



Chapter forthcoming in Handbook of System-Level Investing

A real economy approach to integrated investing and portfolio management

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Abstract

How to invest for great financial and societal outcomes? Universal asset owners, like pension funds, play an allocational role in the real economy. At the same time, their long-run performance depends on a flourishing economy, underpinned by a thriving, liveable world. Recognizing this two-way economic dependence, this chapter develops a two-step approach for asset allocation in an integrated portfolio.

In the first step, a company's social and environmental impact is measured to determine its capacity to be future-proof. In the second step, an integrated portfolio is built with positive-impact companies and negative-impact companies that can and want to improve. The real economy approach enables universal asset owners to accelerate the transition reducing social and environmental system risks.

1. Introduction

Universal asset owners such as pension funds play a crucial capital allocation role in the real economy. With their investment choices, they can make or break the future of individual companies, real estate deals and infrastructure projects. Their choices affect the pathways of countries' and sectors' future economic and societal performance. And this relation is a two-way street: asset owners are not only important in achieving and maintaining flourishing economies, but their long-term performance also depends on having flourishing economies in the future. In a symbiotic relationship, pension funds can pay a good pension in a thriving, livable world exactly because their investments have contributed to that thriving, livable world.

We started thinking about the link between investments and the real economy in our work at pension funds and asset managers. Despite all the sustainability frameworks, ESG datasets, and other efforts, we felt we weren't really investing in a way that recognizes and strengthens this symbiotic relationship. Even worse, this crucial point was consistently missed over the last half century of financial engineering. Financial markets were treated as places where asset owners came to optimize the expected risk-return of their portfolios while having close to zero agency. Modern portfolio theory and its asset pricing models, such as the Capital Asset Pricing Model (CAPM) and Arbitrage Pricing Theory (APT), treat Environmental, Social and Governance (ESG) risks (and much that happens in the wider world outside the capital markets) as exogenous. They reduce risk to the statistics of what happens to be easily measurable: historical returns. Sophisticated econometrics translates those historical returns in factor exposures, providing a good cover for what is essentially an extremely narrow view of risk. Tragically, most financial market participants have come to believe and accept that view, or they at least behave as if they do. In contrast, system-level investing treats social and environmental disturbances as endogenous systemic risks that cascade in the economy and related capital markets. It explicitly recognizes that investment choices today matter for the economy and society of tomorrow.

But how can we make this recognition practical? This is far from trivial. After all, it implies a break from current practices: different goals and different assumptions with regard to our agency with respect to risk, returns, societal impacts, and their interdependencies. This represents a major challenge: how do we bring the symbiotic relationship between pension funds and society to life in an investment strategy? How do we select securities and other investments to build a portfolio that generates good financial results while enabling good societal outcomes as well? We have first-hand experience with designing solutions to these challenges for pension funds (e.g. Pension Fund for Healthcare and Wellbeing - PFZW) and asset managers (e.g. Robeco, Schroders).

This chapter presents a real economy approach to integrated investing that aims to answer two fundamental questions:

- (1) To what extent do companies contribute to a healthy future economy?
- (2) How can investors build an integrated portfolio – using forward-looking indicators on companies – to attain such a future economy?

The first step is to assess companies on their creation of integrated value, which combines financial, social and environmental value. We developed the integrated value framework from the recognition that the long-term value of a company is not only determined by its financial performance but also by its ability to solve societal problems.² The innovation on earlier concepts like social license to operate is that we are able to include all three components (financial, social and environmental) in a company's valuation. Ideally, company management steers on integrated value (i.e., not only aims for financial value creation but also for societal value creation). In the second step, investors can use these financial, social and environmental indicators to build a diversified portfolio. Investors can do so by allocating capital to a mix of positive impact companies, impact-neutral companies and negative impact companies that can and want to improve. The underlying belief is that universal asset owners can in this way create long-term value and thus play their part in steering the future economy on a healthy path.

The main challenge is mental. Can we shift mindsets from financial-only value to integrated value? And do we dare to use these forward-looking indicators for social and environmental impact to build integrated portfolios? The good news is that we can still employ modern portfolio theory for building diversified and integrated portfolios. The only change is that we move from 2D (risk-return) investing to 3D (risk-return-impact) investing, as Dutch pension fund manager PGGM is doing for PFZW.

This chapter is organized as follows. The next section takes a step back and discusses the problem of chasing the wrong goal. We then proceed by presenting solutions at two levels: first at the company level, then at the portfolio level. We finish with lessons learned and some generalized takeaways.

2. The problem: from shifting goals to shifting approaches

Society is facing serious social and environmental challenges. To guide the transition towards a sustainable and inclusive economy, the United Nations has developed the Sustainable Development Goals (SDGs). These goals are set at the levels of the economy, the society and the environment (see Figure 1). The classical division of labor is that the government takes

² Schoenmaker and Schramade (2023), *Corporate Finance for Long-Term Value*, Springer.

care of social and environmental externalities and companies focus on economic production.³ However, the notion that addressing externalities is exclusively a task and responsibility for government, is increasingly being questioned.⁴ While production has grown at an average rate of about three percent over the last decades (World Bank), progress on social and ecological goals is falling behind and most of the UN SDGs will not be met by 2030. Hart and Zingales⁵ argue that externalities cannot be fully separated from production decisions. In the case of non-separable activities, profit and damage are inextricably connected for technological reasons. Companies thus face a choice in the degree of sustainability in their business model.

In corporate governance, principals set the objective of the company. Investors (in tandem with other stakeholders) can choose to include social and environmental interests in the company's goal function. In fact, this is quite common outside the US. Moreover, a recent insight is that universal asset owners have an incentive to include these interests, as their long-term performance depend on the future state of the economy.⁶

Let's explain the intuition behind this argument with Figure 1, which shows that economies and societies can be seen as embedded parts of the environment. A livable planet is a precondition or foundation for humankind to thrive. Next, we need a cohesive and inclusive society to organize production and consumption in order to ensure enduring prosperity for all. In their seminal book *Why nations fail*, Acemoglu and Robinson show that political institutions that promote inclusiveness generate prosperity. Inclusiveness allows everyone to participate in economic opportunities.

³ Jensen (2002), 'Value maximization, stakeholder theory, and the corporate objective function', *Business Ethics Quarterly*, 12(2).

⁴ Stoelhorst and Vishwanathan, (2024), 'Beyond primacy: A stakeholder theory of corporate governance', *Academy of Management Review*, 49(1).

⁵ Hart and Zingales (2017), 'Companies should maximize shareholder welfare not market value', *Journal of Law, Finance, and Accounting*, 2(2).

⁶ Quigley (2025), 'Universal Ownership in Practice: A Practical Guide for Asset Owners', Available at SSRN.

Figure 1: Interlinkages between economic, social and environmental systems

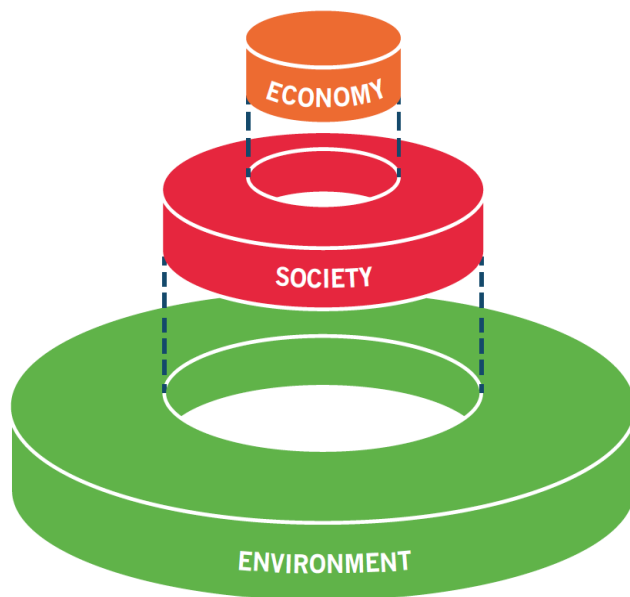


Figure 1 shows that societies need to set goals at all three levels to ensure a flourishing economy in the future. The problem is that the majority of current investment approaches continue to pursue only financial value, often in a way that comes at the expense of social and environmental value. Table 1 summarizes the main sustainable investment approaches.

Table 1: Sustainable investment approaches

Investment approach	Risk	Goal	Role of social and ecological issues
ESG integration	Exogenous	Financial value	Risk factor to financial returns
System-level investing	Endogenous	Financial value	Indirect goal: means by which to ensure financial returns
Integrated investing	Endogenous	Integrated value	Part of the goal function

Whereas ESG integration looks at social and environmental risks affecting financial returns (treating ESG risk to systems, rather than the particular enterprise, as exogenous), system-level investing looks at companies affecting economic, social and environmental systems (treating systemic risks as endogenous), thereby improving expected long-term financial returns.⁷ System-level investing is a very welcome improvement on leading asset pricing models, which treat risk as exogenous. The system-level perspective acknowledges the need

⁷ Lukomnik and Hawley (2021), *Moving beyond modern portfolio theory: Investing that matters*, Routledge.

for healthy systems for financial reasons, but in its application by many investors the goal remains still seems to be that of maximizing financial value.

In line with the SDGs, we apply the measure of integrated value, which combines financial, social and environmental value.⁸ To achieve long-term value creation, companies (and their investors) need to perform at all three levels. In that way, they can futureproof their business model for a sustainable economy. This may imply that some companies have to give up short-term financial return to invest in social and environmental solutions. System-level investing and integrated investing are complimentary in their plea for healthy social and environmental systems. The route is different: system-level investing takes an indirect route towards social and ecological issues (with long-term financial returns as end-goal), whereas integrated investing adopts a direct route towards addressing social and ecological issues. However, integrated investment still recognizes that institutional investors need a strongly positive financial return to meet their beneficiaries' requirements. And both approaches need to balance short-term and long-term results. System-level investing and integrated investing can thus result in similar priorities and portfolios.

Let's illustrate the dilemma between short-term and long-term with our case study of Inditex (below). As a fast fashion company, Inditex may move to slow fashion with, for example, a rental model for their clothing, resulting in less turnover in collections. This reduces cash flows in the short term but puts Inditex to the forefront (achieving long-term financial return) if and when social and environmental externalities are internalized in the fashion industry.

3. Solutions based on integrated value

The real economy approach starts with companies operating in the real economy. We build on our new integrated value measure that aids companies in futureproofing their business models. The social and environmental value components reflect societal impact. Universal asset owners can then rank companies on impact and build a diversified portfolio with positive impact companies, impact-neutral companies and negative impact companies that can and want to improve their impact.

3.1 Company level solution: Futureproofing business models

Sustainability challenges put the economy in transition. On the environmental side, climate change and biodiversity loss are asking for new solutions. On the social front, social inequalities and poor labor practices in the supply chain are under pressure. Companies need to adapt to these transitions by changing (i.e., futureproofing) their business model.⁹

⁸ Schoenmaker and Schramade (2023), *Corporate Finance for Long-Term Value*, Springer.

⁹ Kurznack, Schoenmaker and Schramade (2021), 'A model of long-term value creation', *Journal of Sustainable Finance & Investment*.

Sustainability transitions can thus have a major impact on company valuation. The traditional view holds that stock prices reflect rational expectations of future cash flows. But transitions are only partially priced in and therefore not very visible in market-based valuation ratios, as the number of analysts paying attention to sustainability factors is still limited and subject to learning.¹⁰ Moreover, there is evidence that markets historically over-discount future cash flows, providing evidence of short-termism.¹¹ Future transitions and externalities are thus not adequately quantified or captured in the structure of existing valuation methods.

To capture these effects, company valuation can be broadened from narrow financial valuation to broad integrated valuation. We have developed the concept of integrated value IV_i of company i , that combines financial value FV , social value SV , and environmental value EV :¹²

$$IV_i = FV_i + SV_i + EV_i \quad (1)$$

Recent advances in impact accounting and valuation enable companies to measure social and environmental effects and monetize these via welfare-based pricing techniques. Chapter 11 of our textbook *Corporate for Long-Term Value* contains a company case-study of the integrated valuation of Inditex. The fast fashion industry faces major social and environmental challenges, such as pollution and the exploitation of workers. Since the industry is characterized by high levels of outsourcing, those challenges tend to be hidden down the supply chain.

This case-study shows how the social and environmental value can be calculated in four steps:

1. **Materiality assessment** - determine important social and environmental factors;
2. **Quantification** - express these factors in their own units Q;
3. **Monetization** - express these factors in money with shadow prices SP; and
4. **Valuation** - discount value flows (Q*SP) to achieve SV and EV.

Table 2 shows the integrated value calculation for Inditex. The integrated value of €42 billion is about half of its financial value of €79 billion. The positive social value is driven by consumer surplus, employment wellbeing and corporate taxes. The negative social value is caused by poor labor conditions and underpayment in Asian garment factories. The negative environmental value is based on environmental pollution caused by how suppliers grow cotton, garment production, burning of out-of-fashion collections and transport from Asia to

¹⁰ Lo (2017), *Adaptive markets: Financial evolution at the speed of light*, Princeton University Press.

¹¹ Davies, Haldane, Nielsen, and Pezzini (2014), 'Measuring the costs of short-termism', *Journal of Financial Stability*, 12

¹² Schoenmaker and Schramade (2023), *Corporate Finance for Long-Term Value*, Springer.

Europe and North America. While these numbers are very rough estimates, they do give a clear indication of the health (or lack thereof) of Inditex's business model.

Table 2. Components of integrated value for Inditex (Euro billions, 2021)

Integrated value calculation (equal weights)	Value (Euro billions)
Financial value (enterprise value)	79
Positive social value	283
Negative social value	-137
Negative environmental value	-183
Integrated value	42

Source: Schoenmaker and Schramade (2023), *Corporate Finance for Long-Term Value*, Chapter 11

Integrated value is the basis for a new relative valuation model, called the futureproofing ratio.¹³ The futureproofing ratio is defined as the ratio of integrated value IV to financial value FV :

$$\text{Futureproofing ratio} = IV/FV \quad (2)$$

The futureproofing ratio measures the net social and environmental externalities in relation to financial value. To better understand the working of the futureproofing ratio, it is useful to disentangle the net externalities in positive social and environmental value (SV^+ , EV^+) and negative social and environmental value (SV^- , EV^-). Both can be expressed in ratios versus FV as well.

The transition opportunity ratio is defined as positive social and environmental value (SV^+ , EV^+) divided by financial value FV .

$$\text{Transition opportunity ratio} = (SV^+ + EV^+)/FV \quad (3)$$

The positive social and environmental externalities represent transition opportunities for the company, which come into the money when transition shocks happen that cause the positive externalities to be internalized. As discussed before, positive social and environmental value can be a source of long-term value creation. Likewise, the transition risk ratio is defined as negative social and environmental value (SV^- , EV^-) divided by financial value FV :

$$\text{Transition risk ratio} = (|SV^- + EV^-|)/FV \quad (4)$$

¹³ Marijnissen, Schoenmaker and Schramade (2025), 'Futureproofing companies & valuation ratios', Available at SSRN.

Transition risk assesses a company’s vulnerability to transition shocks. The monetized negative social and environmental externalities are an indicator for transition risk, as the company faces high costs when these externalities are internalized. Climate-related financial risk exposures, for example, are on the rise.¹⁴ More than 100 climate lawsuits have been filed per year globally since 2015.

To cast the transition risk ratio as a positive quotient, we take the absolute value of SV^- and EV^- in equation (4). Using equation (1), we can link the three ratios as follows:

$$\text{Futureproofing ratio} = 1 + \text{transition opportunity ratio} - \text{transition risk ratio} \quad (5)$$

These ratios allow us to switch our perspective on risk from a backward-looking perspective based on historical stock data to a forward-looking transition risk perspective. Table 3 summarizes the ratios for Inditex. The futureproofing ratio is 0.58, which is below one. The transition risks exceed the transition opportunities putting Inditex’s business model at risk.

Table 3. Futureproofing ratio of Inditex (2021)

Ratio	Formula	Value
Transition opportunity ratio	$\frac{SV^+ + EV^+}{FV}$	3.58
Transition risk ratio	$\frac{ SV^- + EV^- }{FV}$	4.05
Futureproofing ratio	$\frac{IV}{FV}$	0.53

The futureproofing ratio measures the extent to which a company is prepared for future internalization shocks. A ratio larger than one indicates that a company is relatively well prepared for future internalization shocks and contributes to building the future economy. By contrast, a ratio below one suggests that a company is less able to absorb transition shocks and thus less prepared for the future economy. Further down the range, a ratio below zero means the negative social and ecological value is larger than the company’s financial value, indicating a highly unsustainable business model and a potential inability to withstand significant transition shocks. The value of these latter companies can decline rapidly, turning them into ‘stranded assets’.¹⁵

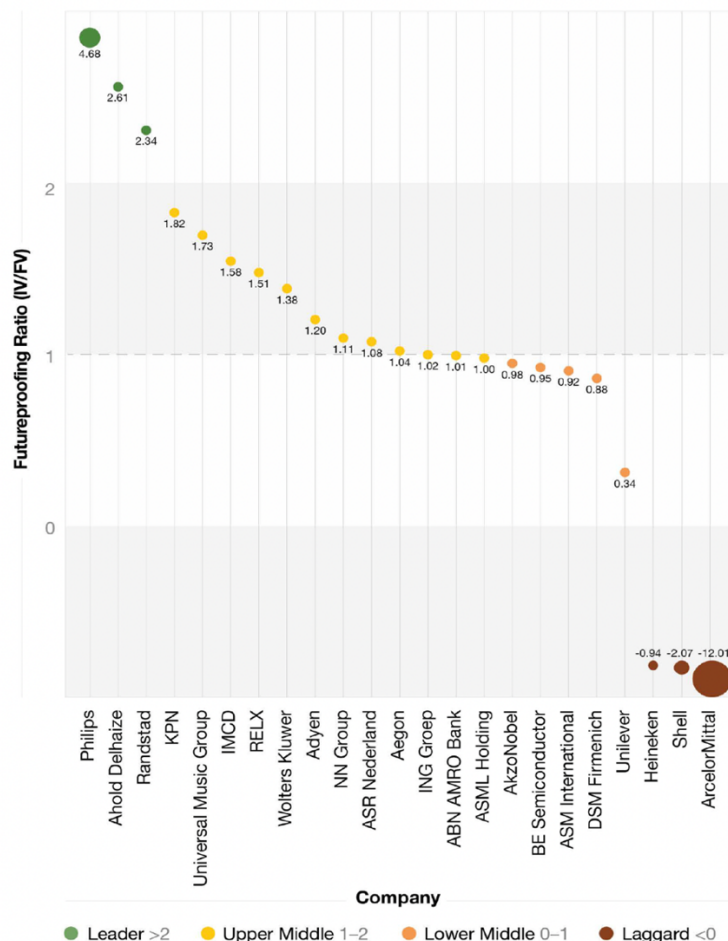
¹⁴ Wetzler, Stuart-Smith and Dibley (2024), ‘Climate risk assessments must engage with the law’, *Science*, 383(6679).

¹⁵ Caldecott, Clark, Koskelo, Mulholland, and Hickey (2021), ‘Stranded assets: environmental drivers, societal challenges, and supervisory responses’, *Annual Review of Environment and Resources*, 46(1).

To show proof of concept, we evaluated 23 companies on the AEX (Dutch) index based on the integrated value methodology.¹⁶ This means calculating the financial, social, and ecological value that each company generates and ranking these companies according to their futureproofing ratio. Figure 2 plots the futureproofing ratios of the AEX companies. Companies are ranked in four buckets according to their futureproofing ratio: leader (>2); upper middle (1-2); lower middle (0-1); laggard (<0). Companies, that are outside the middle range (0-2), are highlighted with a bigger bullet depending on their distance from the neutral futureproofing ratio of one.

It is our hope that this Index will influence the way companies think about creating value for the long-term. The next sub-section discusses how investors can use this methodology to build an integrated portfolio.

Figure 2. Futureproofing ratio ranking of AEX companies



Source: Marijnissen, Schoenmaker and Schramade (2025)

¹⁶ Marijnissen, Schoenmaker and Schramade (2025), 'Futureproofing companies & valuation ratios', Available at SSRN.

3.2 Portfolio level solution: Building an integrated portfolio

Universal asset owners can use the integrated value measure to build an integrated portfolio. We distinguish three phases in building such an integrated portfolio. The first phase is about impact (i.e., the social and environmental value components of the integrated value measure). Universal asset owners determine company impact and decide how to steer on impact by selecting positive impact companies and negative impact companies that can and want to improve.

The second phase is about portfolio risk management. Universal asset owners can add impact-neutral companies to build a diversified and integrated portfolio, balancing factor exposures to their desired weights. In the third phase, they monitor their integrated portfolio continuously with a view to create long-term value and act as steward of long-term capital.

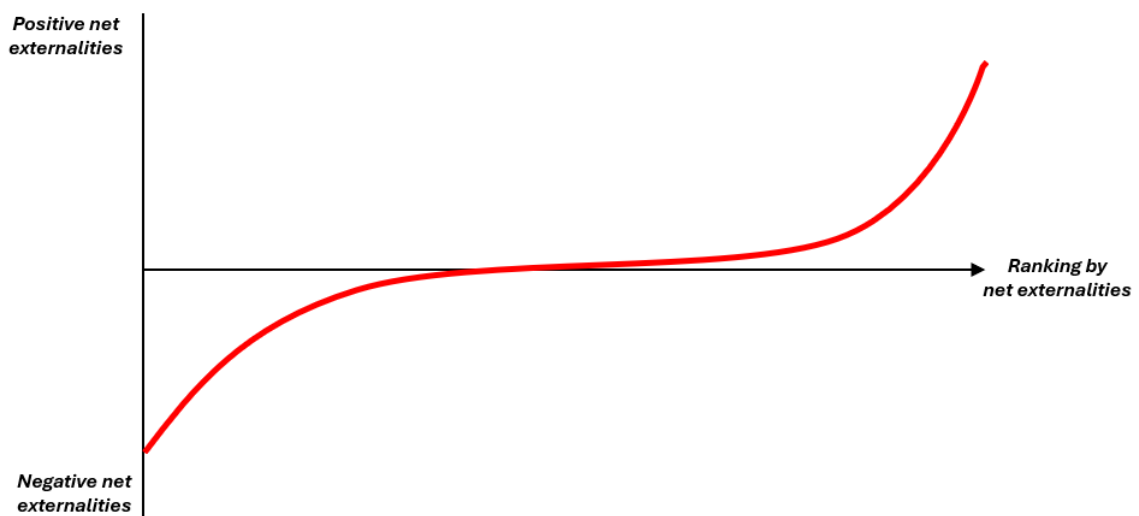
To be practical, we present a five-step approach with the first three steps as part of phase 1 and the final two steps as part of phase 2 and phase 3 respectively:

- (1) Rank and categorize companies on social and environmental exposures;
- (2) Investigate exposures to companies with high transition risks and high transition opportunities;
- (3) Selective reduction in high transition risks and increase in high transition opportunities;
- (4) Optimize risk-return-impact by adding impact-neutral companies;
- (5) Continuous portfolio monitoring to act as stewards of long-term capital.

Step 1: Rank and categorize on social and environmental exposures

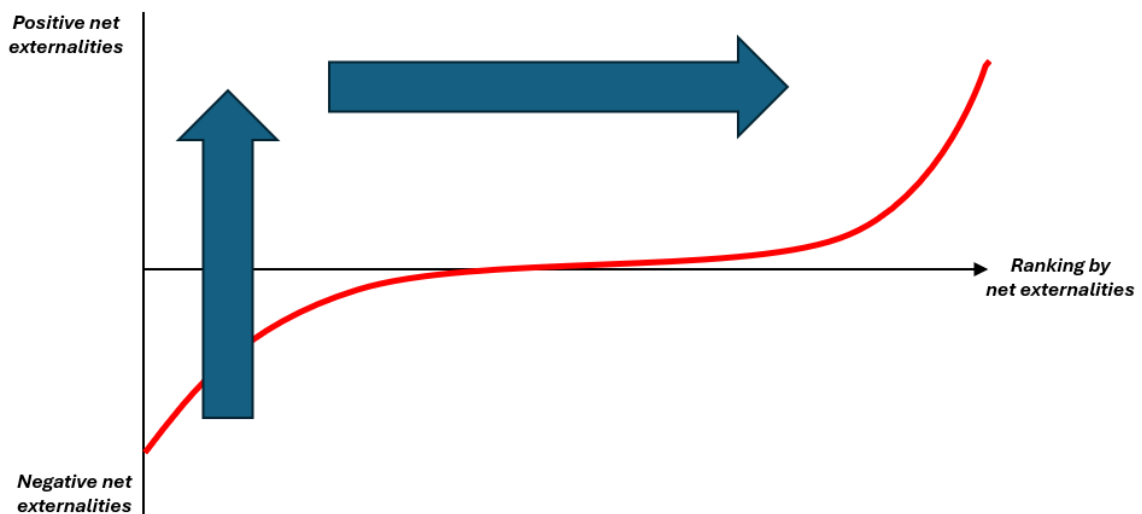
The first step is to rank potential investee companies by their net impact or net externalities. This net impact is calculated with the integrated value measure. Figure 3 shows conceptually how to do the ranking.

Figure 3. Ranking companies by net externalities



Next, Figure 4 shows how to move capital in two ways: (1) reducing negative externalities; and (2) pushing companies across the horizontal axis to improve their net impact. Ideally, asset owners move capital or investment within companies that want to improve their impact. Alternatively, asset owners move capital across companies to those that want to improve their impact.

Figure 4. Moving capital within and across companies



Step 2: Investigate exposures to high transition risk

To make things concrete, we simulate an illustrative universe of 100 companies. The overall parameter settings for the simulation are inspired by our AEX Futureproof Index. Figure 5 plots

our simulated companies ranked on their futureproofing ratio (FR) and Figure 6 ranked on their transition risk ratio (TRR).

Figure 5. Investment universe ranked on Futureproofing Ratio (FR)

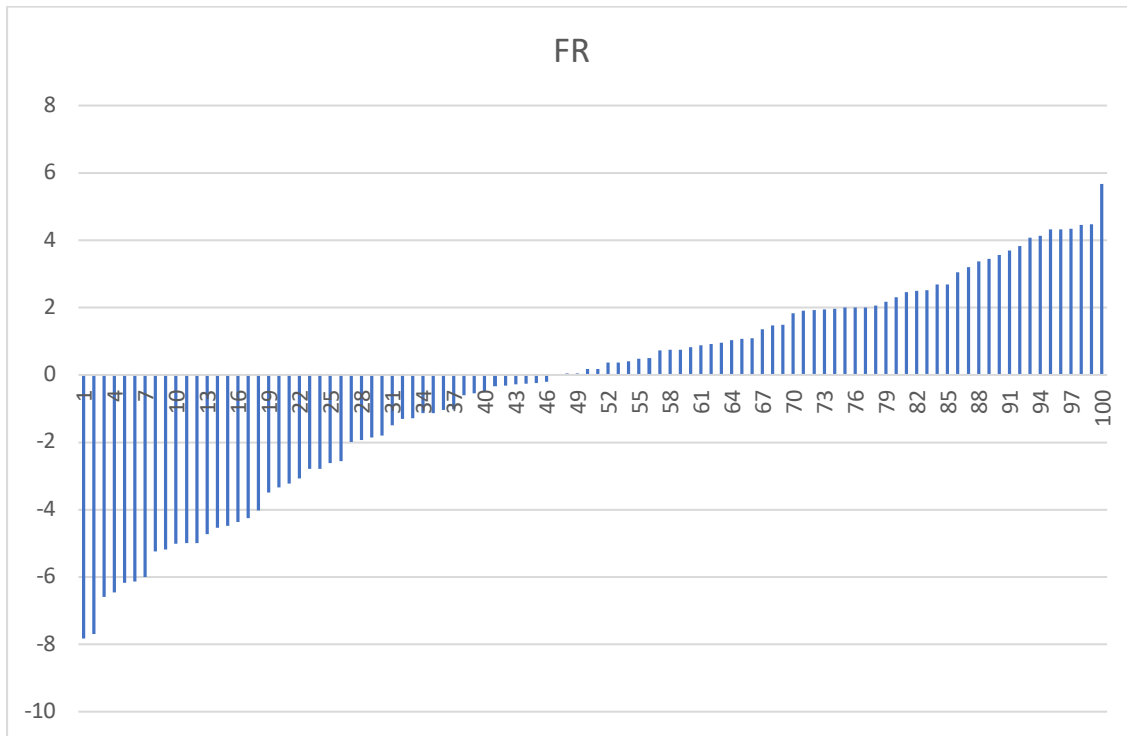
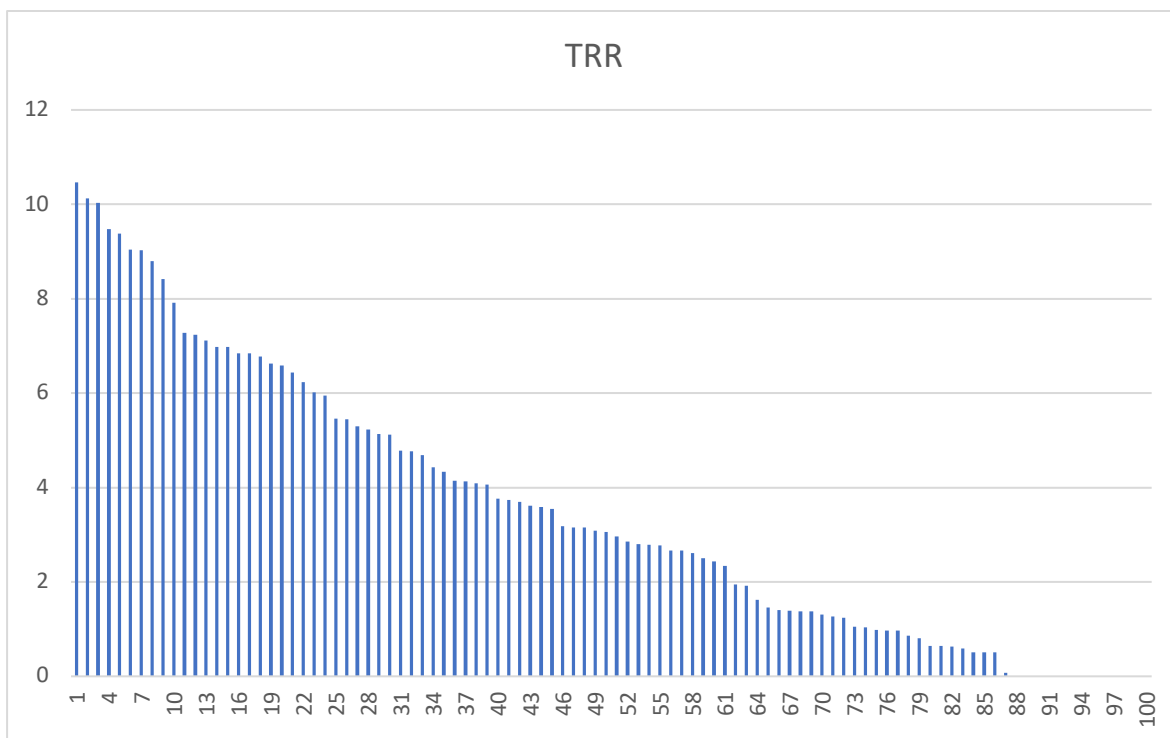
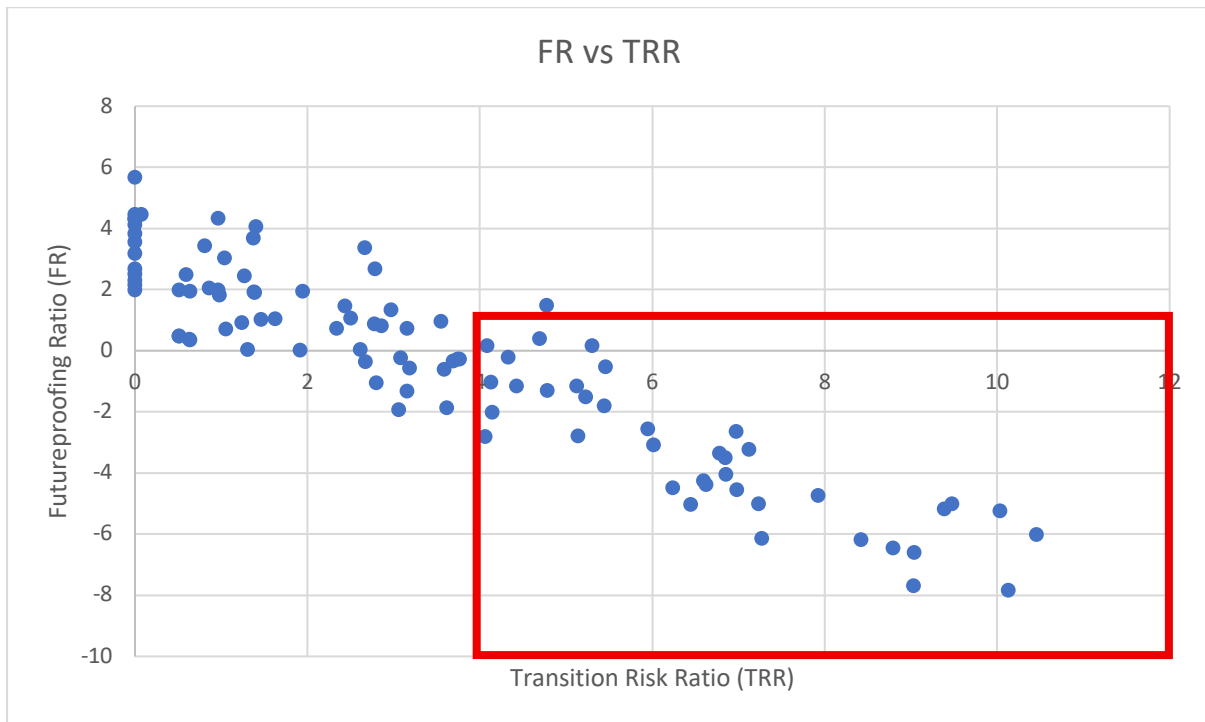


Figure 6. Investment universe ranked on Transition Risk Ratios (TRR)



The final step is to plot the FR against the TRR in Figure 7.

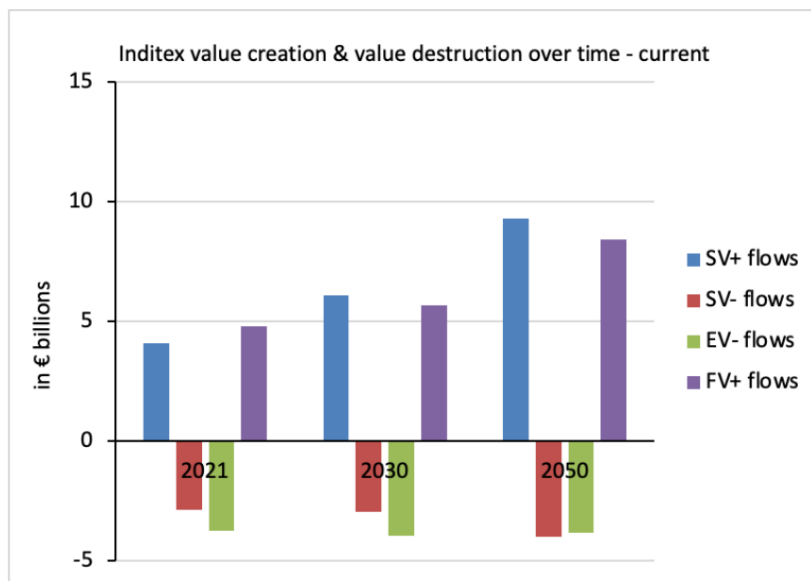
Figure 7. Futureproofing Ratio (FR) against Transition Risk Ratios (TRR)



The bottom-right companies in Figure 7 are high risk. Asset owners can define strict cut-off (binary) rules for high-risk companies or apply multiple shades when determining a list of high-risk companies. These high-risk companies are worth further investigation. The key question is which companies are better positioned than their ratios suggest? Asset owners' analysts can analyze companies' transition pathways, both in an absolute way and relative versus the sector.

Applying this thinking to the Inditex case, we find that Inditex is currently in the bottom right of Figure 7 with a FR of 0.53 and a TRR of 4.05 (see Table 3). Figure 8 shows our estimates of Inditex' value flows at the company's current trajectory. This is unsustainable: the company's improvement efforts are nullified by its volume growth, and its negative social and environmental value flows continue to be very large in 2030 and 2050. This is at odds with a company and an economy within social and planetary boundaries. This is unlikely to be tolerated by society, and hence the company's license to operate will be at risk. Responsible management means that this should be fixed. But how?

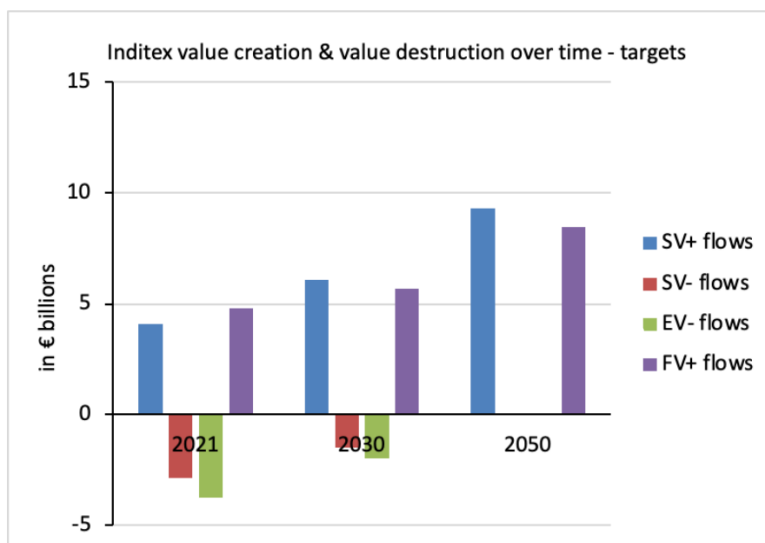
Figure 8: Inditex’s value profile over time – current trajectory



Source: Schoenmaker and Schramade (2023), *Corporate Finance for Long-Term Value*, Chapter 11

We modelled an alternative pathway that does eliminate the negative externalities (see Figure 9), but it requires significant business model change. That business model change would include, for example, lower frequency of new collections; responsible supply chain management with decent pay for suppliers and suppliers’ employees; experiments -and subsequent scaling- of rental clothing and circular production.

Figure 9: Inditex’s value profile over time – ambitious trajectory



Source: Schoenmaker and Schramade (2023), *Corporate Finance for Long-Term Value*, Chapter 11

So, the analyst has to make a judgement whether Inditex is willing to explore and act on these alternative pathways. If positive, the company may be included in the asset owner's portfolio (step 3) with active monitoring and engagement (step 5).

Of course, analysts can also plot FRs against Transition Opportunity Ratios (TOR) to identify companies that asset owners want to invest more in.

Step 3: Selective reduction in exposures to high transition risk

Following the transition risk analysis in step 2, asset owners need to decide which transition risk exposures are acceptable and which aren't. How many exposures can you have with sufficient attention? For which company is it worthwhile to become a committed shareholder that supports the company on its pathway?

Based on this further analysis, asset owners determine the shortlist of high transition risk exposures to keep (and help improve) and the longer list of companies to remove (and potentially of new companies to add). Again, asset owners can accordingly make a shortlist of high transition opportunity companies to keep and expand their holdings in these companies.

The link between firm-level analysis and system-level influence

The first three steps are about impact at the firm-level but when applied at scale, they contribute to significant system-level influence. Let's illustrate how this could work with the energy transition as example. In Step 1, companies are ranked according to their carbon impact (expected future carbon emissions). In Step 2, companies are analyzed on their risks and opportunities. In Step 3, investment choices are made on companies to avoid (high risk; no potential/willingness to improve) and companies to select (transition prepared, or working on transition). The five most affected sectors in the energy transition are 1. energy companies; 2. energy utilities - both on the supply side; and on the demand side 3. transport; 4. manufacturing; and 5. real estate (heating). On the supply side, an integrated investor could select energy companies and utilities that include renewables in their mix or are planning to transition to renewables. On the demand side, this might include car companies that have serious capacity to produce electric vehicles or are willing to build up this capacity. The same applies to low-carbon manufacturing and energy-efficient real estate. These choices, if and when made by several large universal asset owners, would accelerate the transition from fossil fuels to renewables.

The analysis and selection at company-level in Steps 1 to 3 could thus lead to system-level influence. The methodology for assessing company-level integrated value and futureproofing ratios helps to shift system dynamics on the social and environmental front. The integrated

portfolio approach contributes to shaping system conditions, by promoting positive impact companies, improving negative impact-companies and avoiding laggards.

Step 4: Optimize risk-return-impact

Whereas the first three steps focus on social and environmental system risks, we now turn to portfolio risk management to diversify idiosyncratic risk and balance sector and factor exposures. After selecting companies with positive impact and companies with negative impact that can and want to improve in step 3, asset owners have to decide which impact-neutral companies to add to build out a balanced portfolio. Impact-neutral companies are those in the mid-range with a FR between 0.6 and 1.4 in Figure 5. If there are not enough impact-neutral companies within this range, the range (in particular the lower limit) may need to be widened by selecting negative-impact companies, starting from the least negative.

A balanced portfolio is diversified over factors, sectors and countries. This is standard portfolio management. The aim is to build a portfolio that has similar risk-return characteristics as the market. Similar but not identical, which means that the active asset owner has a tracking error against a capital-weighted market index.

The result is a more concentrated portfolio with higher stakes in fewer companies, that you know (know what you own principle) and, of course, can support in steering towards (more) positive impact - and thereby also futureproof the economy. This is the real economy approach towards integrated investing.

There are more formal approaches towards building 3D portfolios optimizing among the three components:

$$\max \alpha\mu + \gamma\theta - \beta\sigma^2 \tag{6}$$

Where an investor maximizes return μ of the investment portfolio by means of factor α , and minimise risk (measured as variance σ^2) by means of factor β . The portfolio impact is denoted as θ , and optimized by means of factor γ .¹⁷ Impact is now incorporated in the goal function. However, this optimizing approach reduces impact to the summary factor γ . As explained, we believe that it is not really possible to collapse a company's business model and real word impact into a single statistic.

A pressing question is how much companies a large universal asset owner needs for a properly diversified portfolio. There are two main portfolio risks. On the one hand, asset owners do not

¹⁷ See, for example, Blitz, Chen, Howard, and Lohre (2024), '3D Investing: Jointly Optimizing Return, Risk, and Sustainability', *Financial Analysts Journal*, 80(3); and Roor, Schoenmaker, and Maas (2025), 'Integrating Transitions and Impact Measurement in SAA', *Journal of Portfolio Management*, 51(9).

want to miss out on positive market developments (FOMO). On the other hand, they want to reduce their exposure to negative market developments (stranded assets). On the first (FOMO), Brøgger, Koëter and Van Dijk find that a portfolio with 500 to 1000 companies provides a large, global investor ample diversification against idiosyncratic risk.¹⁸ On the second (stranded assets), asset owners need to investigate transitions and the transition preparedness of individual companies. Traditional car companies are at risk of becoming a stranded asset in the transition to electric driving. The risk of stranded assets increases with the number of companies in the portfolio. So, the optimal number of companies probably lies somewhere below the 500 to 1000 companies of Brøgger et al (2025).

Step 5: Monitoring portfolio performance and acting as steward

The final step is monitoring portfolio performance. Are companies realizing profit and impact? Are adjustments needed due to a changing environment? It is important that universal asset owners act as stewards of long-term capital. That means supporting companies in good and bad times and steering them on their impact journey through engagement.

But when companies renege on their impact commitments and thus put the long-term relationship at risk, this may be a reason for divestment. This is clearly a tool of last resort. Stewardship means working together on long-term value creation and thereby futureproofing the economy.

4. Lessons learned and takeaways

We have been working over the past ten years developing the integrated value measure for companies and propagating more concentrated portfolios with companies that you know.

Along this journey, we have learned some lessons:

- Use forward-looking risk indicators, not backward-looking data. It is difficult to drive change via the rear-view mirror.
- Look at business models if you really want to learn about your portfolio companies (this is fundamental investing, but not with alpha as the goal). ESG ratings or other summary statistics, which are used in the many asset pricing models, are too superficial and thus not sufficient.
- Focus on material social and environmental issues and don't forget about companies' competitive position (real economy approach).
- Most importantly, get started, even if data are not perfect. We did that with our AEX Futureproof Index, which was illuminating and fun to construct.

¹⁸ Brøgger, Koëter and Van Dijk (2025), 'FOMO in Equity Markets? Concentration Risk in (Sustainable) Investing', Available at SSRN.

We also have some generalized takeaways:

- Capital allocation is at the core of the financial system. Integrated investing aims to allocate capital on positive, or improving, social and environmental impact. This is the power of finance.
- Integrated investing really starts to work if universal asset owners collectively reduce negative social and environmental impact at the same time. There is also a need to engage with negative impact companies that can and want to improve. Again, the power of finance.
- The last and most important takeaway is the need to change mindsets from “market only” to “integrated” investing.

Integrated investing is a powerful way to apply system-level investing. It enables us to assess integrated value and futureproofing ratios at company level. The ultimate aim of this forward-looking assessment, rooted in the real economy, is to shift system dynamics on the social and environmental front. This real economy approach contributes to shaping system conditions, by promoting positive impact companies, improving negative impact-companies and avoiding laggards.

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