



Discovering Phi

Motivation as  
the Hidden Variable  
of Performance



CFA Institute



STATE STREET®



After 18 months of research,  
we've made an important discovery...















*...that has widespread implications for  
the future of the investment management industry.*





We have discovered a hidden variable of performance –





we have quantified it, and we have named it...



Phi.  $\Phi$



The hidden variable of performance.







## Discovering Phi

# MOTIVATION AS THE HIDDEN VARIABLE OF PERFORMANCE

Short-term thinking has disconnected us from our shared purpose: achieving clients' long-term goals and in turn contributing to economic growth. Organizations that are able to go back to basics and rediscover their purpose – their *raison d'être* – should be able to perform better in any return environment. We need to embed in our habits and incentives the connection to purpose. The first step toward accomplishing this is to understand what motivates us and how our motivations work. Our motivations lead to action and our actions drive outcomes.

Based on 18 months of research from May 2015 to October 2016, through in-depth interviews with more than 200 global industry leaders, the State Street Center for Applied Research and project partner CFA Institute set out to answer one fundamental question: How can we leverage motivation to achieve better financial outcomes?

We combined the qualitative statements from these interviews with the findings from a survey of nearly 7,000 respondents: 3,600 individual investors and more than 3,300 investment professionals across 20 countries.

Through this effort, we discovered a previously hidden variable with a statistically significant relationship to long-term organizational performance, client satisfaction and employee engagement. As in quantum mechanics, where a “hidden variable” is an element missing from a model that leaves the system incomplete, we find the same situation in investment management, i.e., there seems to be an intangible factor that has not previously been quantified.

We call this variable “phi” — derived from the motivational forces of purpose, habits and incentives that govern our behaviors and actions.

The phi motivation is distinctly different from the short-term outperformance motivation or asset-gathering focus of our industry.<sup>1</sup> **The results of our analysis were exceptional: A one point increase in phi is associated with 28% greater odds of excellent organizational performance, 55% greater odds of excellent client satisfaction and 57% greater odds of excellent employee engagement. (For a detailed explanation of phi, please see the appendix.)**



α

β

γ

φ

When the phi of the investment professional, the investment firm and their clients are aligned, this represents the greatest potential for sustainable organizational performance – across market cycles – as all are focused on the long-term goals of the client. Furthermore, phi drives the behaviors and attitudes individual investors must develop to reach higher levels of engagement and progress toward long-term goals.

While secular trends in alpha and beta are largely beyond our control, phi is not. Increasingly, our industry is looking for ways to measure value-add to clients that goes significantly beyond benchmark-relative performance. In the consulting and financial advisory space, Morningstar introduced the concept of gamma to highlight the fact that, while advisors were not able to consistently identify which asset managers were likely to perform best, they could add significant quantifiable value to clients through activities such as: liability-driven investing; dynamic withdrawal strategy; annuity allocation; total wealth asset allocation; and asset location and withdrawal sourcing.<sup>2</sup> Similarly, phi can measure investment managers' ability to produce performance driven by purpose.

To maximize phi, we must first understand the basics of motivational theory and how this theory applies to today's investment management industry. We will initially look at those professionals working in the field, and then turn to their clients.





## New Industry Skills Needed for Success

Research based on Self Determination Theory has found the best work climates generate the additional skills our industry needs to fully realize individual performance potential: cognitive flexibility, creativity, ownership and citizenship. In the context of finance, these sound rather esoteric, but given the disruptions occurring in today's environment, this is precisely the time when these new skills will separate the winners from the losers. Here is their definition and why they matter:


**Cognitive flexibility:** The ability to adapt to disruptive forces in the industry (and therefore in organizations) is an important advantage.

**Creativity:** Not just the domain of art classes anymore or the negative “creative accounting” types, creativity is needed by investment professionals to find value in an environment that is increasingly competitive.

**Ownership:** In this context we mean a sense of joint ownership of the organization's successes and failures – a feeling that one is an integral part of the future of the firm

**Citizenship:** Corporate citizenship is characterized by employees who do extra tasks for the overall health of the organization, beyond what their role would require.





### Why motivation?

At first glance, the investment profession is hardly one you could call unmotivated. It is full of intelligent and hard-working people, so we might be inclined to think this is an issue for a different sector.

But when we look more closely, we can see that it is the type of motivation that dominates this industry that is precisely what may be working against it.

Motivation matters because it is “the psychological process that initiates and determines direction, intensity and persistence of voluntary and goal-directed actions.”<sup>3</sup> Motivation is the engine that drives behavior. We have become more attuned to behavioral biases in finance in recent years, but at times are frustrated by a feeling that biases can’t be mitigated. Motivation, however, goes one layer deeper to describe what sparks behavior, and may be strong enough to counteract biases.

As there is interplay among individuals with differing motivations, we must consider the potential of phi in terms of the complex adaptive system of interactions between providers and clients. Looking at just one participant in isolation does not tell the full story.





Motivation is the engine

that drives  
behavior.



A close-up, profile view of a man's face, looking towards the right. He is wearing glasses with a dark frame. The lighting is soft, highlighting the texture of his skin and the details of his features.

The Good News:

**53%**

of investment professionals said they pursued a career in investment management because they were passionate about financial markets.

**40%**

of investment professionals report that it is important they stay in the industry.

The Bad News:

**28%**

of our respondents said they remain in the investment management industry for the purpose of helping clients in achieving financial goals.

**5%**

suggest they remain to contribute to economic growth.



## The Current State of Motivation

### **PASSION WITHOUT PURPOSE**

In order to understand (and ultimately improve) the behaviors in our industry, we must first understand the type of motivation behind them.

The good news for our industry is that 53% of the investment professionals surveyed (asset managers, asset owners and other intermediaries) said they pursued a career in investment management because they were passionate about financial markets; and 40% of investment professionals report that it is an important reason they remain in the industry.<sup>4</sup>

The bad news is that despite this passion, the industry appears disconnected from its purpose. Just 28% of investment professionals said they remain in the investment management industry for the purpose of helping clients achieve financial goals, and only 5% suggest they remain to contribute to economic growth.<sup>5</sup> As the CEO of one asset owner describes it, “People in this industry do not get motivated by creating a better world...they are interested in returns and competing — nothing else.”<sup>6</sup>

What’s driving this disconnect? Quite simply, the environment we’ve created to support our passion limits our connection to purpose.

In the workplace, this environment is largely a function of corporate culture and leadership. To examine motivation in the context of culture and leadership, we used Self-Determination Theory (SDT),<sup>7</sup> which identifies three innate needs that, when satisfied, allow optimal function and growth: competence, relatedness and autonomy. In other words, one must have 1) the capability and knowledge to work effectively, 2) a close-knit environment where people understand how their work fits together to benefit from collaboration, and 3) delegated authority (versus micromanagement).



For a better understanding of this, we surveyed the following items, asking respondents to rate whether their leaders do the following:

- Articulate a compelling vision of the future
- Have a preparedness to challenge assumptions and adapt their vision over time
- Talk to their employees about their most important values and beliefs
- Spend time teaching and coaching employees

Unfortunately, we found that a majority of professional investors gave their firm low ratings in every one of these categories. The item with the lowest scores was about teaching and coaching, indicating a lack of commitment to the long-term health of the organization. Furthermore, only 15% of professional investors strongly believe their leaders articulate a compelling vision. The most effective leaders make the linkage between these external motivators that they drive and the employees' motivators that they are internally wired to use.

In fact, this lack of articulated and shared purpose is driving demotivation and stress: 92% of investment professionals in our survey report being demotivated in some way.

To attribute this lack of purpose to shortfalls in leadership and vision would be a major simplification. As described below, investment professionals face a wide variety of other economic and emotional pressures that influence their motivations and behaviors.

### Compensation

Conventional wisdom dictates that compensation is an effective tool for motivation. However, academic research shows that while compensation is indeed a factor that prevents dissatisfaction, it does not necessarily increase long-term motivation.<sup>8</sup> Indeed, only 20% of our respondents indicated that compensation is the reason they remain in the industry.

Studies suggest that monetary incentives may create an atmosphere in which an individual feels greater external pressures, making it difficult for them to process information and make decisions.<sup>9</sup> This can be mitigated if the compensation structure is perceived as fair, controllable and transparent.<sup>10</sup> However, only 44% of respondents in our study believe their compensation structure is fair, 40% believe it is transparent and 34% believe it is controllable.



# 44%

of investment professionals believe their leaders articulate a compelling vision.

# 41%

of investment professionals agree that leaders talk to employees about their most important values and beliefs.

# 33%

of investment professionals believe that their leaders are spending time teaching and coaching employees.

# 40%

of investment professionals think their leaders re-examine critical assumptions and beliefs.

## Fear, Stress and Career Risk

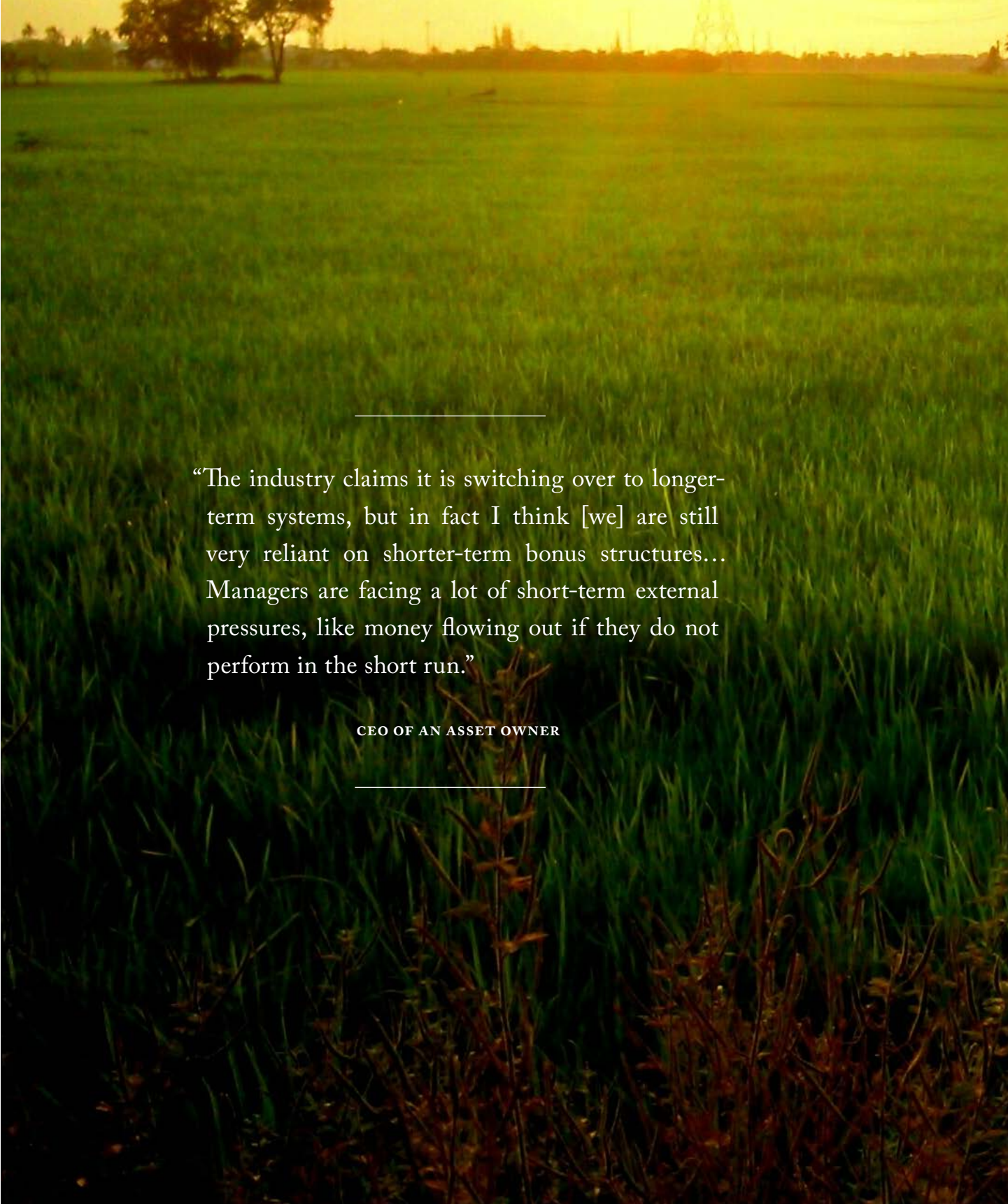
Asset owners, asset managers and wealth managers all report various short-term pressures that affect their decision making.

Among asset owners, most of that pressure came from the board (37%), management team (30%) and the investment consultants they have hired (17%). Just as important, however, was perceived career risk: About half of all industry professionals worry about this, and among this group 52% believe they would be fired after 18 months of underperformance.

Among asset managers and wealth managers, 36% report that acting in the best interest of their client actually implied taking on career risk. This is because performance assessments of managers tend to be carried out over shorter time periods versus the longer-term investing horizon of clients. This means that short-term losses could drive an investor to terminate a relationship with a manager, even if the investor benefits from the investment in the long run.<sup>12</sup> Similarly, 24% feel organizational pressure to take too little risk on behalf of their clients, and 25% feel pressure to replicate exposures in their benchmark — even when they believe they are suboptimal investments.

Clearly, the environment in our industry measures success through competition, comparison and the contingent rewards that result.





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“The industry claims it is switching over to longer-term systems, but in fact I think [we] are still very reliant on shorter-term bonus structures... Managers are facing a lot of short-term external pressures, like money flowing out if they do not perform in the short run.”

CEO OF AN ASSET OWNER

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In turn, self-interest tends to prevail — nearly two-thirds (62%) of investment professionals believe that their organization is acting in its own best interest rather than the client's. In the words of one asset owner CEO, "It is an industry in which it is OK to behave badly if you are smart enough."

We asked the same question of retail investors, and they agreed — more than half (54%) of respondents believe that financial institutions are most likely to offer products and services in the firm's own best interest versus that of the client. As a result, less than one third (32%) of retail investors surveyed attribute their long-term financial planning success to an advisor or other investment provider. They were more likely to credit themselves (55%) or friends or family (38%).<sup>13</sup>

This is the current state of motivation and performance in our industry: Our current environment "misdirects" our passion for beating the market toward behaviors that inhibit our performance and undermine the legitimacy and credibility of the industry.

Furthermore, there is a disparity between the purpose we say we have on our websites and corporate messaging (helping clients meet their goals), and the purpose evident in our actions (competition and outperformance for its own sake).

We will never be able to compel people to buy into a particular vision or values, but fortunately we do not have to. By implementing changes in our work environment, through the force of culture and leadership, the passion for beating the market that drives so many industry professionals can be channeled into a more sustainable and valuable motivation.





## Motivation from Peer Performance

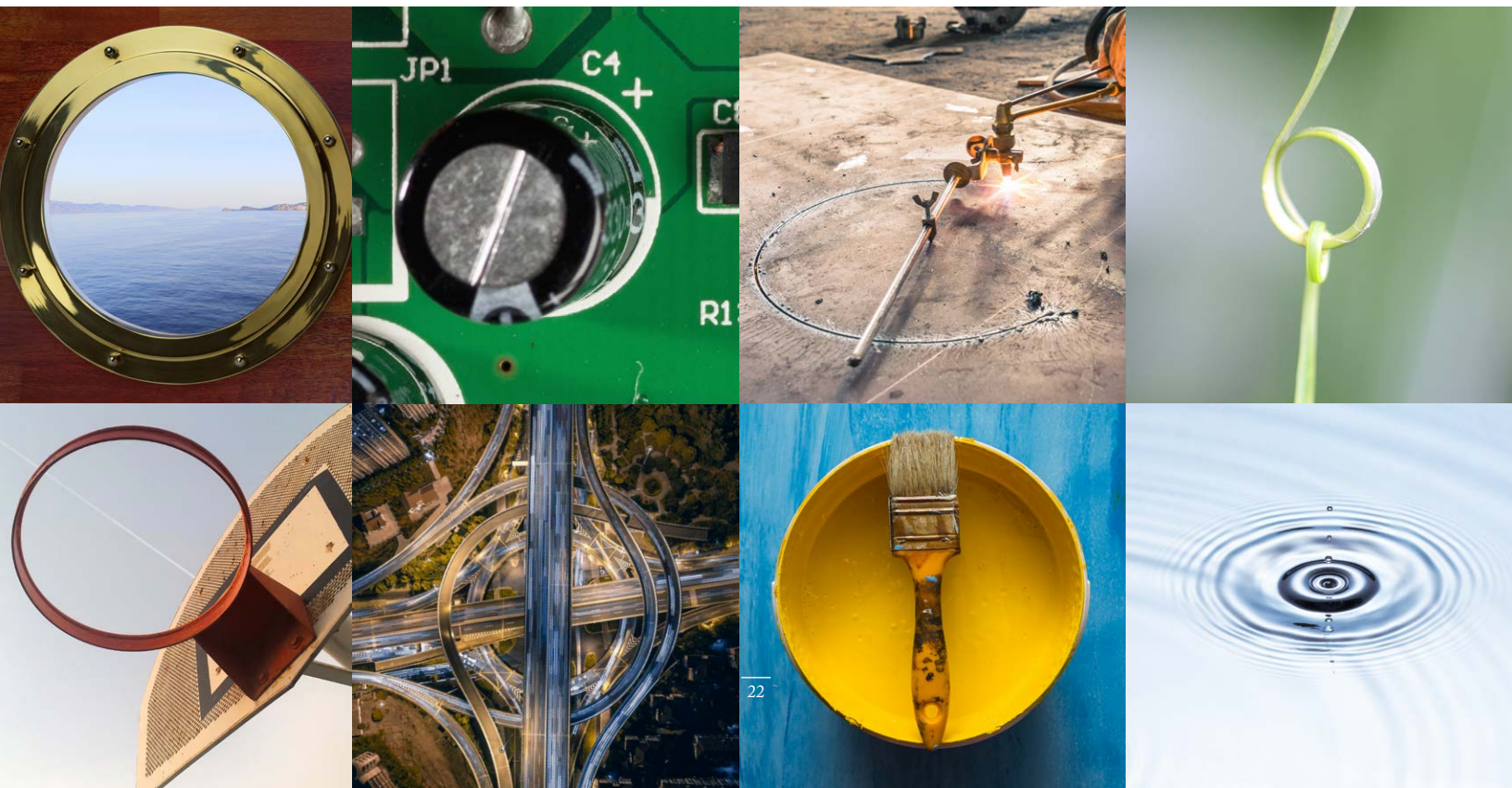
A reasonable skeptic could ask, “Who cares what motivates you, as long as you get the job done?” Perhaps the desire for a university endowment to beat a rival school’s returns will motivate staff in the short run, but will it drive good decision making over the next 20 years?

In one study, researchers found that university endowment allocations to alternative assets are linked to the allocation policies of their nearest competitors, specifically, to the single closest competitor.<sup>11</sup> Retail investors face a similar desire to “beat” their friends and neighbors when it comes to investment returns and financial well-being, often to their detriment. Only a sense of purpose beyond comparison, competition and contingent rewards will deliver strong, sustainable performance over the longterm.

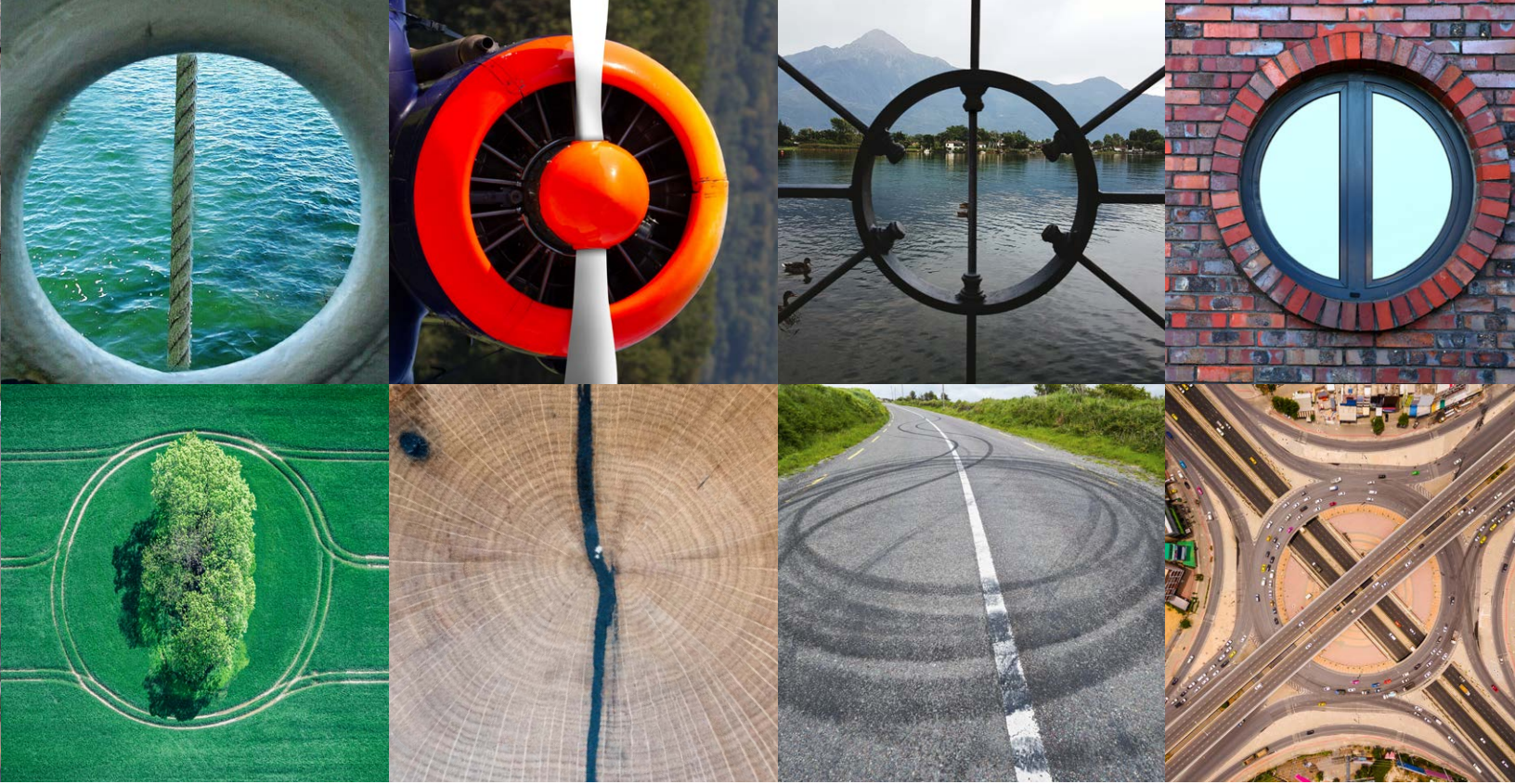




By implementing changes in our work environment,  
 through the force of culture and leadership,







the passion for beating the market that drives so many industry professionals can be channeled into [a more sustainable and valuable motivation.](#)









## The Future State of Motivation

# THE HIDDEN VARIABLE OF PERFORMANCE

That sustainable motivation is phi: a mindset to deliver performance that's driven by purpose, and embedded by habits and incentives.

Individuals with high phi are driven by a belief that they are working in the service of something larger than themselves. Their personal goals and values are aligned with those of their organization and their end clients. They are more likely to view their work as a calling rather than just a job.

Leadership must constantly remind investment managers of fiduciary duty. This requires a sense of stewardship and a true understanding of client goals beyond investment returns: generating retirement income, paying for higher education or buying a home for example.

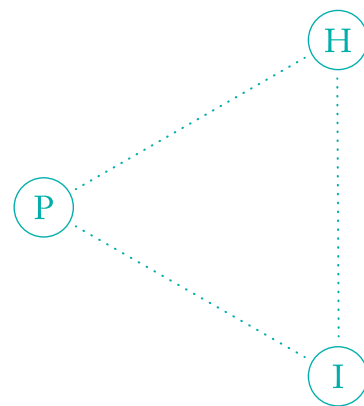
However, only 17% of investment professionals scored high in phi, and 53% scored either low or having no phi.

We calculated phi scores from our survey respondents using three cornerstone questions based on academic theory:

**Purpose.** What motivates you to perform?

**Habits.** Why do you continue to work in the investment management industry?

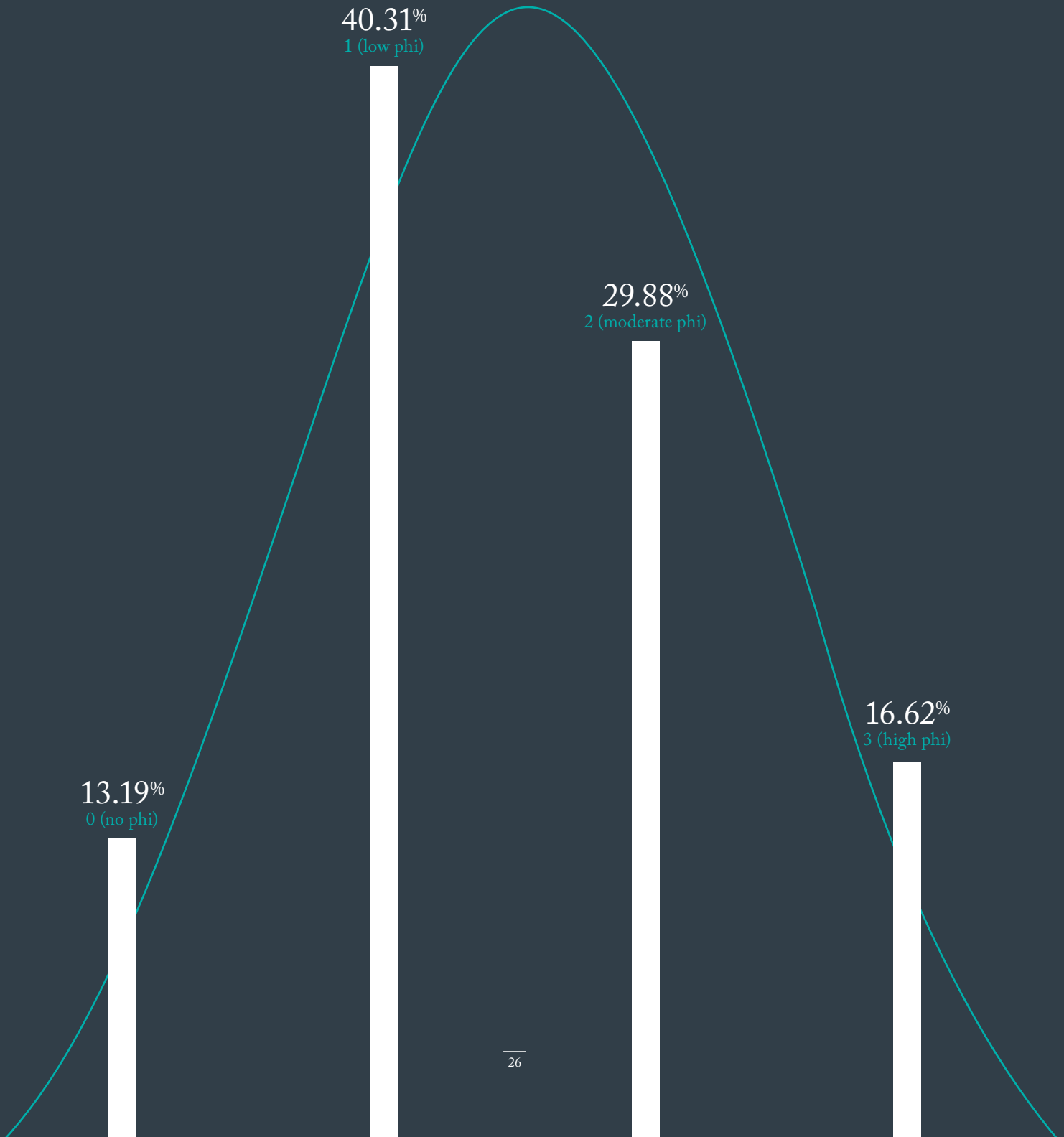
**Incentives.** Do you think of your work as a job, a career or a calling?





# Phi Distribution Scores for Investment Professionals

N=1,486





In each answer set there were options related to compensation, status, duty, fun and purpose.<sup>14</sup> The maximum score possible was three. The distribution of calculated phi scores is below and additional details can be found in the appendix.

How does the investment management industry's phi compare to other industries? While we didn't measure phi within other industries in this study, a prior survey by State Street Global Advisors asked professionals to what degree their work reflects their values and mission in life. Financial services ranked 12th out of 13 industries, further indicating a significant opportunity to improve.

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## In a prior survey, State Street Global Advisors asked professionals to what degree their work reflects their values and mission in life.

State Street Global Advisors' January 2016 Biannual DC Investor Survey.  
Data were collected in October 2015 using a panel of 1,500 U.S. workers, aged 22-50, employed on at least a part-time basis and offered a DC plan by their employer.

- |                                  |   |
|----------------------------------|---|
| ① Industrial Production Services | ⑧ Materials                                   |
| ② Infrastructure / Technology    | ⑨ Construction                                |
| ③ Telecom                        | ⑩ Government / Non-profit                     |
| ④ Network Health Care            | ⑪ Utilities                                   |
| ⑤ Manufacturing                  | ⑫ <b>Financial Services</b><br>Consumer Goods |
| ⑥ Transportation                 | ⑬ Retail                                      |
| ⑦ Energy                         |   |



## Understanding Client Motivations

We are also interested in how individual retail investors can be motivated to be better investors, that is, more focused on behaviors that will support their long-term goals. Phi is by no means limited to investment professionals, though a different methodology is appropriate for individual clients given their different role in the system. We therefore designed our analysis of retail investors using the Biopsychological Theory of Personality. This theory describes two motivational systems that represent individual sensitivities to the environment around us.

The first of these systems is the Behavioral Inhibition System (BIS), which represents motivation from fear and negative consequences. The second is the Behavioral Activation System (BAS), which represents motivation from goal setting and attainment.

A one-point increase in BAS sensitivity is associated with: 22% greater odds that an investor believes the industry acts in its clients' best interests, 42% greater odds an investor knows what they pay in fees, 37% greater odds that an investor does not reject using a financial advisor, 38% greater odds that an investor considers ESG factors, 79% greater odds that an investor avoids potentially excessive trading (i.e., more than quarterly).

These investing habits are clearly driven by purpose and goals, not by fear of loss. This encourages a sense of commitment and ultimately, a sense of purpose — therefore we have equated BAS sensitivities to phi for retail investors.

As we consider the financial system and the important interactions between clients and professionals, the level of demotivation in the industry and the lack of articulated purpose from the top also impacts retail investors.

In the most extreme case, the lack of purpose in investing manifests as individuals avoiding risk and return. The average asset allocation to cash among both our Generation X and Generation Y respondents is exceptionally high at 36%, which implies that younger investors are not taking an appropriate level of risk. For high-BIS respondents — who are more motivated by fear of negative consequences than goal-setting — regression analysis suggests they are more likely to buy something over saving, more likely to buy an investment after it has gained significant value, and more likely to sell an investment after a significant loss.

Research shows that individuals with retirement anxiety are less likely to save and plan for the future, and exhibit a general pattern of avoidance toward thinking about and engaging in long-term investment activities.<sup>15</sup> Studies show that anxiety is created by the feeling of lagging significantly behind your peers and your own goals, promoting a sense of defeat and resulting in “throwing in the towel” reactions.<sup>16</sup> This environment triggers investors' BIS sensitivities, feeding fear, anxiety, and frustration; ultimately leading to sub-optimal outcomes.

Successful organizations in our industry should be able to increase the average level of phi among their employees and clients, in turn leading to more sustainable results.



# The Influence of BAS Sensitivity

A one point increase in Behavioral Activation System (BAS) sensitivity is associated with:

79%  
greater odds that an investor avoids potentially excessive trading (i.e., more than quarterly)

42%  
greater odds that an investor knows what they pay in fees

38%  
greater odds that an investor considers ESG factors

37%  
greater odds that an investor does not reject using a financial advisor

22%  
greater odds that an investor believes the industry acts in clients' best interests



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“The motivational tools we’ve implemented throughout recent quarters are the tools for the future (autonomy, flexibility, empowerment). Competition surrounds us and we all know that the current competition, plus low interest rates, will lead to greater concentration in the industry. What is important today is to be prepared to absorb and not to be absorbed. You have to be flexible; size is key for future sustainability of your company. However, working in a large company is not as motivating, so it is key for these organizations to make the organization work as a boutique.”

CEO OF AN ASSET MANAGEMENT FIRM

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## Recommendations

### PUTTING THE 'PHI' IN FINANCE

Both Self-Determination Theory and BIS/BAS assert that the environment is a critical factor in our motivation. Fortunately, it is also the one over which we have the most control.

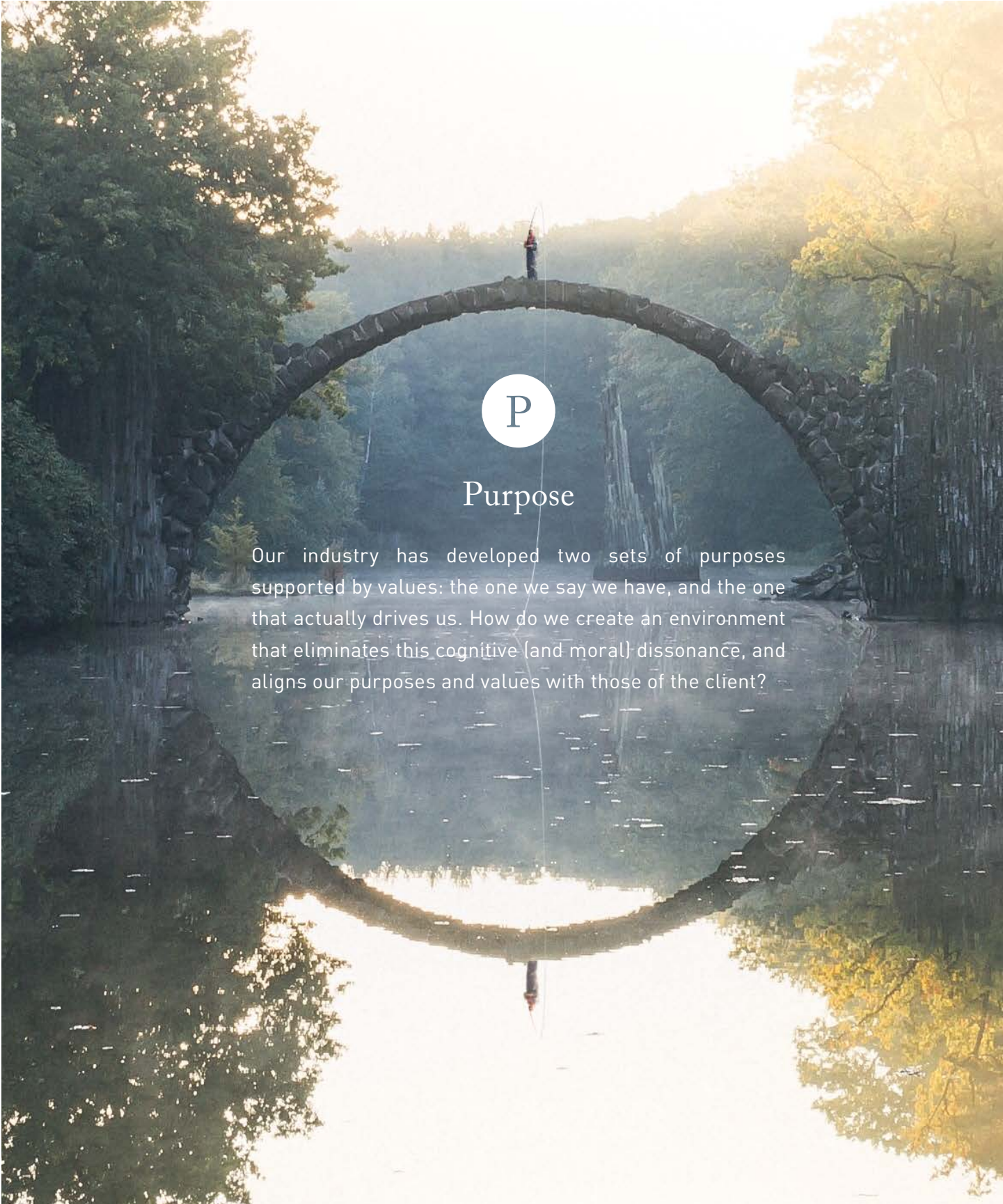
By creating an environment that supports autonomy and ownership, you create phi. The right environment includes vision, goals,

values and beliefs, teaching and coaching, and re-examination of critical assumptions; as well as fair, controllable and transparent rewards.

We offer three simple recommendations for investment leaders to create the environment to maximize phi.

### Leaders Need to Cultivate





P

## Purpose

Our industry has developed two sets of purposes supported by values: the one we say we have, and the one that actually drives us. How do we create an environment that eliminates this cognitive (and moral) dissonance, and aligns our purposes and values with those of the client?



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“Culture is key – you need a set of common values.”

CEO OF A FOUNDATION

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One asset manager told us, “Societal good is hard [to internalize] because we’re so many steps removed from the outcome at the consumer level.” In other industries, such as healthcare or construction, professionals are able to see the tangible results of their work.<sup>20</sup>

Purpose works best when it is visible. When clients are seen as people rather than just an account number, attitudes begin to change. We suggest that organizations create opportunities for investment professionals to understand how their actions impact their clients’ lives.

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In the 1980s, mission statements became a must-have for firms in any industry as corporate “machines” aspired to be humanized.<sup>18</sup> However, in his paper “Sex, Lies and Mission Statements,” Christopher Bart, professor of business policy at McMaster University in Ontario, found that mission statements have “no influence over behavior.” For example, he found that only 5% of managers he surveyed believe their mission statement has a significant positive influence on the day-to-day lives of their employees.<sup>19</sup> Mission statements remain empty unless leaders spend more time talking about their most important values and beliefs, and questioning assumptions in current practices. This requires an understanding of how to use values to create new, productive behaviors — a challenging but rewarding process.

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# Five Actions That Will Help Improve Purpose

1

## Vision

Create a long-term leadership vision that inspires continual progress towards it. This can also create company citizenship and an ownership mindset.<sup>17</sup>

2

## Values and Beliefs

Leaders should share their values and beliefs as they relate to the vision, so it is more concrete and personal, and allow time for debate. To the extent a firm wants to change its values, it must change behaviors to reflect them. Over time, these values will become accepted in the organizational culture.

3

## Goals

Articulate clear goals that tie to your purpose and connect the work individuals do to larger goals that benefit both the client and the organization.

4

## Teaching and Coaching

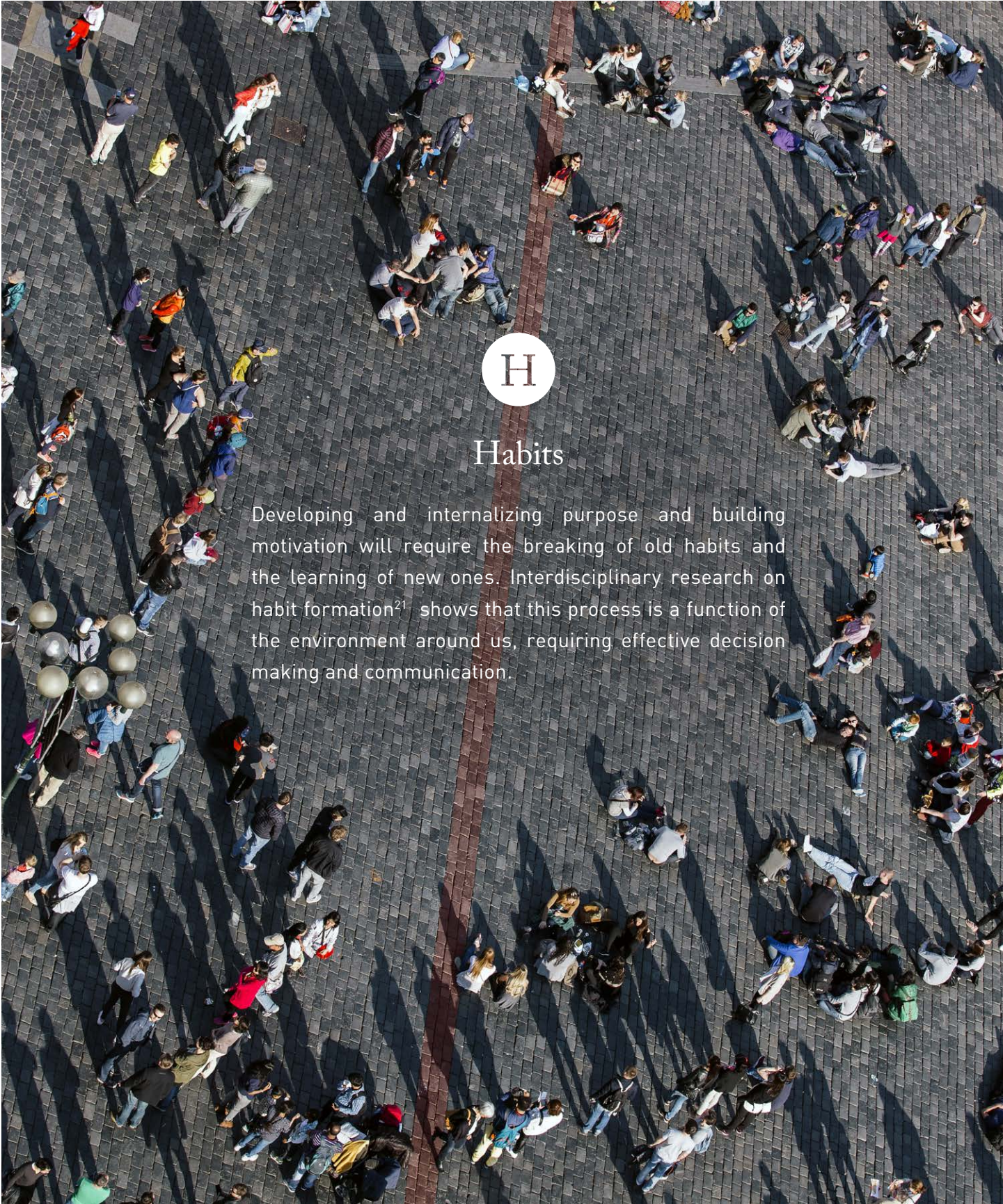
Determine the time your organization can commit to teaching and coaching employees. This was one of the areas that our research found is most lacking in organizations today, and it reinforces short-term thinking about the organization's future.

5

## Re-examine Critical Assumptions

Create a culture that regularly re-examines critical assumptions, which conveys that adaptability is more important than tradition — an important quality in a quickly changing profession.



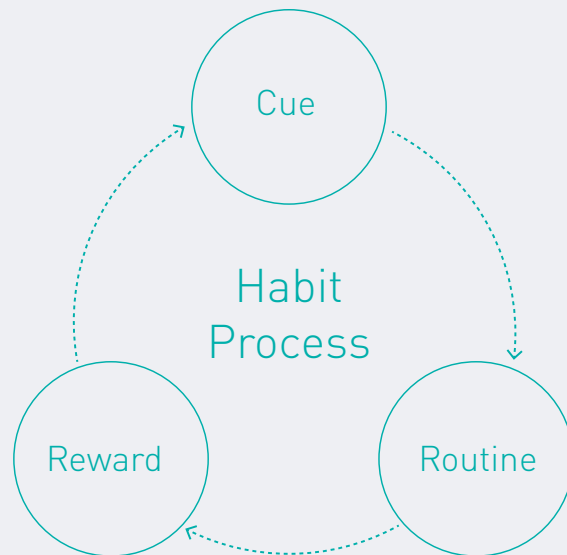


# H

## Habits

Developing and internalizing purpose and building motivation will require the breaking of old habits and the learning of new ones. Interdisciplinary research on habit formation<sup>21</sup> shows that this process is a function of the environment around us, requiring effective decision making and communication.





We need to form a new habit of decision making such that decisions are being driven by phi, with cognitive and emotional behavioral biases kept in check. Breaking habits and forming new ones is a straightforward process, though for those who have tried to break bad habits, it can be extremely difficult. Why? Because habits by definition are largely within our unconscious. The habit process begins with a cue, then there is a routine, and finally a reward is received based on this habit. In our industry, we need to break the habit of having fear trigger action. Camelia Kuhnen of the Kellogg School of Management found experimental evidence that we have asymmetric learning when it comes

to gains and losses. Investors that have had losses and negative outcomes are more likely to develop especially pessimistic views and make errors of belief about the investment. We need to replace this habit cycle using phi as the driver — rather than losses. From there, the routine is a process whereby we objectively learn from success or failure, and the reward is an investment decision based on valid information.

This also presents a product development opportunity. Good habits are only beneficial if they are easy to adopt. Target-date funds were designed around the idea that a product could make asset allocation choices for clients who

were unable or unwilling to do so themselves, i.e., no habit is even needed! New products that make use of behavioral and event-based data to offer a personalized advice component could help investors with goal setting and attainment, further stimulating their BAS sensitivity.

Communication between investment providers and clients can be a signal for misaligned incentives and poor relationships, and there is work for the industry to do here. It is worth remembering that communication includes two parts — a content part and a relationship part. The relationship part can become the most important element of the communication if the relationship itself is not well defined. When there is a lack of understanding with regard to the different values of the parties communicating, the content part will invariably be misunderstood. A healthy relationship means that you can communicate openly about goals and sincere values to better serve the client's needs.

Effective communication in an organizational setting includes delivering and receiving effective feedback. Habit formation is impossible without an understanding of one's own individual tendencies. Therefore, we

propose introducing an assessment of clients' motivational predispositions using a BIS/BAS-type questionnaire at the outset of the relationship. These tests are designed to provide a clearer picture of the psychological forces that drive clients' financial decisions, thereby educating clients about their own sensitivities and behavioral biases. Both parties can use this information to build a framework to develop or improve goal-setting habits and communication.

A similar BIS/BAS assessment for professional investors themselves may assist management teams in improving their communication with employees by understanding what drives them, perhaps even encouraging more effective feedback among peers. Further, such an assessment could help professional investors recognize their propensity for behavioral biases that harm investment decisions.<sup>22</sup> These learning and communication components can be used to form and improve goal-setting habits for investment professionals in a similar way to retail investors.

For retail investors, our research shows that simply having access to a defined contribution plan and other retirement tools can serve as a trigger to increase goal-oriented sensitivity.<sup>23</sup>



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“We have to give and take feedback. We should reward and encourage positive behaviors and celebrate success. We must learn and develop. We judge things on a short-term duration and we should closely look at our behaviors being developed as a result of short term measurement strategies. We should be brave enough to address these behaviors.”

COO OF AN ASSET MANAGEMENT FIRM

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# I

## Incentives

Our data show that industry participants widely perceive their compensation to be lacking in fairness, transparency and controllability. With consistent cost pressures and competition for talent coming from other industries, re-thinking monetary incentives is necessary to continue to attract and develop high-performing talent. Equally important is re-thinking the monetary incentives necessary to produce the type of cognitive and emotional functioning we need in this environment.



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“Remuneration is important, but it is no longer the most important factor. Before, payment was much more important but now autonomy and being a part of something bigger than yourself is becoming even more important.”

**CFO OF AN ASSET MANAGEMENT FIRM**

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The first step toward developing an incentive structure that encourages phi is to assess the fairness, controllability and transparency of the existing system. Next, eliminate short-term contingent rewards wherever possible (especially those perceived as most unfair or least transparent). These types of incentives are the most likely to depart from the alignment of the individual, organization and clients' goals and values.<sup>24</sup>

We recommend that firms experiment with new incentive structures that will facilitate longer-term thinking. In our research, we found that 39% of investment professionals would be pleased to have a performance bonus on a two-to-five year cycle versus the typical annual bonus. Some high-functioning teams might wish to adopt this now, and others can follow based on results.

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“The industry fails to deliver on expected outcomes. We have to be able to justify our fees, salaries and bonuses. There is a lot of focus on bonuses and financial rewards right now. Compensation has failed. Lower base fees are necessary and more alignment of interest is needed.”

**CFO OF AN ASSET MANAGEMENT FIRM**

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## Conclusion

### **QUANTIFYING THE UNQUANTIFIABLE**

We see great potential for phi in the investment community because thus far, concepts such as motivation and purpose have not been measurable. In our industry we like numbers, and we have little interest in factors that cannot be measured reliably. Still, we intuitively know there is a cultural difference between firms that are highly regarded and those that are not.

We therefore have been searching for that “secret sauce” or hidden variable that sustains firms through difficult times in the market cycle. With the discovery of phi, we have found a way to measure and describe this difference — and over time, we may even find it has the power to transform our industry into a more respected profession, secure better outcomes for our clients and create greater value for society.

## ABOUT THE TEAM

### The Center for Applied Research

The Center for Applied Research (CAR), an independent think tank residing at State Street's corporate level, comprises a global team of researchers located across the Americas, EMEA (Europe/Middle East/Africa) and the Asia-Pacific region.

Building on the success of State Street's established Vision thought leadership program, CAR brings together resources within the industry and across State Street to produce timely research on the topics that are most important to investors worldwide. CAR presents at conferences and provides executive briefings for clients and their boards of directors as a value-add service.

If you would like more information about the studies or the Center for Applied Research, you can contact the authors or send an email to [CenterforAppliedResearch@statestreet.com](mailto:CenterforAppliedResearch@statestreet.com).

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### CFA Institute

CFA Institute is the global association of investment professionals that sets the standard for professional excellence and credentials. The organization is a champion for ethical behavior in investment markets and a respected source of knowledge in the global financial community. The end goal: to create an environment where investors' interests come first, markets function at their best, and economies grow.

CFA Institute has more than 148,000 members in 158 countries and territories, including 141,000 CFA charterholders, and 147 member societies. The CFA Institute Future of Finance initiative is a long-term, global effort to shape a trustworthy, forward-thinking investment profession that better serves society.

For more information, visit [www.cfainstitute.org](http://www.cfainstitute.org).

### Contributors

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# Appendix and Notes

## APPENDIX

### Literature Review

Motivation is a topic that has been studied extensively through time and across different academic disciplines. The application of this wealth of knowledge to the investment management industry, to gain new insights and perspectives, is however conspicuous by its absence.

Motivation theories try to understand the “why” of behavior and throughout time a number of different perspectives on motivation have developed. Mechanistic theories view the human as passively being forced to act as a result of the interaction between psychological drives and environmental stimuli.<sup>25</sup> Organismic theories on the other hand, view humans as active, initiating behaviors by their own free will. Behavioral theories of motivation have been viewed as mechanistic, focusing on behavior as a response to stimuli and giving choice and intention a secondary role as determinants of behavior (e.g. Freud<sup>26</sup>).<sup>27</sup> However, over time, motivational theories developed which found the explanatory power of behavioral theories unsatisfactory. These theories included the concept of self-direction and choice (e.g. Vroom,<sup>28</sup> and Bandura<sup>29</sup>).<sup>30</sup>

Another way to fragment motivational theories is to look at content-related motivation theories, that focus on why individuals are motivated (Reiss,<sup>31</sup> Herzberg<sup>32</sup> and Hackman & Oldham<sup>33</sup>) and process-related motivation theories, that try to explain how motivation turns into goal-directed behavior (Vroom<sup>34</sup> and Locke & Latham<sup>35</sup>).<sup>36</sup>

The Self-Determination Theory (SDT) is influenced by both mechanistic and organismic theories, saying that only some intentional behaviors are truly chosen.<sup>37</sup>

The theory presents three types of motivation: autonomous motivation, controlled motivation and amotivation. In contrast to amotivation, autonomous and controlled motivations are both intentional, but they are very different in nature. Only autonomous motivation makes a person perceive that he/she is acting with a sense of own-will, hence experiencing a choice.<sup>38</sup> Moreover, the Self-Determination Theory addresses both the “why” and the direction of behavior. As such, this theory was found well suited to use when answering the problem statement above.

Motivation is affected both by the social environment and by individual differences. Within the SDT framework these individual differences are captured by measuring an individual’s causality orientation.<sup>39</sup> This is the degree to which an individual experiences the social context as being controlling or controllable. In previous research<sup>40</sup> CAR identified that fear and goals are two very strong drivers of human behavior on an individual investor level. As a result the Biopsychological Theory of Personality<sup>41</sup> was identified as a more suitable theory to use within the context of this paper, to measure individual differences. The Biopsychological Theory of Personality was developed by Gary<sup>42</sup> and states that two motivation systems drive behaviors, the behavioral inhibition system (BIS) and the behavioral activation system (BAS). The BIS system is sensitive to signals of punishment and avoids behavior that may lead to negative outcomes. As such, the BIS system keeps a person from achieving his/her goals. The BAS system, on the other hand, is sensitive to signals of reward and non-punishment and makes a person engage in goal-directed behavior.<sup>43</sup> These two motivation systems are aligned with the behavioral drives identified in CAR’s previous research work.



## Survey Methodology

Primary research for this study includes a survey of 6,938 investors, investment providers, and government officials and regulators across 20 countries. These countries are: Australia, Brazil, Canada, Chile, China, France, Germany, Hong Kong, India, Italy, Japan, Mexico, The Netherlands, Singapore, South Africa, Sweden, Switzerland, The United Kingdom, United Arab Emirates, and the United States. The retail investor component of the survey includes an equal weighting among these countries, while the institutional and regulatory component reflects the size of the relative financial markets.

Survey data were collected in two rounds. First, CoreData collected information from 3,600 retail investors and 985 professionals on behalf of CAR through an online survey platform in May 2016. Second, CFA Institute conducted a survey to a targeted group of its members in these same countries in June 2016, resulting in 2,353 additional professional responses. Quantitative analysis was then conducted through a partnership with the State Street Center for Data Excellence and CoreData. Note that all percentages are rounded. Data were supplemented by over 200 in-person interviews with executives and government officials.<sup>44</sup>

Participating institutional investors include government pension funds, corporate pension funds, retail pension plans, sovereign wealth funds, central banks, insurance firms, healthcare institutions, endowments and foundations. Participating retail investors include mass market, mass affluent and high net-worth individuals. Participating asset managers include institutional-oriented asset

managers, retail-oriented asset managers, blend retail/institutional asset managers (more retail-oriented) and blend retail/institutional asset managers (more institutional-oriented). Participating intermediaries include bank/broker-affiliated advisors, institutional consultants, independent financial advisors and insurance-affiliated advisors. Public entities include regulatory bodies and government officials, as well as policymakers with a focus on financial services-related policy matters.

The questions used to calculate phi for professionals are listed below, with the option indicating higher phi marked in bold and weighted equally in the phi score.

1. (On purpose) What motivates you to perform generally and in your current role? (Select top three):
  - a) The hope of receiving a big bonus/salary increase.
  - b) The fact that everyone can see my performance and I do not want to look bad.
  - c) **I know it is important to fulfill the end client's goals.**
  - d) **The feeling of doing something in the service of something larger than myself (e.g. creating a better life situation for the end client, supporting the values of my organization to achieve long-term organizational growth).**
  - e) I just love what I do and would continue doing it even if I was not paid.

2. (On habits) What is the reason that you are still working in the investment management industry? (Select up to two)

- a) I am reasonably satisfied with my job.
- b) It is where the money is, i.e. where I can earn the most.
- c) I like the status that a job in this industry brings.
- d) I am passionate about the markets.
- e) I am inspired by a family member/industry figure.
- f) **I can help people and organizations achieve their financial goals.**
- g) I like working with very smart people.
- h) **I help facilitate economic growth and development.**
- i) It would be too difficult to change jobs and pursue a new career in another industry.
- j) I am thinking about quitting.

3. (On incentives) Which description most closely matches the way you think about your work?

- a) As a job (I work only for the sake of the money. I am really happy when the weekend comes and I satisfy my intellectual curiosity and interests via hobbies and not work.)
- b) As a career (My work energizes me, and my aim is to advance and get promoted. I sometimes bring work with me home since I want to deliver excellent results. Sometimes I do however wonder about the meaning and importance of what I do.)
- c) **As a calling (I am devoted to my work. When working I feel that I am part of something larger than myself. The value my efforts bring is clear to me, and I never question the meaning of what I do. I would continue to work even if I was independently wealthy.)**



Survey respondents were asked to evaluate their organization on a scale of 1-5 on 10-year organizational performance, client satisfaction, and employee engagement. To survey outcomes across a broad range of firm types and investment strategies, respondents were asked to rate their organizations' performance in terms of achieving their clients' goals and investment goals over the past 10 years on five-point Likert scale.

To relate phi to outcomes, the following odds were modeled:

$$\theta_1 = \text{prob}(\text{score} = 1) / \text{prob}(\text{score} > 1)$$

$$\theta_2 = \text{prob}(\text{score} = 1, 2) / \text{prob}(\text{score} > 2)$$

$$\theta_3 = \text{prob}(\text{score} = 1, 2, 3) / \text{prob}(\text{score} > 3)$$

$$\theta_4 = \text{prob}(\text{score} = 1, 2, 3, 4) / \text{prob}(\text{score} > 4)$$

All odds are of the form  $\theta_y = \text{prob}(\text{score} \leq y) / \text{prob}(\text{score} > y)$

The functional form of the model for each outcome, using phi as an independent variable, is:

$$\ln(\theta_y) = \alpha_y - \beta\Phi$$

using Huber-White standard errors.

Incremental percentage improvements in the odds of "excellent" outcomes were derived using an odds-ratio interpretation.

## ENDNOTES

- 1 Phi is the 21st letter in the Greek alphabet and has been used as a variable in many fields. One of the most common uses is the Golden Ratio, and the concept of balance conveyed in that is a useful reminder of the balance needed between principals and agents in investing.
- 2 David Blanchett and Paul Kaplan, "Alpha, Beta, and Now...Gamma," *The Journal of Retirement*, 2013.
- 3 Chmiel, N. (2008), *An Introduction To Work and Organizational Psychology: A European Perspective*. Oxford, UK, and Malden, Mass.: Blackwell Publishing.
- 4 CFA Institute 2016 survey of charterholders. N=2417, margin of error = 3.6% Respondents were able to select up to two possible responses.
- 5 CFA Institute 2016 survey of charterholders. N=2417, margin of error = 3.6% Respondents were able to select up to two possible responses.
- 6 It is notable that CFA members had significantly higher responses to these questions than other investment professionals, with 43% of CFA members saying they are passionate about the markets versus 33% for others, and 30% of CFA members saying their motivation was helping clients achieve their goals, versus 24% for other investment professionals.
- 7 Deci, E.L. (1975), "Intrinsic Motivation." New York and London: Plenum Press.
- 8 Herzberg, F., Mausner, B. and Snyderman, B.B. (1959), *The Motivation to Work*. New York: Wiley.
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- 10 Ernst Fehr and Simon Gächter, "Fairness and Retaliation: The Economics of Reciprocity," *Journal of Economic Perspectives*, 14 (3):159-181, 2000, and Deci, E.L. (1975), *Intrinsic Motivation*. New York and London: Plenum Press.
- 11 William N. Goetzmann and Sharon Oster, "Competition Among University Endowments," NBER Working Paper No. 18173, June 2012.
- 12 Another 20% responded "Neutral" to the question, which is nearly as alarming.
- 13 Respondents were allowed to choose more than one option, which makes the 32% figure even more disconcerting.
- 14 The questions in full can be found in the appendix.
- 15 Banerjee, Sudipto, 2014 "Take it or leave it? The Disposition of DC accounts: Who Rolls Over into an IRA? Who Leaves Money in Plan and Who Withdraws Cash?" EBRI Notes May 2014, Vol.35, No. 5; <http://www.nber.org/papers/w17345>
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- 17 Doshi, N., and McGregor, L. (2015), *Primed to Perform – How to Build the Highest Performing Cultures Through the Science of Total Motivation*. New York: HarperCollins.



- 18 Christopher K. Bart, "Sex, Lies and Mission Statements," *Business Horizons*, 9-18, November-December 1997. Web. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=716542](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=716542) and Jean-Baptiste Michel\*, Yuan Kui Shen, Aviva Presser Aiden, Adrian Veres, Matthew K. Gray, William Brockman, The Google Books Team, Joseph P. Pickett, Dale Hoiberg, Dan Clancy, Peter Norvig, Jon Orwant, Steven Pinker, Martin A. Nowak, and Erez Lieberman Aiden\*. Quantitative Analysis of Culture Using Millions of Digitized Books. Web. [https://books.google.com/ngrams/graph?content=Mission+statement&year\\_start=1800&year\\_corpus=15&smoothing=3&share=&direct\\_url=t1%3B%2CMission+statement%3B%2Cc0](https://books.google.com/ngrams/graph?content=Mission+statement&year_start=1800&year_corpus=15&smoothing=3&share=&direct_url=t1%3B%2CMission+statement%3B%2Cc0)
- 19 Christopher K. Bart, "Sex, Lies and Mission Statements," *Business Horizons*, 9-18, November-December 1997. Web. [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=716542](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=716542)
- 20 State Street Center for Applied Research 2016 Study Interview: R. Rajan calls this an "arms-length financial system." Rajan notes that this system is particularly problematic for two reasons. First, there is little sense, for the investment professional, of material results of her work ("she is merely a cog in a gigantic machine"). And second, the most direct measure of societal contribution is measured by money, "profits and returns." He adds that "arms-length transactions do not foster empathy or a long-term focus," qualities necessary to achieve sustainable performance.
- 21 Duhigg, C. (2012), *The Power of Habit: Why We Do What We Do and How to Change*. Great Britain: Random House.
- 22 Charles S. Carver and Teri L. White, "Behavioral Inhibition, Behavioral Activation, and Affective Responses to Impending Reward and Punishment: The BIS/BAS Scales," *Journal of Personality and Social Psychology*, Vol. 67, No. 2. 319-333, 1994.
- 23 State Street Center for Applied Research survey analysis 2016; Robert Eisenberg and Judy Cameron, "Detrimental Effects of Reward: Reality or Myth?" *American Psychologist*, 51:1153-1166, 1996; and Ernst Fehr and Simon Gächter, "Fairness and Retaliation: The Economics of Reciprocity," *Journal of Economic Perspectives*, 14 (3): 159-181, 2000.
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- 37 Gegne M, and Deci E. (2005), "Self-Determination Theory and Work Motivation", *Journal of Organizational Behavior*, 26: 331-362
- 38 Autonomy orientation can be measured by using The General Causality Orientation Scale (GCOS) developed by Deci and Ryan. Deci E. L., Ryan R. M. (1985)
- 39 "The General Causality Orientation Scale: Self-determination in personality", *Journal of Research in Personality*, 19: 119-142.
- 40 State Street Center for Applied Research, "The Folklore of Finance: How Beliefs and Behaviors Sabotage Success in the Investment Management Industry", 2014.
- 41 Charles S. Carver and Teri L. White (1994), "Behavioral Inhibition, Behavioral Activation, and Affective Responses to Impending Reward and Punishment: The BIS/BAS Scales", *Journal of Personality and Social Psychology*, Vol. 67, No. 2. 319-333
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- 44 Retail Investor survey was conducted by CoreData on behalf of the Center for Applied Research. The sample size for this survey is 3600 (of a total of 82,597 invited, a 4.4% response rate) with a margin of error of 1.6% at 95% confidence. One professional investor survey was conducted by CoreData on behalf of the Center for Applied Research. The sample size for this survey is 985 (of a total of 27,391 invited, a 3.6% response rate) with a margin of error of 3.07% at 95% confidence. A second professional investor survey was conducted by the CFA institute of its members. The sample size for this survey is 2,353 (of a total of 66,159 invited, a 3.6% response rate) with a margin of error of 1.98%.







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16-27864-1016 CORP-2343

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