# Assessing Long-Term Investor Performance: Principles, Policies and Metrics

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**Abstract.** Long-term investors (LTIs), such as pension funds, superannuation funds, sovereign funds, and endowments, are increasingly engaging in innovative investment activities. Many have sought to use their time horizon and their scale as comparative advantages in order to access financial markets on better terms, aligning their own interests and those of their beneficiaries with external service providers. While these innovative approaches to investing have seemingly come with successful outcomes, they have led to a new problem: The objective assessment of the performance of these new long-term investment strategies. The risk-adjusted rate of return, relative to some benchmark by asset class and/or asset manager, is no longer sufficient for judging bespoke inputs with long-term outcomes. Boards of directors, and the senior managers they hold accountable, require new kinds of metrics to assess performance. In this paper, we provide a principles-based model of investment management relevant to all long-term investors, which we then use to formulate a set of measurements and metrics of performance appropriate for even new and innovative investment processes. We argue that our metrics of performance are superior for long-term investors than existing methods to assess investment performance.

**Keywords**. Asset owners, institutional investment, measurement, metrics, performance

**JEL codes**. D02, D21, G23, G32

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**Acknowledgements**. The authors wish to thank our research sponsors and our collaborators at Oxford and Stanford for their insights and comments on previous drafts of the paper. We would also like to thank Dane Rook, Rajiv Sharma, and Roger Urwin for their continuing interest in our research program. None of the above should be held responsible for the views and opinions expressed herein.

**Disclosure Statement**. The authors are pleased to acknowledge the support of Stanford University, and members of the research consortium on financial institutions, coordinated by the Global Projects Center of the Faculty of Civil and Environmental Engineering. Support for our research on the management of investment institutions has been provided, in part, by members of the research consortium and AustralianSuper. The authors remain wholly responsible for the content of this paper and the implications drawn thereof.

## INTRODUCTION

In recent years, the global community of long-term investors (LTIs), which we define to include pension funds, superannuation funds, sovereign wealth funds, endowments, foundations, family offices and insurance companies, has come to acknowledge the relatively high cost of financial intermediation and the pervasive misalignment of incentives in external asset management (Ambatchtsheer, 2017; Monk and Sharma, 2018). As a result, LTIs have sought to take greater responsibility for the production of their investment returns (Clark and Monk, 2017), which manifest either as reduction of funds' reliance on external asset managers or, for those unable to internalize investment management, as a decline in reliance upon consultants and external agents (see Arjaliès et al., 2017). Whatever their specific circumstances, LTIs globally are trying to innovate and change in order to: reduce principal-agent costs; minimize the erosion of returns from the fees paid to external managers; and improve the alignment of interests between those investing capital and those reliant upon capital accumulation (Monk et al., 2017). LTIs are increasingly using or even changing their governance, culture and technology in order to improve the inputs that ultimately produce investment returns, namely capital, people, process and information.

Changing the manner in which LTIs access markets and produce returns may create better outcomes, thanks to a more aligned and often shorter chain of financial intermediaries, but it also creates a series of new challenges. For example, it is increasingly difficult to capture or quantify the underlying drivers of performance of these new and innovative capabilities. In part, this is due to the fact that LTIs are often quite different, one from the other. Even within the same type of institution (pension fund, endowment, foundation etc.), jurisdiction (Canada, Netherlands, Australia etc.) and time horizon (distant commitments and/or investment in perpetuity), it can be very difficult to identify useful peers or direct comparators to judge a fund's performance. Moreover, absolute return benchmarks are problematic, as they introduce the problem of defining a time horizon over which an organization should be judged. As such, boards of directors, and the senior managers they hold accountable, require new metrics to accurately and objectively assess the performance of these new strategies.

Here, then, our objective is to identify investment measurements and metrics that allow for the communication of useful insights about organizational and investment performance to Boards and senior managers. By way of definition, a measurement is some observable 'fact' at a given point in time, while a metric is that fact put into some broader context. That is, measurements are data, while metrics are information. Metrics rely on measurement, just as information relies on data. As such, there is a hierarchy of insight that begins with data and matures into information as investments are 'contextualized'. And when the information collected is robust, with multiple instances, such that it can be transposed across contexts and put into action, it becomes 'knowledge' (van Gelderen and Monk, 2016; Rook and Monk, 2018). In effect, data and information, as expressed in measurement and metrics, are the building blocks for knowledge and thus informed decision-making (Clark, 2018a). This hierarchy of insight suggests investors require timely and accurate data (measures of performance) in order to create relevant

information (metrics) that can, in turn, be utilized by decision-makers in order to make strategic choices vis-à-vis their long-term objectives (knowledge).

In order to facilitate our conception of new metrics of performance, this paper first provides a framework for conceptualizing LTIs' operating models, one that is appropriate to the globally diverse community of asset owners. In some ways, this model is the most important contribution of this paper, as it offers a universal conceptualization of investment organizations. Indeed, we describe the inputs that LTIs typically utilize in order to achieve their (various) desired outputs, as well as the environmental enablers that allow investors to augment those inputs and how they are combined. We then offer measurements and metrics to assess the effectiveness of the defined inputs and enablers at generating the desired outputs. Inevitably, this means that we reduce a complex set of inputs apparent in the world at large to a standard production function. But with this simple model of production, we can set out quantitative ways of measuring investment activities, inputs and outputs, and offer metrics of management that are specifically useful to LTIs.

This paper draws upon work with industry colleagues on, and research about, investment performance. This project also draws on academic and consulting research, which we augmented with a set of 20 case studies specifically focused on how LTIs use metrics to measure success. These case studies came from North America, Europe, and Asia-Pacific, all of which agreed to participate on conditions of anonymity and non-attribution. Key investment professionals in these organizations were interviewed in depth, sustained by close-dialogue and ethnographic methodologies (Clark, 1998). We focused on how these organizations defined success, how they measure it, and how they assess performance with respect to their ultimate goals. In addition, we reviewed the current literature on the design of metrics and performance benchmarks across the social sciences, along with recent research on how the measurement of inputs and outputs affects performance (see Muller, 2017).

The objective of this paper is to contribute to the long-run performance of LTIs by introducing metrics of performance that can help LTIs assess their new and revamped investment capabilities and resources. The paper proceeds as follows: Immediately below, we offer a set of definitions, considerations and prescriptions for choosing performance metrics. This is followed with our simplified model of institutional investment for LTIs, which we conceptualize as an irreducible formula in order to allow for the selection of metrics relevant to all types of LTIs (whatever their type, jurisdiction, or purpose). The penultimate section of the paper expands the model to consider the inputs and outputs that offer potential sources of measurement as well introducing specific metrics. In the final section of the paper, we draw implications and conclusions for investment management in theory and practice.

## COMPARATIVE ADVANTAGES AND PERFORMANCE METRICS

Care must be taken in selecting measurements and associated metrics of performance, as the evidence suggests that these data and information can profoundly affect organizational behavior.

The academic and related business literature has shown that organizations and managers prioritize that which can be quantifiably measured, with considerable significance assigned by managers to those measurements (Lowenstein, 1996). Whereas this may well aid effective decision-making, especially in organizations that hitherto have failed to articulate measurements and metrics of performance, there is also evidence that ineffective or inconsistent metrics can adversely affect organizational performance, whatever the industry and/or type of organization.

For the purposes of this paper, the metrics proposed are chosen so as to enhance the advantages of LTIs over third-party service providers and specifically for-profit asset managers. These advantages include:

- Time Horizon: a long-term time horizon key comparative advantage that asset owner investors have over market-based asset managers. As this implies, the metrics selected should not directly or indirectly push LTIs into a short-term posture or force them to give up their long-term horizons. Here, a balance must be struck between the choice of metrics and the fact that these types of heuristics can drive organizations to divert resources to meet short-term milestones at the expense of their ultimate goals. A useful metric should thus reveal the direction of travel (towards or away from a goal or objective) rather than signal that a goal or set of goals have been achieved outright (once and for all). This is consistent with the underlying purposes of many LTIs but is often inconsistent with the purpose of many asset managers. That is, typically, the latter are focused on the maximization of short-term profits.

- Idiosyncratic Advantages: chosen metrics should not diminish investors' ability to cultivate their own unique comparative advantages. With insourcing and re-intermediation, LTIs may develop entirely new and idiosyncratic capabilities and resources that reflect, in part, their origins and distinctive goals and objectives. These developments could affect not only LTIs' investment strategies and their implementation but also their place in the market for investment opportunities. As a result, the measures and metrics chosen by an LTI need to be sensitive to their unique circumstances and discount the temptation to default to common practice. In many cases, institutional investors are too focused on what each other is doing. While valuable for benchmarking purposes, for asset owners to succeed they must cultivate their own comparative advantage (as is the case in many industries marked by innovation; see Gertler, 2003).

- Organizational Ambidexterity: given their time horizons, LTIs need to cultivate organizational innovation and dexterity to be effective; they must avoid becoming imprisoned by the past and learn to adapt to changing markets and the global economy (Lo 2012). As such, measures and metrics also need to be adaptive and focus upon the ultimate goal of the organization, not just short-term performance or efficiency. Too often, LTIs prioritize internal cost-efficiency, ignoring the unintended consequences of such an approach in terms of discounting or restricting the pace of innovation. In previous research, it has been shown that short-term efficiency and long-term innovation are difficult to reconcile in any organization and especially in those investment organizations that are simultaneously short-term and

long-term oriented (Clark and Monk, 2017). As such, chosen metrics must ensure a balance between efficiency and the never-ending imperative for investment innovation.

In short, effective metrics add value if chosen to enhance these three key advantages of long-term investors. Ineffective metrics, on the other hand, hamper the performance of any organization, its component parts, and the commitment of its professionals to innovation.

To summarize our research, the research in the relevant disciplines, as well as the particularities of the investment management industry (see Kaplan and Norton, 1996; Blake and Timmerman, 2002), there are five 'golden rules' for designing and implementing metrics in investment management:

- Effective metrics are *consistent* (not in conflict) across the organization, such that the performance of the entire organization can be understood through the sum of its parts. Ineffective metrics are inconsistent, being in conflict with other parts of the organization or indeed in conflict with the stated goals of the organization.
- Effective metrics are *function- and/or task-relevant*, being framed with respect to organizations' goals and objectives and its constituent functions. Ineffective metrics lack specificity, neither empowering the organization nor its departments.
- Effective metrics are *parsimonious and transparent*, erring on the side of simplicity and clarity such that debate over their applicability, meaning and relevance is minimized. Ineffective metrics are overly complex and require interpretation both by those that perform against the metrics and by those that interpret their objective added-value.
- Effective metrics are *mutually exclusive and collectively exhaustive (MECE)*, being focused upon key activities and resources such that overlaps are minimized and responsibilities reinforced. Ineffective metrics confuse rather than motivate, pulling in different directions rather than ensuring focus and accountability.
- Effective metrics are *flexible and/or adaptive* given market risk and uncertainty. That is, there is a process whereby metrics are adapted and revised in relation to investment experience. Ineffective metrics imprison organizations in past imperatives and missed opportunities.

Overall, effective metrics are consistent with the interests of those that directly benefit from the performance of long-term investment organizations, including beneficiaries, stakeholders, and regulators. Ineffective metrics do not connect functional or task-specific activities to the overarching purpose of the organization, such over-prioritizing investment performance rather than focusing on funding levels.

## A SIMPLE MODEL OF INSTITUTIONAL INVESTMENT

Choosing measurements and metrics requires *a priori* identification of the inputs that drive investment performance. In theory, we can conceptualize LTIs in terms of their investment return production functions, with inputs driving outputs (goals and objectives). The quality of inputs,

the decisions as to how inputs should be combined, and whether inputs should be made (insourced) or bought (outsourced) determines the type of model the investor utilizes; such as the Canadian Model or the Endowment Model (on the issue of make or buy dynamics, see Baker et al. 2001, 2002).[1] The prototypical model of institutional investment presented below allows us to explain the role and content of organizational measures and metrics in ways consistent with a broad class of long-term investors, whatever their particularities and the choices made about insourcing, outsourcing, or some combination of the two.

*ENVIRONMENTAL ENABLERS*

The quality of any organization's investment performance can be traced back to their environmental enablers – the untraded or intangible advantages that derive from their given environment (e.g., sponsor, location and/or place in the industry; see Helfat et al. 2007, 86). We define these environmental enablers as, governance, culture, and technology. Whereas these enablers are often treated as passive (inherited), LTIs can, in fact, cultivate and develop their enablers, thereby sustaining innovation and investment performance in ways not immediately available to other, similar organizations.[2]

- Governance: a form of meta-process management for organizations. It represents the formal and informal processes whereby an organization manages itself in relation to its goals and objectives. More prosaically, LTIs' boards set and oversee the delegation of roles and responsibilities, as they receive and respond to information on the separate and collective performance of the organization. In general, boards represent the resources and management capacity of their organizations, cultivating capabilities in relation to goals and objectives. For example, boards typically approve the building and maintenance of information systems and risk management systems that communicate pertinent information to the board and related decision-makers. Boards can also experiment with arm's length governance structures in order to bring more capital behind a strategy or change the constraints and encumbrances binding the organization to existing systems of management.

- Culture: represents the beliefs, assumptions, values and modes of operating that give investment organizations their distinctive and even unique characteristics. More often than not, the culture of an organization is to be found in its norms and conventions not just its governance structures (Brennan et al. 2014; Clark 2018b). For example, a culture of knowledge sharing can improve the flow of information and build trust between boards and staff. A culture of risk-taking *and* accountability can empower professionals to take

[1]/. At issue is the theory of the firm and why it exists, its functions, and the boundaries between firms and markets. See Coase (1937) and the research program that followed in his wake (see Spuder 2009 for an overview and Hart's 2011 critique). There is vibrant literature on related topics including transaction costs (Williamson 1996), models of management including hierarchies (Hart and Moore 2008), and compensation (Fehr and Schmidt 1999).

[2]/. Care should be taken not to exaggerate the uniqueness of an organizations endowments recognizing that programs of best practice are about mobilizing an organization's capabilities and resources in ways that transcend organizational heritage (Clark and Urwin 2008, 2010).

on new investment opportunities, while linking their initiatives to the overarching purpose of the organization. And a 'member-first' culture can ensure that the time horizon over which investments are framed and implemented is consistent with members' interests. Finally, culture is also a form of effective communication, helping to create consistent interpretations of information and data.

- Technology: technology is a generative asset that expands capability frontiers and can enhance efficiency. It is the medium through which organizations transfer and communicate decision-critical information to decision-makers, such as the board and/or investment committee. These systems can serve to empower professionals and streamline investment processes, including risk management. Whereas data and information systems are typically counted as costs to any organization and, at times, discounted accordingly, effective and timely information systems can reinforce an organization's comparative advantages, build or reinforce the legitimacy of an investment team and its board, and thereby distinguish an LTI from other competing organizations.

If an investment organization wants to improve the way it invests, – i.e., if it wants to innovate and change – it has to look to these environmental enablers to do so.[3] It can seek to better use its governance, culture and technology to alter the quality and combination of its production inputs to create better outputs. It. An also seek to change its enablers, such as improving technology or governance, to then change production inputs as a result.

*PRODUCTION INPUTS*

Investors' production functions rely upon four key inputs: capital, people, process and information (Clark and Urwin, 2008; Clark and Monk, 2013). Investors combine these four inputs – internally, externally or in some hybrid manner – to generate a desired risk-adjusted rate of return. Here, the stock of financial assets is the medium through which investment strategy is conceived and implemented, while the flow of returns sustains both the stock of financial assets and the ultimate objectives of the organization. Given the environmental enablers of an investment organization above, it is the *combination* of the four production inputs below that produces, at any point in time, the measured risk-adjusted rate of return:

- Capital: the size of a fund's capital stock matters when framing and setting investment strategy. Moreover, the owner of capital, and the ways in which the investor might have to return capital to beneficiaries, matter for how an investor produces returns. Long-term investors with a large stock of capital and no explicit liabilities can invest differently from investors that hold a relatively small stock of capital and are preoccupied with short-term returns in relation to well-defined and imminent liabilities.

[3]/ In our experience, governance and culture are quite rigid environmental enablers, which means they often become environmental disablers for innovation. Conversely, technology is changing so fast around us that there is a sense of inevitability to technological innovation, which means that many investors are now turning to technology first to enable innovation within their production functions.

- People: the professionals used to generate returns may be developed internally, as is the case for Canada's pension funds, or they may be sourced from the market via asset managers, which is where US endowment funds tend to source the professionals they rely upon to make investment decisions. The location of a fund may help to determine the quality of the people available (e.g., New York, NY versus Juneau, Alaska), while the sponsor may have an edge in recruiting talent through privileged contacts and networks (e.g., university endowments). Whatever the case, investment professionals with high-quality skills and expertise are scarce and command a premium in the marketplace and thus demand thoughtful strategies by LTIs to recruit them (Clark, 2016).

- Process: the organizational mechanisms by which an investment decision is made and implemented are, quite obviously, key to the production of investment returns. These processes are often complex, multilayered, and subject to oversight. Indeed, blueprints or manuals describing these processes are themselves complex documents. Embedded in the process of investment decision-making are delegation frameworks, risk management systems, and systems of accountability, such as reference portfolios and benchmarks. When reliant upon external providers, the larger the number of service providers in an investment chain, the more complex it becomes when overseeing the investment process (Clark and Monk, 2018).

- Information: the investment management industry is fundamentally in the business of information processing. Whereas market information is typically collected and disseminated by intermediaries, the quality and quantity of internal information management and dissemination is the lifeblood of any investment organization's investment performance. In this respect, the measurement and metrics of performance are key inputs outputs of the production process.

It is worth noting that these production inputs are not entirely isolated from each other, as smart people can create smart processes which, in turn, can improve the reliability of information. Nonetheless, long-term investors are often rich in one or two of these inputs and must adapt their operating model to compensate for shortcomings in other inputs. Likewise, some institutions are rich in environmental enablers, whereas others may face shortfalls in one, two, or in all three enablers. In part, these variations can be sheeted-back to the sponsors of these investment institutions, wherein, for example, endowment funds may have certain advantages over public-sector pension funds, or sovereign wealth funds may face significant shortfalls in their environmental enablers but are able to marshal high-quality production inputs.

In sum, the capacity of a long-term investor to bring together high-quality production inputs depends upon their environmental enablers above. For example, if the fund would benefit from recruiting high-quality professionals, giving effect to this ambition could depend upon the governance of the fund (the respect and compensation accorded senior managers by the board), the cultural fit between the fund and its target employees (which translates into commitment), and the technological sophistication of the organization relative to its peers and the competing asset management industry. Alternatively, if senior managers aim to improve the process of

setting investment strategy, then its implementation governance is important (delegated powers), as is the culture of the organization (accountability) and the effectiveness of knowledge management technology (information collection and distribution).

The goal of this simplified model of institutional investment was to make it relevant to all long-term investment organizations, highlighting the shared pillars of success, which include capital, people, process and information, supported by governance, culture and technology. These are the inputs that all investment organizations utilize to achieve their objectives. In the next sections, we discuss those objectives and frame shared outputs that can be used measurement and metrics.

*INTERMEDIATE OUTPUTS: CONNECTING ENABLERS AND INPUTS TO RESULTS*

A successful investment management organization is typically described by its reported rates of return over well-defined time periods (quarterly, yearly et cetera). In our view, this is a flawed way of measuring the success of any LTI. While it is acknowledged that metrics that focus on investment performance allow for comparison among different LTIs, these metrics tend to ignore the risks used to generate these returns and the liabilities that the chosen investment strategies are meant to cover. Moreover, given the differences among institutional investors, including environmental enablers and production inputs, it is often difficult to use standardized measures of performance in ways that can provide meaningful comparisons.

In addition to the unique features of investment organizations, it is also difficult to compare performance over time, especially when, for some organizations, the relevant time horizon is the short term, while, for other organizations, the relevant time horizon is the long term. Developing performance metrics that offer reliable insights as to the short-term progress towards a long-term goal is challenging (but not impossible). In these cases, the construction of metrics is more about choosing the measures of performance that bear upon on the investment 'journey'. Too often the boards of long-term investors over-emphasize short-term performance, notwithstanding their commitment to long-term performance because of shortfalls in governance (oversight and information). By contrast, effective LTIs use measures and metrics in ways that integrate the short term with the long term.

These are complex issues. Recognizing that the long-term risk-adjusted rate of return is very important to institutional investors, whatever their type and whoever their sponsor, the integration of the short term with a long-term goal depends upon measuring in some acceptable way the onward 'journey' to that goal. In this respect, we have relied upon insights from our research program as well as the lessons learned from the case studies underpinning this particular paper to identify three 'intermediate' outputs of the onward journey to the long-term goal. As shown below, these measures or metrics are indicators of organizational performance – key outputs of the effective combination of environmental enablers and production inputs. These are:

- Commitment: the commitment of internal or external investment professionals to the long-term mission of the LTI is a key measure of output in that many LTIs view it as a signal of positive investment performance to come. This is about effort as much as it is about belief in the investment organization and its goals. (See Clark and Monk, 2018).

- Alignment: this refers to the alignment of portfolio managers, internal or external, to the long-term financial performance of the LTI, linking compensation and professional advancement to each step in the journey. It should be noted that external asset managers often generate high fees and performance rewards even when clients' performance does not keep pace with industry peers or relevant benchmarks. As such, alignment is often invoked as a basis for in-sourcing or re-intermediation. While compensation is an important motivating factor in any organization, LTIs that rely upon insourced teams can design compensation regimes that make explicit the alignment of interests.

- Knowledge management: as suggested above, LTIs are in the business of developing and sustaining the flow of information and knowledge about investment opportunities and absolute and comparative performance. These insights can be about managers, competing institutions, currencies and the many variables related to investment performance. This may come through deep networks of peers and professionals that long-term investors can tap to generate insight. Or it can be based on digital networks, via computers, databases, algorithms and their like. Keeping count on the flow of information and knowledge is a key intermediate measure of performance (see Clark, 2018b).

Each measure of performance requires metrics or indicators that are accepted across the organization and represent, department-by-department and function-by-function, the contributions made by employees to realizing the long-term goals of the organization. These need not be particularly complex nor need they be many in number. Rather, as indicated above, consistency is a virtue as is being parsimonious and transparent. In our research, it has been found that the explicit identification and measurement of performance against these indicators can enable the reconciliation of the short-term with the long-term. As Drucker (1996) noted, 'you manage what you measure'.

By this account, the long-term performance of an investment organization is the product of its environmental enablers and production inputs, managed in ways that mobilize the commitment of investment professionals by ensuring alignment of interests and the sharing of information and knowledge consistent with its comparative advantages and the organization's goals. As such, the investment 'journey' is sustained by ensuring transparency on matters such as commitment and alignment of interests punctuated by checks on short-term performance towards long-term goals and objectives.

*FINAL OUTPUTS: THE INVESTMENT RESULTS*

Here, then, is the most conventional (and controversial) metric of organizational performance: investment returns. For pension funds, it is the long-term risk-adjusted rate of net return as realized in the pension benefits paid to participants, whether on an accumulation basis (defined

contribution) or against a pension promise (defined benefit). It should be acknowledged that sponsors and governments have a role in specifying or setting this metric. For example, in the defined contribution universe, governments are increasingly concerned about pension 'adequacy' not just the conversion of accumulated account balances into a monthly and/or yearly pension payment. Likewise, governments are increasingly concerned about the sustainability of defined benefit pension institutions, both at the fund level and across the relevant jurisdictions. For some of our case study respondents, making an explicit link between investment performance and the paid pension (whatever the nature of the pension benefit) has been an effective way of mobilizing the commitment, alignment of interests, and knowledge management systems of their organizations.

## MEASUREMENT AND METRICS

In previous sections, we provided a framework applicable to various types of LTIs and their particular circumstances. Inevitably, the elements or building blocks of our model are more or less relevant to all LTIs, albeit depending upon their current circumstances and the status accorded these types of organizations by regulators and sponsors. We are mindful, moreover, that government regulators around the world have sought to better understand how these organizations function, given changes in the status and significance of public and private banking institutions. Whereas this paper is designed to inform best practice, it is equally apparent that the model above can also inform regulators and interested parties about the drivers behind successful (and not so successful) LTIs (see Productivity Commission 2018).

Here, we provide a set of measures and metrics of organizational performance following, in order, the building blocks underpinning our model above. We have noted that this framework and its building blocks are an analytical lens through which to identify key points of intervention in the management of LTIs. At the same time, we have also noted that the building blocks making-up this framework overlap and, in high performing organizations, should cohere with one another to drive performance. Nonetheless, some building blocks and their particular elements may be more relevant than others. Recognizing this fact, we have provided an expansive set of measures and metrics so as to aid the innovation process and hold innovation policies accountable for their contribution to organizational performance. This section offers an initial attempt, informed by our 20 case studies, at utilizing our simple model above to create useful and generalizable metrics. In our view, the model above could yield other, more useful metrics that are not contemplated here. The model is as important or more important than the specific metrics, as the former offers a means of shared understanding for long-term investors and their stakeholders to develop the latter.

### *ENVIRONMENTAL ENABLERS*

As noted above, high performing investment organizations are self-conscious about their 'untraded and intangible assets' and seek wherever possible to sustain those advantages over time and across the activities that underpin long-term performance. In this regard, LTIs often rely

upon governance, culture, and technology to underwrite performance. Here are a set of related metrics:

METRIC #1 BOARD ENGAGEMENT: a high performing and focused Board is important to the success of all LTIs, independent of their operating models. In principle, best practice boards focus upon strategic issues and avoid tactical or deal-specific matters. The challenge is to ensure that the risks taken are consistent with the governance budget of the organization. This is not only an issue of the number of risk-related decisions taken over time; it is also an issue of the size and significance of those decisions and where the board stands on these issues. Here, it's about strategy not tactics. There are two specific ways of measuring board engagement and effectiveness:

- *Opportunities Reviewed:* it is useful to keep count of the percentage of opportunities brought to a Board for review and whether or not the Board can handle the complexity of the organization. This would involve Part 1 - calculating the entire number of investment opportunities considered by an LTI and Part 2 - calculating the number of investments reviewed by an LTI's Board. This metric is calculated as follows: (Part 1 + Part 2)/(Part 2).

- *Delegations Utilized:* alternatively, the focus of the Board can be assessed by reviewing its delegation policy and the utilisation of that policy. This would involve Part 1 - calculating the number of delegations utilized in investment decision-making over, say, a year and Part 2 calculating the total number of investments made by the organization in that time period. Dividing Part 2 by Part 1 suggest that the smaller the number, the more strategic (and less micro-management-oriented) is the Board.

METRIC #2 CULTURE: our research indicates that LTIs measure their culture in a variety of ways, including employee surveys and focus groups. These types of qualitative assessments are important in many sectors, although employee commitment to organizations seems to vary across countries. These surveys can also produce metrics through which to measure the culture of investment organizations. Here are three such measures:

- *Net Promotor Rankings:* how employees think about their organization can be assessed by asking "would you recommend our company/product/service to a friend or colleague?" Using a scoring system of 0 to 10, those that score their organization as 9 or 10 are seen as 'promoters'. Those that score their organizations as 0 to 6 are seen as 'detractors'. Those scoring 7 to 8 are 'passive'. The Net Promoter Score is the percent of promoters minus the detractors where passives count in total number of respondents. This allows managers to gauge the commitment of employees and stakeholders that can be task and/or function specific.[4]

[4]/. In a similar fashion, the UK government has recently (August 15th 2018) required banks to publish data on the likelihood that customers would recommend their bank to "friends, relatives or other businesses." For details see www.gov.uk/government/news/banks-scored-on-quality-of-service.

- *Success Focused:* through an annual survey of staff, management and the Board, an LTI can assess whether stakeholders understand what success means for the organization, for their team, and for themselves. Ideally, these three domains are well-defined inside the organization, so it becomes a test of whether employees have internalized its key goals. Managers would divide the number of points earned by the total number of survey takers, suggesting that 3 is a strong form of success-orientation and anything approaching 2 for the organization requires intervention. A perfect score would be 3/3.

- *Investment Beliefs:* Because much of today's metrics and financial tools are focusing on short-term performance, many investors have developed investment beliefs that seek to anchor staff thinking in a longer-term logic. A metric that tracks the percent of staff that can correctly identify the fund's investment beliefs would be very useful. Obviously, if there are no investment beliefs this would 0%. And if the investment beliefs are well understood by everybody, this could approach 100%. A higher number would be better.

<u>METRIC #3 TECHNOLOGY</u>: The overwhelming view amongst our case study participants was that technology will play a much bigger role in institutional investment in the future. As such, our respondents indicated a commitment to understanding better, and investing in, technology relevant to their organizations. In terms of measuring the issue of technology, here are two metrics:

- *Percent of Budget*: An organization should look at the percent of resources spent on internal technology versus that paid in fees to external managers. This pre-supposes a true understanding of external fees, which is no easy task. A more sophisticated 'technological investor' should reasonably have a higher percent of its budget allocated to tech spending. If BOTH technology and fees are relatively high, then something is likely wrong, so this metric should not be a fraction – just two numbers for comparison.

- *Technology Satisfaction:* Similar to culture surveys above, a similar survey of staff's perception of technology and its utility could be useful. You could ask a series of five yes-no questions:
    - Is the fund's technology sufficiently good that it does not cause me problems in my job?
    - Does the fund's technology make my job easier?
    - Is the fund's technology better than average, compared with other long-term investors?
    - Does the fund have a culture of innovation and experimentation around technology?
    - Does the fund have a dedicated team or resource focused on partnering with startups and other technology partners on new investment-related technologies?

A score of five would signal the fund was very advanced in its technology, while a score of 0 or 1 would be a significant cause for concern.

*PRODUCTION INPUTS*

As noted above, long-term investors produce investment returns by combining environmental enablers with capital, people, process and information – in the conventional sense, the factors of production. Whereas an organization's enablers are embedded and require cultivation over the longer term, senior managers can often directly affect both the quality and the combination of the factors of production (e.g., internal versus external) in ways that enhance the performance of the organization.

METRIC #4 CAPITAL LEVERAGE: it has been shown that the size and characteristics of an organization's capital base can affect the success of its investment strategy. A higher capital base can mean more advantageous fees and contractual terms and conditions along with closer alignment with investment partners. It can also mean encountering constraints when placing large tranches of assets. For this category, consider the following metric of value:

- *Capitalizing on Capital:* at issue here is the extent to which LTIs utilize their capital advantages and overcome their capital weaknesses. This can be measured by asking asset-managers (internal and external) a series of "yes-no questions" and then tallying-up the answers. The higher the number of yes answers, the higher the level of capital creativity and the better the potential outcomes. If yes=1 and no=0, a score of 5 would indicate a high level of creativity whereas a score of 0 or 1 would indicate constraints or limits on capital innovation:
  - Is the existing capital allocation a competitive advantage for the fund (LTI)?
  - Is the sizing of investments a critical issue when deciding to commit to an investment?
  - Is the capital allocation to investment opportunities conceived so as to deliver higher performance?
  - Does the capital allocation and its associated constraints (e.g. liabilities, governance rules etc.) allow for creative and long-term investments?
  - Has the capital base been augmented in any way (e.g. by consolidating internal funds, partnering with peers, or by managing third party assets)?

On this scoring system, each question could be equally weighted. Senior managers can emphasize some issues over others in terms of asset-specific investment performance and the performance of the whole organization. Note, augmenting an LTI's capital base via managing third-party assets can incur transaction costs; there can be a trade-off between the advantages and disadvantages of this strategy as measured by the time taken by investment staff to manage third-parties.

METRIC #5 PEOPLE, HEALTHY AND HAPPY: many investment organizations track human resources data in order to have an early warning system of emerging issues with their employees. Indicators include absenteeism, illness, turnover and requests for consultation, along with

anything out-of-the-ordinary compared to normal practice. These activity metrics are not always sensitive to the HR process, or the skills and expertise of an individual employee, or their contributions to performance. But they can be useful when overlaid with certain contextual factors. We would suggest two additional metrics:

- *Personnel Matters:* calculate the number of days employees miss work – not counting vacations – and divide it by the number of employees at the fund. Over time, this can provide a good sense of the overall health and wellbeing of the workforce.

- *Work Product:* tracking the memos written, meetings taken, or the trips taken are of limited value if not augmented with qualitative judgments by those reliant upon these efforts. This can be accomplished via knowledge management systems wherein the 'producers' of output are judged by 'users' (fellow employees): think '*yelp'* reviews for investment memos! So, take key metrics related to work output and assign qualitative scores via anonymous surveys that enables a "rating" of employees' work. For example, those who are copied-in on a document can rate whether the document is critical (10) or not needed (1) and everything in between. A low score can indicate that employees are being asked to create or review pointless materials. Employees can also be rated by summing-up their scores across a range of interactions.

METRIC #6 PROCESS: as noted above and elsewhere, investors should align their governance budgets with their risk budgets (Clark and Urwin, 2008). Taking higher risk should be accompanied by higher scrutiny especially if the risks taken bear upon the performance of the whole organization. As such, effective LTIs monitor whether the organization is resourcing its managers for the tasks at hand. We suggest the following metric:

- *Risk-Governance:* LTIs increasingly rely on risk budgets to allocate capital within and between investments. LTIs also increasingly view their governance as a finite resource: senior managers and board members have limited time, expertise, and commitment when assessing competing issues. In the first instance, by reviewing the minutes of board meetings and investment committees the amount of time used to assess and oversee investment risks (and opportunities) can be measured against the total time devoted to other agenda items. In the second instance, the resources used to oversee investment risks including data systems, risk systems, and human resources can be monitored against competing claims for the use of these resources. Collecting the numbers on these issues can be challenging but the very process of doing so can impose discipline and provide data as to the focus of the Board.

METRIC #7 INFORMATION: having the requisite quality and quantity of information is a vital ingredient in the governance of financial institutions, enabling oversight and control of portfolio managers either internal or external to the institution. It is also critical in ensuring technology is utilized to the fullest extent. Following Metric#4, consider the following:

- *Data-Ready:* senior managers can assess data integrity by using a series of yes-no questions with a higher number of 'yes' responses indicating higher data integrity.
    - Is there a data governance policy in place?
    - Is there a data sub-committee on the Board and/or Investment Committee?
    - Is there a dedicated team on staff focused on data management?
    - Is there an ethics policy as it pertains to data use, yours and others?
    - Is there a cost-benefit framework in place for judging the value of additional data and whether it is mission critical?
    - Assignment of stewardship role;
    - a protocol for understanding what decisions can be made off of what data (triage pyramid); and
    - policy for managing data over its lifecycle (i.e., purging bad data).

Each question could be equally weighted. But strategically, senior managers could emphasise some issues over others in terms of the priorities of the LTI.

*INTERMEDIATE OUTPUTS*

The production of a desired long-term risk-adjusted rate of return depends also upon the *production* of an organization whose employees and modes of decision-making are consistent with realizing those return objectives. That is, the production process is simultaneously one based on producing and reproducing the organization *and* the rate of return. In this section, we focus upon commitment, alignment, and knowledge management.

METRIC #8 COMMITMENT: being an LTI is a comparative advantage that most pensions and sovereign funds can utilize in their investing. Here, it is important to measure the extent to which the internal investment organization is committed to the long-term term. To summarize, consider the following:

- *Time Horizons:* add the length of executive compensation, in years, as shown in all employees' compensation agreements and divide by the number of employees. If employees' average compensation extends over four or even five years, it is reasonable to expect that the fund is taking a longer-term view. The higher the number, the more likely staff is focused long-term goals.

METRIC #9 ALIGNMENT: just as important is the alignment of interests between employees and their investment institution. Time-serving can result in a divided and contested investment management process wherein individuals' goals and objectives trump those of the organization. Here, then, are two related metrics (see also Metric #2 above):

- *Goal Focused:* survey employees to determine whether they can make a clear link between the goals of their particular department or team in relation to the over-arching goals of the organization. If they can do so, it would signal that leadership has been effective in translating the objectives of the organization into its parts. One way of doing

so would be to ask employees to rate their understanding of their unit's objectives in relation to the organization – 1 (unclear), 3 (plausible) and 5 (clear) and sum-up responses by units.

- *Goal Consistency*: using this survey, senior managers could also test whether employees believe that their personal career objectives and the objectives of the organization are mutually dependent or not. Here, again, employees could score their notional alignment of interests in the same way as above – 1 (unclear), 3 (plausible) and 5 (clear).

METRIC #10 KNOWLEDGE MANAGEMENT: information is the lifeblood of investment management. But information must be converted into knowledge such that knowledge of specific domains and across the organization feed into the process whereby the risk-adjusted rate of return of the fund is the realisation of these separate and compatible functions. Here, then, are two related metrics:

- *Knowledge Sharing:* a long-term investor is only as good as its capacity to bring together insights across different investment functions and asset classes in ways that promote a 'whole fund' perspective. The effectiveness of this process can be measured by attendance (numbers of employees) at weekly callout sessions on current issues *and* the volume of posts by employees on intranet investment forums (Clark, 2018b).

- *Knowledge Quality:* a second metric could involve surveying the fund's investment professionals so as to ascertain the sources of investment insights scoring internal sources (with a score of 1) over close relationships with external colleagues (3) and public sources of investment news and insights (5). The lower the score, the higher the effectiveness of a funds' knowledge quality.

*FINAL OUTPUTS: THE INVESTMENT RESULTS*

In the end, investors, whether short-term or long-term, are judged in terms of their investment performance. However, care should be taken not to reduce performance measures to one number. While this is commonplace in the asset management industry, long-term investors have a range of commitments that should be recognised.

METRIC #11: INVESTMENT PERFORMANCE: Here are two metrics of final performance:

- *Portfolio Health:* some of our exemplars indicated that they see the discount rate (or expected return target) of a pension fund as the best heuristic for understanding the health of a pension promise and the quality of the investment organization. Here, it is assumed that the lower the expected return target (and discount rate) the better the likely health of the fund. This indicator is useful when combined with the funding ratio. As such, this can be defined as the funded status (percentage) divided by the organization's discount rate (or expected return target): the higher the number, the healthier the fund.

- *Cost efficiency*: the long-term direct and indirect costs of the investment department being measured in terms of staff costs, infrastructure costs, space and running costs, and the costs of shared services (within the organization) relative to performance (as above) **and** the observed and imputed costs of out-sourcing these services. Care must taken here, as those LTIs that report their fees to the public can look 'bad' because they have a true understanding of their fee payments. Those LTIs less aware and more willing to ignore the obvious tend to look 'good' notwithstanding boards' disregard or lack of understanding of the issue. This can be quite a perverse outcome, as well-run plans can look bad while poorly-run plans can look good. At a recent industry conference, one of the authors was informed by an LTI he used fund-of-funds to access private equity because it was cheaper: that is, 1 and 10 is cheaper than 2 and 20. Unfortunately, this person does not appear to be using an 'apples-to-apples' comparison as he failed to realize that the fund-of-funds also pay 2 and 20 to the underlying GPs, which means the true cost is 3 and 30.

## CONCLUSIONS

There is a new generation of LTIs taking responsibility for the end-to-end management of their assets. These funds take a long-term view and embrace their distinctive characteristics by cultivating their comparative advantages in creative ways. Nonetheless, there remain challenges including the development of relevant measures and metrics that bring together information on the performance of the elements making-up the production process and the realization of long-term goals and objectives. This particular management challenge is also one embraced by some of the most successful asset managers (Clark, 2018b). Our objective in this paper has been to craft a set of measures and metrics that allow for the communication of useful insights about LTI performance that can inform the management of these organizations.

In order to develop these measures and metrics, we began with a simplified model of institutional investment. This involved identifying the building blocks underpinning effective investment management, including environmental enablers, the factors of production, the intermediate elements contributing to the measured rate of return and final performance. At one level, the production of investment returns is a complex and often institution-specific process. Nonetheless, whatever the differences among LTIs in terms of how they arrange these building blocks, in accordance with local circumstances and regulations, we believe the model identified provides a reference point applicable across a range of long-term investors, including pension funds, endowment funds, sovereign wealth funds, and the like. This model draws upon insights from our research program reported here and elsewhere (see Clark and Monk, 2017).

The focus of this paper has been upon the mission-critical inputs and outputs identified in the model of investment management, while recognizing the effects on investment performance when LTIs manage themselves against these measures and metrics. Throughout, we have identified metrics that can stand the test of time: that is, measures and metrics that can be as relevant now as in five or even ten years' time, thereby providing boards and senior managers with the evidence necessary to focus on the true building blocks of performance. Separately and

together, the measures and metrics require coordination and integration with the units and systems of management that underpin LTIs. In this regard, we also provided a checklist for LTIs with a set of standards through which to judge the design and implementation of performance metrics.

We have left-out metrics that are commonplace and/or pose serious problems for any LTI. For example, we have left off a return metrics, such as a Sharpe Ratio or an Information Ratio. These metrics, while useful, have many problems and can be gamed by smart investors using private markets or hedge funds. As such, we sought to focus our metrics on meaningful and userful predictors of long-term performance, rather than the performance itself. Fundamental to this paper and the metrics agenda is the intelligent use of measures and metrics in ways consistent with the long-term interests of institutional investors.

Whatever metrics are chosen by LTIs, investors should spend more time thinking about what success means for their organizations and how they mobilize their factors of production to meet those success goals. Before every major investment decision, including the framing of investment strategy for the entire organization, boards and senior managers should ask what success looks like for a decision and for the fund. They should ask about the metrics that will be used to measure success including the relevant time horizon that will be used in the measurement process. Being accountable in these ways is a necessary condition for realising the benefits of metrics and measures of performance.

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