ALLOCATIONS TO SUSTAINABLE INVESTING

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ABSTRACT:

This paper presents a framework intended to provide pension funds and other institutional funds with practical guidance to their specific allocations to strategies in the fields of Responsible Investing (RI), Sustainable Investing (SI) and ESG (environmental, social and corporate governance factors in investing). While recognising its growing footprint, RI/ SI does not influence the investment of institutional capital that much yet. This is a normal trend-line in that whenever there is new investment thinking and practice it takes a while to become mainstream. The RI/ SI industry though has the additional obstacle of confusing legal context to overcome. It follows that to establish their legitimate arguments, RI/SI strategies have to be taken beyond parity with traditional strategies and deliver a more compelling proposition both with respect to investment theory and the application of theory to practice.

In investment, critical thinking is captured in beliefs - conjectures and guides as to how the investment world works and how it can be exploited – those beliefs will be sourced from argument and measurement using the critical tools of research and benchmarks. Developing strong and sharp beliefs is not that easy- it requires funds to deploy considerable governance. The beliefs that result from this process will generally cluster in three types: those that see stock-specific ESG factors as essential to risk control; those that identify ESG related assets that will benefit from tail-wind effects and early mover advantages; and those that adopt long time horizons and a universal owner perspective in off-setting the longer-term risks and costs of natural resource depletion with ESG related investment. Such beliefs can then be aligned with two distinct approaches to sustainable investing: the integrated approach where ESG and active ownership are mainstream elements of the mandate; the targeted approach where specialist investment is concentrated in ESG related themes like clean tech and environmental opportunities.

Whatever the belief, the critical discipline is to employ a process for determining suitable allocation to these sustainability strategies. Such a process starts with clarity of mission; works with a set of beliefs that have gained strong support from the whole fiduciary board; applies a quantitative discipline with respect to risk including the risk that departures from previous practice produce shorter term under-performance. The process is completed by overlaying a monitoring process that considers in parallel the returns and risks arising from both the financial and extra-financial missions; and ensuring that the beliefs and strategy are gradually adapted in the light of the fresh information that comes from the monitoring process. For funds and asset managers that are signatories to the UN PRI code of responsible investing, the framework put forward has the merit of strengthening the audit trail to demonstrating adherence to the code.

Key words and phrases: pension fund, sovereign wealth fund, sustainable investing, responsible investing, strategic asset allocation, values, beliefs and norms, governance, fiduciary duty

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I. INTRODUCTION

This paper presents a framework for pension funds and institutional funds that wish to invest more sustainably, but who are unsure what level of commitment to make. We consider the two most common routes to a sustainable investing strategy; first an integrated approach to incorporating ESG and active ownership into mainstream investment mandates; second, a targeted investment in ESG themes through specialist sustainability mandates. A description of these strategies and their practical implementation is given in Urwin (2009). The issue facing the institutional investor is how much of a fund's capital to commit to these two possible strategies. This is the question that this paper attempts to answer in a generalised fashion.

This subject has attracted increasing attention but the discussions have not led as yet to significant allocations. In **Table 1** we describe the allocations made by the small number of funds that maintain a profile in the sustainable investing field. In **Table 2** we have described some of the managers that are providers of the two sustainable strategies: integrated and targeted as described in **Table 3**.

Institutional funds have had to consider sustainable investing at a time when the increased pressure for their performance is acute. Different aspects of "sustainability" in investment strategy have naturally arisen; longer-term investment focus with intergenerational facets (Exley, 2009); a move toward the integration of environmental, social and governance criteria within investment mandates, the use of specialised funds with green themes such as clean water or renewable energy (Senior, 2009), or some combination of these. This range of approaches suggests some flexibility in the concept of sustainability (Woods and Urwin, 2010).

Many changes have occurred in the Responsible Investing and Sustainable Investing field in the recent past (Richardson, 2008). A particularly important, part of this is a movement epitomised by the United Nations Principles of Responsible Investment (UN PRI)) which incorporates the integration of environmental, social and governance (ESG) issues into mainstream investment analysis and decision making (Wheelan, 2008). We note also the impact of attempts to clarify the fiduciary duties of fund boards where interpretations of the need to consider responsible investing are described (UNEPFI 2005 and 2009). As Woods and Urwin describe, "the incorporation of sustainability into investment strategies may be seen to be strengthening and adding to the RI movement through its focus on intergenerational equity and the long-term".

Beyond the world of investment there is increased societal understanding of the interaction between environmental, social, and economic issues. The concept of sustainability is now widely used. The original definition of identified sustainable development as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland,

World Commission on Environment and Development, 1987). This definition captures the idea that growth should occur while safeguarding the economic, social and environmental security of future generations. This is preserving a degree of intergenerational equity (a concept developed by Sachs (2008)).

The definition of sustainable investing used by the author in this paper is "*long-term investing that is efficient and intergenerationally fair*" which positions sustainable investing as trying to optimise a fund's strategy with respect to present and future circumstances, giving as much weighting to long-term considerations as short-term considerations in accordance with the fiduciary principle of loyalty (to all beneficiaries without undue bias to any one segment).

The sustainable investing proposition can be presented in a matrix comprising values (from which the mission is derived) and beliefs (from which the investment strategy is derived) outlined in **Figure 1**. Strategy B carries allocations to integrated ESG and active ownership; strategy C carries allocations to targeted investment in sustainability mandates. A fuller specification of the matrix terms are given in **Tables 4 and 5.**

The paper progresses into Section II which considers asset allocation and its part in the whole investment process. Sections III and IV outline the development of values, beliefs and norms that are needed to underlie any particular asset allocations in general and sustainable investing in particular. Section V describes the actual asset allocation process the author puts forward which is summarised in **Figure 2**. In section VI we suggest the critical features of the associated monitoring process.

Figure 1. The effect of sustainability criteria on investment mission and strategy. Funds previously characterised in traditional mission and strategy marked 'x' may move to one of the other positions marked 'o'.

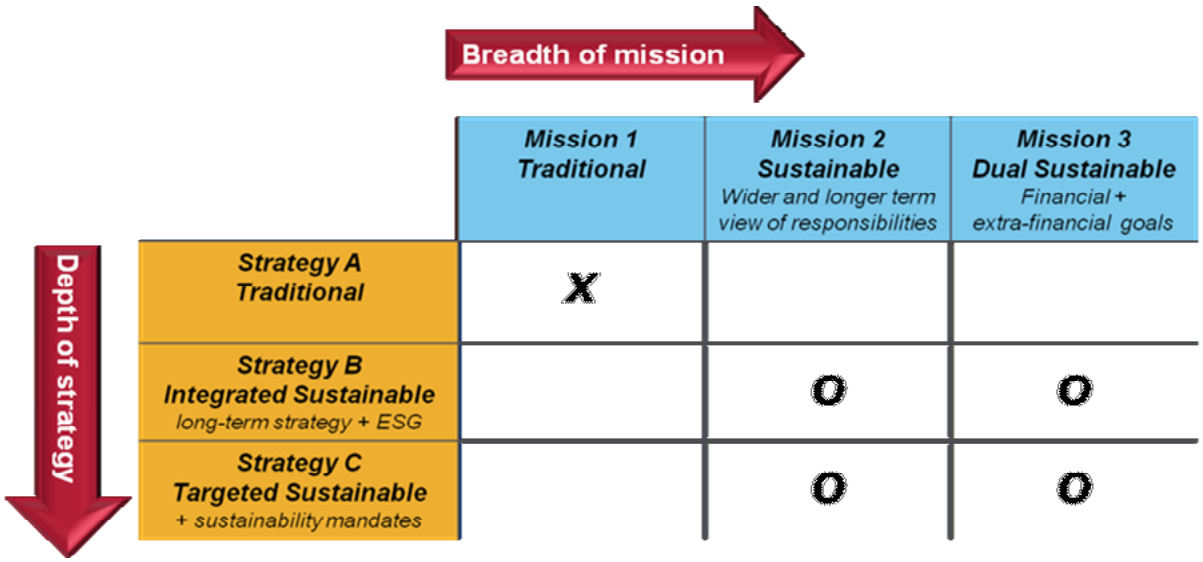
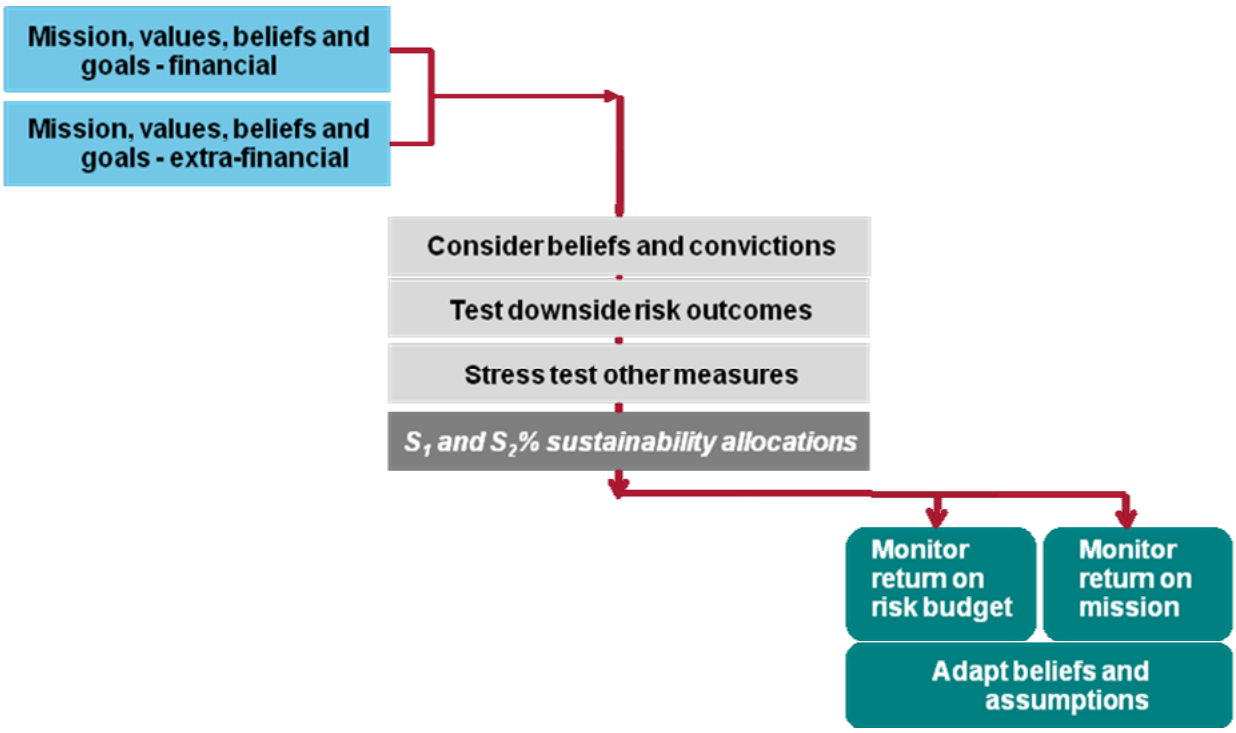


Figure 2. Conceptual model of how extra-financial factors contribute to setting a sustainability allocation in an investment portfolio. Working from the fund's values and beliefs, the asset allocation follows from a sequential process involving qualitative and quantitative inputs.



II. ASSET ALLOCATION

The importance of asset allocation

Asset allocation involves decisions concerning the amounts of capital allocated to the major investment groupings (Urwin et al 2001). While empirical studies have produced different results on how important asset allocation proves to be, the majority of studies ascribe a very significant amount of the performance variation of funds to the decision on how much in the major classes: equities, bonds, real estate, alternative assets (Brinson, Hood and Beebower, 1991; Ibbotson, 2010).

It is common in institutional fund arrangements to differentiate the strategic asset allocation (SAA) which is considered longer term in nature from shorter-term tactical asset allocation (TAA). The SAA is the focus of the considerations in this paper. Such an allocation is generally decided by the fund's fiduciary board.

A closely connected set of decisions following the SAA involves allocations to specific mandates for managers to implement. The fund has to decide how to assign assets to various managers by describing their mandates in terms of asset allocation guidelines. The specific asset allocation benchmarks and guidelines for each mandate are determined such that the summation of all mandates is consistent with the SAA adopted.

The SAA process

Fund boards decide their SAA using a variety of inputs, both quantitative and qualitative. The three critical phases are

- Consideration of overall goals and objectives, including liabilities
- Development of beliefs and assumptions specific to different asset classes and their combination
- Analysis leading to the decision on preferred SAA

The objective function adopted by most funds involves achieving an optimal balance between higher expected return and lower expected risk (Campbell and Viceira, 2001) where risk takes account of liabilities where appropriate. This requires quantification of various input parameters:

- Expected returns, risks and correlations for each asset class, adjusting where necessary for liabilities
- The expectations for alpha and tracking error for mandates in each asset class.
- A view of how sensitive such assumptions are likely to be, considering alternative plausible assumptions or scenarios.

Funds have generally favoured quantitative processes to lead the thinking on SAA in large part because they provide an easier framework for discussion. They also provide links between the critical

considerations of mission clarity and beliefs clarity to which best-practice funds have given considerable attention (Clark and Urwin, 2009). However, many funds would give significant weight to qualitative considerations, and these may in some cases be the dominant factor.

One important such consideration is the asset allocation of peer funds. Asset allocation data assembled from other funds is representative of accepted practice and could be presented as best-practice. Indeed, given the difficulties of producing reliable and robust asset allocation solutions there is a natural draw to such reference points (Urwin and Woods, 2009). While there are many drawbacks with reliance on such data, for fiduciaries who are concerned about the risks of their decisions, fixing the SAA to be reasonably proximate to a peer group average has certain appeal.

Asset allocation issues with sustainability

We identify some particular problems in applying the standard asset allocation process to sustainable investing strategies. First, historical results for sustainable investing do not go back that far in time with the consequence that past results cannot be relied on to inform assumption setting as for other investment opportunities. Second, given the fast changing conditions for and characteristics of the sustainability field, a case can be made for significant differences between past and future results. Third, sustainable investing is an overlay to existing asset classes and allocation, and cannot reasonably be considered a separate asset class (for example: there is sustainable investing *in equities*). This suggests that some combination of thinking is necessary. Finally, the subject requires an expanded frame of reference to consider results both on financial terms and also with respect to extra-financial terms.

We note two further critical considerations. Current allocations among pension funds to sustainable strategies are very small (particularly sustainability mandates) so the peer support for allocations is limited. Furthermore, fiduciary boards are rightly concerned to make decisions that are in keeping with the high standards expected of them and not tainted by any possibility of bias. This puts the processes adopted under intensive scrutiny with increased requirements to be transparent.

III. MISSION AND VALUES

The values, beliefs and norms framework

As discussed in Clark and Urwin (2008) and Urwin and Woods (2009), strategic investment decisions of a fund can be developed satisfactorily if there is particular attention paid to the *values* and investment *beliefs* of the fiduciary board and the expression of decision-making *norms* consistent with them.

- Values in this framework are convictions about what matters to the fund's fiduciaries and its stakeholders, often expressed as views about desirable behaviours and outcomes for the fund and its beneficiaries and captured in a mission statement
- Beliefs are conjectures and working assumptions about the investment world that underlie investment practices and decisions which, when developed and shared, help make goal setting and decision making more effective
- Norms are policy guidelines about how the fund should operate under various conditions in the future, which should be designed to be consistent with the values and beliefs.

Values and beliefs are challenging concepts for fiduciaries. First, they are subjective and require considerable thought. Second, they may well differ across the members of a fiduciary board, but for effective practice it is critical to develop shared values and beliefs. Third, the process of codifying values and beliefs involves considering something inherently abstract (or 'soft') and codifying it in a clear and more tangible form (or 'hard').

Clark and Urwin (2008) present a pension fund governance framework based on their observations of best-practice amongst a range of institutional investors (who demonstrate exemplary governance practices. In examining a range of pension fund governance processes, Clark and Urwin distil six core "best-practice factors" including the two that the author sees as most integral to the framework for allocations to sustainable investing: mission clarity and strong beliefs (**Table 6**).

Values and mission

In their empirical research, Clark and Urwin identified that funds whose boards had mission clarity and strong beliefs produced faster and more coherent decisions than other funds. Clear mission and "the commitment of stakeholders to the mission statement" is a core factor in pension fund governance. An investment mission *statement* embodies what the fiduciary board considers as its values and relates these values to the goals of the fund in investing funds on behalf of beneficiaries.

Academic work on corporate mission statements emphasise the role of mission statements in providing and communicating clarity of aims (Williams, 2008). In the author's experience this conclusion can be applied to institutional funds where fiduciaries can articulate their mission with respect to specific

component factors as well as specifying an overall mission statement. As such, pension funds might have, for example, a financial mission statement, a wider responsibilities mission statement, and an extra-financial mission statement.

The values and mission discussion would then centre on these three component parts of the mission and their inter-connection. In particular, we pose the question: what mix of these values should the fund be focused upon? Important aspects of this discussion involve considering these factors from **Table 7**:

- What time horizon is appropriate (recognising that this may involve a combination of terms)?
- What level of wider responsibility should fiduciaries assume (recognising the spectrum from none, through 'do no harm' to fuller responsibility for ownership externalities)?
- Is there any place for additional extra-financial responsibilities (recognising the normal pension fund negative response, but in the minority positive response where the issue becomes what weight this should be given alongside the pure financial factors)?

Mission and values links to beliefs and norms

The linked nature of this discussion is important. The PGGM report on its 'Responsible Investing Policy' (PGGM, 2009) carries the key elements of mission and goals. The document then progresses to consider beliefs and norms and leads to a well-documented and coherent set of principles. We have taken the PGGM narrative and summarised their policy framework in **Table 10**. In the following section we explore the development of investment beliefs for sustainable investing.

IV. BELIEFS AND NORMS

Investment beliefs

While the concept of investment beliefs is widely used within the investment industry, it has had so far only limited academic scrutiny. Koedjik and Slager (2007; 2009) have addressed the subject; also Gray (2009). Ambachtsheer (2007) and Clark and Urwin have also made reference to the concept as part of their broader work on pension fund governance (2008; 2010). In the author's view, the merits of investment beliefs reflect the more efficient investment decision-making that follows their usage. The process of specifying beliefs also allows for committees to be more coherent and logical when making decisions. Given the large amount of information potentially relevant to investment decisions, beliefs allow fiduciaries to avoid paralysis via information overload and concentrate on key issues. Furthermore, by making investment thinking more transparent, fund fiduciaries, and other participant in decisions have a common understanding about the conjectures used in the funds' investment practices. This transparency allows any of the stakeholders to review the stated investment belief and assess whether a particular investment practice is consistent with the stated investment beliefs.

The beliefs discussion with respect to sustainable investing should focus particularly on the two most common parts of sustainable investing: the ESG extra-financial factors and active ownership opportunities and duties. We set out in **Table 8** a sample list of beliefs in the form of a questionnaire for discussion.

While the inclusion of sustainable investing mandates is strategic in nature, ESG does not constitute a normal 'asset class'. Instead the strategy is best seen as a form of overlay to existing asset classes. Practitioners have challenged whether sustainable investing might redraw the conventional SAA. PGGM in their review of their responsible investing program (PGGM, 2009) referred to the "possibilities of systematic, mechanical integration of ESG factors in the equity portfolio at the level of strategic asset allocation". They suggested that "countries' political, social, economic and governance factors and climate change could be suitable factors". In our view sustainable investing is an integrated way of considering the opportunity set and may lead to countries' allocations being influenced. However, in the author's view it is better to consider the merits of an ESG factor (or 'ESG beta') framework rather than directly challenging the geographical allocations.

While the application of these strategies can apply across all asset classes, discussions of the merits of sustainable strategies will vary across asset classes. The belief structure should recognise the differences in the scale of benefits versus the costs. Kiernan refers to the alpha intensity of different ESG opportunities varying across industries and asset classes (Kiernan, 2008). The strategic influence of ESG to the quoted equity sector and to the real estate sector appear to be the most significant. There are

developing sustainable opportunities in private equity and infrastructure but these appear less easy to implement at present. The more fundamental beliefs are concerned with the risk and return exposures of ESG related investment in the equity markets where the concept of 'ESG factors' or 'ESG beta' are central.

ESG beta

This discussion is helped by first considering equity beta. This is the systematic and non-diversifiable risk source which produces over time sustainable excess returns over the risk free rate in return for the risks taken. The factor is macro-consistent, that is all investors can theoretically hold equities without tripping up the system and failing to achieve the equity premium. The equity beta is made up of some fundamental components which includes a factor which we call 'ESG beta'. ESG beta is essentially an aggregation of companies' financial exposures to environmental and social factors, the costs and benefits of dealing with these factors and how these are changing. This exposure has an associated investment return which is the passive return derived from systematic changes in these ESG costs and benefits.

The ESG factor can be sub-divided into three sub-components relating to each of E, S and G. The E factor is a particularly influential factor in the long term as it has quite strong medium-term characteristics based on the opportunities for return enhancement and/ or risk mitigation. For the E factor to produce positive performance a number of associated factors would be considered:

- Science: the view that climate change and resource degradation are occurring and mitigation and adaptation measures will be taken over time
- Policy: the view that governments will support the science and technology and infrastructure needs with incentives and taxes
- Flows: the view that companies or enterprises in this space particularly those with effective governance over ES issues will attract growing investment flows affecting future valuation and relative cost of capital
- Profit capture: as many of these investments have significant technological components there are issues whether investors are able to extract an appropriate rent for their risk capital, risk exposure and endeavour.

The considerations that would need to be included in an assessment of these factors have been addressed by IPCC (2008) which considers particularly the science aspects and Stern (2006) where some of the broader issues are assessed. Various empirical studies can be considered to assess the performance characteristics of the environmental risk factor. Studies by Derwall (2005) and Chia, Goldberg et al (2008) have measured historic positive return after risk to this environmental factor.

Companies' exposure to social factors can be considered as another ESG beta although most arguments support this factor producing a lesser financial influence (Kiernan, 2008). Here the exposures to a range of factors might be included: poverty and social inequality, health, labour practice. Empirical data in this area is harder to assemble.

Finally there is the influence of corporate governance to consider which has been assessed in a number of empirical studies including Gompers (2001) which found governance has had a positive effect on performance.

The Mercer (2009) study on ESG research found in a sample of 16 studies that 10 demonstrated positive ESG influences to performance, 2 were neutral, and 4 were negative. Obviously, this paper is not intended to provide the beliefs in the ESG area but instead to highlight the process needed to develop such beliefs. Empirical results are only mildly helpful given limited periods of past results and issues about its relevance given the fast-changing circumstances.

Beliefs in respect of active ownership

The critical parts of the investment rationale supporting active ownership is that an appropriate mix of voting and engagement is value enhancing after costs are taken into account. This belief is contextual to several circumstances:

- The fund's governance capabilities, or governance budget for this activity
- The form of delegation adopted by the fund in respect of its investment mandates
- The capabilities of the manager in respect of delegated active ownership duties
- The effectiveness of the implementation of ownership actions through custodians where it may, in some situations, be difficult to ensure voting and other corporate actions are executed according to instructions.
- Whether the fund's oversight of its managers actions adds value on a net of costs basis.

Data from Mercer (2009) provides some support for the conjecture. The data carried in the recent Hermes study (Becht et al, 2009) is an interesting example of the merits of greater activism.

Beliefs in the long-term area

A more expansive view of sustainability takes into account two other aspects of an institutional fund's mission: the comparative advantage in respect of its long time horizon and the intergenerational equity issue (see **Table 9)**.

Investors have different time horizons, with different attendant pressures to perform in both the short and long term. Many institutional investors have a natural long-term orientation; this is certainly the case for most pension funds, sovereign funds and endowment funds. Such funds can consider the merits

of various strategic choices where pricing may well be more reflective of short-term investor risk aversion than long-term return appetite. This long-term comparative advantage of funds was described by Ang, Goetzmann and Schaefer (2009) in their evaluation of the active management activities exhibited by the Norway Pension Fund Global. Their conclusion was that the 'saw-tooth' performance pattern exhibited by certain risk factors present in the manager line-up (particularly value and momentum) provided the fund a comparative advantage as they could ride out the periodic draw-downs that were expected given these risks.

Additionally long-term funds have to consider their intergenerational responsibility. Most interpretations of fiduciary responsibility would include the duty of loyalty not to favour current beneficiaries at the expense of future beneficiaries. Fiduciary responsibility also encompasses the duties of prudence as discussed in Woods and Urwin (2010) and Johnson and de Graaf (2009). The interpretation of these responsibilities brings a potentially different priority to investing over longer periods if the solvency risk may alter on account of covenant or other exogenous factors. In such cases, advance planning through a multi-decade journey plan would argue strategically for lower commitments in areas correlated with future conditions of distress. For example, this would essentially penalise investment in similar sectors to the sponsor which would be expected to be performing poorly at similar times to the sponsor.

This line of argument is applicable to the scenario of longer-term climate change and resource degradation. The idea of universal ownership is relevant in this regard. Many institutional funds' holdings are highly diversified across the global market and the global economy. Such funds' performance is therefore much more heavily dependent on the long-term progress of the economy and the private sector than on individual companies. Given the potential influence of environmental and social factors on the long-term health of the economy, it follows that such funds should recognise the importance of ESG to their funds' ultimate fortunes.

This has been interpreted as giving incentives for investors to use their ownership influence to produce system wide benefits. We suggest it can also affect the size of the exposures that funds might want to have to ESG sensitive investments which take on a form of hedging against adverse progression of climate change. In the scenario of widespread degradation of environmental conditions, there would be expected to be a relative decline in economic growth and corporations' performance arising from the concomitant increases in the costs of mitigation and adaptation that would arise in this scenario. The associated poor fund outcomes which would arise in such a scenario would be mitigated in part where prior investment in environmental opportunities and clean technology is introduced as an offsetting hedge. Such an investment strategy can be seen as promoting intergenerational equity. The argument is

the mirror image of the climate economics arguments used by Stern (2006) and Sachs (2008) to promote increased investment in the short term in energy efficiency to deal with long-term environmental risks.

Beliefs about governance

There is one further area of beliefs to consider relating to the governance of individual funds. The challenges of dealing with sustainable strategies are considerable and it follows that successful implementation of such strategies will be correlated with strong governance. The factors indicative of such strength include:

- Capable boards with a good grasp of the issues
- Use of executive teams with sufficient knowledge and experience of sustainable investing, both with respect to the strategies and managers involved; sustainable investing might well gain from specialists with particular backgrounds in the science, legal or public policy fields
- Funds that are able to operate with clear mission, efficient organisational design and are prepared to apply long time horizons to strategies.

Beliefs and universal ownership

The universal ownership idea is that there are a small number of large institutional funds across the world whose investment involves a non-trivial stake in global GDP. This position carries an opportunity to influence future outcomes (Hawley and Williams, 2007). The beliefs of universal owners comprise an interesting set of contrasting positions with funds that position themselves more inactively.

Beliefs of universal owners	**Beliefs of normal owners**
Own a significant share of the economy	Own an insignificant share of the economy
Own a significant portfolio of externalities which is, or in particular, will be internalised to the fund's net cost	Own externalities but do not exercise any influence on these
Make the link between their actions and the system, take an endogenous view of their fund	Make no such link, stay detached, take an exogenous view of their fund
Are active owners who can produce longer term added value to their ownership interests	Are inactive owners but benefit from free rider effects
Are collaborative owners who through public policy efforts can combat systemic investment issues, particularly externalities	Are inactive in this area
Can gain from allocations to integrated ESG	Do not gain from allocations to integrated ESG
Can gain from allocations to targeted ESG/ sustainability mandates	Do not gain from allocations to targeted ESG
Given the risk scenario of climate change/ resource depletion, their actions above produce systemic benefits	Given this risk scenario, they benefit from free rider effects
Given this risk scenario, these actions produce a benefiting hedge / offset for the fund	Given this risk scenario, the fund has no benefiting hedge/ offset

Beliefs and quantitative assumptions

The link between beliefs that are generally qualitative in form and quantitative assumptions about risk and return is a critical part of most investment processes. In sustainable investing though, we encounter the problem of uncertainty which gives rise to difficulties with setting assumptions for sustainable mandates. We differentiate somewhat between risk estimates and return estimates. Our principle problems lie with return estimates which it is argued later should not be used as a direct determinant of allocations. To contrast, risk estimates in many sustainable mandates can be obtained by reference to assets that have had reasonable price histories. It follows that the allocation discipline will rely more substantially on the quantification of risk than the quantification of return.

V. SETTING THE SUSTAINABLE ALLOCATION

Allocation to integrated investment

The key characteristics in an integrated ESG mandate are suggested in **Table 11.** The key difference from the traditional one without ESG parameters is in the investment process:

- *The manager should assess ESG factors in their investment process, take an active ownership role, report on their ESG and active ownership role and actions*
- *The fund should describe its ESG expectations in the mandate and undertake monitoring of the ESG processes and actions of the manager.*

Given the foundation of agreed values and beliefs, the allocation process can concentrate on testing the value proposition behind using the integrated mandate for each manager and mandate. The principal test is whether it is expected that the integrated specification is value enhancing – produces higher expected returns per unit of risk.

Given a positive view for ESG integration from the beliefs process, it would be expected that most mandates would pass this test. But in two particular cases, the value proposition may not be present:

- Where the portfolio construction criteria are not based on any fundamental measures (an example would be momentum or trading processes), no feasible integration of ESG factors can be undertaken
- Where additional costs of ESG integration are incorporated in higher fees that are passed on to the fund, there may be a view that the performance advantage is removed on a net of fees basis.

The value proposition is influenced by the exact terms of the delegation and the extent and quality of oversight exercised. The precise formulation of these points is beyond the scope of this paper. It is the author's experience that these points have not attracted much attention when they have considerable potential to influence for better and for worse.

Entering this strategic approach brings to the fore issues of changes to the manager line-up that flow from this strategy:

- Should managers with limited ESG capability be terminated, or should a more balanced or sum of parts view be taken?
- Would new mandates be configured as requiring integrated ESG or would this selection be based on a balanced score-card/ sum of parts assessment?

Decisions to be reached would ideally combine the higher level rigour of strong investment beliefs with appropriate pragmatism in which all factors are weighed together.

Allocation to targeted investment

While the dominant process in the allocation to integrated ESG is considering mandates on a case by case basis, this cannot be used in the case of the targeted mandates where a different approach is required.

Traditional approaches to asset allocation employ various optimisation methods including mean variance optimisation (Markowitz, 1951), rescaled mean variance optimisation (Michaud 1998) and Black-Litterman (Litterman, 2003). The common characteristic of all these processes is identifying through analytic and Monte Carlo processes a number of specific asset allocations that are optimal or close to optimal in having higher expected return per unit of risk.

Applying this approach to sustainable strategies seems inherently flawed. The robustness of the assumption setting can be challenged, given the relatively limited amount of empirical data on which to base it. However, some quantitative support can be employed with respect to risk control. The process the author suggests develops allocations based on qualitative beliefs and quantitative risk control.

As for integrated ESG, the process starts with a specimen of the mandate. In **Tables 12 and 13** we give examples of suitable illustrative parameters. However, the narrowing of the opportunity set of sustainability mandates leads to the consideration of the tracking error of the sustainability mandate relative to a mainstream benchmark index.

The beliefs process will give rise to an expected return and risk for the mandate. This can be the central basis for determining an appropriate allocation through the conventional optimisation process. But the levels of uncertainty attaching to the expected return belief make this approach susceptible to error. In particular the approach is especially vulnerable to outside criticism.

While the estimation process for return parameters are not that satisfactory, the estimation process for risk parameters leads to more robust results. In Appendix II we show the results of analysing 99 sustainability indices against the world index. The relative performance of these indices is not stable over time. Their differences in style produce significant inter-temporal effects which make projections difficult. On the other hand, their risk characteristics are more stable and can give rise to robust assumptions for modelling purposes.

In the mandate descriptions we suggest that the tracking error of such mandates is set in the 5% to 10% per annum interval. Such a figure can be refined on a case-by-case basis. There are several inputs that can help reach a settled figure that meets both the fund's and manager's requirements. This would involve considering past results and tracking measures, risk modelling applied to the current and previous portfolios and experience of the tracking measures of similar portfolios from other funds and managers.

The critical point is to give an influential position to risk control considering downside risk relative to benchmark. This measure of 'tracking error risk' can be seen as a form of regret risk. This discipline provides some control over the sustainability of the mandate through periods of under-performance. While tracking error considerations may lead managers into undue reliance of the

benchmark index, closet indexing being the extreme case, the tracking errors envisaged in these mandates provide reasonably wide discretions.

The central risk control discipline should be a Value at Risk (VaR) or Conditional Value at Risk (CVaR) measure relative to the mainstream benchmark index. The philosophy behind this is that:

- The beliefs support the strategy as value enhancing (involving higher expected returns and or lower risks overall)
- It is not possible to make a robust estimate of the out-performance to be expected but it is possible to estimate the downside under-performance risk of this strategy, on its own, and more importantly how it affects the overall fund
- The allocation should be positioned by assessing the 'sustainability' of the strategy through various performance cycles (where 'sustainability' in this context is the capacity of the fiduciaries to ride out periodic performance issues)
- The allocation should reflect conviction – higher convictions in the beliefs underling the strategy would allow the threshold – the strategy norm - to be set a higher point; stronger governance would do the same; so would the degree of conviction coming from the mission statement.

This threshold could be reached used some form of heuristic reflecting 'conviction points'. The points considered in assessing the threshold reflect the mission, beliefs and governance which together build the conviction to a strategy norm. The author puts forward a possible scale below.

Conviction points system for determining risk threshold for targeted ESG			
One point		**Two points**	
Strong governance		Strong governance and executive team	
Strong conviction in ESG		Very strong conviction in ESG	
Mission includes sustainable element (mission 2)		Mission explicitly includes sustainability goals (mission 3)	

The mandate descriptions involve target tracking error in the interval 5% to 10%. Assuming most strategies would use more than one mandate and manager and would achieve some diversification as a result we set out below some indications for allocation based on conviction points.

Given an allocation of 2% to sustainability mandates, the probability of a shortfall in excess of 20 to 25 basis points relative to the benchmark index (which we suggest as consistent with one point of ESG conviction) is around 5%. The table below expresses the relationships we might put forward for consideration.

Straw-man relationship between conviction and downside risk tolerance		
Allocation to Sustainability Mandates	**Relative overall under-performance at 95th percentile – annual VaR**	**Suggested conviction points threshold for sustaining under-performance**
2%	0.2 - 0.25	1 point - limited conviction in targeted ESG
4%	0.4 - 0.5	2 points – modest conviction in targeted ESG
6%	0.6 - 0.75	3 points - moderate conviction in targeted ESG
8%	0.8 - 1.0	4 points – strong conviction in targeted ESG
10%	1.0 - 1.25	5 points – very strong conviction in targeted ESG

Notes:

1. Indicative only. Funds will differ in their approach and these parameters would be varied by context
2. The key input assumption is the tracking error of the targeted ESG strategy which is formed from a combination of mandates with assumed tracking errors of between 5% and 10%. In the table the tracking error of the combination is assumed to be between 6% and 7½% (reflecting diversification benefits)

The likely results of the process are given in the table below considering a range of different institutional funds.

Straw-man allocations to Sustainability Mandates			
Fund characteristics	'Conviction points' to ESG	Allocations to integrated ESG	Allocations to targeted ESG
Corporate pension fund with mid-level governance	0	Nil	Nil
Corporate pension fund with strong governance and beliefs in ESG	1-2	Up to 50% of assets	Up to 4%
Public pension fund with dual mission	2-3	Up to 75% of assets	Up to 6%
Sovereign wealth fund	0-4	Up to 75% of assets	Up to 8%
DC fund choice based on member self-select with environmental identity	2-4	Up to 50% of assets	Up to 8%

Note: approximate guidance to targets only; funds will tend to reach their targets slowly
Conviction points are based on assessment of mission, sustainability beliefs and governance

While the principal discipline to be used is based on beliefs and downside risk, there should be additional factors that will be involved which are common to any new allocation. Considerations of the overall risk budget, management costs and liquidity are the most significant. An important measure will

be to consider the overall risk (relative to liabilities where appropriate) for the whole fund with and without the sustainability. Most funds that commit to targeted sustainability in the high single digits would expect the overall risk impact to be very slight. In **Table 14** we set out the process alongside the mainstream process which highlights considerable overlap in items, but some important differences.

In summary, we suggest that the process of deciding sustainability allocations cannot be a precise one; the limited empirical base-line for assumption-setting and the newness of current strategies makes this inevitable. However, there is a pragmatic process that can be successfully followed by combining a robust set of beliefs with a downside risk discipline.

VI. MONITORING FRAMEWORK

A monitoring framework that reviews the experience and outcomes of the asset allocation process and makes periodic adjustments is critical to any investment arrangement. Part of the process will involve revisiting beliefs which are convictions of relative likelihood rather than absolute certainty. This process of revision is essentially Bayesian adjusting assumptions to reflect new experience (Urwin et al, 2001). As the sustainability field is still developing, the influence of new experience is likely to be more influential over time than in other areas where a greater body of empirical results and experience can be drawn upon.

The influence of feedback is particularly important as the decisions need greater justification in pure financial terms. The critical components of effective monitoring are:

- Quantification of the financial outcomes, both in terms of return and risk with respect to accepted benchmarks; results both with and without sustainability mandates should be considered
- Quantification and narrative relating to the extra-financial outcomes. The diverse nature of the extra-financial mission makes this less easy structured and more problematic than for the financial mission – but its importance to the process is just as strong.

The most critical function of monitoring is that funds that have correctly assessed the performance potential of an effective sustainable long-term strategy irrespective of shorter-term under-performance. Clearly there are dangers that a sustainable strategy will prove unsustainable in such circumstances. The scenario that is referred to is inappropriate termination of managers or sustainable mandates in such circumstances.

The key protection for a fund from making errors in termination is making sure the monitoring considers future expected performance and does not just rely on past performance.

The significance of the framework for PRI signatories

We note in section I the growing force of responsible investing through funds and managers becoming part of the UN PRI (Principles of Responsible Investing). Funds that adhere to these principles undertake, consistent with their fiduciary duties, to commit to these six principles:

Principles of Responsible Investing (PRI) : source UNEPFI	
1	We will incorporate ESG issues into investment analysis and decision-making processes
2	We will be active owners and incorporate ESG issues into our ownership policies and practices
3	We will seek appropriate disclosure on ESG issues by the entities in which we invest
4	We will promote acceptance and implementation of the Principles within the investment industry
5	We will work together to enhance our effectiveness in implementing the Principles
6	We will each report on our activities and progress towards implementing the Principles

The relevance of this paper to PRI adherence arises in two areas

- The allocation framework helps funds with implementation issues under (1) and (2)
- The framework helps both funds and investment managers to demonstrate their adherence to these Principles, so providing support for disclosures on Principle (6) and pressure for disclosures under Principle (3)

While PRI has successfully grown, the significance and influence of current adherence is open to question. Demonstrating the significance of adherence to the Principles is particularly challenging when funds and managers have only used integrated ESG approaches. The key tool currently relied upon to support signatories in their PRI implementation – the annual PRI Reporting and Assessment survey - does not currently request significant data relating to performance data, either financial or extra-financial.

To support a fund's or particularly an asset manager's PRI validation, there are merits in an organisation's reporting to include the performance attribution of ESG influences and the measurement of extra-financial performance (for example, KPI's in carbon, water, environment, labour, social factors).

PRI is a highly influential part of the sustainable investing field. It has been able to produce network effects in which funds collaboration has been beneficial to each other (PRI, 2009; also Guyatt, 2008). The author argues that its positive influence would be further strengthened if the model of signatories' adherence was more substantive and capable of more consistent assessment.

VII. CONCLUSIONS

Sustainable investing continues to suffer from three obstructions; the newness of investment thinking and practice which, in a conservative industry, takes a while to become mainstream; the stringent requirements for 'pure finance' support for the strategies; the lack of accepted process to its adoption, given limited empirical data.

In the author's view, the sustainable investing model advocated is financially superior to traditional investment models. It has the support of solid granite finance standing behind it. It has the collateral support of certain critical benefits that it delivers to society. The fact that it is difficult to implement is the only thing that stands in the way of its widespread adoption. It can be made simpler if funds work to a better framework.

The paper attempts to set a clearer framework for proceeding with sustainable investing strategies. The process put forward concentrates on two components: investment beliefs and downside risk control relative to the mainstream market. The central discipline in allocations to sustainable mandates covers these four points:

- All allocations require the articulation of investment beliefs that present the performance case after risks and costs are taken into account
- Quantification of return estimates is too uncertain for direct use in the allocation process, but quantification of risk estimates can be used
- The allocation should be scaled by reference to conviction reflecting beliefs, governance and mission considerations
- The target limit to the allocation should reflect the *sustainability of the allocation* through a stress test of expected performance cycles.

We promote also the significance of the monitoring process which in addition to informing future iterations of the process must be expanded to report both on the return on the pure financial mission and the extra-financial mission. We see the opportunities for such an expanded monitoring model to play a considerable part in increasing the influence of PRI.

We foresee considerable work ahead in the industry to provide the tools necessary to support this extra-financial accounting – more measures, benchmarks and decision tools are required.

Looking ahead, there are likely to be a number of new factors affecting the allocation processes and results of funds including:

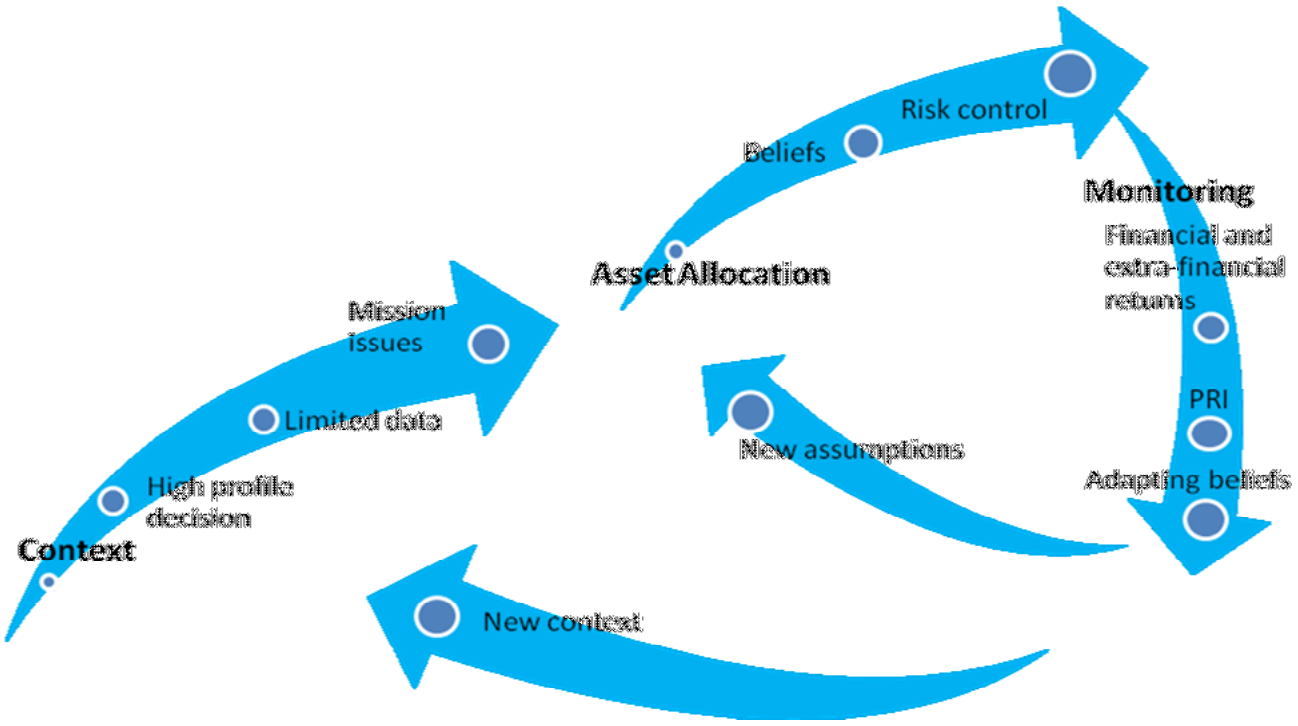
- The leadership of world class funds
- The influence of PRI to converge and leverage strong practice in the area

- Measurement and benchmarking support - this needs to develop
- Board governance – funds have limited experience at present
- Governments – policy influences on markets and institutional funds.

Sustainable investing will take a steadily increasing profile in the institutional funds area given the twin pressures of environmental and social change and the pressures from adverse demography. Current supply and demand conditions apply some constraints because of limited capacity but these will undoubtedly reduce over time. Irrespective of the current landscape, it is worth industry practitioners investing time in the area for the dual reasons of taking opportunities and managing risk.

We put forward in Figure 3 below a 'road-map' for dealing with sustainable allocations. Critical to navigating the terrain is seeing this as a dynamic path in which fresh conditions will present further challenges. Critical to meeting these new challenges is disciplined thinking to produce a compelling proposition both with respect to investment theory and the application of theory to practice. Only if sustainable investing has this 'share of mind' can it achieve its 'share of wallet'.

Figure 3. The sustainable investing road-map



APPENDIX I – TABLES

Table 1 – Examples of Sustainable Strategies among Funds		
Fund	ESG Integration and active ownership	Sustainable mandates
PGGM (Netherlands)	Integrates ESG into research on most asset classes Voting and engagement done directly and through outsourced approach	Responsible equity, microfinance, forestry, renewable energy infrastructure , clean-tech PE Allocation target of around 3%
Pension Fund – Global (Norway)	Integrates ESG considerations into listed equity and real estate portfolios Voting and engagement	Environmental investment programme launched 2009, yet to be invested. Allocation target of around 1%
CalPERS (US)	Voting and engagement Activism approaches	Activist funds (corporate governance) Clean-tech Allocation target of around 2%
Sources: Fund web-sites		

Table 2- Examples of Managers' Sustainable Strategies		
ESG type	Manager type	Typical examples
Integrated ESG	Traditional fund managers with separate 'integration-branded' products	Examples include Schroder and Goldman Sachs Typically overlay sustainability analysis onto existing process, often with emphasis on research from external providers
	Holistic integration of sustainability factors across products and asset classes	Examples include Generation and Robeco Typically incorporate macro sustainability factors into asset allocation, sector and company research
Targeted ESG	Mainstream managers invested in quoted equity sustainability mandates	Examples include Sarasin and Henderson Typically use screening and sustainability assessment to focus investment attention and apply ESG themes
	Boutique managers with sustainability targeted mandates in quoted and unquoted sector	Examples include Impax and Climate Change Capital Typically overlay financial analysis over sustainability themed investment ideas
Sources: Managers		

Table 3 – Integrated and Targeted Sustainable Investing		
Integrated ESG and active ownership mandates	Mandates that adopt an integrated approach to ESG risks and opportunities and pursue influence on their investment through active ownership methods like voting and engagement Widely applied to equity, real estate and infrastructure mandates; also applied to bonds and private equity mandates	- Easier to implement - Lower impact on risk and return - Current uptake moderate and growing
Targeted sustainable investment mandates	Mandates targeting assets which will be beneficiaries of ESG and sustainability trends such as the transition to low-carbon economy, increased environmental regulation , natural resource efficiency, human capital factors; Includes: environmental opportunities, clean tech, clean energy, clean water, clean air, waste, human/ labour rights; Widely applied to equity, private equity, infrastructure mandates; also bonds, commodities including carbon	Harder to implement Larger impact on risk and return Current uptake very low but growing

Table 4: Conventional investment mission compared to sustainable investing (SI) missions ***Adapted from Woods and Urwin, 2010***	
Conventional investment mission (Mission 1)	• Invest trust funds with appropriate risk in order to meet future liabilities to beneficiaries at an efficient cost
SI mission (Mission 2)	• Mission 1 components, plus: • Avoid various risks associated with investment ownership by integrating ESG and active ownership into analysis and decision making • Sustain intergenerational equity by focusing resources and planning on the longer term
Extended SI mission (Mission 3)	• Mission 1 and 2 components, plus: • Achieve certain extra-financial goals, with respect to environmental or social issues (recognising that these might conflict with the financial goals)

Table 5: Comparison of conventional & sustainable (SI) pension fund investment strategies ***Adapted from Woods and Urwin, 2010***	
Conventional investment strategy (Strategy A)	• Investment focus based on short-term benchmarks/ time horizons • High degree of delegation of ownership interests to managers
SI strategy (Strategy B)	• ESG issues integrated into investment decision making and analysis including active ownership • Managers given specific instructions with respect to ESG integration and the exercise of ownership interests • Performance benchmarks and therefore investment focus based on longer-term time horizons
SI extended strategy with targeted investments in sustainable areas (Strategy C)	• Strategy B components, plus: • Investment in environmentally targeted opportunities, such as clean technology ventures and other sustainable themes

Table 6: Clark and Urwin (2008): Core best-practice governance factors for pension funds	
1. Mission clarity	**Clarity of the mission and the underlying values supporting the mission; the commitment of stakeholders to the mission statement**
2. Effective focusing of time	Resourcing each element in the investment process with an appropriate budget considering impact and required capabilities
3. Leadership	Leadership, being evident at the board/investment committee level, with the key role being the investment committee Chairman
4. Strong beliefs	**Strong investment beliefs commanding fund-wide support that align with goals and inform all investment decision making**
5. Risk budget framework	Frame the investment process by reference to a risk budget aligned to goals and incorporates an accurate view of alpha and beta
6. Fit-for-purpose manager line-up	The effective use of external managers, governed by clear mandates, aligned to goals, selected on fit-for-purpose criteria

Table 7: Sample questionnaire on values	
Attribute weightings for the different parts of the fund's mission	**100 units**
Weighting to the pure financial mission	**x**
Weighting to a wider responsibilities mission	**y**
- 'do no harm'	y_1
- preserve fund's reputation/ satisfy beneficiaries' requirements	y_2
- consider / influence ownership externalities – environmental and social damage	y_3
- contribute to wider stakeholders' interests (community, sustainability, etc)	y_4
Weighting to a specified extra-financial mission(s)	**z**
- produce defined environmental outcomes – reduced carbon, increased clean tech, contribution to biodiversity	z_1
- produce particular social outcomes – labour practice, poverty, community, bio-diversity, health	z_2
- exclude certain ethically challenged investments (e.g. tobacco, pornography, landmines)	z_3

Table 8: Sample questionnaire on investment beliefs supporting sustainable investing	
Source of risk/return	**Related investment belief**
ESG issues	ESG issues influence financial returns and risk over the long term, and should form a part of all investment analysis and decision making
Active ownership	The execution of ownership rights can positively influence the performance and risk of investments over time
Engaged ownership	The active use of engagement with investee companies can enhance the financial performance of an investment over time
Contracts with asset managers	Contracts and fees for the fund's asset managers can be designed to align their long-term interests with those of the fund
Oversight of delegated responsibilities	Appropriate oversight of asset managers' integration of ESG issues into investment analysis can improve its effectiveness
Benefits of activities outweigh the costs	The performance and other benefits of the activities envisaged for integrated ESG and active/ engaged ownership outweigh their costs t
Targeted investment in sustainability mandates	Investment in assets with exposure to ESG factors can produce higher than mainstream risk adjusted returns from both beta and alpha
Long-term investment in sustainable mandates	Longer-term risks of climate change and resource degradation can be offset by investment in environmental opportunities and clean tech
Exploitation of long-term mandate	Certain asset classes/ opportunities can be selectively exploited by the fund given the comparative advantage it has in its long-term mandate
Preservation of intergenerational equity among beneficiaries	The fund's strategic choices should be optimised for both present and future beneficiaries, by the use of a strategic journey plan covering funding and risk

Table 9: Sample sustainable (SI) mission statements: SI mission (Mission 2); extended SI mission (Mission 3) *Adapted from Woods and Urwin, 2010*		
Type of mission	**Sample mission statement wording**	**Value created if mission is implemented successfully**
Financial mission (for all Missions)	Create value for beneficiaries at appropriate levels of risk through investment practices and decisions	Net financial returns in excess of liabilities allowing for risk
ESG mission (for Missions 2 and 3)	Manage certain extra-financial risks by integrating ESG assessment into investment practices/ decisions	Net financial returns from risk mitigation; non-financial returns
Ownership mission (for Missions 2 and 3)	Manage ownership risks through exercising voting and/or engagement with investee companies on ESG	Net financial returns from risk mitigation; non-financial returns
Long-term mission (for Missions 2 and 3)	Create value by exploiting the long-term mandate of fund avoiding inefficiencies in short-term behaviours	Net financial returns over long-term allowing for risks and costs
Intergenerational equity mission (for Missions 2 and 3)	Ensure value is sustained for current and future generations of beneficiaries by investment practices and decisions that focus on planning ahead	Net financial returns to successive generations of beneficiaries
Extra-financial mission (Mission 3)	Create extra-financial value for beneficiaries (and other stakeholders) by investing in ESG-related opportunities	Non-financial returns to explicit wider missions

Table 10 – Example of Values, Beliefs and Norms outline
Source: PGGM Annual Responsible Investing Report 2008
Values
Generating a high and stable return through investing responsibly, tight (risk) control of the portfolio, extra return through innovative investment strategies. As an institutional investor, we have a social responsibility
Identity as a fundamental value: people working in the care and welfare sector attach great importance to the way in which their pension contributions are invested. They want to contribute to developments which have a positive impact on the environment and the social character of our society, both in the Netherlands and abroad
Beliefs
Cost-efficiency can have a significant impact over the years
Exploitation of our strength as a long-term investor, where given our fund's long-term horizon, we can afford to accept some investment risk in exchange for extra return
We believe that financial and social returns are compatible objectives and responsible investment pays. Good corporate governance and sustainable investment are central to our operations
In order to strengthen our own engagement activities we participate actively in various associations and work closely with other large institutional investors, for example in order to lend more weight to our message
Norms
Current goals: • *more investments focusing specifically on aspects of responsible investment in the existing strategy* • *wider coverage under exclusions policy* • *higher voting percentage* • *more self-initiated dialogue* • *greater transparency on policy and results*
The aim of the Responsible Investment Policy is to make responsible investment an integral part of our investment covering: human rights, weapons, good corporate governance, climate change and health.
Euro 2.5bn or 3.3% in targeted ESG areas
Voting, engagement, exclusions, legal proceeding including class actions
Transparency of Responsible Investment Policy critical
Active Participation in UN PRI including ICGN,CII, ACGA and IIGCC and others

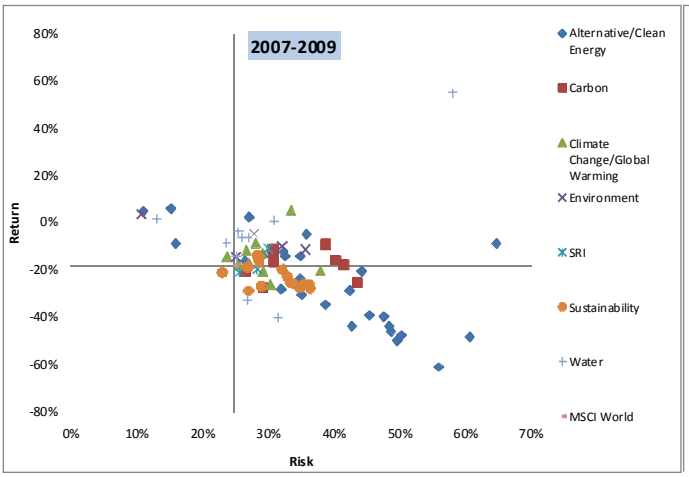
Table 11 – Sample description of integrated ESG mandate across public equity markets		
Asset types	Listed equities	
Universe	World Index	
ESG exposures	The manager should assess ESG factors in their investment process, take an active ownership role, report on their ESG and active ownership role and actions	
Performance benchmark	World Index	CPI. Comparison also with World Index
Performance and risk targets	Index + 1% pa over rolling 3 year periods Tracking error of 4% pa 3 year shortfall risk	CPI + 6% p.a. over 5-10 year periods Volatility 18% 3 year shortfall risk

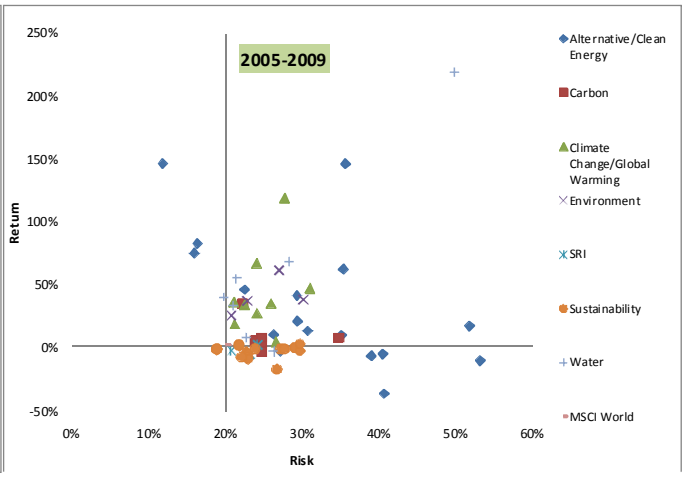
Table 12 – Sample description of targeted ESG mandate across public equity markets		
Asset types	Listed equities	
Universe	World Index with ESG factor exposures - any business with >20% of revenue / capital coming from environmental technology - any business with strong social S exposure - any business employing abnormal G exposure	
ESG exposures	Integrated view of ESG, described in mandate, subject to prescribed reporting and fund oversight	
Performance benchmark	World Index	CPI. Comparison also with World Index
Performance and risk targets	Index + 2% pa over rolling 3 year periods Tracking error of 8% pa 3 year shortfall risk	CPI + 7% p.a. over 5-10 year periods Volatility 24% pa 3 year shortfall risk

Table 13 – Sample description of targeted sustainability mandate investing in ESG themes across public and private markets		
Asset types	Listed equities, private equity, infrastructure, green property, carbon trading	
Universe	Any business with >20% of revenue / capital coming from environmental technology. Maximum of 70% in private markets	
Performance benchmark	Composite Index from underlying pieces	CPI. Comparison also with World Index
Performance and risk targets	Index + 1.5% pa Tracking error of 8% pa 3 year shortfall risk	CPI + 5% p.a. over 10 year period. Volatility 15% pa 3 year shortfall risk

Table 14 – Processes for allocation to asset classes and to sustainable investing		
	Mainstream asset allocation process	Sustainable allocation process
Strategic goals	Consider return and risk objectives based on strategic goals (purpose of fund, liabilities, other needs, risk appetite)	Consider sustainable mission elements (RI, long-term, intergenerational equity) and extra-financial goals
Asset Classes	Determine the Asset Classes Exclude Asset Classes restricted by policy or governance considerations	Consider Targeted ESG/ Sustainability Mandates in choices
Asset Class Assumptions	Adopt beliefs and consider macro framework for investing Review historical data and decide expected returns, volatility, correlations	Adopt beliefs to support sustainability Assess Targeted ESG through ESG beta and alpha assumptions for Sustainability Mandates
Primary test	Optimisation of whole fund risk budget Consider various close to optimal allocations	Consider risk threshold for sustainable strategy
Ancillary test	Consider fund's ancillary issues: liquidity, scope for shorting, stress test/ shortfall risk, cost budgets, governance	Consider impact on whole fund risk budget, cost budgets, governance, availability, capacity
Allocation	Combine the tests to decide SAA	Combine the tests to decide Targeted ESG exposures

APPENDIX II – REVIEW OF ESG INDEX BENCHMARKS





Performance for 5 years 2005-2009	FTSE4Good Global Index	FTSE Environmental Opportunities All-Share	DJ World Sustainability Index	FTSE KLD 400 Social Index
Annual Relative Return	-0.15%	4.91%	0.41%	0.35%
Annual Risk	21.20%	23.40%	22.26%	24.33%
Correlation with MSCI World	0.98	0.95	0.96	0.85
Tracking error vs MSCI World	4.42%	7.22%	6.53%	12.86%
Beta vs MSCI World	1.01	1.09	1.04	1.01

Source: MSCI Barra calculations

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