

ABSTRACT

Wealth management has traditionally focused on the accumulation of assets. When retirees seek ways to optimize the assets they have accumulated over their working lifetime for retirement distribution, they are often exposed to competing viewpoints about the “right” approach.

The realization that the nature of risk changes after retirement has spurred the evolution of retirement income planning as a distinct field – committed to helping retirees determine which approach is best. Until now though, the question of preference has been widely left out of discussions around which approach is best for the individual. New research finds that preferences can indeed be measured reliably, and then used to inform decisions that ultimately align the sourcing of retirement income with a retiree’s preferences. This paper examines the two primary factors found to be key in framing retirement preferences for individual clients, regardless of age, gender, relationship status, net worth, and retirement timeline. It explores how these factors enable a framework for understanding the most common options for retirement strategies, codifying retirement income language that can be understood by the public and helping inform effective retirement income styles.

RETIREMENT INCOME SERIES – PART 1 OF 3

QUANTIFYING RETIREMENT INCOME BELIEFS AND PREFERENCES TO DETERMINE A RETIREMENT INCOME STYLE

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INTRODUCTION

The nature of risk changes after retiring, and this realization has spurred the development of retirement income planning as a distinct field within financial services. Wealth management has traditionally focused on the accumulation of assets. This accumulation mindset has dominated financial services and public policies with a focus on getting people to save and invest. Household investing has been guided by Modern Portfolio Theory, a framework developed by Harry Markowitz that uses portfolio diversification to seek the highest risk-adjusted returns for investment assets by considering their characteristics related to expected return, volatilities, and correlations. This framework focuses on assets only; it does not provide a link to funding household liabilities.

Whether this same accumulation mindset should continue post retirement is a source of ongoing debate and disagreement. Maintaining a diversified investment portfolio to spend from in retirement is an option, but other options also exist that may better resonate for different individuals- at least when considering funding for core retirement expenses. We believe it is important to view retirement within a larger context- that is, how to fund household spending and manage new retirement risks. It is important to create a framework which focuses on the unique characteristics of retirement to align individual preferences for retirement income with the strategies used to provide that income.

Creating a framework for retirement income is important as the United States approaches what Fichtner (2021) and the Alliance for Lifetime Income call Peak65™. Currently, each day, more than 10,000 Americans are

reaching the traditional retirement age of 65, and the number of people reaching this milestone is expected to peak in 2024 at more than 12,000 per day. These individuals are facing greater expected remaining lifetimes while also losing access to traditional retirement funding tools like company pensions. Fichtner (2021) notes that the percentage of private sector workers with traditional defined-benefit pension plans fell from 60 percent in 1980 to 4 percent in 2020. Including public sector workers, only 20 percent of the civilian labor force has access to a traditional company pension, leaving Social Security alone as the resource for protected lifetime income for most households. Strains are further compounded by the low interest rate environment, making it more difficult to fund retirement expenses with bond investments, thus leaving retirees to search for alternative ways to spend more than bonds alone can provide.

When retirees seek to find ways to position their assets for retirement distribution, they will be exposed to competing viewpoints about the so-called right approach in the consumer media. One option is to continue investing in the same general manner as during pre-retirement, taking distributions to fund expenses on an ongoing basis from a diversified portfolio. Another option is to use a bucketed or time-segmented approach that uses bonds and bond-like assets like fixed annuities to cover shorter-term expenses, leaving a more aggressive and volatile growth portfolio earmarked to cover longer-term expenses. Retirees will also be exposed to approaches that seek to build a floor of sustainable lifetime income with annuities to cover basic retirement expenses before turning to an investment portfolio to cover other discretionary retirement expenses.

While each of these approaches will have advocates who view it as the best approach for everyone, we start from the position that each approach is viable. This article explores whether we can quantify retirement income beliefs and preferences to help people determine if there is a particular retirement income style that might resonate best for them, which can then help guide them to a particular approach as a starting point. We seek to understand whether we can identify factors that guide preferences for sourcing retirement income.

Murguía and Pfau (2021) initiated the discussion of retirement income preferences, working with a con-

venience sample of readers at RetirementResearcher.com. These study participants did not reflect a random sample of Americans approaching retirement because respondents were heavily weighted toward having a higher net worth than typically seen and a greater overall interest in personal financial planning. For many participants in that study, retirement income planning is a personal hobby.

In that research, the emphasis was on identifying dimensions of preferences that may help explain how people think about their retirement finances. The tested dimensions were based on analyzing discussions of retirement planning topics aimed toward both financial advisory and consumer audiences, to see instances when discussions identify a range of choices to be made, either in terms of tradeoffs to be weighed or as different perspectives for making retirement decisions.

That analysis revealed two primary retirement income factors and four secondary factors. The two primary factors that best captured an individual's retirement income style are Probability-Based versus Safety-First (PS) and Optionality versus Commitment Orientation (OC). This study provides a deeper focus on the two primary factors, using a nationally representative and larger sample to consider the prevalence of these factors for a variety of demographics. We seek to further determine whether these factors can be identified and reliably measured as consistent across a variety of demographic subgroups, based on age, gender, relationship status, net worth, and retirement timeline. If there are differences in how retirement factors present themselves for population subgroups, we want to understand what these differences are. The intention is to determine whether there is sufficient evidence to treat these core retirement factors as providing a framework for understanding retirement strategies in a manner that codifies a retirement income language that will be understandable to the public.

This research proceeds as follows. First, we review the two primary retirement income factors as determined in Murguía and Pfau (2021). Then we describe the methodology for further assessing the robustness of these factors within a broader dataset, and we provide the findings. We conclude with a look toward further research to clarify the role of these factors in explaining retirement income strategies.

PRIMARY RETIREMENT INCOME FACTORS

Probability-Based versus Safety-First

Probability-Based versus Safety-First is the first factor analyzed more deeply in this research. This dimension of preferences details the characteristics for assets that individuals seek as the source for their essential retirement income. Probability-based income sources depend on the potential for market growth to continually provide a sustainable retirement income stream. This includes a traditional diversified investment portfolio or other assets that have the expectation of growth with realized capital gains, known as the risk premium, beyond what the bond yield curve is able to provide.

Meanwhile, Safety-First income sources incorporate contractual obligations. The spending provided through these sources is less exposed to market swings. A safety-first approach may include protected sources of income common with defined-benefit pensions, annuities with lifetime income protections, and holding individual government bonds to maturity. The safety-first approach does not depend on an expectation of market growth to provide capital gains as a source of spending because the income is contractually driven. Though no strategy is completely safe, the inclusion of contractual protections implies a relative degree of safety compared to unknown market outcomes. With pensions and annuities, income is further supported through mortality credits, or subsidies from the short-lived to the long-lived, provided through risk pooling. This risk pooling supports greater sustainable income than bonds alone and is competitive with a risk premium assumed for the stock market or other risky investments.

Optionality versus Commitment

The Optionality versus Commitment dimension details the degree of flexibility sought with income strategies. Optionality reflects a preference for keeping options open for retirement income. Those with an optionality preference want to maintain flexibility with their strategies to respond to more favorable economic developments or to a changing personal situation. This preference aligns with retirement solutions that do not have pre-determined holding periods and are amenable to making changes.

Conversely, commitment reflects a preference for committing to a retirement income solution. An individual is less concerned with potentially unfavorable economic developments or a worsening personal situation because the solution solves for a lifetime retirement income need. The security of having a dedicated retirement income solution and eliminating retirement investment and income decisions from one's perpetual to-do list outweighs missing out on potentially more positive future outcomes that could come with more options. There can also be satisfaction with planning in advance to manage potential cognitive decline, not leaving difficult decisions for a time when this decision-making may be hampered.

Methods

The objective of this study is to further test for the robustness and validity of these primary retirement income factors in a broader and more representative survey population. This research is based on a survey administered by Artemis to 2,863 Americans that reflects a more representative sample of individuals between ages 50 and 80. Participants in the survey were asked to complete an online questionnaire. Respondents were asked questions related to demographic variables, including age, gender, marital status, retirement status, and anticipated time until retirement or time since retirement. Respondents were also asked their net worth.

The primary retirement income factors (Probability-Based versus Safety-First and Optionality versus Commitment) were assessed with eight questions for each factor as previously identified by Murguía and Pfau (2021) as reliable questions. Respondents were also asked about their degree of retirement concerns related to meeting essential spending needs, meeting overall lifestyle spending goals, and holding reserves for unexpected expenses. We also assess respondents' risk tolerance as reflected through a traditional portfolio loss aversion metric commonly used in risk tolerance questionnaires. The sample is intended to be random and reflective of the population at large who are at ages in which retirement planning is salient.

To measure retirement income beliefs and retirement concerns with the survey questions, the items are presented via a semantic differential method. For each question, we present opposing statements based on the

proposed factor. One statement is on the left-hand side and the other is on the right-hand side. Participants are asked to identify from a six-point scale which statement they relate with the most. We use this method because it is in line with a variety of other psychological scales measuring personal attitudes. For example, the entry style resembles the following:

- A) My investment strategy is primarily about portfolio growth.
- B) My investment strategy is primarily about ensuring a sustainable income stream.

A) Statement 0 0 0 0 0 0 0 B) Statement

In this example, picking the first circle would generate a score of 1 and indicate a greater identification with accumulating wealth. Choosing the last circle reflects a score of 6 and indicates a strong identification with distributing income.

The research results are based on exploratory factor analysis and logistic regression analysis. The Exploratory factor analysis is carried out with a Varimax rotation to identify whether the questions cluster in ways that provide distinct influences for the proposed retirement income factors. Cronbach’s alpha is analyzed to assess internal reliability for the question set. It is a measure of internal consistency for the question sets, identifying how closely related a set of questions are.

RESULTS

Descriptive Statistics

With 2,863 total participants, a power analysis indicated that the sample size was well above the number of participants needed to test our hypotheses regarding proposed retirement income factors with the exploratory factor analysis.

Descriptive participant data is provided in Table 1. For the sample, 47 percent are male, and 77 percent are either married or living with a partner. The remaining 23 percent are either single (never married), divorced, separated, or widowed. For age cohorts, respondents are split somewhat equally by age within the broader 50 to 80 age range used for the study. We were able to at-

tract participants for whom retirement is a relevant life milestone. Respondents were divided relatively equally between being retired and not retired, with a few individuals not providing a clear answer. More broadly, for respondents in which a retirement date could be defined, 20 percent of respondents were more than six years from their projected retirement date, 11 percent were within three to six years, and 13 percent were less than three years from retirement. Meanwhile, another 11 percent of respondents were within the first three years of their retirement, 10 percent retired three to six years prior, and 29 percent had been retired for more than six years. Respondents who were unemployed, identified as homemakers, or answered as “other” were not included in this breakdown of retirement dates.

Finally, regarding net worth, 32 percent of respondents identified themselves as having a net worth (an estimate of all assets minus all debts) under \$150,000, while 9 percent had a net worth between \$150,000 and \$499,999, 19 percent had a net worth between \$500,000 and \$999,999, and 40 percent had a net worth of greater than \$1 million.

EXPLORATORY FACTOR ANALYSIS

Next, we shift to the Exploratory Factor Analysis to determine whether the proposed constructs present as distinct factors for respondents. Exploratory factor analysis sorts responses to see how they cluster. Two factors were identified as part of this clustering process. The objective is to determine whether the proposed retirement income factors first identified in Murguía and Pfau (2021) continue to present as discrete constructs in this larger and more representative sample population. Table 2 provides the factor loadings for each question’s responses from the exploratory factor analysis. Scores of at least 0.4 are highlighted, which Stevens (1992) suggests as a reasonable cutoff for interpretation.

We observe consistent evidence that the two sets of questions present themselves as distinct because all eight PS questions score above 0.4 on the first factor and below 0.4 on the second factor. Meanwhile, all OC questions score below 0.4 on the first factor, and seven of the eight questions score above 0.4 on the second factor, with the eighth question being relatively close (0.38). This is key because the sample is suggesting that both

	RESPONDENTS	
	n	%
Total Participants	2,863	
Gender		
Men	1,347	47%
Women	1,487	52%
Marital Status		
Spouse/Partner	2,194	77%
Single	669	23%
Age Cohort		
50-59	964	34%
60-69	924	32%
70-80	975	34%
Retirement Status		
Not Retired	1,413	49%
Retired	1,429	50%
Retirement Date Cohort		
> 6 years until retirement	580	20%
3-6 years until retirement	318	11%
0-3 years until retirement	364	13%
0-3 years since retiring	329	11%
3-6 years since retiring	283	10%
>6 years since retiring	817	29%
Net Worth Range		
Less than \$150k	906	32%
\$150k-\$499k	254	9%
\$500k-\$999k	556	19%
Greater than \$1M	1,147	40%

TABLE 1. *Descriptive Statistics*

the PS and OC factors are distinct and that the identified questions do a good job in testing and identifying these distinct concepts.

The two primary RISA factors present as distinct factors for our broader sample of respondents. Because the PS questions all tend to have a stronger connection with the first factor, and the OC questions tend to cluster with the second factor, we conclude that these are distinct retirement income preferences, especially when

also combined with the high Cronbach's alpha scores described later in this section.

These results are consistent across the different demographic groups in terms of clear factor structures being present within demographic subgroups. It would be excessive to include tables showing these results across all demographic subgroups, but it is worth providing a few more examples. A particular question which may arise is whether these retirement income preferences

	FACTOR LOADINGS	
	Factor 1	Factor 2
PS Ques 1	0.73	0.15
PS Ques 2	0.69	0.20
PS Ques 3	0.69	0.23
PS Ques 4	0.63	0.26
PS Ques 5	0.59	0.25
PS Ques 6	0.56	0.23
PS Ques 7	0.53	0.32
PS Ques 8	0.53	0.28
OC Ques 1	0.21	0.58
OC Ques 2	0.23	0.55
OC Ques 3	0.32	0.52
OC Ques 4	0.31	0.52
OC Ques 5	0.25	0.51
OC Ques 6	0.29	0.47
OC Ques 7	0.13	0.46
OC Ques 8	0.05	0.38

TABLE 2. Factor Loadings from the Explanatory Factor Analysis for the Overall Sample (n=2,863)

	Not Retired (n=1,413)			Retired (N=1,429)	
	FACTOR LOADINGS			FACTOR LOADINGS	
	Factor 1	Factor 2		Factor 1	Factor 2
PS Ques 1	0.71	0.14	PS Ques 1	0.74	0.16
PS Ques 2	0.69	0.18	PS Ques 2	0.69	0.23
PS Ques 3	0.68	0.18	PS Ques 3	0.68	0.28
PS Ques 4	0.61	0.26	PS Ques 4	0.65	0.26
PS Ques 5	0.56	0.29	PS Ques 5	0.64	0.20
PS Ques 6	0.55	0.16	PS Ques 6	0.56	0.32
PS Ques 7	0.53	0.27	PS Ques 7	0.55	0.34
PS Ques 8	0.52	0.26	PS Ques 8	0.55	0.30
OC Ques 1	0.20	0.55	OC Ques 1	0.22	0.61
OC Ques 2	0.23	0.52	OC Ques 4	0.27	0.60
OC Ques 3	0.35	0.52	OC Ques 2	0.23	0.58
OC Ques 7	0.15	0.46	OC Ques 5	0.21	0.54
OC Ques 6	0.30	0.45	OC Ques 3	0.30	0.52
OC Ques 5	0.31	0.45	OC Ques 6	0.28	0.49
OC Ques 4	0.33	0.43	OC Ques 7	0.12	0.45
OC Ques 8	-0.01	0.36	OC Ques 8	0.11	0.40

TABLE 3. Factor Loadings from the Explanatory Factor Analysis for Retirement Status

Age 50-59 (n=964)			Age 60-69 (n=924)			Age 70-80 (n=975)		
FACTOR LOADINGS			FACTOR LOADINGS			FACTOR LOADINGS		
	Factor 1	Factor 2		Factor 1	Factor 2		Factor 1	Factor 2
PS Ques 1	0.69	0.13	PS Ques 1	0.74	0.17	PS Ques 1	0.73	0.15
PS Ques 2	0.69	0.18	PS Ques 2	0.72	0.20	PS Ques 3	0.72	0.25
PS Ques 3	0.65	0.17	PS Ques 3	0.69	0.26	PS Ques 2	0.68	0.22
PS Ques 4	0.59	0.25	PS Ques 4	0.66	0.29	PS Ques 4	0.65	0.22
PS Ques 7	0.54	0.26	PS Ques 5	0.63	0.23	PS Ques 5	0.63	0.20
PS Ques 6	0.53	0.15	PS Ques 8	0.58	0.26	PS Ques 6	0.59	0.29
PS Ques 5	0.50	0.31	PS Ques 7	0.55	0.32	PS Ques 8	0.53	0.31
PS Ques 8	0.48	0.27	PS Ques 6	0.55	0.26	PS Ques 7	0.52	0.35
OC Ques 3	0.31	0.52	OC Ques 1	0.24	0.58	OC Ques 1	0.24	0.63
OC Ques 1	0.15	0.52	OC Ques 2	0.28	0.55	OC Ques 2	0.21	0.61
OC Ques 2	0.20	0.50	OC Ques 5	0.23	0.53	OC Ques 4	0.27	0.60
OC Ques 6	0.30	0.43	OC Ques 4	0.34	0.52	OC Ques 3	0.30	0.54
OC Ques 5	0.30	0.43	OC Ques 7	0.12	0.51	OC Ques 5	0.24	0.54
OC Ques 7	0.15	0.42	OC Ques 3	0.36	0.50	OC Ques 6	0.27	0.49
OC Ques 4	0.31	0.42	OC Ques 6	0.31	0.49	OC Ques 7	0.12	0.45
OC Ques 8	0.00	0.32	OC Ques 8	0.07	0.44	OC Ques 8	0.07	0.38

TABLE 4. Factor Loadings from the Explanatory Factor Analysis for Age groups

remain distinct across ages and retirement milestones. We compare the question factors loading for two aspects of this: for the 10-year age intervals and before and after retirement.

Table 3 provides factor loadings separated for individuals who are pre and post their retirement date. We again see very similar results for the question subgroups to load along separate factors, with loadings of above 0.4 appearing in 31 of the 32 expected cases.

We see this again in Table 4 for the different age-based subgroups. The PS questions load more strongly on the first factor and the OC questions score more strongly on the second factor. We find that these questions are reliably distinct in explaining retirement income preferences in a manner that does not deviate by retirement status or age.

Table 5 provides the mean scores, standard deviations, and the Cronbach's alpha scores for the combined impact of the eight-question sets for the PS and OC scales. Regarding the means, the question scales reflect values between 1 and 6 with a middle value of 3.5. For the retirement income factors, we find that the two factors fall relatively close to the middle on average, though the overall 3.3 mean shows a slight preference for optionality. The standard deviations are relatively consistent and tend to show that about two-thirds of the participant scores fall within a range of plus or minus one around the means.

When considered by demographic category, we observe a few differences among the means. First, for gender, we can observe that women show a stronger preference for both safety-first and commitment orientations compared to men. A safety-first orientation is also more no-

	Probability-Based (1) vs. Safety-First (6)			Optionality (1) vs. Commitment (6)		
	Mean	Standard Deviation	Cronbach's alpha	Mean	Standard Deviation	Cronbach's alpha
TOTAL PARTICIPANTS	3.55	1.10	0.86	3.30	0.92	0.79
Gender						
Men	3.39	1.10	0.86	3.22	0.94	0.79
Women	3.69	1.07	0.86	3.37	0.89	0.75
Marital Status						
Spouse/Partner	3.52	1.09	0.86	3.30	0.90	0.77
Single	3.66	1.10	0.86	3.30	0.95	0.78
Age Cohort						
50-59	3.56	1.02	0.83	3.25	0.85	0.72
60-69	3.58	1.14	0.88	3.35	0.95	0.79
70-80	3.51	1.13	0.87	3.30	0.94	0.75
Retirement Status						
Not Retired	3.60	1.05	0.85	3.28	0.89	0.75
Retired	3.49	1.14	0.88	3.32	0.94	0.79
Retirement Date Cohort						
> 6 years until retirement	3.70	1.00	0.83	3.30	0.90	0.74
3-6 years until retirement	3.48	1.04	0.86	3.18	0.86	0.76
0-3 years until retirement	3.38	1.07	0.86	3.23	0.90	0.78
0-3 years since retiring	3.55	1.16	0.89	3.34	0.95	0.79
3-6 years since retiring	3.50	1.14	0.88	3.25	0.93	0.79
>6 years since retiring	3.47	1.13	0.87	3.33	0.94	0.79
Net Worth Range						
Less than \$150k	4.00	0.98	0.84	3.58	0.87	0.73
\$150k-\$499k	3.90	0.98	0.82	3.49	0.94	0.79
\$500k-\$999k	3.63	0.96	0.81	3.33	0.87	0.75
Greater than \$1M	3.08	1.08	0.86	3.02	0.88	0.77

TABLE 5. Retirement Income Factors

ticeable for single people. Another noticeable difference relates to scoring for net worth. For a higher net worth, respondents increasingly shift toward both probability-based and optionality orientations compared to those with a lower net worth. Otherwise, means are relatively consistent across demographic subgroups.

Both differences are interesting to note. First, with regard to gender, there are observable differences in the average preferences. On average, women are more comfortable than men with a safety-first preference and a

willingness to commit to a strategy. On average, men prefer both a probability-based focus on asset growth and a preference for optionality. For couples this distinction may be relevant because the two individuals may not be aligned with their preferences for sourcing retirement income.

For net worth we observe that higher net worth is associated with a probability-based and optionality focus. It is possible that this outcome is endogenous as such preferences may also be correlated with greater risk tak-

	LONGEVITY CONCERN	
N	2824	
F Value	335.05	
Pr > F	<.0001	
R-Square	0.49	
Parameter	Estimate	
Intercept	3.25	***
PS Score	0.58	***
OC Score	0.18	***
StdLossPort	0.03	
Age	-0.10	***
Married	0.05	
Net Worth	-0.30	***
Retired	-0.35	***
Female	0.15	***

*** Significant at 0.1% level; ** Significant at 1% level; * Significant at 5% level

TABLE 6. Full Sample – Regression

ing during the accumulation years. Those with a higher net worth may have, in part, been on the winning side of risk taking of this type and are therefore more likely to exhibit these characteristics. From a public policy perspective, individuals with a lower net worth, for whom policy makers may exert a greater interest to help, show a greater preference for both safety-first protections and commitment to a solution.

Table 5 also shows the Cronbach’s alpha scores for each eight-question set. For the PS factor, the scores range from 0.81 to 0.89 for the different demographic subgroups, with an overall value of 0.86. These scores are generally interpreted as being in the “very good” range. This reflects a strong underlying relationship between the grouped questions. For the OC factor, the scores range from 0.72 to 0.79, with a 0.79 overall score. Though slightly less than for the PS factor, this is still a highly respectable score in terms of demonstrating internal consistency for the questions. These scores are shown to persist across the various demographic subgroups. Results indicate that our newly created scales quantify our proposed retirement income preferences in a reliable manner. Thus, we can proceed to further test the RISA factors for concurrent validity.

RELATIONSHIP BETWEEN RETIREMENT INCOME FACTORS AND LONGEVITY CONCERNS

Our proposed way to further assess the validity of the PS and OC retirement income preferences is to investigate whether these beliefs are associated with retirement income concerns related to longevity. The degree of concern regarding retirement income goals is also presented via the semantic differential method. The longevity concern is directly related to the main risk of retirement income: outliving your money. Most examples center on financial independence and knowing that an individual can pay their basic expenses and not be a burden to others. These include but are not limited to daily living expenses, housing, and healthcare.

Table 6 provides the results for a regression analysis in which the degree of longevity concern held by individuals represents the dependent variables to be explained. The explanatory variables include the PS and OC eight-item average factor scores, the loss aversion score, and demographic characteristics including age, marital status, net worth, retirement status, and gender.

The regression provides statistical significance regarding overall explanatory power, with an R2 of 0.49. Variables that correlate in a significant manner with greater concerns about longevity include a safety-first preference, a commitment orientation, and female gender. We find that older individuals and individuals who have retired are less concerned with longevity as are those with a higher net worth. Traditional risk tolerance measures and marital status do not help to explain longevity concerns.

CONCLUSION

This study has provided further validation that two primary factors can help to explain retirement preferences in a manner that is consistent across a broad range of demographic subgroups for a representative sample of Americans between ages 50 and 80. The Probability-Based versus Safety-First factor explains whether individuals are more comfortable with market growth or with contractual protections as an income source for their essential retirement spending. The Optionality versus Commitment factor describes whether individuals emphasize keeping options open to make changes or whether they prefer to commit to a strategy known to solve their lifetime retirement income problem. This is significant because people have distinct preferences about how they want to source retirement income, and these preferences can now be reliably measured.

The next steps to be explored in subsequent research will be to identify whether these factors can be combined in a manner that describes retirement styles that can be mapped to different retirement income strategies. Also, because this framework captures the sensitivities of these particular preferences, we will also seek to determine whether it does a better job than other existing tools in capturing retirement risk sensitivities. This risk management is ultimately what different retirement strategies aim to do along with providing a reliable method to meet retirement goals.

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REFERENCES

- Fichtner, Jason J. (2021) The Peak 65 Generation: Creating a New Retirement Security Framework. Alliance for Lifetime Income whitepaper.
- Markowitz, H. H. (1991). Individual versus institutional investing. *Financial Services Review*, 1(1), 1-8.
- Murguía, A., and W. D. Pfau. (2021). Selecting a Personalized Retirement Income Strategy: A Model Approach. *Retirement Management Journal*, 10(1), 46-58.
- Stevens, J. P. (1992). *Applied Multivariate Statistics for the Social Sciences* (2nd edition). Hillsdale, NJ: Erlbaum.