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Does financial well-being affect portfolio construction? Evidence from an online survey

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Abstract

Portfolio construction has emerged as an important topic as retirement programs are increasingly composed of defined contribution plans. Little research has investigated how an individual´s current financial well-being affects portfolio construction. Using two measures of financial well-being, I examine how individuals create hypothetical retirement portfolios using responses from an online survey. Individuals who are better able to cope with a financial emergency allocate a higher percentage to equities and less to money market funds when controlling for risk preferences and demographics.

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1. INTRODUCTION

Portfolio construction has become an important issue for a majority of households as employees rely more on 401(k) plans and other defined contribution plans to fund their retirement instead of pension funds and defined benefit plans (Buessing and Soto, 2006). The shift to individuals using defined contribution plans to fund their retirement increases the need to have a well-constructed investment portfolio. I examine how an individual's level of financial well-being affects a hypothetical retirement portfolio construction with an online survey. Individuals who have a limited emergency fund to cover unexpected financial expenses may choose suboptimal (i.e. overly conservative) portfolio allocations given their goals, especially if individuals in lower states of financial well-being are more sensitive to investment risk. This could potentially compound financial well-being issues in retirement, as one would forego additional gains from a more aggressive portfolio at a young age. I add to the literature by examining the relationship between financial well-being and portfolio construction while controlling for demographic factors and risk preferences.

There is a wealth of literature on portfolio choice. Most related to this study is the research on portfolio choice and liquidity constraints (Haliassos and Michaelides 2003) or financial literacy (e.g. Abreu and Mendes, 2010; Guiso and Jappelli, 2008). If employees are forced to contribute to (and potentially manage) a retirement plan then they are not subjected to liquidity constraints. Additionally, new apps and financial technology platforms like Betterment, Acorns, and Stash[1] have low or no investment minimums, and allow individuals to manage and construct their own investment portfolios, which further reduces the impact of liquidity constrains. Since being in a poor state of financial well-being is due to a variety of issues, including buying regret (Abendroth and Diehl, 2006), overspending (Sotiropoulos and D'Astous, 2013), and not saving enough for retirement (Benartzi and Thaler, 2013; Skinner 2007), the relationship between financial well-being and portfolio construction is relevant to individuals across the socio-economic spectrum.

I find limited difference in portfolio construction when individuals indicate they have good financial behaviors and feel financially secure about the future. However, there are stark differences when examining how confident individuals are about weathering a small to medium-sized financial emergency.

2. METHODS

I collected data from a survey among a diverse group of individuals residing in the United States. Potential participants were recruited from the Amazon Mechanical Turk (MTurk) platform. The survey was posted as a Human Intelligence Task (HIT). Individuals received $0.75 for completing the survey provided they answered all of the control questions correctly (including English language control questions, and control questions to ensure subjects were paying attention during the survey). The survey took approximately 10 minutes. 306 individuals completed the survey and 36 subjects failed to answer all of the control questions correctly. Only the remaining 270 observations are used in the analysis.

Individuals first completed the financial well-being questionnaire. For measuring financial well-being, I created two separate measures. The first is the Financial Security and Behavior (FSB) scale (Table 2). This partially uses an altered version of the Financial Security scale implemented

[1] Stash, www.stashinvest.com. Acorns, www.acorns.com. Betterment, www.betterment.com. Accessed 31 October, 2017.

in Sarin and Wieland (2016) and incorporates several questions on good financial behavior and management. The FSB measure was constructed to incorporate one's qualitative feeling about their current financial security and feelings regarding good financial behavior that impact short-term financial security, such as paying bills on time. Subjects answered each question on a 5-point Likert scale from strongly disagree to strongly agree. The second measure, the Financial Emergency (FE) scale, asks if individuals would be able to cover an unexpected financial emergency within one month (amounts of $400 and $2,000, respectively). Two additional questions asked if subjects could cover a $2,000 financial emergency without asking for family help or using a credit card. These levels are similar to Demirgüç-Kunt et al. (2015) and Lusardi et al. (2011). The survey variables for the FSB and FE measures are shown in Table 2.

After completing the financial well-being questionnaire, individuals constructed a hypothetical portfolio by making allocation decisions across four asset classes: US stocks, money-market funds or savings account, investment grade bonds, and international stocks (similar to the technique used in Pyles et al. 2016). Table 1 shows the index benchmarks used in the analysis for each of the asset classes to compute portfolio measures. Finally, individuals answered a final questionnaire to control for a variety of factors; including, demographics, financial literacy, knowledge of investments, stock ownership, and risk attitudes. Table 3 provides an overview of demographics for the sample and Table 4 shows Means and standard deviations for the FSB and FE.

Table 1. Description of Asset Classes

Category	Index Proxy
US Stocks	S&P 500 Index
International Stocks	MSCI ACWI ex-US Index
Investment Grade Bonds	U.S. Barclays Aggregate Bond Index
Savings Accounts or Money Market	3 Month Treasury Bill

3. EMPIRICAL FINDINGS

Average asset allocation percentages are shown in Table 4. Examining asset allocations by individuals who have below average or above average FSB scores (average = 3.04, see Table 4), there is no difference in allocation to money market funds (37.5 vs. 36.1; $p=0.09$, Mann-Whitney test). Individuals with an above average FSB score allocated more to bonds (24.7 vs. 20.1, $p=0.01$). There is no difference for allocation to domestic or international equities ($p>0.34$). Those with above average FE scores allocated nearly 10% more to money market funds compared to individuals with below average FE scores ($p<0.01$). There is no difference in bond allocation ($p=0.76$). Individuals with lower FE scores allocated less to US Stocks than for individuals with above average FE scores, (32.5% vs. 23.2%, $p<0.01$). There is no difference between allocations to international equities by FE scores ($p=0.27$).

Examining allocations conditional on FSB and FE scores by gender, women with below average FSB scores allocated 9% less to money market funds than men with below average FSB

Table 2. Financial Well-Being Measurement

Financial Well-Being Scales (1=completely disagree, 5=completely agree)	Mean	Std
Financial Security and Behavior Scale (FSB)		
I feel secure in my current financial situation	2.85	1.16
I feel confidence about my financial future	3.10	1.18
I feel confident about having enough money to support myself in retirement no matter how long I live	2.69	1.25
I regularly saved each month.	3.08	1.32
I regularly contribute to a retirement account.	2.73	1.43
I am able to pay my bills in full and on time.	3.77	1.17
Financial Security and Behavior Average Score	3.04	0.99
Financial Emergency Scale (FE)		
I would be able to cover an unexpected financial emergency of $400 next month.	3.68	1.37
I would be able to cover an unexpected financial emergency of $2,000 next month.	2.85	1.59
I would be able to cover an unexpected financial emergency of $2,000 without using a credit card.	2.61	1.58
I would be able to cover an unexpected financial emergency of $2,000 without asking family or friends.	2.75	1.61
Financial Emergency Average Score	2.94	1.41

scores (31.6% vs. 40.4%; p=0.02; Mann-Whitney test), and more to bonds than men (28.4% vs. 20.6%, p<0.01). There is no difference in allocation to equities. Results are similar for individuals with below average FE scores. Women allocated less to money markets (36.8% vs. 45.5%, p=0.04) and more to bonds (26.9% vs. 19.1%, p<0.01) than men. There is no difference in allocation to domestic and international equities by FE scores by gender. Individuals who own stocks, ETFs, or mutual funds allocated more to equities than individuals who did not own any equities conditional on FSB and FE scores (p<0.07). Conditional on individuals owning equities, individuals with above average FE scores allocated more to equities than individuals with below average FE scores (51.1% vs. 41.1%, p=0.03). Linear regression analysis for the above results (not shown) support the non-parametric analysis.

Average annual rates of return (rate), Sharpe Ratios (Sharpe), and Standard Deviations (Std) were calculated for an individual's constructed portfolio. Individuals with an above average FE score would have had an annual return rate of 6.26, significantly higher than individuals who have a lower than average FE score, with a rate of 5.32 (p<0.01, Mann-Whitney test). Individuals with below average FE scores have a lower Std compared to individuals with above average FE scores (6.47 vs. 8.06, p<0.01). There is no difference in Sharpe. There are no differences in rate, Sharpe, or Std by FSB scores.

Table 3. Sample Statistics

Demographics		Income and Wealth	
Age		Annual Household Income (%)	
All respondents, mean	34.4	<$20,000	15.6
18-29 (%)	33.3	$20,000-$39,999	22.2
30-49 (%)	55.2	$40,000-$59,999	24.4
50+ (%)	11.5	$60,000-$79,999	15.6
		$80,000-$99,999	11.9
Education (highest completed) (%)		$100,000 or over	10.4
Less than high school	0.4		
High School	12.6		
Some college	27.0		
2-year college degree	12.2		
4-year college degree	38.2		
Post-Graduate degree	9.6		
Female (%)	55.6		
Employed full-time (%)	65.6		
Children (%)	44.1		
Married (%)	51.5		
White (non-Hispanic) (%)	75.9		
Own stocks, ETFs, or mutual funds (%)	44.4		
Own home or apartment (%)	39.3		
Dual-income household (%)	39.6		
Have a savings account (%)	93.0		

4. DISCUSSION

This survey is a first step to investigate how portfolio construction depends on financial well-being. This note examines portfolio construction and selection by two different measures of financial well-being. Individuals who indicate they are less (better) able weather a financial emergency allocate a larger (smaller) percentage of their portfolio to U.S. equities and less (more) to Money Market funds in a hypothetical survey. However, there are limited to no differences in portfolio construction by the Financial Security and Behavior scale. There are difference by gender and whether an individual own stocks, ETFs, or Mutual Funds. These findings have implications for retirement programs and policies targeting financial well-being and research in behavioral finance.

Table 4. Asset Allocations

	Asset Allocation Decisions		
	Mean	Below Avg. FSB	Above Avg. FSB
Money Market	36.8 (1.52)	36.1 (2.01)	37.6 (2.31)
Bonds	22.5 (1.04)	25.7 (1.45)	20.15 (1.46)
U.S. Stock	27.6 (1.16)	25.9 (1.39)	29.5 (1.87)
Int'l. Stock	13.1 (0.71)	13.3 (0.94)	12.79 (1.08)
		Below Avg. FE	Above Avg. FE
Money Market		41.3 (2.11)	31.8 (2.12)
Bonds		22.9 (1.52)	22.1 (1.40)
U.S. Stock		23.2 (1.27)	32.5 (1.89)
Int'l. Stock		12.6 (1.04)	13.57 (0.96)

Standard errors in parenthesis.

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