
Safe Withdrawal Rates
Forecasting Safe Withdrawal Rates

Quantifying the relationship between P/E & SWR
(#1 quintile = most favorable valuation & vice versa)

<table>
<thead>
<tr>
<th>P/E Quintile</th>
<th>Lower P/E</th>
<th>Upper P/E</th>
<th>Lowest SWR</th>
<th>Highest SWR</th>
<th>Average SWR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5.4</td>
<td>12.0</td>
<td>5.7%</td>
<td>10.6%</td>
<td>8.1%</td>
</tr>
<tr>
<td>2</td>
<td>12.0</td>
<td>14.7</td>
<td>4.8%</td>
<td>8.3%</td>
<td>6.7%</td>
</tr>
<tr>
<td>3</td>
<td>14.7</td>
<td>17.6</td>
<td>4.9%</td>
<td>8.1%</td>
<td>6.3%</td>
</tr>
<tr>
<td>4</td>
<td>17.6</td>
<td>19.9</td>
<td>4.9%</td>
<td>7.2%</td>
<td>5.8%</td>
</tr>
<tr>
<td>5</td>
<td>19.9</td>
<td>28.7</td>
<td>4.4%</td>
<td>6.1%</td>
<td>5.1%</td>
</tr>
</tbody>
</table>

Extreme quintiles have significant impact
Trends hold across lowest, higher, and average SWR

P/E10 Safe Withdrawal Rates based on P/E10 quintiles

Supports 60% equity exposure in risky environments
Significantly diminishing returns for higher equity exposure

P/E10 with varying equity exposure

- 2.5% at 0%
- 3.8% at 20%
- 5.2% at 40%
- 5.7% at 60%
- 5.8% at 80%
- 5.8% at 100%

60/40 Safe Withdrawal Rates based on P/E10 quintiles

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Safe Withdrawal Rates
Forecasting Safe Withdrawal Rates

Developing rules based on P/E ratios

<table>
<thead>
<tr>
<th>P/E10</th>
<th>Safe withdrawal rate impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Above 20.0</td>
<td>Utilize base safe withdrawal rate of 4.5%</td>
</tr>
<tr>
<td>“overvalued”</td>
<td></td>
</tr>
<tr>
<td>Between 12.0 and 20.0</td>
<td>Increase safe withdrawal rate by 0.5% to 5.0%</td>
</tr>
<tr>
<td>“fairly valued”</td>
<td></td>
</tr>
<tr>
<td>Below 12.0</td>
<td>Increase safe withdrawal rate by 1.0% to 5.5%</td>
</tr>
<tr>
<td>“undervalued”</td>
<td></td>
</tr>
</tbody>
</table>

Factors to increase the safe withdrawal rate:
- NOT being in an overvalued environment
- Actually being in an undervalued environment
Should apply as an overlay on top of other factors that enhance safe withdrawal rates

Safe Withdrawal Rates
Resolving the Paradox

Original scenario:
- Both started with $1,000,000
- Client A retired @ $45,000 spending
- Client B waited
- Portfolio declined 20% (market declined ~35%-40%)
- Client A spending $46,350 in year 2
- Client B spending $36,000 in year 2

Incorporating market valuation
- Market decline would have caused portfolio to move into different valuation zone, increasing withdrawal rate by 0.5%
- Client B should actually get to spend $40,000
- Not a perfect adjustment, but a helpful factor
Safe Withdrawal Rates
Market Valuation Today

Where are we now?

P/E10 Ratios over Time

Current P/E10 ratio: ~19

Safe Withdrawal Rates
Implications for the Future

- Safe withdrawal rates are based on “worst case scenarios”
  - Should be dynamic based on the probability and potential impact of a “bad” scenario occurring
  - Not necessarily effective as a short-term timing indicator, but supported for long-term planning

- Currently progressing through a phase out of worst valuations, and potentially to the best

- May have portfolio/investment implications as well
  - Adjusting exposure to risk assets during extremes
  - Altering portfolio assumptions based on current environment
Safe Withdrawal Rates

Summary

- Safe withdrawal rates vary, but are not random
- SWRs are highly correlated with 15-year market returns, which are inversely correlated with market valuation
- Market valuation is a tool that can anticipate SWRs
- A broad range of market valuations provide little direct input, but valuation extremes are predictive
- Market valuation is not a perfect timing indicator and cannot account for all fluctuations, but it does help!

Further Reading

Safe Withdrawal Rates
Further Reading


Questions???

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