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Assessing the value of advice

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- How should we measure the value of financial advisory services to investors? In this paper, we introduce a new three-part framework based on portfolio, financial, and emotional outcomes. We illustrate several aspects of our approach using data from Vanguard Personal Advisor Services (PAS), a hybrid service combining human and algorithmic elements to deliver financial advice.

- **Portfolio outcomes:** We measured the value of advice on portfolio outcome by studying the changes in portfolio diversification of a sample of Vanguard self-directed investors who switched to an advisor. We found that advice led to meaningful changes for most. It materially altered equity risk-taking for two-thirds of the sample, reduced cash holdings for nearly three in ten investors, and eliminated home bias for over 90%.

- **Financial outcomes:** To determine the value of advice on an investor's ability to achieve a financial goal, we calculated the forecast success rates of a sample of PAS clients who have established a retirement goal. Eight in ten have an 80% or greater probability of achieving a secure retirement, while two in ten are at risk.

- **Emotional outcomes:** To explain the importance of financial advice on an investor's sense of well-being, we developed an estimate for the fraction of value arising from emotional elements such as trust in or a personal connection with an advisor. Based on a survey of more than 500 PAS investors, emotional outcomes account for 45% of total perceived value. Another 55% of value is associated with functional aspects of the relationship, such as portfolio management, financial planning, and other services.

- The advisory industry is increasingly interested in clarifying what constitutes value for investors and how to assess value for money paid. Our framework demonstrates the importance of defining value in the broadest sense, going beyond portfolio outcomes to include both financial outcomes and emotional well-being. In time, the industry will need to develop widely acceptable and comparable measures that encompass all three of these dimensions.

Introduction

Global demand for high-quality, cost-effective financial advice is growing. In many countries, increasing reliance on defined contribution systems means more households will be retiring with substantial savings and will need affordable and effective help in managing them. More broadly, the financial services industry faces rising demand to improve client outcomes and value for money. New robo- and hybrid advisor services have emerged to address these concerns, using technology to expand their reach and improve their effectiveness.

A large number of industry and academic studies have sought to develop better ways to measure the value of advice to investors. Many, such as Vanguard's Advisor's Alpha® and the Morningstar gamma methodology,[1] take a normative or simulation-based modeling approach. Several robo-advisors have attempted to model the potential benefits of their methods using hypothetical or stylized investors.[2] Academic and policy researchers have contributed competing narratives as to whether or not professional advice contributes to investor value.[3]

Our paper adds to this debate by introducing a three-part value framework for advice, illustrated with data-driven metrics based on administrative and survey data from Vanguard's Personal Advisor Services (PAS). PAS is a hybrid advisory service combining algorithmic and human elements introduced in the U.S. in 2014. Our intention is not to provide a comprehensive exposition of the framework but rather to highlight the breadth of what constitutes value in an advisory relationship.

We believe the advisory community needs to build a broad set of measures beyond portfolio outcomes to quantify and report on value to investors. Only when value is clearly defined can debates over value for money be considered.

The value framework

Our framework defines three dimensions of potential value for advised investors (see **Figure 1**).

Figure 1. Value of advice framework

Component	Description
Portfolio value	Optimal portfolio construction and client risk-taking • Portfolio risk/return characteristics • Tax efficiency • Fees • Rebalancing and trading activity
Financial value	Attainment of financial goals • Saving and spending behavior • Debt levels • Retirement planning: cash flow, income, and health costs • Insurance and risk management • Legacy/bequest/estate planning
Emotional value	Financial peace of mind • Trust—in advisor and markets • Success and sense of accomplishment • Behavioral coaching • Confidence

Source: Vanguard, 2019.

1 See Bennyhoff and Kinniry (2018) and Blanchett and Kaplan (2018).
2 See Betterment (2019).
3 As examples, see Foerster, Linnainmaa, Melzer, and Previtero (2014), Brancati, Franklin, and Beach (2017), and Kim, Mauer, and Mitchell (2016).

- **Portfolio value.** The first dimension concerns the portfolio designed for the investor. Value comes from building a well-diversified portfolio that generates better after-tax risk-adjusted returns net of all fees, suitably matched to the client's risk tolerance. Portfolio value can be quantified in many ways, including different measures of portfolio risk-adjusted return, diversification and allocation metrics (such as active/passive share), the impact of taxes, and portfolio fees.
- **Financial value.** The second dimension assesses an investor's ability to achieve a desired goal. A portfolio does not stand on its own. It is in service to one or more financial goals, such as retirement, growth of wealth, bequests, education funding, and liquidity reserves.

  One way to evaluate success is to estimate the probability of achieving a financial goal or wealth target at the end of a specified period. Ultimately, an advisor should seek to improve an investor's chance of achieving his or her desired future spending goal. To do this, the advisor must consider a myriad of planning-related metrics that extend beyond portfolio outcomes. These include financial behaviors such as optimal savings and spending; the assumption of debt; budgeting; insurance and risk management; various elements of tax-efficient retirement planning; and legacy, bequest, and estate planning.
- **Emotional value.** The third dimension is an emotional one: financial well-being or peace of mind. The value of advice cannot be assessed by purely quantitative measures. It also has a subjective or qualitative aspect based on the client's emotional relationship with the advisor (or, in the case of robo-advisers, with the institution and its brand). Underlying elements include trust (in the institution or advisor), the investor's own sense of confidence, the investor's perception of success or accomplishment in financial affairs, and the nature of behavioral coaching such as hand-holding in periods of market volatility.

Prior studies of the value of advice have tended to focus on individual elements of this framework. Some have assessed portfolio outcomes, such as risk-adjusted returns and the value of portfolio tax efficiency, while others have estimated the impact of financial planning strategies on forecast wealth. We believe that the value of advice arises along all three dimensions and that the relative importance of each will vary by investor and delivery method.

Next, we illustrate the dimensions of our framework by presenting one outcome from each. We provide them not as a comprehensive analysis but to highlight the breadth of the concept of value in advice.

Vanguard Personal Advisor Services

The studies in this paper are based on data associated with investors using Vanguard's hybrid advisory service, PAS. PAS is goals-based, providing ongoing management of assets and personalized investment portfolio recommendations centered on low-cost index and active mutual funds and ETFs. It charges an advisory fee of 0.30% of assets or less.[4]

To begin, the service profiles investors based on their financial objectives, risk tolerance, investment horizon, and demographic and wealth characteristics. They receive a proposed financial plan that includes a cash flow forecast, the probability of successfully achieving their stated goals (such as financing a secure retirement), and a recommended portfolio strategy. At several points, investors engage with an advisor who explains the plan and may adjust it (within various guardrails) based on feedback.

Once the plan is accepted, clients are enrolled in the service. From that point, trading to the target portfolio occurs automatically to reach the desired allocation. Advisors continue to engage with clients on various elements of the plan over time. These ongoing conversations encompass a wide range of investment and financial planning topics, ranging from college savings to retirement income optimization.

4 Fees are 0.30% for assets less than $5 million and a declining schedule above this threshold.

Portfolio outcomes: Quality of portfolio construction

To illustrate this dimension, we focused on one metric: changes in portfolio diversification patterns. Specifically, we examined the impact of PAS on the quality of portfolio construction decisions among previously self-directed Vanguard investors who switched to having a PAS advisor between 2014 and 2018. PAS was initially marketed to existing Vanguard investors who made their own investment choices. Their adoption of PAS allows us to examine how professional advice may enhance portfolio diversification decisions among self-directed investors generally.[5]

The study sample consisted of more than 44,000 Vanguard self-directed investors who began working with PAS from 2014 through 2018. They had a median age of 64, a median Vanguard tenure of 15 years, and median wealth of just under $400,000 invested in the service. (For more details, see the **Appendix**.)

We examined changes in their portfolios six months before and after adoption of the service. At an aggregate level, advice led to no material change in equity risk-taking behavior. The most significant aggregate change extended fixed income portfolio duration by reallocating cash to bonds (see **Figure 2**).[6] This highlights one of the common features of self-advised investors, who tend to hold cash in lieu of longer-duration fixed income assets. We regard these cash holdings in part as a measure of procrastination and lack of literacy about bond investments.

Because this aggregate view masks the true impact of advice at the client level, we next looked at portfolio changes at the individual level (see **Figure 3**). We found that two-thirds of investors experienced material equity allocation changes—either increases or reductions—of more than 10 percentage points. For nearly three in ten investors, cash (money market fund) holdings decreased by at least 10 percentage points. The amount of

Figure 2. Aggregate allocation changes

Self-directed Vanguard investors adopting advice

a. Six months before advice adoption

b. Six months after advice adoption

Source: Vanguard, 2019.

Figure 3. Changes in portfolio metrics

Change (+/– at least 10 percentage points)	Percentage of investors	Percentage increase ▲	Percentage decrease ▼
Equity share	66%	32%	34%
Cash share	28%	1%	27%
International (equity and bond) share	93%	90%	3%
Index share	79%	71%	8%
Individual stock holdings	10%	1%	9%

Source: Vanguard, 2019.

5 Self-directed investors at Vanguard are a unique population. Many have likely been attracted to Vanguard in the first place by our emphasis on strategic portfolio allocation, low fees, and buy-and-hold investing versus tactical allocation and active trading. Our sample is also affected by self-selection; some Vanguard investors may be more prone to seek advice.

6 Cash holdings are portfolio holdings in money market funds. International holdings include non-U.S. equity and fixed income securities.

international holdings changed (mostly increasing) for over 90% of investors, effectively eliminating portfolio home bias. In keeping with PAS's investment methodology, the passive share of eight in ten investors' portfolios increased, often lowering portfolio costs. Finally, PAS effectively eliminated single-stock risk for 10% of investors who had held significant positions in individual stocks.

To understand the interplay of these changes, we created five distinct clusters of advised investors based on common changes in their portfolios (see **Figure 4**).

Four out of ten previously self-directed investors were "aggressive risk-takers." For them, advice reduced equity exposure while increasing international and passive exposures. Another 28% were "cautious risk-takers." For them, advice increased equity risk-taking and led to index and international changes. A small group, "on-target" investors, already had portfolio allocations close to the PAS recommendations. The most striking changes occurred among another one-fifth of investors, "stock investors" and "cash dwellers," who had held concentrated holdings in either individual securities or cash reserves, respectively.

Figure 4. Five advised investor clusters

Self-directed Vanguard investors adopting advice

Investor attributes			Portfolio changes: Before	After	Difference
Aggressive risk-takers 42% of clients	• Overconfident; high equity, active risk • Age: 63 Tenure: 18 AUM: $250,000–$500,000	Equity	80%	62%	▼ –18%
		Bond	14%	36%	22% ▲
		Cash	6%	2%	▼ –4%
		International	2%	33%	31% ▲
		Individual stocks	1%	0%	▼ –1%
		Index	51%	86%	35% ▲
Cautious risk-takers 28% of clients	• Cautious • Age: 66 Tenure: 15 AUM: $250,000–$500,000	Equity	46%	59%	13% ▲
		Bond	49%	40%	▼ –9%
		Cash	5%	1%	▼ –4%
		International	2%	33%	31% ▲
		Individual stocks	1%	0%	▼ –1%
		Index	51%	86%	35% ▲
On-target 11% of clients	• Only modest changes needed • Age: 62 Tenure: 14 AUM: $250,000–$500,000	Equity	72%	64%	▼ –8%
		Bond	24%	34%	10% ▲
		Cash	4%	2%	▼ –2%
		International	27%	31%	4% ▲
		Individual stocks	1%	0%	▼ –1%
		Index	67%	83%	16% ▲
Stock investors 5% of clients	• High single-stock risk • Age: 66 Tenure: 15 AUM: $500,000–$750,000	Equity	76%	62%	▼ –14%
		Bond	12%	37%	25% ▲
		Cash	12%	1%	▼ –11%
		International	2%	33%	31% ▲
		Individual stocks	49%	2%	▼ –47%
		Index	13%	84%	71% ▲
Cash-dwellers 14% of clients	• Predominantly cash holders • Age: 63 Tenure: 12 AUM: $250,000–$500,000	Equity	15%	60%	45% ▲
		Bond	8%	38%	30% ▲
		Cash	77%	2%	▼ –75%
		International	1%	34%	33% ▲
		Individual stocks	2%	1%	▼ –1%
		Index	7%	88%	81% ▲

Note: Investor demographic and account characteristics are median values.

Source: Vanguard, 2019.

These results underscore the impact that advice can have on previously self-directed investors, including adjusting portfolio risk-levels, fully investing in fixed income securities rather than in cash reserves, and eliminating home bias. PAS advice also led to a higher passive fund share and substantially reduced or eliminated single-stock risk.

It is worth noting that the PAS investment methodology values factors such as strategic allocation, low active share, low trading, and negligible home bias. Advisory services emphasizing other types of strategies might produce different outcomes.

Financial outcomes: Goal success rates

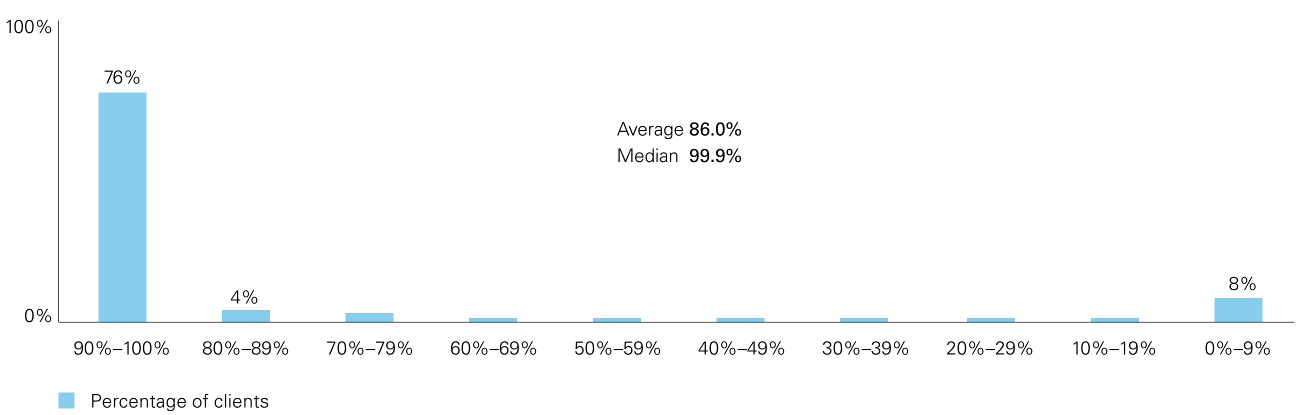
Identifying potential value related to achieving investment goals requires defining the goals, establishing a hierarchy among them, and determining what constitutes success. Attaining the goals involves a range of financial planning activities, from saving and spending to budgeting and debt management, that influence financial outcomes beyond managing the portfolio. All of these can potentially be measured and evaluated.

We illustrated this value using a specific metric available for PAS investors. Goal success rate is a probabilistic forecast of an investor's ability to fulfill a particular financial goal. We examined success rates relating to the goal most commonly identified by PAS investors: a secure retirement. Our data was drawn from a January 2019 extract of success rates for more than 100,000 PAS investors. (For more details, see the Appendix.)

As of January 2019, eight in ten PAS investors with a retirement goal had an 80% or greater probability of achieving their objective (see **Figure 5**). Specifically, 76% had a 90% to 100% probability, while another 4% had a probability of between 80% and 89%. The remaining one-fifth had much lower probabilities.

Such a high percentage of investors on track to achieve their retirement goal is certainly encouraging. However, in some cases, these investors may be over-prepared, living more modestly than they actually need to. This presents an opportunity for advisors to discuss a client's current or desired standard of living and whether it might be possible to increase it.

Figure 5. Distribution of retirement goal success rates



Source: Vanguard, 2019.

We separately examined the 20% of investors with a retirement probability of success below 80%. They tended to be near or at standard retirement age (see **Figure 6**) and have asset accumulations below what was needed to fund their expected standard of living. In other cases, particularly among younger investors, important financial planning information such as workplace retirement savings—critical data for forecasting outcomes—was not accurately reported to advisors.

This summary shows that the second dimension of value involves orchestrating all of the financial decisions in a household, not simply the portfolio and its characteristics, in pursuit of the investor's objectives.

Emotional outcomes: Role of the advisor relationship

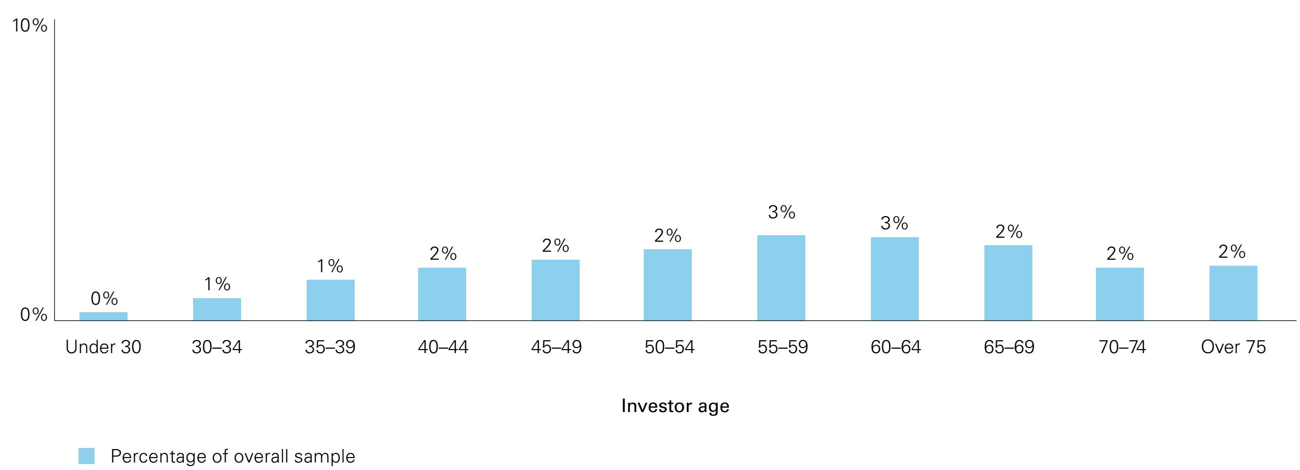
The third dimension of potential value relates to the investor's financial well-being—the emotional security provided by the advisory relationship. Think of it as a subjective psychological measure of "financial happiness." Contributing factors include the investor's sense of trust and confidence, feeling of accomplishment, and emotional connection with the advisor. Also included is the emotional support the advisor offers during periods of market volatility or other shocks to the household's status, such as job loss, disability, or death.

We illustrate the importance of this dimension by attempting to calculate how much clients associate perceived value with emotional or affective versus functional elements. We based our study on survey data from a sample of 504 PAS investors asked, among other questions, about their perceptions of value in their advisory relationship. Respondents ranked 24 statements in terms of importance and satisfaction. The survey was conducted in September/October 2018, and the statements were derived from interviews conducted earlier in 2018. (For more details, see the Appendix.)

This data allowed us to model how clients perceived value in the advisory relationship and then to estimate how much of that value was related to emotional perceptions. We used factor analysis to group the 24 statements into three broad categories and characterized

Figure 6. Distribution of investors by age with probability of success below 80%

PAS investors with a retirement goal as of January 2019



Source: Vanguard, 2019.

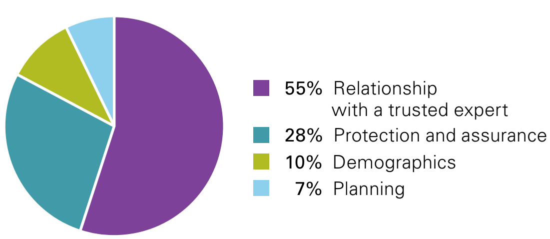
respondents by demographic characteristics such as age, wealth, risk tolerance, and investment sophistication. We then analyzed how the investors who assigned the highest value (five out of five) to their advisory relationship compared with those who assigned a lower value.

What elements led to the highest perceived value? Over half of it came from statements we categorized as "relationship with a trusted expert" (see **Figure 7**). Another 28% came from statements we described as "protection and assurance." Finally, 7% came from planning-related statements and 10% was attributable to differences in household demographics.

Using a regression model, we then analyzed how each individual statement contributed to the investor's perception of value (see **Figure 9** on the next page).[7] It was immediately apparent that many highly rated statements had a strong emotional component. For example, "trust in the advisor" was the most important factor driving the highest value rating (10%), followed by having a "personal connection with an advisor" (7%). Feeling "on track to meet goals" (8%) and "reassured in down markets" (3%) were also significant. They ranked either much higher than or at least on par with such formal activities as preparing a comprehensive financial plan.

Figure 7. Investor perceptions of value

2018 survey of PAS clients

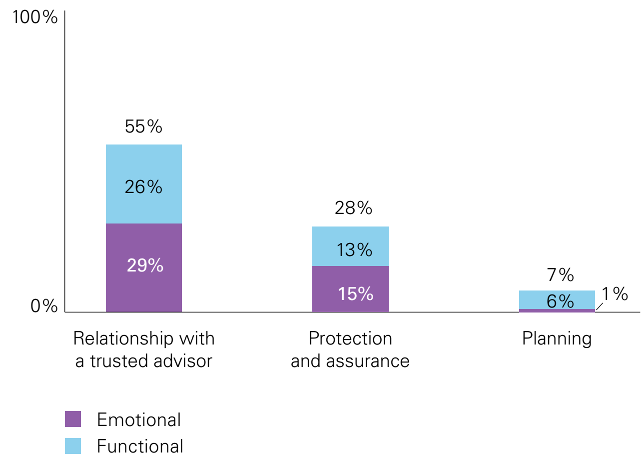


Source: Vanguard, 2019.

In reality, each of the 24 statements included both emotional and non-emotional (or functional) elements. To isolate the role of emotion, we assigned an emotional versus functional rating to each statement and calculated the results.[8] We determined that the emotional aspects of an advisory relationship represented nearly half (45%) of the total value assigned by those investors rating advice most highly (see **Figure 8**). They were particularly important components of the "relationship" and "protection and assurance" aspects.

Figure 8. Emotional versus functional value of advice

2018 survey of PAS clients



Notes: Each of the 24 service statements was weighted subjectively as having high, medium, or low emotional content, and this was applied to the statements' weights. Demographic factors were treated as purely functional.

Source: Vanguard, 2019.

7 We regressed a 1/0 model of value (highest-value clients versus all others) against the 24 statements and demographic variables such as age, wealth, investment sophistication, and risk tolerance, as reported in the survey. Complete regression results are available from the authors.

8 Each of the statements was weighted subjectively by the survey designers and assigned as having high, medium, or low emotional content. These ratings were then applied to the relative importance weights. Demographic factors were treated as purely functional.

Figure 9. Relative importance of value statements

2018 survey of PAS clients

Relationship with a trusted advisor (55%)

I need to completely trust that my financial advisor/robo-advice service will put my needs first and foremost	10.1%
I need to know my financial plan is continuously monitored and updated	8.8%
I need to feel a personal connection with my financial advisor	7.1%
I need an expert perspective to guide all of my investment decisions	6.4%
I need complete transparency whenever changes are made to my portfolio	4.7%
I need to have access to a financial expert whenever I need it	3.8%
I need to have professional financial help so I can spend my time on other things that matter to me	3.5%
I need to feel like I have complete control over all of my financial decisions	2.8%
I need regular proactive outreach to keep me updated about my finances	2.7%
I need to feel like I have taken charge of my financial future	2.7%
I need to know exactly how much money I'm paying my financial advisor/robo-advice service	1.3%
I need round-the-clock online access to my account	0.9%

Protection and assurance (28%)

I need to feel that I am on track to meet my financial goals	8.0%
I need the assurance of guaranteed income in retirement and I am willing to exchange a portion of my portfolio in return for it	4.4%
I need a financial plan that offers me financial freedom	4.4%
I need to know that my survivors will have help navigating financial decisions after I am gone	4.2%
I need to feel completely reassured that things will be okay, including during financial market downturns	2.9%
I need to protect myself against unexpected events that could negatively impact my investments	2.5%
I need to protect my financial well-being in the event I experience diminished decision-making capabilities in my later years	1.6%

Planning (7%)

I need a customized financial plan that covers more than just my investments	2.0%
I need help balancing my spending and saving	1.7%
I need to expand my knowledge of investments and personal finance	1.6%
I need to maximize my investment returns, even at the risk of substantial losses in the value of my portfolio	1.2%
I need a neutral third party to facilitate financial discussions between me and my spouse/partner or other family members	0.6%

Notes: Relative importance measures how much a statement contributes to clients' assigning the highest value rating to their advisor (5 out of 5) versus lower ratings. The remaining 10% of variation is associated with individual characteristics of the investor such as age, wealth, and investment sophistication.

Source: Vanguard, 2019.

Summary and implications

We believe that any measure of value must span three broad categories or dimensions: portfolio, financial, and emotional. In this paper, we illustrated this concept using metrics from Vanguard's hybrid advisory service, PAS. Our aim was not to define all of the possible metrics for each dimension but simply to highlight the breadth of the framework.

Portfolio outcomes are of course foundational to most advisory relationships. The first duty of many services is to manage an investor's assets. Our data illustrate that advice can be particularly helpful in remedying portfolio errors such as procrastination, inertia, and home bias for previously self-directed investors.

However, value should be defined more broadly. We illustrated the importance of the second dimension of value, financial outcomes, using PAS success rates for retirement. We showed that investment portfolios are not an end in themselves. Rather, they are part of a broader set of financial planning and advisory efforts at the household level in areas such as spending and saving, debt management, risk management and insurance, and so on. These metrics are just as important as (if not more so than) portfolio decisions in attaining financial success.

Finally, we analyzed the importance of our third dimension, emotional outcomes, using survey data to estimate the emotional component of advice. We found that it accounts for half of the value assigned to the advice relationship by PAS investors, although this will vary among different types of advisors and investors.

Our results highlight the need for a broader advisory industry investment in value metrics. Assessing value for money for the investor must begin with a comprehensive measure of value. As the industry grows in scale and impact and the emphasis on investor value continues, additional data-driven benchmarks will be needed to evaluate advisor quality and efficacy. These metrics will have to extend beyond traditional portfolio outcomes to encompass broader financial goal attainment and emotional well-being.

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Appendix: Demographic characteristics of referenced study samples

Sample 1—used for pre-/post-asset allocation study

Number of existing Vanguard clients who enrolled in PAS through December 31, 2018	44,160
Median age	64
Median tenure	15
Median portfolio balance range at enrollment	\$250,000–\$500,000

Sample 2—used for analysis of success rates

Number of enrolled PAS clients on January 22, 2019	104,176
Median age	65
Median tenure	14
Median portfolio balance range	\$250,000–\$500,000

Sample 3—used for survey analysis

Number of PAS clients surveyed in September/October 2018	504
Median age	66
Median tenure	12
Median portfolio balance range	\$250,000–\$500,000

Source: Vanguard, 2019.

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