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Long-Term Investing as an Agency Problem

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Synopsis

The agency problems that pervade delegated investment management are exacerbated when investing for the long term, where the payoff is distant and often highly uncertain. These conditions compound the difficulty of aligning and monitoring the agents (managers) responsible for making investment decisions, particularly across multi-layered investment organizations. Problems arise from differences in investment horizons; the tendency to evaluate and reward based on short-term results; and failure to commit. We delve into these issues, and offer some solutions. Investment organizations intending to pursue long-term investing should aim to create an environment where all principals and agents along the chain of delegations are aligned, engaged on an ongoing basis, incentivized to work towards long-term outcomes, and committed to investing for the long run.

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Introduction

Concerns over short-termism within financial markets have led to calls for more long-term investing. Nevertheless, investors who genuinely pursue investing for the long run remain in the minority. The quandary of why long-term investing is not more prevalent can be better understood as an agency problem. Investing is often undertaken under principal-agent arrangements, particularly within investment organizations involving multiple layers of delegation. Meanwhile, long-term investing entails taking positions where the ultimate payoff may not arrive anytime soon, and is often subject to high and ongoing uncertainty. Two particular challenges arise. The first is securing alignment along the chain of delegations when horizons may differ. The second relates to the unavoidable need for principals to monitor agents, without having the option to reserve judgement for, say, 10 years. It is this potential discord in horizons – both between principals and agents, and between the investment and monitoring horizon – that makes long-term investing so difficult to pursue and sustain. We outline various facets of this issue, and offer solutions. In doing so, we take an institutional investor perspective. Our discussion is illuminated by the experiences of Australia's sovereign wealth fund, the Future Fund, which is structured to align the Board, internal management and external managers with pursuit of a long-term approach.

Why Should We Care?

Long-term investing offers both public and private benefits. The public benefits relate to helping mitigate the effects of short-termism, which has been charged with contributing to mis-pricing and excess volatility, pro-cyclicality, corporate myopia, less effective corporate governance, and less efficient financial intermediation.[i] As engaged and responsible asset owners, long-term investors can act as a stabilizing force in the market, and providers of finance for long-term productive activities. However, the prospect of public benefit provides insufficient incentive. Investors must also perceive a private benefit.

Long-term investing offers three advantages. The most widely-recognized is potential to invest in unlisted and other illiquid assets, which gives access to different return sources and some diversification benefits. A second advantage is capacity to pursue investments when payoff timing is open-ended. That is, long-term investors have the luxury to be primarily concerned with *if, rather than when*, there will be rewards. A third advantage is ability to exploit opportunities arising from the actions or aversions of short-term investors. At times, market prices can be set by investors who are over-focused on immediate risks or other transitory influences, or perhaps forced to trade in response to funding shifts. When such activity pushes prices out of kilter, long-term investors can take the other side of the trade. These advantages combine to make long-term investors well-suited to strategies such as: capturing risk premiums related to short-term fears; providing liquidity when paid to do so; value investing without regard for when value is recognized; enhancing economic value through ongoing engagement and control; and pursuit of long-term themes.

In spite of its purported benefits, long-term investing is comprehensively practiced only in certain niches. This notably includes private investors with the predilection to invest for long run, some sovereign wealth funds, and those (such as Warren Buffett) who have the unquestioning trust and faith of investors. In some situations, a short-term focus accords with objectives, e.g. running trading books, or managing money for investors who are averse to short-term drawdowns or require liquidity. But this is not the entire story. Short-term behavior often occurs where the purpose is long term. For instance, defined contribution pension funds can become concerned with shorter-term performance in response to competitive pressures; while defined benefit pension funds may be managed with one eye on year-to-year fluctuations in funding ratios. Investment managers, who are responsible for directly managing a large slice of funds in the system, often do so through chasing short-term relative performance in accordance with their incentives. However, this does not always align with the needs of their end-investors.

Hence the issue is that long-term investing is less prevalent than stakeholders whose underlying objectives are long-term in nature. To understand why, and what might be done about it, one needs to take a closer look at the principal-agent relationships that exist within the investment management industry.[ii] Before doing so, we first establish what distinguishes long-term investing, and makes it so difficult to pursue.

The Long-Term is Highly Uncertain … and Some Way Off

Long-term investing requires forming expectations about what the long term holds. This raises a number of challenges. The distant future is *hard* to predict, and highly uncertain. Regardless of how skilled an investor is at forecasting, the possibility exists of unforeseen changes to fundamentals along the path. Regime shifts can and do occur in the economic and market environment, or the structure of industries; and can be inherently difficult to anticipate. Even where relatively predictable payoff streams exist, such as fixed income, the path of market prices and returns can be uncertain. There are few constants that generate reliable returns over the long haul. Long-term forecasts are inherently of low confidence.

To make things worse, the long term is not going to arrive anytime soon. There is no immediate feedback loop. Those pursuing long-term investing reside in an ongoing state of uncertainty over whether they are on the right path. It is this temporal gap between the decision and the (uncertain) payoff that exacerbates the agency issues associated with investing for the long run – especially when things don't initially turn out as expected.

Principal-Agent Relationships and the Chain of Delegations

The bulk of investment occurs under delegated management, whereby investors outsource to investment managers. For instance, over two-thirds of listed US equities are owned by institutional investors.[iii] Thus much investment activity involves some type of principal-agent relationship. These relationships vary in complexity. For multi-layered investment organizations, like pension funds or sovereign wealth funds, there exists a long chain of delegations. This chain can extend from the end-investors or beneficiaries, to the governing board, to internal management with its own layers, and then outside the organization to external managers. Each link in the chain involves a principal delegating a task of investing to an agent.

The difficulty of achieving alignment between principals and agents is well-recognized. For multi-layered investment organizations, the challenge is to align principals and agents all along the entire chain of delegations in terms of shared mission, investment objectives, risk definitions and appetite, beliefs and cultures, and so on. Pursuit of long-term investing adds an investment horizon dimension that cuts across these aspects. All stakeholders must initially agree 'we are investing to achieve our long term objective'. This is easier said than done. Real problems emerge in implementing and sustaining a long-term focus. In particular, the need for ongoing monitoring can interact with the temporal gap between investment decisions and payoffs to disrupt long-term investment programs. Ongoing monitoring of agents by principals is inevitable, and arguably both necessary and desirable. Recruiting an internal investment team or appointing an external manager, and coming back in (say) 10 years time to see how they have done, would be frivolous and dangerous. For those in a fiduciary position, it may be irresponsible. When investing for the long term, working out if the agent has taken the right course of action is greatly hampered because the ultimate outcome of decisions is often unobservable and subject to persistent uncertainty. We now discuss the raft of problems that can arise as a consequence.

Agency Problems under Long-Term Investing

While agency issues pervade delegated investment management,[iv] the four problems discussed below are particularly pertinent under long-term investing. These problems are inter-related, rather than distinct. All relate to the temporal gap between the investment decision and the eventual payoff.

Problem 1: How Principals Monitor Agents

It is natural for principals to focus on short-term results when monitoring agents. This is partly because the flow of short-term performance may be the only tangible information a principal can access to work out if a manager-agent is doing a reasonable job. Behavioral influences are also at play. Performance numbers are salient, and play to availability and representativeness biases. They offer an illusion of precision, even though the signal to noise ratio may be low. Good results tend be taken as confirmation that things are on track and the manager is skilled. Bad results foster doubt, and throw the onus of proof back on demonstrating that the manager is acting appropriately. When a manager senses they are being evaluated on short-term results, then delivering good short-term results is what they will work towards.

A related issue is monitoring using benchmarks. This is also understandable. Manager skill is more easily evaluated by examining their value-add relative to either some baseline position, their opportunity set, or peers in a similar position. By contrast, achievement of absolute long-term objectives such as target real returns often has more to do with the availability of assets that offer adequate returns, over which a manager has only limited control. While the use of benchmarks as a reference point for portfolio construction and performance evaluation is logical, the side-effect is that benchmarking creates an anchor that can grate against the pursuit of long-term objectives. Successful long-term investing often requires the capacity to invest in a benchmark-unaware manner, and to deviate from the consensus. For example, a genuine long-term investor should be able to sell out and move to cash when all assets are over-extended – an issue currently becoming increasingly poignant as markets get bid up by excess liquidity. However, the benchmark and peer-relative risk in going defensive can often be too great to contemplate.

Problem 2: Incentives

Closely linked to how managers are evaluated is how they are subsequently rewarded. The tendency to reward for short-term performance is often mentioned as a key hurdle to long-term investing. While we broadly agree with this point, it is more subtle than just paying bonuses on short-term performance. In fact, the latter may be less prevalent than commonly believed. For instance, studies reveal that about 40% of US equity managers are rewarded based on performance of longer than 12-months.[v] For some alternative assets, like private equity, the rewards accrue over long periods. More insidious is how short-term performance is linked to business and personal success.

The link to business success is closely related to the widely-documented response of fund flows to performance. This might be interpreted as a reaction by end-investors as principals to the short-term performance of managers as their agents. To the extent that funds under management drives profitability, a business incentive arises to chase short-term performance. Even where no direct profit motive exists (e.g. many pension plans), the tendency to perceive success in terms of organizational growth and stature can draw attention towards short-term performance.

Personal success is an equally important influence, especially as all investment decisions are ultimately made by people. When managers are managing their own careers, both alignment and incentive to invest for the long term may be undermined. Career prospects can be greatly improved by a solid recent performance history, which enhances the scope for being promoted, head-hunted, or starting up your own fund. Conversely, a fund manager is less likely to adopt a long-term horizon if they fear the consequences of short-term underperformance for their reputation, career options, or even ongoing employment.[vi]

Problem 3: When Things Don't Initially Turn Out as Expected

The difficulty of investing for the long term is compounded when an investment fails to perform as anticipated after a certain period of time. Both principal and agent will be trying to judge if a mistake has been made and the position should be terminated, versus whether the payoff has merely been delayed. Both are facing a tortured 'hold or fold' decision. The risk is that principals then act in ways that undermine capacity to invest for the long term. They may respond to noise rather than signal, incorrectly blame the manager, and either pressure them to stem the losses, replace them, or withdraw funds. Such actions signal an inability to countenance transitory losses, and a propensity to hold managers to account for short-term performance. On the other hand, at times taking action will be justified. Using the mantra that 'we are investing for the long run' as an excuse not to act can be equally dangerous. It can dig a deeper hole that might ultimately place at risk both the manager and those who have appointed them. Either way, long-term investing can be difficult to sustain because the ability to handle loss ultimately gets tested, and many fall at the hurdle.

Problem 4: Need for Commitment

Success in long-term investing requires commitment from principals in terms of both funding, and to the manager-agent themselves. Both are needed for the manager to feel they have the latitude to follow long-term strategies through to their conclusion, however long it may take. Both entail costs. Committing funds is tantamount to sacrificing liquidity. Committing to a manager increases exposure to agency risk.[vii]

Absence of committed funding creates potential for positions to be closed prematurely because funding is withdrawn. Even more importantly, lack of funding commitment can impact manager behavior by undermining their perceived discretion. Possessing discretion over trading sits at the foundation of the ability to pursue long-term investing and its advantages, including the capacity to hold illiquid assets and to adopt positions that may take time to come to fruition. However, substantial sections of the investment management industry seem configured for low commitment of funding, reflected in the wide use of open-ended structures offering redemption-at-call and other forms of portability.[viii]

Commitment to a manager is an act of trust and faith. The absence of such commitment can undermine confidence that investments will be given ample time to come to fruition; and of not being called to account for failure to deliver over shorter horizons. Commitment to managers tends to be limited, as revealed by fund flow statistics and the treatment dished out for underperformance. Even sovereign wealth funds, while they may have committed funds, are run by boards that rely on the commitment of the government, internal managers who are subject to the commitment from the board, and so on.

A related issue is continuity of decision-makers on both sides of the principal-agent divide. Turnover in either party can act as a catalyst for action, as new stakeholders who lack ownership of investments move to put their own stamp on the direction taken. Unfortunately few organizations continue forth with the same ownership, business structures and employees for extended periods.

Solutions

Some strategies for addressing the principal-agent problems are offered below. The overall aim is to create alignment with the concept of long-term investing across the entire chain of delegations; then ensure that managers are evaluated and rewarded on their contribution towards achieving long-term objectives, rather than short-term performance. Our solutions are illustrated by describing techniques used by the Future Fund.

Solution 1: Align the Organizational Settings

Aligning the organization involves building a shared understanding around the intent of investing for the long term, and how it will be done. The idea is to build long-term investing into the organizational DNA, so that everybody involved thinks and acts in terms of long-term objectives. Areas to address include:

- *Guiding principles* - A base for alignment can be established through embedding long-term investing within the stated principles that guide the organization: its mission, purpose and beliefs.

- *Culture* – Culture[ix] provides the glue for alignment. *Leadership* is important for nurturing a long-term culture through actions and words, including repetition and reinforcement to cement key messages*. Professionalism* should be encouraged and supported, including an ethos of placing the client and their objectives first. Building a climate of *trust* can help create resilience during periods when investments are not travelling as well as hoped. *Capacity to adopt non-consensus positions* is important, as long-term opportunities often emerge during market extremes arising from the behavior of the crowd. Actions that might help foster a non-consensus culture include: focusing discussions around 'where the market could be wrong'; soliciting of non-mainstream opinions; and being careful not to dismiss radical views too quickly.

- *Clear objectives, with a long-term focus* – Stated objectives should be evidently long-term in focus, and ideally singularly so in order to avoid making temporal trade-offs. Risk should be defined in terms of failure to achieve long-term objectives. Relative performance objectives and risk measures should be de-emphasized if not avoided, as they draw attention towards what others are doing and away from maximizing long-term outcomes.

- *Framing* – The broad goal is to make the long-term more salient, and to limit myopic loss aversion.[x] Attention should be focused on whether outcomes are on track to achieve long-term goals, rather than period-by-period returns.[xi] Other strategies to reduce myopic loss aversion include establishing less frequent feedback and fewer opportunities to take action,[xii] and encouraging team decision-making.[xiii]

- *People* – Employing the *'right' people* who have affinity with long-term investing is a good start. This should be applied throughout the chain, from the governing board, down to the choice of external managers. Extended *tenures* are desirable, short tenures to be avoided. For instance, it has been suggested that 'best practice' average tenure for board members is 6-7 years.[xiv] Arguably longer tenures may be appropriate under long-term investing.

- *Collaboration with external managers* – The above concepts should be extended downwards to external managers. One approach is to build *partnerships* based around mutual trust and respect. Another is establishing management contracts with extended terms. The overall aim is to signal an intent to maintain a long-lived relationship around a common purpose.

Australia's Future Fund has aligned the organization with investing for the long-term in the following way. The Fund was given a fairly broad objective of generating real returns of at least 4.5%-5.5%, subject to taking acceptable but not excessive risk. In order to orientate focus, an explicit reference to "risk-adjusted returns over the long term" was included in the mission statement. The objective is operationalized by referring to rolling 10 year periods, subject to minimising the risk of significant capital losses along the path over rolling 3 and 10 year periods. Governance and decision structures are set up to evaluate investment opportunities in terms of potential contribution to attaining the long-term objectives; with a clear, consistent and relentless emphasis on returns against those objectives. Considerable effort is put into hiring people and external managers whose personal 'compass' points toward achieving the Fund's long-term objective. The Future Fund also partners with managers with a view towards commonality of purpose. These elements combine to help direct the Fund towards its long-term objectives right along the chain of delegations.

Solution 2: Build Understanding through Engagement

Engaging to build understanding among all stakeholders of investment decisions, and how they relate to actions and outcomes, is a key strategy. It helps keep principals on board, and dilutes the tendency to monitor by short-term results. Various commentators refer to a lengthening of the chain from beneficial owners to those ultimately making the investment decisions as fostering short-term cultures.[xv] Engagement between principals and agents is a mechanism for dealing with this problem, by lessening the distance from the decision making. In effect, the goal is to reduce information asymmetry.

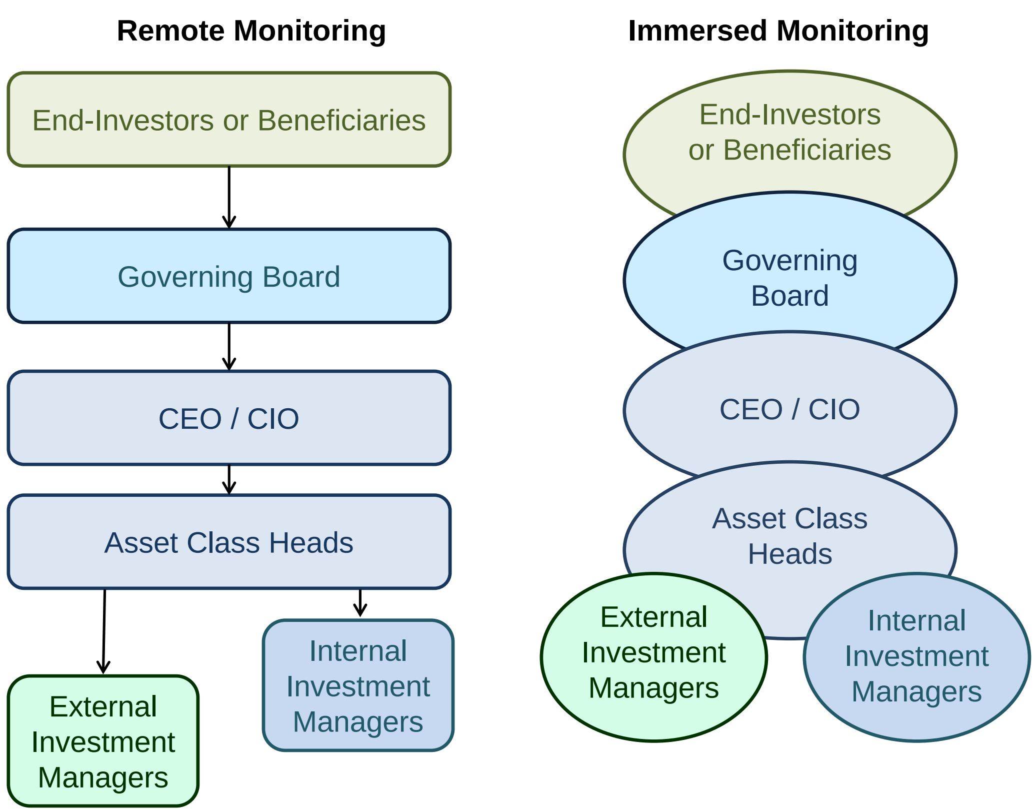
Relationships where it can be more challenging to build and maintain alignment are those where the distance is greatest. This is often between the organization and the end-investor, and between the board and internal management. Engagement is most critical in these areas.

Building understanding requires *communication and transparency*. This may be viewed as a process. Initially the benefit of investing for the long term should be sold to all involved. Expectations about what long-term investing can and can't achieve should be managed, noting potential pitfalls and trade-offs. It is critical to gain acceptance that results may not be immediately forthcoming, and that patience is required. Most importantly, principals and agents need to then engage along the way, including explaining the reasons for investments and their progression.[xvi]

Engagement means *involving principals in decisions*, rather than maintaining independence and distance. Engaging over investment decisions sits uncomfortably with the concept that there should be clear separation between governance and management.[xvii] Engagement is a compromise that recognizes the deficiencies in monitoring by the flow of results when investing for the long term. If principals do not fully understand decisions, they may resort to managing according to visible and measurable yardsticks such as short-term performance versus benchmark, and possibly start imposing their will. Such practices can lead manager-agents to become concerned with managing the numbers or their relationship with their principal, rather than working towards long-term investment objectives. Note that the principal only needs to build an understanding of investment decisions, and not make the decisions.

Figure 1 depicts a typical chain of delegations in the investment industry. On the left is the usual way such charts are drawn, depicting distinct entities that maintain distance and independence. This depiction implies complete delegation and *remote monitoring* through a set of contracts and protocols. On the right is an alternative view. The overlapping links reflect direct engagement between principals and agents, and possibly involvement of principals in investment decisions. This model involves *immersed monitoring* that makes use of judgment (supported by data) when evaluating managers, abetted by deep understanding of investment decisions. This model promotes trust and enhances confidence to invest for the long run. It does so by deflecting attention away from short-term performance, toward aspects like decision processes, behaviors and alignment.

Figure 1: Monitoring and the Chain of Delegations



In recognition of these issues, the Future Fund has intentionally pursued engagement and common understanding of investment decisions. Significant emphasis has been placed on building a tight alignment between its Board of Guardians and the management team, supported by formal processes and protocols for engagement. This includes regular reviews to identify and reduce any gaps in understanding around objectives and beliefs, and ongoing opportunities for the Board to review the entire portfolio and be included in its positioning. To build common understanding and ownership across the internal investment team, a 'single portfolio' concept was established. This is supported by a culture emphasizing shared responsibility, collaboration, challenge and innovation; and a flat structure that includes and empowers everyone. When partnering with external managers, the Fund pursues a relatively smaller number of significant and close relationships which afford greater scope for monitoring via engagement.

Solution 3: Design of Incentives

No perfectly aligned incentive structure exists. Cultural alignment, including an inherent propensity towards doing the 'right' thing in working towards objectives, is far more important. The aim in designing incentive structures is to avoid attention being drawn to short-term performance, and to reinforce the focus on long-term outcomes. Many commentators recommend extending the time frame for performance evaluation and incentive remuneration, with horizons as long as 10 years suggested.[xviii] The issue is that it can be practically infeasible to simply extend the time frame, and overlook what happens along the way. In addition to the genuine need for ongoing monitoring and evaluation of agents, the industry standard of yearly bonuses is hard to ignore in a competitive market for talent. The challenge is to design performance evaluation and remuneration systems that are focused towards long-term outcomes, while still retaining the scope for ongoing review and award. The following three methods may assist:

- *Greater use of internal and co-investment* – 'Skin in the game' increases the chances of alignment; although this needs to be done along with an agreed focus on long-term outcomes.

- *Subjective component* – A subjective incentive component can be used to explicitly encourage and reward behavior that is deemed consistent with pursuit of long-term objectives. Rewarding actions rather than outcomes is a prime method for overcoming the inability to observe the success of long-term investments until sufficient time has passed.

- *Short-term rewards, long-term conditional vesting* – Under this approach, bonuses are accrued on an ongoing basis, but subsequently vest and are paid conditional on performance being sustained. This is a compromise between the industry requirement for ongoing recognition, and the desire to reward for delivery of long-term outcomes. Some 'claw-back' provisions align with this approach. A further advantage of deferred vesting is that it encourages the manager to remain with the organization, thus cementing commitment and providing an additional incentive to adopt a long-term view.

Incentive remuneration at the Future Fund reflects the difficulties of devising a system that is based solely around long-term performance outcomes. Performance payments are awarded annually with the largest component being driven directly as a function of total portfolio performance against the real return objective over rolling three year periods. While use of a three-year period for portfolio performance does not align perfectly to the Fund's long-term horizon, it recognizes the realities of the employment market. An additional subjective component is explicitly used to reward actions that contribute to long-term outcomes, such as collaboration across the portfolio, challenging accepted ideas and orthodoxies, and building productive relationships. In this way, the remuneration structure focuses on portfolio performance, while giving ample consideration for the quality and sustainability of how performance is achieved.

Solution 4: Commit

Commitment of both funding and to managers is required to create an environment where managers feel they have full latitude to invest for the long run. The associated loss of liquidity and heightening of agency risk should be seen as costs incurred in gaining access to the benefits of long-term investing.

Not all organizations have the capacity to provide managers with security of funding, as funding terms may be non-negotiable. For those with the latitude, we prefer mechanisms that allow investors to commit funds for the long-term if they so wish. Evidence exists that people may be willing to use commitment mechanisms if they are made available.[xix] *Closed-end funds* are the most straightforward way to guarantee security of funding. Furthermore, if a market is provided in a closed-end fund, then liquidity is made available to end-investors. Another approach is offering products where investors can opt-out of their right to redeem. Closed-end funds and redemption opt-out products might exist alongside comparable liquid versions which provide redemption facilities. The incentive to adopt the less-illiquid alternative would be the possibility of improved long-term returns through access to a broader range of investments (potentially including illiquid assets), plus the absence of costs associated with providing liquidity.[xx]

Demonstrating commitment to the manager themselves is a matter of placing faith and trust in them, and resisting holding them to account for short-term performance. The main caveat is that managers should be answerable for behaviors that deviate from the long-term mission and agreed strategies. The aim is to foster the expectation of an extended career or relationship with the organization. Commitment might be demonstrated by not handing out terminations lightly; and giving consideration to the messaging around commitment when doing so.

As a sovereign wealth fund where withdrawals may only occur from 1 July 2020,[xxi] the Future Fund operates with a high security of funding. Nevertheless, commitment to 'managers' along the chain of delegations remains a consideration. In this regard, capacity to pursue a long-term approach is enhanced by the Australian Government largely leaving the Board to manage the Fund without interference; and the Board then affording similar commitment to the internal management team. Further down the chain, the Fund partners with external managers in a manner that demonstrates commitment. These elements combine to generate a sense of commitment and shared responsibility that provides those making the investment decisions with latitude and confidence to invest for the long term.

Where This Leaves Us

Managing agency issues is a key element in designing an investment organization to successfully invest for the long term. However, organizations not only need the capacity to be a long-term investor. They also have to act like one. Another key element is an investment approach that focuses on long-term outcomes. Many investment approaches exist that might fit the bill. In many instances, they will be distinguished by concern with long-term cash flows and long-term returns, rather than the drivers of near-term price fluctuations.

Long-term investing thus requires a combination of the right environment and the right approach: both are necessary, neither is itself sufficient. When it comes to building the right environment, it helps to view the task as managing a principal-agent problem with unique features that relate to investing for uncertain payoffs that may not arrive anytime soon. The aim is to build alignment with long-term objectives along the entire chain of delegations. Doing so should bring benefits for both investors and the economy overall.

Endnotes

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[i] These points arise from a wide literature that discusses the problem of short-termism, and the advantages of long-term investing. Selected references include: Croce, Raffaele Della, Fiona Stewart and Juan Yermo, "Promoting Longer-Term Investment by Institutional Investors: Selected Issues and Policy", *OECD Journal: Financial Market Trends*, 1, 2011, 1-20; "The Future of Long-term Investing", *A World Economic Forum Report* (with Oliver Wyman), 2011; Roger Urwin, Pensions Funds as Universal Owners: Opportunity Beckons and Leadership Calls", *Rotman International Journal of Pension Management*, 4(1), 2011, 26-33; The *Kay Review of UK Equity Markets and Long-Term Decision Making: Final Report*, The UK Crown, July 2012; Michael G.Papaioannou, Joonkyu Park, Jukka Pihlman and Han van der Horne, "Procyclical Behaviour of Institutional Investors during the Recent Financial Crisis: Causes, Impacts, Challenges", *IMF Working Papers*, WP/13/193, September 2013.

[ii] Long-term investing has been linked to agency issues by both Keith Ambachtsheer ("The Case for Long-Termism", *Rotman International Journal of Pension Management*, 7(2), 2014, 6-15) and Sunit Shah ("The Principal-Agent Problem in Finance", *CFA Institute Research Foundation*, April, 2014). We aim to further develop the nature of the agency problem, and offer solutions.

[iii] Institutional investors are estimated to have held 67% of the stocks listed on NYSE and NASDAQ in 2010, see: Michael E. Blume and Donald B. Keim, "Institutional Investors and Stock Market Liquidity: Trends and Relationships", *working paper*, University of Pennsylvania, 21 August 2012.

[iv] See Shah (*op. cit.*) for a review of principal-agent problems in finance.

[v] A CFA Institute survey found that 62% of buy-side portfolio managers and analysts have compensation that is based entirely on performance of 1-year or less ("Short-Termism Survey: Practices and Preferences of Investment Professionals", *CFA Institute*, 28 May 2008), Another study found that 43% of US mutual fund manager have long-term evaluation components exceeding 1-year (Zhishan Guo, "Horizon Goals and Risk Taking in Mutual Funds", *working paper*, University of Southern California, October 2014). The average evaluation period for US mutual fund managers is reported as 3 years, with a wide range from 1-quarter to 10 years (Linin Ma, Yuehua Tang and Juan-Pedro Gomez, "Portfolio Manager Compensation in the U.S. Mutual Fund Industry", *working paper*, Northwestern University, August 2013).

[vi] Incentive issues are compounded when investment organizations deal with external managers that service a wide range of investors, as their business models and personal incentives are not always aligned with investing for the long term. It can be difficult for some external managers to ring-fence a long-term portfolio from other shorter-term investment operations.

[vii] This point is raised by Stein in discussing closed end funds, see: Jeremy C. Stein, "Why Are Most Funds Open-Ended? Competition and the Limits of Arbitrage", *Quarterly Journal of Economics*, 120(1), 2005, 247-272.

[viii] To some extent, the notion that portability is required arises from the philosophy of relying on competition and market forces to discipline fund managers. While competitive discipline has its advantages, one side effect is that it runs counter to providing the commitment required for long-term investing. Similar arguments have been made by the likes of Kay (2012, *op. cit.*) and Woolley (Paul Woolley, "Resilience and the Long-term: Rethinking Portfolios for Prosperity", *Speech at The Prince's Charities Event*, 27th June 2013).

[ix] Andrew Lo discusses culture in the finance industry: see "The Gordon Gecko Effect: The Role of Culture in the Finance Industry", *NBER Working Papers*, No. w21267, June 2015. Lo observes how corporate culture can be affected by leadership, the values and behaviour of individuals, and environment (including regulation, and how risk is managed).

[x] Myopic loss aversion is a behavioral effect that is associated with shorter horizons, see: Shlomo Benartzi and Richard, H. Thaler, "Myopic Loss Aversion and the Equity Premium Puzzle", *Quarterly Journal of Economics*, 110(1), 1995, 73-92.

[xi] Shlomo Benartzi and Richard H. Thaler, “Risk Aversion or Myopia? Choices in Repeated Gambles and Retirement Investments”, *Management Science*, 45(3), 1999, 364-381.

[xii] Gerlinde Fellner and Mattias Sutter. 2009. “Causes, Consequences, and Cures of Myopic Loss Aversion - An Experimental Investigation”, *Economic Journal*, 199(537), 2009, 900-916.

[xiii] Mattias Sutter, “Are Teams Prone to Myopic Loss Aversion? An Experimental Study on Individual versus Team Behavior”, *Economics Letters*, 97(2), 2007, 128-132.

[xiv] Charles D. Ellis, “Best Practice Investment Committees”, *Journal of Portfolio Management*, vol. 37(2), 2011, 139-147.

[xv] Examples include the World Economic Forum report of 2011 (*op. cit.*), and the Kay report of 2012 (*op. cit.*).

[xvi] Requiring decisions to be explained is yet another strategy shown to reduce myopic loss aversion, see: Ferdinand M. Vieider, “Separating Real Incentives and Accountability”, *Experimental Economics*, 14(4), 2011, 507-518; Julius, Pahlke, Sebastian Strasser and Ferdinand M. Vieider, “Risk-Taking for Others Under Accountability”, *Economics Letters*, 114(1), 2013, 102-105.

[xvii] For instance, see Ellis (*op. cit.*).

[xviii] For example, see “Measurement, Governance and Long-term Investing”, *World Economic Forum Report*, March 2012.

[xix] See Richard H. Thaler and Shlomo Benartzi, "Save More Tomorrow™: Using Behavioral Economics to Increase Employee Saving", *Journal of Political Economy*, 112(S1), 2004, S164-S187; as well as Patricia Sourdin, “Pension Contributions as a Commitment Device: Evidence of Sophistication Among Time-Inconsistent Households”, *Journal of Economic Psychology*, 29(4), 2008, 577-596.

[xx] Evidence exists that the provision of liquidity to investors in pooled vehicles can have significant costs, with estimates placing the negative impact on fund returns at in excess of 1% pa, see: Roger M. Edelen, “Investor Flows and the Assessed Performance of Open-End Mutual Funds”, *Journal of Financial Economics*, 53(3), 1999, 439-466; Joshua Coval and Erik Stafford, "Asset Fire Sales (and Purchases) in Equity Markets," *Journal of Financial Economics*, 86(2), 2007, 479-512; David Rakowski, "Fund Flow Volatility and Performance," *Journal of Financial and Quantitative Analysis*, 45(1), 2010, 223-237.

[xxi] Withdrawals may alternatively occur once the Government’s superannuation liability is fully offset.