BIAS

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To all the believable colleagues at each company I worked with, who consistently challenged and inspired me to continue learning.

Preface

Reflecting on my Fixed Income Investment Process over the past twenty-five years, I recognize the contributions of great colleagues and insightful investment literature. These influences have led to a consistently improved investment performance through time. A structured research process, coupled with technological innovation and an awareness of behavioural biases, sets the stage for another quarter-century in client service.

However, the investment landscape has been evolving; we now consider the real-world impact of the businesses in which we invest since sustainability has become a risk premium. We entered a new secular cycle in investing. Going forward, achieving a balanced outcome of people, planet and performance will drive investment outcome on our way to a more sustainable economic future.

This document highlights the capabilities of modern technology. My original manuscript has been processed using a natural language processing tool, enhancing its readability to resemble a professionally written English book, even though I'm not a native English speaker. Likewise, I believe that investment research also stands to benefit greatly from AI and will be reinvented. Output of these intellectual processes will dramatically increase.

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Introduction

Career Shift in Asset Management

For years, I have been consistently impressed by the scholarly contributions of quantitative researchers at Robeco—some of whom have even authored entire books. During my tenure as CIO at Robeco, my responsibilities prevented me from writing a book of my own, instead I did contribute to numerous videos and whitepapers.

Recently, I opted for a significant career shift. After a refreshing break, I seek a new work environment and the chance to connect with fresh intellectual perspectives. During this transition, I decided to share my Investment Principles, the cornerstone of the first 25-years of my career. These principles have been refined over the years, thanks in large part to the colleagues I have been fortunate to work alongside. I have had the privilege of collaborating with top-tier investment professionals in Sustainability, Quantitative, and Fundamental research—a factor that has proven to be my greatest motivator in striving for organizational and process improvements.

I hope this book serves as a valuable resource for both current market participants and newcomers to the Asset Management industry. My own intellectual journey has been influenced by seminal works and academic papers, including those of Dalio, Graham and Dodd and my colleagues. Balancing academic rigor with quantitative expertise to critically assess fundamental investment processes[1] has always been my passion. Success in this endeavour largely hinges on surrounding oneself with qualified, or as Dalio terms it, "believable" individuals who drive your personal and professional growth.

Many of these believable people I met at the companies I worked for over the last twenty five years. Most important have been my colleagues at Robeco where I spent the biggest part of my career. I have learned a lot from them. In the end asset management is both an analytical as well as a creative industry. It means all the results, ideas and content is developed together with the believable people around you. Up to now, Robeco was the best part of my career. That includes working with senior management who enabled and allowed me to write this book.

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[1] Marks, Howard (2018). Mastering the market cycle, getting the odds on your side. Houghton Mifflin Harcourt. Howard Marks explains what minimum characteristics a good investment process needs to have. Some of these are understanding the business cycles, keep learning and reading. Keep reading other one's work.

Mastering Investment Success

Ultimately, success hinges on effective execution. The principles I have outlined in this book can serve as a framework for organizing one's thoughts and guiding a team. In recent years, my teams have received strong performance reviews from consultants and ratings agencies like Morningstar[2]. However, it is important to remain humble and acknowledging that luck and timing are uncontrollable variables in the equation in the short run.

The skill to consistently outperform the financial market—commonly referred to as 'alpha' in investment circles—is rare. The key lies in overcoming behavioural biases inherent in human decision-making. Certain other elements consistently contribute to generating alpha, including organizational structures that promote repeatable success and the execution of robust research. This 'alpha talent' often mirrors the research acumen found in top financial analysts, whose insights inform many portfolio management decisions. These are skills I deeply admire, particularly given the patience and accounting expertise they require. That's why the first prerequisite for success is assembling a team based on individual competencies rather than ambition or ego or history.

The formula for success in this industry encompasses several factors: mastering behavioural biases, conducting multidisciplinary research that includes a grasp of prevailing global macroeconomic forces, and maintaining self-criticism, humility, and discipline at all times. When the appetite for learning wanes, or when ego and vested interests take precedence, it is game over in this industry.

Discipline and adaptability go hand in hand. While the saying "this time is different" is often misleading, it is crucial to be attuned to slow-moving shifts in the landscape and adapt, such as with respect to the interplay between secular and business cycles.

Sustainability's Investment Impact

A prime example of the need for adaptability is the accelerating shift towards sustainability. Policymakers are reshaping the rules of the game; the days of legalised pollution by companies and production without accountability for negative externalities are behind us.

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[2] Both in terms of becoming a leader in sustainability (https://www.morningstar.nl/nl/news/233608/robeco-wint-morningstar-award-2023-voor-beste-duurzame-fondshuis.aspx) as well as in terms of traditional performance (https://www.morningstar.nl/nl/news/235438/dit-zijn-de-nieuwste-ratingwijzigingen-door-morningstar.aspx) the investment team did very well. Morningstar 2023 Medallist ranking; Robeco Credit Team got awarded all gold medals for the flagship accounts Euro and Global Investment Grade Credit, Euro and Global High Yield and the Multi Factor Quantitative Strategies.

Sustainability is becoming a risk premium and should be fully integrated into investment processes.

In essence, sustainability is the next secular cycle that we all must embrace. The Asset Management industry faces a stark choice: evolve to accommodate this new paradigm or risk obsolescence. The transition to a more sustainable economy is underway, and turning into the era of what I call, the "Portfolio Manager 2.0". The winners of the past are not the winners of the future.

Balancing Structure and Creativity

Another focus of this book is to illustrate the advantages of incorporating structure into an investment process for the benefit of an investment team. While I may have (over-) emphasized this in my career, it's important for me to acknowledge that not everyone thrives in a highly structured environment. Some investment specialists excel at "thinking in exceptions", and their creativity can be a valuable asset to the team. Nevertheless, a structured approach enhances the comparability of output, providing clearer insights into the value of the numerous relative value calls made.

Client Engagement Insights

Engaging with clients compelled me to develop a well-crafted investment strategy and refine my vision. Client interactions were instrumental in sharpening my perspectives, fine-tuning my risk appetite, and reinforcing the importance of transparency. These meetings also underscored the reality that intellectual capital is not confined to one's own organization; there is a wealth of intelligence outside your firm. While this topic lies beyond the scope of this book, I felt it worth mentioning that client interactions have been both a privilege and a joy, even when they made for exhausting weeks during roadshows in Asia or Australia.

Leveraging Technology in Asset Management

Information technology has been a cornerstone in the teams I have managed. While I am not a technology expert, I have learned to embrace technology as a strategic asset. Over the years, I have often emphasized that 'SI is IT' meaning that Sustainable Investing is IT-intensive. Gathering and managing SI data for investment processes presents a significant IT challenge, as do advancements like Artificial Intelligence and working with structured (big) data. Incorporating data scientists into investment teams is becoming increasingly necessary. The Asset Management model is evolving; either costs must be reduced or output increased using existing resources.

Five principles

The book is structured in a straightforward manner, consisting of five chapters that each delve into one of my core Investment Principles. The first chapter tackles behavioural biases, asserting that the presence of irrational human behaviour creates opportunities for active management in our industry. The second chapter explores the concept of mean reversion as a recipe for outperformance, especially for those who reject market efficiency theories and acknowledge behavioural biases. The third chapter emphasizes the importance of understanding Global Macro factors, as both stock and bond selection are influenced by macroeconomic variables. The fourth chapter is a pivotal one; it discusses how sustainability is radically transforming our industry now and in the coming decades. Companies cannot succeed if society fails, and the changing landscape of risk premia will disrupt traditional market theories. The final chapter provides a set of rule-based principles designed to help investors minimize losses. The cornerstone of success in Asset Management is winning by not losing, especially pertinent in Fixed Income. These proven, simple principles offer investors a head start and contribute to long-term predictability in performance outcome, which is valued by clients.

Why "Principles" Matter

Why title this book "Investment Principles" instead of "Investment Rules" or "Guidelines"? I am inspired by the work of Rob van Tulder[3] and Eveline van Mil, who wrote about the Principles of Sustainable Business. Principles focus on values and intentions, not just rules or requirements. They serve as a behavioural guidepost that can be evaluated and adapted over time, much like scientific principles that require testing and validation. These Investment Principles aim to create a cohesive system where each team member has a role to play.

Though my five Principles may seem somewhat unrelated at first glance, they actually form an interlocking puzzle. Each team member must work to fit the pieces together. As the team grows, these principles will prove valuable in fostering a shared understanding of the biases, cycles, and sustainability considerations we need to master for future success.

[3] Tulder van, R. & Mil van, E. (2023). Principles of Sustainable Finance. Routledge. Rob van Tulder was one of the key academics advising me on Sustainability policies last years. By far the best and most comprehensive book on sustainable finance I have ever read.

Five Investment Principles

Investment Principle I; 'Behavioural Biases'

Psychology is where it starts

Financial markets, including fixed income returns, are influenced by variations in risk and liquidity premia. Credit market volatility often exceeds what would be expected based on expected losses. Factors like 'fear and greed' and 'extrapolation' skew expected returns to the present or the future. For example, A-rated corporate bonds show minimal losses over a 10-year period in Moody's statistics. These small losses do not account for the widespread ranges with peaks at 200 basis points in a recession, led alone 300 in a crises. I believe the main driver behind this is 'behavioural biases'.

We often place too much trust in our intuition, leading to overconfidence or even incorrect judgments. This is not a lack of intelligence but rather the result of biases that come into play in complex scenarios. In a complex situation our intuition will make an effort based on feelings and biases to justify and clarify.[4]

Kahneman[5] outlines that our minds are always at work, interpreting the world around us through System I. This quick-thinking system is particularly influential in investment decisions, further fuelled by competitive spirits. Financial markets, filled with intelligent yet ego-driven and competitive individuals, are often dominated by this intuitive System I.

System II, the analytical side, should ideally take the lead but is often sidelined because it demands more effort and is mentally taxing. Kahneman even points out that our memory is not always reliable. System I tends to soften our recollection of past hardships, making it challenging to learn from previous mistakes.

In the intricate field of investment, the dominance of System I is a clear drawback. It is important to note that rational thinking is not synonymous with intelligence. Engaging System II demands mental energy, which is often in short supply. This leads to 'ego

[4] As opposed to a simple situation as when you meet a lion in the street. In that case your first impression like running away is correct. This is different from, understanding a complex situation which needs to activate System II and analysis should be the first step.

[5] Kahneman, D. (2011). Thinking, fast and slow.

depletion[6]', making it even harder to rein in System I. In the following section, I will discuss specific behavioural biases that commonly affect investment professionals.

Priming is a cognitive bias where System I influences System II by altering how information is presented. A well-structured argument can easily sway us. I have seen this firsthand in our Credit Quarterly Outlook meetings over the years. The most compelling presenter is often deemed more 'believable', as Dalio[7] puts it, even when the accuracy of their historical predictions should hold more weight.

The *Halo effect* is a System I effect of emotional presumptive behaviour which makes your brain represent the world in a more simplistic way than it actually is. It also drives the 'What you see is all there is' effect of being lazy by default. This is something that we have seen happening in geopolitical conflicts like the Greek default or large political interfering in bank rescues. The conclusion is that politicians often say different things than they actually mean or do. In order to, for example, manage the public opinion, there often is a difference between words and deeds.

Probability neglect occurs when people overestimate or underestimate the likelihood of an event. In the credit investment field, I have noticed this bias making small risks seem larger than they are. Portfolio managers, fearing significant downside with limited upside, often maintain portfolios with too little beta. In reality, credit downturns are infrequent and typically short-lived. Similarly, credit analysts tend to rate companies' fundamental strength too low due to overestimating unlikely risks. Discussing issuer risk in our credit committees, the forum in which we decided on providing funding to a company, has helped us gain a more accurate understanding of these probabilities.

Overconfidence. This is one of my favourite biases; an outcome bias which causes professionals to look back on decisions and change the probability attached to events ex-post. This makes it very difficult to learn from history. One could have been right for the wrong reasons but justify it because of ego. This is why I always demanded from my investment teams that analysts' views and portfolio managers' top down visions are written down. It forces everyone to be more objective and it greatly helps evaluating performance ex-post.

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[6] Kahneman, D. (2011). Thinking, fast and slow.

[7] Dalio, R. (2017). Principles; Dalio writes about taking the opinion of a specialist first to use in forming your opinion. A specialist that has proven repeatedly and successfully an accomplishment or has a good track record is called a 'believable person'.

As I cannot cover all biases relevant to investing here, I strongly recommend reading works by Kahneman, Thaler, and others. The financial industry mixes various biases like overconfidence, random event justification, reality simplification, and many more. To effectively manage these biases, it is crucial to master one's ego and remain open to the external opinions[8] of believable people.

The rest of this chapter offers three examples of how to tackle behavioural biases. The first discusses using data analysis in our credit committees, the second cites academic work from Robeco's Quant Investing department, and the third addresses self-reflection which is challenging, making it a hurdle for many to leveraging experience into better practices.

Turning discussions into hard data

IT investments at Robeco enabled us to thoroughly analyse our research output. Our team of analysts produced about 500 Credit Research Reports annually, assessing the credit fundamentals of various companies. These reports followed a structured process and presented analysts' credit opinions in a standardized format.

The final assessment was encapsulated in a Fundamental Company Score, or F-score, reflecting the analyst's fundamental credit outlook for the company over the next two years. The reports were organized into five sections: Fundamentals, Strategy, ESG, Structure, and Financials, each ending with its own sub-conclusion.

F-scores ranged from +3 to -3. A positive score indicated a potential positive rating drift, while a negative score indicated the opposite. The magnitude of the score correlated with the expected size of the drift. Notably, F-scores were relative to ratings and were cross-sectoral. This system greatly facilitated company comparability and informed investment decisions, typically discussed in our credit committees.

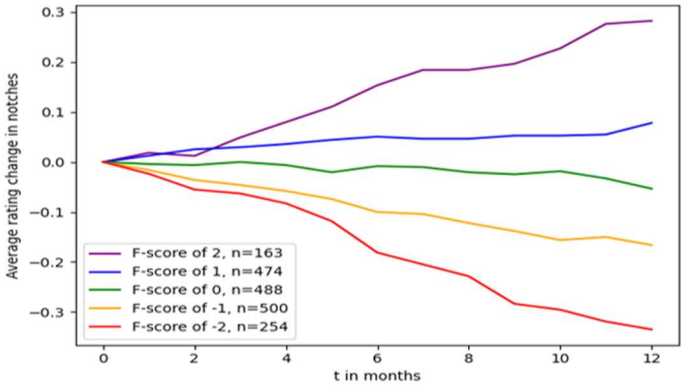
After a few years, we decided to archive these thousands of reports in a database with the assistance of a data scientist. This enabled us to assess qualitative aspects of discussions among 'believable' people, such as our portfolio managers and credit research analysts. As a CIO, I had various questions including how consistent these discussions were over time,

[8] Tetlock, Philip E. & Gardner Dan (2015), Superforecasting, the art and science of forecasting. Tetlock explains in a very intriguing book what good forecasters have in common. A minimum amount of intelligence is needed but that is only the beginning. Being truly open for external views, the wisdom of the crowd and diversity of skills matter a lot.

the influence of the five sub-conclusions on the F-score, and the distinctions between investment grade and high yield credit committees, among other inquiries.

The findings were insightful. One analysis showed that companies with a negative/positive F-score typically faced future rating downgrades/upgrades from rating agencies. We were able to 'outperform' the rating agencies. This analysis confirmed that our fundamental research had predictive value, although this did not yet demonstrated our alpha-generating capabilities. Other factors like timing, relative value decisions and beta choices are all intertwined. It reassured me though that we were fundamentally on the right track.

Figure 1 Average rating changes for each given F-score



Source: Robeco, data science insights

The second step in our analysis focused on whether our diverse team of experts, with its various ideas, egos, and visions, could effectively incorporate the business cycle into F-scores, perhaps signalling an impending economic downturn. Companies often become overly optimistic towards the end of a business cycle and may even make ill-timed, debt-financed acquisitions before a downturn occurs. Here too, our F-scores showed predictive value. For example, we observed a noticeable decline in F-scores just before the Covid crisis, indicating a rise in corporate risk-taking. While the Covid crisis itself was unforeseeable, the F-scores were indicative of a broader vulnerability. Given the increasing leverage and overconfidence in corporate behaviour, any unforeseen event could have triggered the downturn.

Figure 2 Average 12 months F-score – all reports

Source: Robeco, data science insights

Lastly, I wanted to assess how different sub-scores influenced the overall F-score. Statistical analysis of the F-score data indicated that for investment-grade ratings, the 'Business Position' and 'Financials' sub-scores had the most significant impact on our final F-score. The table below presents these statistical analyses. The numbers highlighted in the yellow box on the left hand side, indicate the influence of each of the five sub-scores on the F-score. For example, changing the sub-conclusion for 'Business Position' or 'Financials' from 'good' to 'average' would result in an average reduction of more than 0.6 points in the F-score. As this analysis quantified a part of our own investment process we were not surprised to see that the findings were highly statistically significant, evidenced by the large numbers in the blue box on the right hand side.

Figure 3 Regression analysis F-score data

	coef	std err	t
business	0.6632	0.012	54.375
strategy	0.4014	0.017	23.831
sustainability	0.2500	0.021	12.183
financial	0.6786	0.012	56.074
structure	0.2573	0.014	18.147

Source: Robeco, data science insights

Quantitative biases research within a purely qualitative investment process became feasible due to the data science team we had developed in previous years. We were able to encapsulate qualitative structures and discussions into management information through a 'big' data exercise.

Shortermism and safety margin

The second example is more concise and demonstrates the value of integrating Quantitative and Fundamental research to make better-informed investment decisions.

I previously mentioned that small default losses in credit markets do not fully account for spread volatility. Here, I will focus on that effect in the High Yield sector, which consists of companies with a riskier investment profile. Companies with the lowest credit quality, often labelled 'CCC' by rating agencies, contribute to the majority of losses in the credit market. These are often smaller companies with high debt levels relative to their capacity ('high leverage') and typically operate with a limited product range, making them vulnerable. Carrying high coupons, say 12%, adds to the challenge. Sustaining a capital structure with 5-6 times leverage requires significant economic growth.

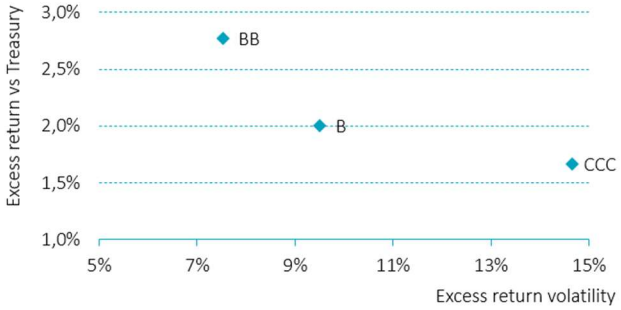
These bonds are highly volatile, tempting overconfident investors to pick winners in this rating class. The risk of being wrong and incurring heavy losses undermines Benjamin Graham's concept of a 'margin of safety.' This is where biases come into play. Overestimating one's skill set draws investment professionals to this risky segment of the market. As Robeco and Barclays data indicate, overconfidence and 'shortermism' can result in significant losses.

The two images below[9] demonstrate that being underinvested in CCC bonds in a portfolio compared to the index is a sensible strategy. B-rated bonds generate higher excess returns than CCC-rated bonds while carrying significantly less volatility. By reallocating these risk points from an underweight position in CCC bonds to other credit categories, such as longer-dated Investment Grade, subordinated, or Financial bonds, you can bring the portfolio's beta back to one. This results in a portfolio with equal expected yield but

[9] "The low risk anomaly in credits"; Robeco Research (April 2012). Academic research: Ilmanen, Byrne, Gunasekera & Minikin (2004), Kozhemiakin (2007), Ilmanen (2010), Aussenegg, Götz & Jelic (2013), de Carvalho, Dugnolle, Lu & Moulin (2013), Frazzini & Pedersen (2013).

reduced risk. BB-rated bonds outperform lower-rated bonds on a risk-adjusted basis, partially due to the 'shortermism' bias we have discussed.

Figure 4 Risk-return per rating in US HY (Aug 1988 - Oct 2020)



Sources: Robeco, Barclays. Data end August 1988 – end October 2020

Learning from the past hurts

In today's environment, IT capabilities are vast. It is possible to store and analyse every transaction executed by a team for biases. This type of research differs from performance attribution; it aims to identify unconscious patterns in trade execution and uncover insights hidden in the data. One initiative we undertook focused on beta management of our credit portfolios. First, we archived all daily beta positions for the past 15 calendar years. Second, we evaluated the accuracy of our market predictions made in our top-down Credit Quarterly Outlook. We defined a 'turn' as a change exceeding one percentage point of positive or negative excess return over risk-free rates (anything less was considered noise). Lastly, we assessed the effectiveness of our strategy implementation, ensuring alignment between our market outlook and actual beta positioning.

The analysis proved to be highly revealing. We found that many of our beta calls were accurate, based on our top-down views from the Credit Quarterly Outlook. However, our timing was often significantly off. We typically implemented long or short beta positions up to six months too early, resulting in initial underperformance before the market turned in our favour. To recover, we would usually increase our positions, eventually generating outperformance. Essentially, we had to compensate for the initial underperformance. This approach was viable because we had the flexibility to adjust our positions when markets moved against us, aligning with our contrarian investment style. The key takeaway was that we needed to improve our timing, rather than adjust our macro-economic analysis.

Another finding was that we often took profits too early. After experiencing some outperformance, we could not resist reducing our position to lock in gains. This turned out to be a flawed approach. Our experience has shown that credit markets tend to decline sharply for a brief period, followed by a prolonged recovery. Initially, the recovery happens quickly, but it is often extended by policy measures and client flows. As a result, the recovery phase typically lasts much longer than the initial sell-off. Therefore, our early profit-taking limited our ability to fully capitalize on these longer-term trends.

After identifying this issue, we incorporated our 'early beta call bias' into our weekly investment meetings. The immediate impact was evident during the COVID-19 cycle in 2020, which saw the fastest and most aggressive market sell-off in history. We kept the topic of premature profit-taking on the agenda, discussing it for weeks and months in our Friday 'Global Credit Investment Meeting'. As a result, we captured almost all the available 'beta alpha' in that cycle, marking our team's best annual performance to date. This experience underscored the value of biases research. Additionally, openly discussing our past mistakes in client meetings led to increased trust in our investment process, demonstrating the benefits of ego-bruising historical analysis.

Conclusion Investment Principle I

Psychology is critical in the Asset Management industry, an arena that attracts highly intelligent professionals and, probably, also good remuneration. However, intelligence alone is not enough for success; understanding behavioural biases is equally important. Biases like overconfidence and the Halo effect can lead to poor investment decisions. Advanced technologies now allow us to create digital coaching tools that can help investment teams identify and analyse these biases. The goal is to recognize who in the team is an authority in specific areas to make more informed decisions. Groupthink is a pitfall that must be avoided, specialization is the objective. It is essential to engage the rational System II, even if it is challenging and ego-bruising. A structured investment process with decision-making and research executed in a repetitive way, is a solid foundation but should also include a focus on biases. Bringing these biases into regular team discussions is key, and perhaps the most challenging part for team leaders. The pursuit of 'believability' and specialization should be a collective effort.

Investment Principle II; 'Mean reversion'

Mean reversion; the logical consequence

Investment Principle II builds on Investment Principle I, which acknowledges the existence of behavioural biases in the market. These biases indicate that market prices for financial assets will often stray from their true fundamental value. If emotions like fear, greed or irrational exuberance influence markets, investment opportunities arise. This is where Investment Principle II becomes relevant.

In credit markets, the stakes are high as investors face limited upside but significant downside, including the risk of losing the bond's nominal amount. It could be that fear is justified or macro events cause idiosyncratic risks for a company. Therefore, thorough research and a margin of safety are essential before taking risks. However, when prices do deviate from their fundamental values, opportunities for mean reversion present themselves.

The efficiency of financial markets is a widely debated topic. The core question is whether all relevant information is already reflected in market prices and if factors like 'short-term thinking,' 'fear and greed,' and 'extrapolation' led to deviations from an asset's fundamental value. Such deviations should theoretically revert to the mean over time.

Lawrence Summers' academic work on stock markets has influenced my thinking on this subject. Summers demonstrates that stock returns do have transitory factors, implying that periods of positive serially correlated returns are often followed by negative ones. Notably, he also dispels the notion of 'growth miracles' at the country-level GDP, using China as an example. As early as 2014, he predicted that China's rapid growth would revert to the mean, despite no apparent evidence at that time. From my perspective as an investment professional, this reaffirms that fundamental economic laws always hold true. Fuelling an economy with more credit, especially in a centrally planned model known for inefficient capital allocation, is just pulling future growth forward. It will take years to digest this. The recent downturn in China's real estate sector is a case in point of this exuberance and 'fear and greed' cycle.

In summary, there is sufficient evidence to support the existence of mean reversion, which aligns well with behavioural biases like 'extrapolation' which is needed to cause mean reversion opportunities.

Mean reversion in Fixed Income

For fixed income things are theoretically even more clear. Since corporate bonds redeem at par (not per se in high yield where refinancing is much more common), any permanent deviation of the mean is a sign of default. Otherwise, mean reversion is expected. This mean reversion can be used to generate alpha, after accounting for costs like bid-offer spreads.

To evaluate relative value, you can divide the time series of the option-adjusted spread (OAS) of one corporate bond to another over time. If the ratio increases, the first bond is underperforming the second. In the absence of any change in company fundamentals, this could signal an opportunity to 'buy the ratio,' or simply buy the first bond. The relative percentage change of the spreads versus each other is the evaluation start.

However, it is crucial to research why the spread ratios have shifted. Failing to do so could lead you into a 'value trap'. Maybe the bond's underperformance is due to increased default risk because the company is in a permanent weaker spot.

Kahneman warns about a misleading notion of mean reversion to be cautious of. Our minds struggle between intuitive and skill-based judgments, with intuition being particularly risky. The brain often seeks causal links where none exist, usually due to insufficient information. Relying on mean reversion in such cases can be hazardous for investors.

It is also important to understand statistical mean reversion. For instance, highly intelligent people may statistically marry less intelligent individuals, but this is not due to causality; it is a statistical necessity.

Endurance

Another factor supporting mean reversion in relative value assessments is a company's 'endurance' which I map from Graham's safety margin. By this, I mean a company's ability to weather tough times through various means. For instance, a diversified business portfolio allows a company to sell off units during crises. Being under-leveraged or having unencumbered assets can also provide a cushion, as these can be pledged for bridge financing.

Access to multiple financing channels, such as bonds, bank loans, or structured credit, add to this endurance. I often apply a mental checklist using the Du Pont formula[10] to gauge a company's resilience through leverage capacity, efficiency improvements, or margin expansion. However, one must also be vigilant about accounting tricks; the Du Pont formula alone is insufficient.

For me, assessing a company's endurance is the key takeaway from any credit committee meeting. The more endurance a company has, the higher the likelihood of mean reversion in spreads. A prime example is the cruise line industry during the COVID crisis. Despite the business impact of having all ships docked, their resilience came from unencumbered assets, flexible cost structures, and access to distressed financing. The companies came out of the crisis sailing again. Thus, greater endurance increases the odds of mean reversion, making 'buying the ratio' a sound strategy.

Mean reversion on a macro level

Mean reversion is also evident in country GDP trends, as discussed earlier. This pattern shows up in the debt accumulation of governments, corporations, consumers, and banks. The main driver is overconfidence. When central bankers and policymakers get too confident and extrapolate existing trends, bubbles form that eventually need to correct. Therefore, a solid understanding of the global economy and critical thinking are essential in any investment strategy (see Investment Principle III). The concept is well-explained in Reinhart and Rogoff's[11] 'This Time is Different'. The recurring issue, even at the macro level, is the repetition of intellectual errors due to overconfidence. This is likely because most people have only experienced (and learned from) one or maybe two business cycles.

Conclusion Investment Principle II

Mean reversion strategies work at both micro and macro levels, and they capitalize on overconfidence and extrapolation. The takeaway from Investment Principle II is that applying rigorous and disciplined research lays the foundation for a clear vision. Without risk-taking, there is no chance for alpha, so a well-defined strategy is crucial for managing risk.

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[10] Du Pont formula; the calculation of the return on investment by dissecting the ROI into net profit margin, the asset turn over and financial leverage. The different parts can be analysed separately like balance sheet management or operational efficiency.

[11] Reinhart, Carmen M. & Rogoff, Kenneth S. (2009). This time is different. Princeton University Press.

At the micro level, evaluating a company's endurance is the first step. This aligns with Benjamin Graham's concept of a safety margin in investing. Ensure that your individual portfolio holdings have this margin as it is fundamental for a mean reversion strategy.

At the macro level, the key is to identify when markets ignore economic laws. Biases in extrapolating country growth rates, justifying financial exuberance and overconfidence in policymakers are common. Being alert to such macroeconomic justifications for system imbalances helps in portfolio risk management.

To execute a mean reversion transaction, combine these steps. Different contrarian mean reversion strategies can be employed, like adjusting beta or varying idiosyncratic risk levels. The first step is recognizing relevant behavioural biases and deviations from fundamentals. The second step is structured research aimed at identifying endurance and positioning for mean reversion.

Investment principle III; 'Understanding the global macro'

Understanding the incomprehensible

Revisiting Investment Principle I provides a useful backdrop for introducing Investment Principle III. Our brains often deceive us when tackling complex issues or recalling past decisions. Because of this, it is vital to document investment decisions. For the past 25 years, I have required my teams to write down their research findings. This practice makes ideas more objective, facilitates team and client communication and ex post one can analyse whether we were right for the right reason.

The ultimate goal for any investment process is to start to unravel economic causality and identify root causes behind economic events. Precise economic data point estimates are less important than understanding the assumptions made by market participants and policymakers. Which economic trends are being extrapolated? Mean reversion opportunities are baked into global markets. Recognizing this is foundational to effective stock picking.

The starting point is acknowledging that estimating the future path of the economy is a very complex task, if not impossible to understand[12]. While many focus solely on economic fundamentals for investment decisions, I believe their importance is often overstated. Markets are more influenced by emotional cycles of fear and greed, or liquidity cycles driven by Central Banks, than by shifts in GDP. The weak correlation between economic growth and investment returns in recent times supports this view. There is also academic proof that this relation is weak.

Take 2023 economic cycle as an example: economists predicted a recession due to rate hikes, but it never materialized. Similarly, economists believed unemployment would rise, after all, Central Bankers did hurt the demand side of the economy which should have caused a slowdown. However, it did not happen.

Although not the focus of this book, broader trends like changing demographics, China's diminishing role, and the absence of a classic boom-bust cycle (like the dot-com bubble or 2002 or the banking crisis of 2008) further indicate overconfidence of policy makers

[12] Tulder, R van and van Mil, E. (2023). Principles of Sustainable Finance, write about a VUCA world. A VUCA world is a volatile, unstable and complex world. To me it is not sure whether modern history is more 'VUCA' than longer in history but it does make sense to understand that analysing the Global Macro is very difficult.

and overreliance on their traditional econometric models[13] instead of a simple understanding of the business and secular cycle.

Understanding business cycles is crucial, even though it is even a complex task for policymakers who have access to extensive data and resources. Most of us will only witness one long-term, or secular, cycle in our careers, but we will see multiple business cycles. Linking these business cycles to the underlying secular trends is essential. For instance, the recent Debt Supercycle, which began with Greenspan's policies and China's role in disinflation, had a significant impact on policymakers during various business cycles.

Each business cycle has its unique features, whether it is an earnings cycle, a classic financial engineering cycle like those seen in banking in 2008, or a period of elevated political stress, such as the Greek crisis in Europe.

Credit Quarterly Outlook with 'believable' people

In the context of understanding business cycles, our Credit Quarterly Outlook served as the starting point for my investment process. For each outlook, we invited three external speakers, chosen for their track record of accurate predictions and specialism, not necessarily their fame. They were invited based on their 'believability' and their record of correct predictions. Our internal Global Macro team acted as the 'anchor', providing the current economic overview. These internal economists were among the best and had experience as buy side managers with an actual portfolio responsibility. We tailored some specific questions around imbalances or asked historic references to the internal Global Macro team.

The discussions would focus on potential imbalances in the system or the opposite, questioning when automatic stabilizers would kick in. The entire credit team was required to attend these sessions for both educational and team-building reasons. One bias we have noticed is an overemphasis on economic fundamentals, likely due to the complexities of money markets and policy implications. While these are important, they do not give a complete market picture.

To address this, we also allocated enough time to discuss Valuation and Technical factors, which directly influence market pricing and fund flows. Given that GDP changes often show a low correlation with risky asset returns, these elements are crucial. For example,

[13] Which is why studying history makes a difference. Reinhart & Rogoff show society makes the same mistakes again and again resulting in an overleveraged situation. Policy makers do not play a good role in this.

post the Great Financial Crisis, despite sluggish growth rates, stock markets rallied due to Central Banks' quantitative easing policies. Therefore, keeping an eye on valuations and technical events is equally important if not more.

At Robeco, we held the Forum on the last Thursday of each quarter, wrote the Quarterly Outlook report the following day, and aimed to publish it by the next Tuesday at the latest. Publicly sharing this information served to keep us accountable and informed our clients about our strategy, particularly regarding beta positioning. The structure of this Global Credit Quarterly Outlook has remained consistent for 25 years.

The Quarterly Outlook report would include three key conclusions: one each for fundamentals, valuation and technical factors. These insights shape our top-down strategy, including beta, sector preferences, and regional allocation. The documents are publicly available, allowing anyone to assess the accuracy of our views and understand the rationale behind them. This long-standing record also lets us learn from past performance.

I prefer to-the-point communication, so our Credit Quarterly Outlook is capped at three pages with a catchy title. If you cannot articulate your views within that limit, it is time to reassess.

The experts we invited to our Credit Quarterly Outlook forum were specialized in relevant topics, such as corporate earnings cycles or geopolitics, depending on current issues. Over the years, I have found that the Investment (I) component of the economy has the most significant impact on growth despite its lower weight, driven to violent swings and hence causing both recessions and upswings. In contrast, the consumer side (C) of the economy (Y=C+I+E-M) is often more stable than commonly thought, especially when unemployment rates are steady.

Understanding Central Bankers is a personal interest of mine, and it is surprising how often these well-regarded economists get it wrong[14]. In my view, studying Central Bank behaviour is crucial for market professionals, as they often exhibit 'overconfidence' and dogmatically rely on outdated econometric models. Given their influence, understanding Central Bankers can be a profitable source of alpha. For example, if market consensus predicts a recession due to rate hikes, but your research (for instance based on twenty

[14] Koo, Richard, The Holy Grail of Macro Economics, Lessons from Japan's Great Recession. Koo explains time over time to the rest of the world that the burst of the Debt Supercycle, a secular cycle we subscribed too, will have a different aftermath than a normal boom bust cycle framework most economists tend to refer to. The lack of willingness to borrow in Japan and later in Europe does not fit normal text book economics.

years of Credit Quarterly Outlook studies) suggests otherwise, it is very interesting to think how asset prices could adjust.

The takeaway of this macro example is that the more complex a question is, the more fantasy, feelings and justification processes start in our mind. As stated before, the overconfidence mostly occurs with Central Bankers. Having the authority to set rates and access to a team of econometric experts does not guarantee accuracy. While critiquing Central Banks is a personal hobby, I will refrain from further discussion on this topic for the rest of this book.

The Credit Quarterly Outlook series aimed to bring structure and objectivity to our decision-making process, fostering learning and reflection on past actions. It also helped our Credit teams to resist the *cautious position bias*[15]. Below is a random selection of titles and non-consensus ideas we have explored over the years. The complete series will be available on my LinkedIn page for further reference.

Predicting turns in the business cycle is notoriously difficult

One specific feature of a business cycle, as outlined in Investment Principle V 'Winning by Not Losing,' relates to real estate, a topic also covered by Reinhart and Rogoff. They provide historical metrics on domestic and foreign debt-to-GDP ratios, as well as data on serial defaulting countries and banking systems. These historical facts help you identify trends of overconfidence[16] and extrapolation. The goal is not to predict next year's GDP growth accurately, but to understand the biases that exist within the context of both secular and business cycles. History tends to rhyme, and principles like mean reversion and economic laws consistently apply. The table on the next page shows a few examples from our Credit Quarterly Outlook.

[15] Graham, Benjamin (1949). The Intelligent Investor already writes about forecasting the economy is inherently difficult, if not impossible. Understanding scenarios make more sense. Also, he advices to master the inclination to trade. He embraces mean reversion but while being invested at the same time. Not being invested is costly.

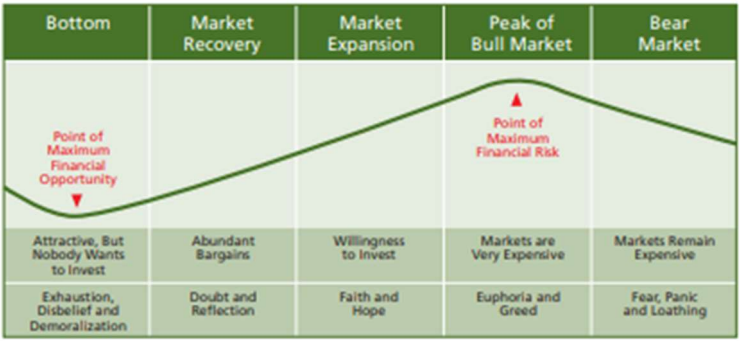
[16] Coggan, Philip (2020). Paper Promises, Debt, Money and The New World Order. A description of historic monetary mistakes which makes you aware it never is different this time.

Title and date of publishing	**Content**
'Back to Fundamentals'; Dec 08	A clear recession and even depression kind of environment. Fear and demoralisation at its highest level ever seen. It took until March 2009 before markets settled down and fundamentals started to rule again.
Climbing a Wall of Worries'; Mar 10	A clear mid cycle situation where we warned for being too bearish. The debt super cycle was developing and governments were in severe deficits while corporate America was taking an ever bigger part of GDP with record margins.
'Crisis, Response, Improve, Complacent'; Jun 2012	A later stage cycle moment in which we explain the role of policy makers sowing the seeds for the next crisis. We explain that market cycles seem to become shorter. More imbalances and more aggressive interventions. Something we experience up until this day.
'On borrowed time'; Mar 2016	The business cycle is 7 years old and the recession looms. We anticipate by calculating what average corporate leverage will be for the index when EBITDA typically falls 30%. Also, a surprise of the ECB buying private credit. Once again it is technicals that are more important than fundamentals.
'The emperor is naked'; Dec 2018	An interesting bear-market moment in which the demise of General Electric (my analyst was short) shows the business cycle misallocation of capital waiting to be washed out. Talks about a recession but the bear market is already unfolding with wider spreads for over 9 months. Again technicals like rate fears and taper tantrums drove markets.
'Humble'; Jun 21	A typical peak of market phase where spreads were at an all-time tight. The room for error is limited while economists are extrapolating. The big moment of the cycle was the unprecedented fiscal stimulus on the COVID crisis making the virus a public enemy. Not one fundamental economic forecast made sense, valuations were pricing 'clear skies' and we took a contrarian position.
'Buy the dip'; Mar 2023	A typical short cycle unfolded with the end of the rate cycle in sight. We calculated based on historic evidence that the second to last rate hike is the buying moment. That turned out to be Nov 2022. A mini cycle that we benefited from. Credit Suisse and Silicon Valley were momentarily extrapolated into system failures and hence a long banking position made a lot of alpha. It were clearly idiosyncratic events and once again fundamentals did not play a role.

This brief review of seven examples from the Credit Quarterly Outlooks aims to identify market drivers. Are markets really guided by fundamentals, or are participants reacting to technical fears and isolated corporate incidents that have been elevated to systemic concerns? Quick assessments of market cycles and leveraging external insights can be the first steps toward generating alpha.

Two additional elements are crucial to the Credit Quarterly Outlook. First, we assembled a research pack containing all relevant external and broker research that challenged our thinking and helped mitigate our biases. Second, we created a visual representation of the credit cycle, breaking it down into five stages each characterized by the prevailing investor psychology at that stage. A picture says more than a thousand words. This aided in countering common biases and reinforced our contrarian investment approach. We display the picture of the original emotional market cycle, which can be tailored, like we did, to suit individual needs. Each of the five parts is characterised by specific psychological behaviour by market participants. Understanding biases like fear and greed and shortermism in the market place, as discussed in Investment Principle I, justifies the time and effort spent on these comprehensive outlooks.

Figure 5 Cycle of market emotions



Source: Darst, David M. (Morgan Stanley and Companies, Inc). The Art of Asset Allocation. McGraw Hill, 2003.

Market cycles do not have a set duration and can vary, especially during crises. At the market's low point, pricing often becomes irrational, driven by factors like exhaustion, disbelief and demoralization. This was evident in the 2008 banking crisis and other recent events on a small scale around US regional banks and Swiss Credit Suisse. Panic, forced selling, imposed losses all drive irrational behaviour. Poorly prepared Asset Management firms then cede control to their risk managers, who force the company to reduce exposure

which leads to forced selling, creating opportunities for other investors. It is key to remember that markets eventually revert to the mean, offering hefty returns.

I never forget the race of bankers, OESO and brokers in forecasting evermore bank losses to make the headlines in 2008. Guess what, by that time the bottom in fundamentals had already been reached although it took until March 2009 before market turned (and yes, we were too early in positioning for that upturn). The opposite happens at market peaks. Euphoria, greed and extrapolation take over and drives markets.

As markets peak, corporate balance sheets often become overleveraged, resembling conditions seen in recessions. Corporate EBITDA usually drops by 25-35% increasing leverage instantaneous, and valuations have frequently been propped up by financial engineering. This can manifest in various ways, like complex derivative structures from banks or accounting gimmicks. Additionally, M&A activity and share buybacks escalate.

In such scenario economists often describe the economic environment as 'this time is different' and many other typical late cyclical events will happen. The beauty is that every business cycle this happens again but never in the exact same way (history rhymes, it does not repeat itself). The real challenge is recognizing the form that exuberance manifests itself in each cycle, whether it is bank balance sheets (2008), technology sector (2002), sovereign debt (2012), or more recently real estate (global real estate and Chinese in particular). For insights, consult 'believable' experts who have a track record in the relevant area of that business cycle.

We certainly were not right every time. Timing in a slow moving business cycle is notoriously difficult. At the very least it forces us to be transparent with team members and clients which simplifies evaluations and communications.

Conclusion Investment Principle III

The key takeaway from Investment Principle III is that grasping the business and secular cycles helps us set our risk appetite as investors. While predicting cycle turns is notoriously difficult, one needs a starting point for contrarian positioning of the beta of the portfolio. Understanding the business cycle and secular cycle broadly can highlight mean reversion opportunities and guide contrarian strategies. Knowing where we are in the cycle—whether it is a phase of 'fear, panic and loathing' or 'exhaustion and disbelief' or 'faith and hope' —determines the initial beta positioning and stock picking risk appetite in terms of endurance.

Forecasting short-term GDP numbers is futile. What is useful is knowing when a company's stance makes sense given the current business cycle. Writing down your views

on the cycle and portfolio strategy is valuable; it sharpens your approach, makes positions transparent, and provides learning opportunities. The challenge lies in identifying cycle-driving policy mistakes and exuberance in the cycle. Timing is not easy—acknowledge that, and adjust your positions cautiously but deliberately against market trends. In the end mastering biases and preparing for mean reversion in an educated way is the game.

Investment principle IV; 'Sustainability'

A new secular cycle

We have covered the importance of mastering biases (Principle I) and how the Credit Quarterly Outlook series helped us to grasp the global macro environment (Principle III). These insights support a contrarian and mean-reversion approach (Principle II). Now, let us turn to Principle IV, which introduces a new secular cycle. I see the future of portfolio management 2.0 as solving the trinity of optimizing tracking error, alpha, and sustainability. Traditional risk premia and company behaviour will change due to the pricing of negative externalities going forward. In this sense, 'The future is a bit different this time'.

In the introduction, I discussed my preference for the term 'principles' over 'rules'. In investing, it is all about guiding behaviour and values rather than about rules and guidelines. The view that sustainability is a limiting factor affecting performance is outdated and no longer relevant. There are important reasons why sustainability is expected to be very relevant for any investment process in the next decades. Sustainability is about being better prepared and informed and ultimately, achieving better performance.

I will not delve into the ethical aspects, as ethical standards can vary globally. The debate over whether sustainability is part of the fiduciary duty to maximize returns is also ongoing, but we will not discuss that here.

Understanding long-term trends, whether you call them secular, Kondratieff cycles, or major global demographic global seismic changes[17], is crucial. Most professionals will experience only one such super cycle[18] in their career. A major upcoming cycle is Sustainability. For decades, or even since the Industrial Revolution, in our economy negative externalities have not been 'priced'. Companies could incur societal costs—like pollution—without facing the financial consequences. This is changing. Future profits will need to be more sustainable. The almost legalised damage to nature or the absence of a

[17] We have always considered the upcoming Chinese consumer and supply of hundreds of millions of Chinese people to the global work force since the 1980s as a secular cycle.

[18] In the 60 Credit Quarterly Outlooks published over the last 15 years we have extensively written about the Debt Supercycle. This was the disinflationary period since the 1980s in which China entered the global labour market and Central Bankers reduced rates. This cycle seems to have ended with a permanent shortage of labour, re-globalization or de-globalization and rising real yields.

'Just' division in wealth and well-being, are increasingly put on the global agenda. The Inevitable Policy Response[19] of policy makers and NGOs to price externalities is coming.

I cannot stress how much I agree with this thinktank. In the end we need to let nature replenish itself again. Sustainability is increasingly a risk factor in many ways. While there is debate on whether it fits into a Fama & French model, companies ignoring biodiversity, carbon footprint or human rights in their supply chain will face challenges. It is not just about risk management and a license to operate; it is also about not missing future opportunities.

Incorporating sustainability into your investment process is as essential as managing value bias or portfolio beta. It is a risk factor that can improve your information ratio (the risk-adjusted returns of a portfolio) by preparing you for upcoming policy changes. These changes will affect risk premia and return on capital. To put it even stronger, I expect that in the next 20 to 30 years managing a portfolio's sustainability profile will be as crucial as managing alpha and tracking error. Be ready to know everything about your clients' investment holdings and tackle this trinity of tracking error, alpha and sustainability together with them. Going forward it is about 'people, performance, and planet'.

Climate, biodiversity and human rights

The next big secular cycle focuses on climate change, biodiversity, and human rights. The increasing amount of droughts or woodfires shown by the IPCC[20] will force the global society to act on global warming[21]. Key initiatives are thinktanks like the Inevitable Policy

[19] The Inevitable Policy Response, IPR, aims to prepare institutional investors for the portfolio risks and opportunities associated with a forecast acceleration of policy responses to climate change. The idea behind it is that policy responses will be increasingly forceful, abrupt and disorderly leaving client portfolios exposed to significant transition risk.

[20] IPCC. www.ipcc.ch. The Intergovernmental Panel on Climate Change is the United Nations body for assessing the science related to climate change

[21] Personally, I belief global warming is a subset of the bigger and less easy to reverse problem called biodiversity loss. Global warming seems to be easier to talk about and maybe easier to measure, calculate and hence communicate. Therefore, for now we also use the term global warming to reflect all environmental problems including the breach of the planetary boundaries and loss of biodiversity.

Response[22], the Green Deal[23] of the EU Commission or many semi legislative initiatives like e.g. the Paris Accords[24].

These initiatives, and many more, all drive sustainability and disclosure around it to become part of legislation. It therefore means by definition it will become part of corporate policies and governance to manage and report on Climate, Biodiversity and Human Rights processes.

Just as management teams adapt to tax policies, innovation processes or M&A activities, they will need to adjust to these new metrics. The winners will be those who adapt rather than resist, capturing new opportunities. It does mean there will be an element of 'Schumpeterian creative destruction'. Management teams need to be adaptive and individuals must have a horizon in their careers longer than just a few years. It is beyond the topic of this book but the composition of a Board should be tested for the Sustainability secular cycle.

In summary, decarbonization will soon be a key element of corporate policy and, by extension, asset management. When calculating a firm's Net Present Value to determine stock price, carbon intensity and future path of that company[25] must be factored in. This adds a direct capital expenditure cost. I also question whether the traditional efficient market hypothesis still holds. Companies may need significant capital expenditure just to stay in business, with no guarantee that this investment will yield a return in the traditional meaning of the word.

In essence, sustainability is emerging as a risk factor, akin to value or size factors in a Fama and French framework. The catch is that there is not enough historical data for back-testing. However, it seems logical that a company that changes its product mix to capture the opportunity of energy efficient product demand will be a future winner. A company that reduces its water and waste footprint will prevent costs that will be levied in the future. There is growing evidence, both anecdotal and academic, that sustainability is becoming a key consideration in asset pricing. Some articles also discuss how to control for sustainability risks when evaluating traditional factor exposures.

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[22] Inevitable Policy Response. www.unpri.org. The Inevitable Policy Response to Climate change.

[23] EU Green Deal. www.commission.europe.eu

[24] Paris Accord. www.unfcc.int. What is the Paris Agreement.

[25] Sector Decarbonization IP is one of the most valuable IP an Asset Manager needs to develop

An example is a paper on carbon beta[26], demonstrating that carbon prices can already be used to explain stock price changes. It can be used as some kind of risk indicator how sensitive a portfolio is to carbon price changes. Another example is a paper written about 'decarbonized value[27]', detailing how carbon risks can be managed in a value basket without losing exposure to the value factor. They present a method which makes the value factor definition greener and hence less susceptible to carbon prices in the future. All examples of academic work which indicates carbon prices become a factor in asset pricing.

As a fundamental credit team, we have consistently used anecdotal evidence to argue that most credit events are tied to negative sustainability factors like poor governance or weak risk management. In the past fifteen years, our portfolios have had zero defaults or credit events, thanks to stringent sustainability screenings. We have also found that Sustainable Development Goals (SDG) scores as an example of sustainability input can help explain risk-return ratios. Companies that contribute positively to SDG goals tend to have better credit risk-return profiles. While this has also not been academically verified due to limited historical data, my experience as CIO confirms it. This approach has given us a competitive edge, essentially helping us to win by not losing—a topic we will delve into in the upcoming Principle V.

Solving the Trinity

Whether these sustainability factors can be diversified away remains to be seen, but to me it is clear that in the near future, sustainability indicators (SI factors) will gain statistical relevance. In short, the portfolio manager 2.0 will have to solve the 'trinity' of a tracking error budget, an alpha target and manage a sustainability budget (which can be defined in many ways depending on client preferences). The sustainability budget varies based on client preferences but generally includes benchmarks on Human Rights[28], carbon budgets[29] and an effort to reverse biodiversity loss. These sustainability goals often have

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[26] Huij, Joop & Laurs, Dries (2021); Carbon beta: A Market Based Measure of Climate Transition Risk Exposure.

[27] Blitz, David & Hoogteijling, Tobias (2021). Factoring Carbon Taxes into a value strategy. Decarbonized value.

[28] Scale of disgustingness is a statement I often use to make clear that everyone has its own limit of Human Rights breaches being acceptable. Servicing a client from a bad country is different from being present in the country. Child Labour Abuses might be rated different than Environmental spills or Women's right by everyone.

[29] EVIC versus Revenue based carbon budget differ in application

direct capital expenditure implications, especially for carbon budgets. Understanding sector trends in decarbonization is vital during this transitional period toward an economy that prices in negative externalities. The pressing question is how we should integrate sustainability both at the portfolio and company levels.

No one-size-fits-all

There is no one-size-fits-all approach to incorporating sustainability into investment processes. This book focuses on guiding investment principles rather than offering a fixed set of rules for guaranteed success. For me though, there are two key elements to focus on. First is the research structure for evaluating the impact of sustainability factors on companies. The second is a sustainability framework called the SDG framework[30], in which I had an initiating role in developing. We aimed to establish an academically verified global standard that aligns companies with their contributions to the seventeen UN Sustainable Development Goals, based on a set framework. This framework offers a wide and diversified exposure to the preferred SDGs while large asset owners were offered a well investible universe. This is needed for the necessary liquidity and diversification, whether it is for bonds or for stocks.

To begin with the research process, it is useful to evaluate the company's role in society in two ways, as illustrated by the EU's concept of "double materiality[31]" (refer to the diagram below). First, consider the company's impact on society, such as pollution, human rights[32] or biodiversity loss[33], as shown on the right side of the diagram. There are two methods for making this initial assessment as a portfolio manager. Both should be discussed with the client or asset owner to determine the extent to which the 'know your asset' principle needs to be applied in your role as their agent.

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[30] Robeco.com. Robeco's SDG Framework, How we Assess Company Contributions to the SDGs for Integration into Investment Portfolios

[31] The European Commission for the first time mentioned the word Double Materiality. It came back in the EU's corporate sustainability Reporting Directive.

[32] We do not cover Human Rights extensively here but an intellectual way of reasoning that is easy to understand is to question whether a company directly *causes* Human Rights violations via e.g. child labour or whether it contributes to it via the supply chain or whether the company can be accused of being linked to it via selling the wrong products. Three levels of infliction and hence an ethical choice to be made.

[33] Biodiversity framework Robeco

The first option involves setting exclusion criteria. For instance, you might exclude tobacco companies for ethical reasons, given the health risks of smoking. This is a straightforward way to optimize for sustainability. While it narrows your investment universe, for a global fundamental portfolio manager, this limitation is seldom a compelling reason to ignore such ethical considerations.

The second rationale for excluding a tobacco company could be the expectation that future taxes and advertising bans will cause these companies to lag behind the index. Companies burdened with stranded assets may become future underperformers.

So, there are two perspectives on a company's societal impact. The first is ethical, which could lead to exclusions, while the second is more a fundamental one, relating to the economic and tangible real-world impact. Taking these into account makes one better prepared for the future by minimizing exposure to stranded assets and providing a clear ethical stance. In this way, the company's impact on society is effectively managed.

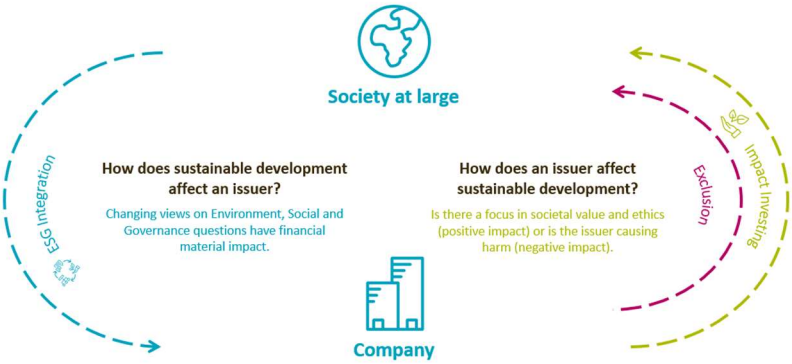
Switching to the left hand side of the picture, we assess society's impact on the company. Factors like carbon taxes, waste fees, or production regulations can affect a company's financials. This aspect is what we term 'ESG integration.' It provides a comprehensive view of financial materiality and makes an investor better informed. By incorporating ESG data alongside traditional accounting data, you gain a more complete understanding of a company prior to investment hence you will be 'better informed'.

ESG integration assesses the financial materiality of the impact of society on the company. While we will not delve into detailed models here, an equity investor might consider adjusting the weighted average cost of capital (WACC) upward for a company under this framework.

A prime example of ESG integration is sector decarbonization research. This science-based initiative estimates the capital expenditure needed for a sector to align with e.g. the Paris Agreement's two-degree global warming limit. It depends on the technological knowledge we have now in that industry. This paves the way for legislation mandating carbon neutrality by 2050. For instance, you can evaluate which steel company is ahead in 'blue steel' production and will likely have lower future capital expenditures compared to competitors. This allows for a comparison of future free cash flows with a company still reliant on coal-fired steel production, which will face higher future capital costs.

These long-term sector decarbonization plans are key components in the current 'Transition Economy'. In summary, this double materiality framework serves as a useful guide for evaluating sustainability factors within a portfolio context.

Figure 6 Double materiality



Source: Robeco

Principles of sustainable business

I would like to highlight the significant contributions of Rob van Tulder and Eveline van Mil in shaping the principles around sustainability[34]. A key challenge is the lack of a unified language to discuss sustainability, given the variety of definitions and approaches. The Sustainable Development Goals offer a universal framework that transcends languages and cultures and is widely accepted by countries. They serve as an effective business plan for both corporations and governments, guiding us toward an economy that operates within planetary boundaries. The SDGs could be the blueprint we need.

We are in a new cycle where society will not absorb negative impacts like before. Biodiversity loss and global warming are just starting to hit us. Quick legislative and behaviour changes are needed. Planet Earth needs a new business plan to prosperity. If we keep pushing planetary limits, the outlook is not good. I am an optimist[35] and believe that technology can solve many problems, but we need a solid plan. The SDGs could be that plan, focusing on 'planet, people, and prosperity' without prioritizing one over the others.

[34] Van Tulder, Rob & van Mil, Eveline (2023). Principles of Sustainable Finance, Frameworks for Corporate Action on the SDGs.

[35] Ridley, Matt (2011). The Rational Optimist, How prosperity evolves. Harper Perennial. A great story if one needs an optimistic story on the challenges we face as society.

A transition plan is essential for a sustainable economy. While we still rely on coal, fossil fuels, steel, and cement, we must shift towards an inclusive economy where no one is left behind and where nature can regenerate itself. The SDGs provide an excellent framework for managing this change. For more on the seventeen SDGs and their applications, I recommend reading the work of Rob van Tulder.

Several frameworks from pension funds, asset managers, and data providers assist asset owners in managing their SDG exposure. The Robeco SDG framework stands out for its transparency and simplicity. Instead of restricting investments in certain companies, it tracks their progress in the transition towards a sustainable economy that accounts for negative externalities.

Consider the case of Tata Steel, which is relevant to both SDG 9 (Infrastructure), as steel is essential for building cities and infrastructure. However, Tata Steel also links to SDG 13 (Climate) given its very pollutive way of producing its products (steel). Rather than excluding Tata Steel from our portfolio, we set academically-verified KPIs on how much carbon a steel manufacturer emits at current technological knowledge in order to produce its steel. Technologies like hydro power for producing 'blue steel' exist, so the KPI for the percentage of 'blue steel' that can be feasibly produced will rise over time.

Another example involves car manufacturers, known for their 'scope 3 carbon emissions', which come primarily from the use of the cars they produce rather than the manufacturing process. While it is tempting to exclude these companies, cars remain essential to society. As a solution, we establish dynamic KPIs on the percentage of hybrid or electric vehicles they produce. While a 5% target for electric vehicle production may have been ambitious a few years ago, that benchmark will need to rise to 10% or higher soon.

In summary, this approach offers a broad investible universe that is future-ready. The key is understanding the assets in your portfolio and focusing on the transition to a sustainable economy. With the ability to align all companies in the world to these SDGs and set sector-specific KPIs, it essentially forms a business plan for society[36].

[36] I will not elaborate on my personal opinion that we miss an SDG on birth control. Although, achieving all other SDGs will automatically help stabilization the world population I do think a more urgent and direct objective could help since this is the common denominator that would help managing the harm we inflict on planet Earth.

I will not delve into the 'Nexus'[37] problem here, which concerns the interlinkage of various SDG objectives. Achieving one SDG could potentially (negatively) impact another.

Sustainability needs to be a core part of bottom-up research. For the portfolio manager 2.0, Sector Decarbonization research and other risk factors arising from inevitable policy changes are crucial to the double materiality assessment. These elements directly affect the fundamental viability of companies.

Conclusion Investment Principle IV

The conclusion for this Investment Principle IV on sustainability is that this time the world **is** different or at least changing. Companies cannot succeed in a world that fails[38]. Going forward, negative externalities will be priced and wealth growth and impact needs to be decoupled from now on.

In the coming decades, it is evident that sustainability will be integral to the investment strategies of all asset managers. Asset owners will require comprehensive knowledge about a company, including its real-world impact, before financing it through equity or debt. This will redefine fiduciary duty and, in turn, reshape investment processes.

The future hinges on balancing planet, people, and performance. Portfolio manager 2.0 will need to solve the 'trinity' puzzle: managing tracking error, achieving alpha, and allocating a sustainability budget. The biggest mistake corporations and asset managers can make is not seeing the opportunities[39] in sustainability. Sustainability will be a risk factor which generates a return[40]. Issues like climate, biodiversity, and human rights will be front and centre. Adopting an SDG framework is the most straightforward approach to manage your sustainability budget, as it is increasingly becoming the global standard.

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[37] Van Zanten, Jan Anton (2021). Improving companies' impacts on sustainable development: A nexus approach to the SDGs

[38] Paul Polman in preface Principles of Sustainable Business. Van Tulder, Rob & van Mil, Eveline.

[39] Boardrooms often make the mistake to look at the stock instead of flow of events. A larger pool of clients is not or only moderately interested in sustainability but the growth rate is strong. Looking at the stock of clients will make you look back in history, one needs to look forward and form a vision. That means the flow of new clients tell you where the industry is heading for.

[40] An interesting research topic for an academic would be if the capital expenditure needed for sustainability will always generate a return like theory suggests. It could be that part of these investments are just needed to stay in business and do not generate a return.

Investment principle V; 'Winning by not losing'

Winning by not losing and Graham's safety margin

The fifth Investment Principle is basically a set of working principles to identify, and benefit, from both positive and negative anomalies in financial markets. This focus is a time and energy saver. Particularly in credit, but generally as well, avoiding the worst-performing assets gives you a competitive edge. This is crucial for delivering consistent, risk-adjusted alpha in both up and down markets, especially if you are not pursuing a high-beta strategy through the cycle. The idea of "winning by not losing" aligns well with the principles we have discussed, a concept Benjamin Graham would likely endorse.

Winning by not losing begins with acknowledging that complete knowledge is unattainable, even after extensive research. However, incorporating sustainability data can offer a more comprehensive view, allowing you to make better-informed and better-prepared decisions. While you cannot know everything about a company, you can know enough to make sound choices with a clear understanding of real-world impact.

It brings us back to the tendency to overestimate one's own skills which is a common human bias. In Kahneman's framework, System I often jumps to conclusions and creates a narrative that feels true at first glance. Activating System II takes more effort and energy. It is crucial to recognize that not all information about a company is readily available. One strategy to mitigate this issue is leveraging the *wisdom of the crowd*, something I have tried to implement in various ways, such as establishing academic boards to scrutinize investment processes.

I have always valued credit committees where a writing analyst, reading analyst, and portfolio manager come together to discuss a report after thoroughly reviewing it. This approach taps into diverse knowledge and experience, reducing the likelihood of making mistakes[41].

Even with a well-structured research process, there are additional measures that can help minimize risk. Whether you call it general knowledge or unverified opinions, the following principles have consistently helped me avoid credit losses.

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[41] There is a lot one can do to optimize a credit committee like letting juniors speak first to enhance the learning curve or structure voting and discussing rules under leadership of a senior analyst as chair. It maximizes the chance of the best conclusion by combining the knowledge of several 'believable' experts.

Be street smart

First, the real estate sector is notoriously difficult to analyse. Standard metrics like Debt to EBITDA or Free Cash Flow are not as applicable. Instead, factors like asset coverage, revaluation processes, and rental margins come into play, making it different from evaluating other corporates or banks. Another concern is governance and risk appetite, as real estate companies often lack transparency. Opting out of investing in real estate as a creditor can save considerable time and stress. Reinhart and Rogoff's work, "This Time is Different", points out that real estate is often at the centre of systemic crises. By avoiding the sector, you can sidestep a lot of potential problems.

Second, CCC-rated credit tends to be overpriced, leading to expected underperformance. Companies paying a 12% or higher coupon face a steep uphill battle to grow revenue enough to grow into their balance sheet. Often, expected credit losses overwhelm yield or coupon income. By reallocating funds from an underweight position in CCC bonds to other credit categories—like investment grade, subordinated debt, or bank debt—you can maintain the same beta to the index while minimizing exposure to CCC-rated companies. This strategy is an effective way to win by not losing. By limiting investments in CCC-rated companies, you can save time and reduce stress, while also avoiding the costs associated with legal procedures and winding down.

Third, Bill Gross once highlighted that there are market anomalies that can be harvested. Examples include the steepness of the curve (or the forward curve overestimating the future path of rates) and implied volatility in bond markets (hence selling volatility could be a winning strategy). In my experience, another anomaly lies in avoiding the non-food retail and leisure and apparel sectors. These industries operate on razor-thin operational margins, often around 5% and hence lacking a part of endurance. Any economic downturn can quickly erode these margins, causing a spike in leverage and a loss of market confidence, which then becomes a self-fulfilling prophecy. Choosing not to invest in these sectors can save you time and stress. It is worth noting that credit incidents tend to cluster not just in time, such as during recessions, but also by sectors.

Fourth, steering clear of second-tier banks can boost performance, exemplifying the "winning by not losing" strategy. These banks, which are not among the top three or four in a given country, typically do not have access to premium clients and hence are less diversified in their lending. As a result, their loan portfolios often include riskier loans and structures that larger, more established banks avoid. Loan losses are typically higher,

regulatory oversight is often weaker and in an adverse scenario these banks are definitely not too big to fail[42].

Investing in banks can yield benefits from steep curve anomalies, but only with well-managed risks. Stick to well-established, large banks and avoid the trap of thinking you can fully understand complex, regional, or second-tier bank balance sheets. This approach saves you unnecessary hassle, stress, and time. For a large, well-managed bank, the default risk is nearly zero. During recessions, credit losses are an earnings event, not a capital event. A useful strategy is to buy AT1 (deeply subordinated bonds) from large banks during stressful times, aiming for a minimum yield of eight percent. This sets you up for strong equity-type of returns in subsequent years, while keeping default risks low.

Fifth, focus on diversification and a margin of safety[43]. Use metrics like the Du Pont formula and asset coverage[44] to ensure 'endurance' in all holdings and hence in portfolio. For riskier investments, make sure the price provides a buffer for errors. Do not make the mistake of overestimate yourself by taking large, concentrated positions. Be strict and set hard limits on 'line' exposure; for example, a 1.5% holding limit and 50 risk points, no exceptions. Always be prepared for the possibility of being wrong without ruining your track record. Even an unexpected loss situation, such as fraud with a 50% recovery rate, can erase your annual alpha or damage your reputation if the holding is too large. The key is to win by not losing and to always maintain a margin of safety.

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[42] Too big to fail is the doctrine that states that governments will bail out a large bank with solvency issues and therefore implicitly protect bondholders. Although this has changed since the Big Financial crisis (2008) by legislation prescribing bail in legislation for local regulators, it still is relevant to a certain extent. A government will at least take more stakeholders in account in times of stress especially when the bank can cause a systemic crisis.

[43] Graham, Benjamin (1949). The Intelligent Investor. Graham is great in writing about being invested but invest in mean reversion context while owning the margin of safety. That is what an Investor does versus speculator (who tries to make alpha on trading).

[44] Graham, Benjamin (1949). The Intelligent Investor. Graham writes an amazing chapter about the margin of safety an investor needs to create for him or herself. It makes the difference between investing and speculation.

Conclusion Investment Principle V

The conclusion for this fifth Investment Principle, "Winning by Not Losing", lacks rigorous back-testing or academic validation. However, recognizing the limits of your knowledge is crucial. Treat data analysis and annual report reviews as essential homework, not something to bypass through summaries or others' opinions. Despite the challenge of sifting through vast information, there are guiding principles that can help you avoid pitfalls and achieve success with lower risk. Be humble and vigilant.

Don't overestimate your abilities and steer clear of sectors with a history of problems; this will lower your probability-weighted expected credit loss and reduce drawdowns. Respecting a margin of safety also saves you unnecessary stress and wasted time. In the end, it is about following the wisdom of investing master Benjamin Graham: create a margin of safety while taking calculated risks.

Concluding remarks

Personal Investment Principles

This book outlines Investment Principles. These are my working principles designed to help my investment teams to maintain focus, capitalize on market anomalies, and cultivate a common investment culture. While these principles are neither perfect nor exhaustive, they draw from insights I have gathered from other investors and authors, as well as my own experiences. They have been applied in the investment processes I have managed. And guess what, it worked!

It all begins with recognizing your limitations and biases. Manage egos, acknowledge that errors are part of the human brain, and establish an environment that encourages continuous learning and improvement. I am fascinated by top athletes who have an entire support team managing their training, diet, rest, and even biorhythms, which vary from person to person[45]. In investing, the stakes are also high, and you could sometimes feel like a high-performance athlete, but the level of support is often less comprehensive. I believe the next best thing is to leverage technology to help investment professionals optimize their performance. After all, that is what our clients deserve.

The market as a whole does not adequately manage biases, leading to asset prices that deviate from their fundamental values due to fear and greed cycles. This collective bias creates opportunities for mean reversion, allowing well-organized professionals to consistently generate alpha. However, addressing these biases can be a blow to the ego.

A structured investment process in which the top down and bottom up process is organized in a way that alpha becomes repetitive, is crucial. Understanding global macro trends helps identify where biases interfere and economic principles are overlooked. Most of us work through only one or two secular cycles, which influence the behaviour of business cycles. It is not just about GDP forecasts, which may not even be that relevant. Valuations and technical factors, such as policy actions, are equally important.

The greatest potential for return lies at the intersection of global macro and idiosyncratic biases. Take risks but focus on endurance and maintain a safety margin. Sustainability represents a new long-term cycle that demands its own set of principles, which I discuss

[45] It is common knowledge that at major tournaments some athletes wake up at night to optimise their results for an afternoon race driven by the personal biorhythm (which could be seen as a bias).

below. Lastly, I have outlined a few simple investment principles that are easily integrated into portfolio management. These are anomalies that provide returns; they just require disciplined execution. Remember, winning starts by not losing. The unifying theme of this book is biases. Essentially, each Investment Principle aims to help us master the behavioural biases we all suffer from.

Technology

Collecting data will offer opportunities to evaluate your process. Even qualitative factors like discussions can be quantified and analysed. Advances in technology will reshape investment teams. As the technology revolution marches on, data is increasingly becoming a commodity. Much of the data you can buy today can either be generated in-house or will become affordable due to mandatory disclosure laws. However, data storage and processing presents its own challenges. Even with cloud-based solutions, making this data easily accessible to portfolio managers through the right tools is the next crucial step.

Over time, I have come to appreciate the value of custom-built tools. Off-the-shelf solutions often fall short in expectations. You would be surprised what tailored tools developed by data scientists and technology specialists can achieve. For example, you can easily access the carbon footprint data for any of your portfolios with just a few clicks. Although I am not a technology specialist, I have found that creating your own tools can be highly effective. This approach also avoids reliance on data vendors or software developers, who might hike up fees once you are dependent on them. Therefore outspending peers on technology budget is a smart strategy. And 'SI is IT' meaning that Sustainable Investing is IT-intensive.

The next wave of technological innovation is already underway, and Artificial Intelligence is set to redefine business models. AI specialists will become integral members of research teams. Trained machines are expected to automate the time-intensive tasks currently handled by human analysts, such as text analysis, data extraction from PDFs, and information organization, within the next one to two years. Company data from regulatory filings will become widely available in easy processable format (data is commoditised), allowing analysts to focus more on delivering value through in-depth analysis. In addition, trained models can help generating our credit reports much faster than before. The same efficiency gains apply to internet scraping tools and data storage solutions for post-hoc evaluations, as discussed in Investment Principle I. These advancements can significantly reduce costs or boost output, levelling the playing field for smaller asset management firms and reducing the importance of scale. Interesting is the thought that setting up a new

investment framework, including a research process, would probably look different that the one I just left behind. That is the power of a clean sheet versus a large vested interest.

Sustainability is next secular cycle

Sustainability is the new secular cycle, following the close of the debt super cycle. It is set to become a key risk factor. Portfolio managers will need to consider the double materiality impact of sustainability. Planet, people, and performance will go hand in hand. Negative externalities will be priced in, changing the dynamics of efficient markets. Focusing on sustainability not only prepares you for the future but also improves your information ratio. Solving the trinity of tracking error, alpha and sustainability together with your clients is the future. Mass customization is essential, as clients in different industries have varied sustainability preferences. Our Climate, Biodiversity, and Human Rights strategy has proven effective, serving as a common ground that resonates with many asset owners.

Impact on board rooms

Convincing large organizations to prioritize sustainability can be challenging, and some may face a 'Kodak moment' of missed opportunity. Ultimately, companies cannot succeed in a failing society. While clients will continue to demand performance, sustainability metrics will increasingly be included in Investment Management Agreements. The Portfolio Manager 2.0 will manage the trinity of tracking error, alpha, and sustainability in coordination with the client, effectively serving as a project manager in this evolving landscape.

Future of Asset Management

Managing vested interests and legacy team members with a (investment) horizon less than ten years can be challenging and requires entrepreneurial skills. I am convinced the winners of last ten years will not be the winners of the next ten years. Redirecting resources from traditional analysts, sales professionals or management layers towards disintermediation of expensive distribution and artificial intelligence is essential. Expect resistance from those with vested interests. The future lies in partnerships and open access, as client interaction is rapidly evolving. Providing free access to intellectual property, while building relationships based on trust, sustainability, and performance, will be key going forward.

In asset management, scale is becoming less relevant[46], much like in the corporate world. It already did not matter too much but this will become even more true. While scale once promised lower cost-to-income ratios, there is little evidence to support that correlation now. In fact, increased size often brings complexity and associated costs. Smaller, impact-focused asset managers can effectively compete for a share of the wallet of asset owners by understanding what truly matters: knowing the client's assets.

I hope you found this book enjoyable and valuable in enhancing your investing skills. I encourage diving into the books and academic papers cited for a deeper understanding. A key takeaway is the vital role of sustainability in your research processes. We are in a new secular cycle where sustainability will impact research, legislation, management strategy, and client relationships.

Along with massive technological opportunities, managing biases and focusing on sustainability are the key elements I plan to embrace for the next 25 years of my career.

[46] Ridley, Matt (2020). How Innovation Works, and why it flourishes in freedom. This great and optimistic book shows how teamwork, failure and luck are crucial for prospering. Management teams should read this book and understanding that only innovation and creating the circumstances for it will drive your firm forward.

Literature

Over time, a robust investment process evolves, incorporating new ideas and experiences. Colleagues, equipped with diverse and credible expertise, have had the most significant impact on refining my investment process. They consistently challenge me to rethink, adapt, and improve. Academic literature has also been a valuable catalyst for change.

Many investment books and academic papers provide insights on specialized topics. Sometimes these offer one or two elements that are worthwhile to remember to strengthen the investment process through time. While it may seem like the benefit of reading them is therefore marginal, each piece adds to your collective knowledge. This is essential for mastering your own behavioural biases, understanding historical events, and discerning what's different this time. Ultimately, it underscores the importance of thinking critically and continually questioning your own assumptions.

Below is a list of books that have had a significant impact on me, complete with brief summaries to highlight the elements that I found most compelling. The list includes books on cognitive science, shedding light on how our brain functions, as well as works on historical economic events. These lessons continue to help me identify patterns of irrational exuberance in today's society and anticipate similar trends in the future. Of course, the list also includes books on understanding business cycles, as well as guides on optimizing team dynamics and ensuring there's a dissenting voice within a team.

Ultimately, each person needs to read and study these materials for themselves to reap the full benefits. There's no one-size-fits-all investment process that works for every asset class or individual and it could well be that my lessons learned cannot be generalised. That is why I recommend reading these books yourself to identify your own key takeaways. The same goes for Central Bank statements; read them directly from the source for an unbiased, unfiltered view. Interpretations from investment banks like Morgan Stanley or Goldman Sachs are useful only for understanding how other market players think. To form your own unbiased opinion, always go to the primary source for important material.

To make a rather obvious statement: this list is not exhaustive. While many other papers and broker research have also influenced me, I've chosen to focus on the most impactful sources here. I've also left out broker research as including them be would be too expansive for this context. The key is to maintain diverse thinking and stay open-minded throughout business cycles. So keep reading, keep studying, and stay aware of your own biases.

Literature list Investment Principles

Kahneman, Daniel (2011). Ons Feilbare Denken, Thinking, fast and slow, Eight print, Business Contact.
One of the most influential books by a wide margin. The famous fasts and slow thinking systems of our brain explain the existence of human behavioural biases which everyone has. An amazing story about ego-depletion, overconfidence, extrapolation, probability neglect and reflective minds, which are just a few insights that help explain financial markets, but basically everyone's behaviour in daily life. A must read for everyone who takes generating alpha seriously.

Reinhart, Carmen M. & Rogoff, Kenneth S. (2009). This time is different, Eight Centuries of Financial Folly, Thirteenth Printing, Princeton University Press.
A brilliant description of centuries of excessive debt collection by governments, corporates, consumers and banks. The overconfidence of policy makers and management teams make serial defaulters and cause crises to repeat every couple of years. Although the writers have become famous for trading rules about debt to GDP levels, which cause growth slowdowns and increases vulnerability, for me it is all about behaviour and repeating mistakes. How do we recognize mistakes from the past and realize that it rarely is 'different this time'.

Graham, Benjamin & Dodd, David (1934). Security Analysis, The Classic Edition, McGraw-Hill Book Company.
According to many this is the basis of all security analyses. The writers describe the difference between investing and speculation. Another element is the ability to pay-off a corporate versus liens as a mean of getting your money back. To some extent it is about deviating prices from fundamental value driven by optimism and careless behaviour.

Dalio, Ray. (2017). Principles, Life and Work, Simon & Schuster.
The book is split in three parts. Feel free to by-pass the first which is about Dalio's life. The content which is highly valuable is in part two and three. Especially part three about radical truth and radical transparency is intriguing. Unemotional disagreement by independent thinkers can be converted into believability-weighted decision making. An amazing book in which Dalio comes up with ideas and principles which were recognized in my first Investment Principle. One of the best books ever written on behaviour and organization.

van Tulder, Rob & van Mil, Eveline. (2023). Principles of Sustainable Finance, Frameworks for corporate action on the SDGs, Routledge.
Simply a master piece on sustainability. With a focus on Sustainability Development Goals, the writers give corporate management frameworks, principles of sustainable finance and advice how leaders of this world should take negative externalities into account. 'Companies cannot succeed if societies fail' summarizes it all. Best and most comprehensive book on Sustainability I have ever read. Van Tulder is adviser to the Robeco SDG Board.

Summers, Lawrence H. & Poterba, James M. (1987), Mean reversion in stock prices: evidence and implications. National Bureau of Economic Research
A complex academic paper but the abstract is clear. There is statistical evidence that there are transitory components that account for a large fraction of the variance in stock returns. Mean reversion exists in stock prices.

Summers, Lawrence H. & Pritchett, Lant (2014). Asiaphoria meets regression to the mean. Harvard Kennedy School.
An interesting paper that shows that episodes of rapid growth in developing countries often is followed by drop-offs of growth. A large fraction of the variance in growth rates is captured by mean reversion. Extrapolations by economists are wrong.

Tetlock, Philip E. & Gardner Dan (2015). Superforcasting. The Art and Science of Prediction. Crown Publishers.
A book with several references to other books on this list. What makes some specialists consistently better forecasters? To what extent do intelligence, luck, mean reversion, open mindedness and self-criticism play a role in results of people that do consistently better in forecasting. How can the wisdom of the crowd help and is diversity of skills helpful. Many links to Kahneman. Several commonalities to my five Investment Principles.

Koo, Richard. The Holy Grail of Macro Economics, Lessons from Japan's Great Recession.
A different view on macroeconomics than the mainstream academics have alongside the Japanese lost decade. How psychology of a society can move from profit maximization to debt minimalization. An insight which was very useful in the aftermath of the Great Financial Crisis in 2008 in the Western world. A different view on policy measures, fiscal and monetary principles. A great example how studying history can help understanding the present.

Mark, Howard (2018). Mastering the market cycle, getting the odds on your side. Houghton Mifflin Harcourt.
Howard Marks explain here what a good investment process needs to have. Examples are mastering the business cycle and understanding history. On top of that being open to expert opinions and keep studying are elements for his firm Oak Tree.

Thaler, Richard H. (2015), Misbehaving, the making of behavioural economics. W.W. Norton and company.
One of the best writers on behavioural economics. This book described a few interesting topics like the consumer utility curve, and self-control which is assumed in economic modelling but which is in reality less the case.

Napier, Russell (2009), Anatomy of the bear, lessons from Wall Street's four great bottoms. Harriman House
A good description of the four big market downturns in 1921, 1932, 1949 and 1982. A technical description of the impact of China which was deflationary. A description of consumption, stock market returns over time and impact of earnings growth.

Shiller, Robert J. (2005). Irrational Exuberance, second edition. Princeton University Press
The famous Shiller has updated his Irrational Exuberance book. He describes how collective enthusiasm on stock can lead to speculative bubbles. In this update the rising housing prices concern him. Investing in financial markets is inherently volatile he shows. A technical book with loads of data but basically showing behavioural experiences lead to bubbles.

Ridley, Matt (2020). How Innovation Works, and why it flourishes in freedom. HarperCollins.
The author of the 'The Rational Optimist' explains in this book how free societies prosper and how major innovations like energy, food or other technologies occurred. What the difference is between innovation and invention. Human intelligence became collective and the world has become a better place. Trade, interaction and collective wisdom drives the world. Counterintuitive stories about how intensive cultivation is good for productivity and diseases and delivers more nature. Teamwork, failure and luck.

Ridley, Matt (2011). The Rational Optimist, How prosperity evolves. Harper Perennial.
A great story if one needs an optimistic story on the challenges we face as society. What is the difference between innovation and invention? How vested interests often block progress. Accepting failure is key in innovation and progress just like specialization and trade and use of the collective brain.

Smil Vaclav (2022). How the World Really Works, a Scientist's Guide to Our Past, Present and Future. Penguin Random House UK.

An interesting view on how our society is dependent on a few crops and we are massively dependent on fossil fuels. Fossil fuels drive food production and consumes most energy. We do not understand anymore how to grow food or produce steel on an individual level.. Ammonia, steel, cement and plastics are the four key dependencies we will have for decades to go. There is optimism on intensive cultivation here too. The feed stock of a kilo of bread versus a kilo of chicken meat has decreased to only 1 versus 3. We need to protect our biosphere, we only have one.

Coggan, Philip (2020). Paper Promises. Debt, Money and The New World Order. PublicAffairs.

A very sharp analysis on the history of debt and credit. Moving away from the gold standard made credit merely a promise to pay. Italians invented banking, The British Central Banking and the US invented cash and credit. A book which describes how we have gone too far and how many creditors will not be able to keep their promises. Primarily the credibility of governments matter which does not bode well studying history.

White, Eugene N. (1990). Crashes and Panics, The Lessons from History. New York University.

The author studies historic stock market crashes in order to understand what happened in 1987. An interesting book on 'mass madness' driving asset prices higher. What is the role of the drop of wealth and asset prices versus the role of banking and credit? The book is about the greater fool theory, speculative bubbles and, in the end, fundamental values that drive stock markets.

Thaler, Richard H. & Sunstein, Cass R. (2008). Nudge, Improving Decisions about Health, Wealth and Happiness. Penguin Books.

Thaler is one of my favourite authors. We are all choice architects. If we take it very serious we apply libertarian paternalism. In other words a nudge is any factor that influences the behaviour of humans even though ignored by economists. Human decisions and forecasts are flawed and biased.

Graham, Benjamin (1973). The Intelligent Investor. HarperCollins.

Benjamin Graham is the long term value investor since 1949 and Buffett based his empire on it. His principles have inspired many investors around the world. His statement that an Investor's biggest enemy is himself…Graham offers principles to become a sound investor instead of being a speculator. His main advice is to take a margin for error. An advice that comes close my fifth Principle of winning by not losing. The other main point he makes is that a sound investor is invested unless prices smell like speculation. It refers well to the first Investment Principle of mastering your conservatism as credit investor. Stay invested unless.

Literature list Sustainability

This list of NGO papers and publications serves as a reference point. Each year, I ask my Sustainability Centre to identify key publications on sustainability for me. Summarizing this vast array of content briefly is challenging, and new insights are continually emerging. Below, I've outlined some key takeaways for the asset management industry, in no particular order. I encourage you to select an article that resonates with you and start sharing insights. The goal is to better educate ourselves, enabling more informed conversations with specialists, who are increasingly part of client discussions.

Sustainability has evolved into a science-based component of investing, replete with its own complexities and forward-looking trends. Unlike traditional markets, sustainability doesn't operate on an efficient market hypothesis. While personal beliefs[47] and ethics play a significant role, there's also a wealth of evidence-based knowledge on the planetary boundaries we're breaching. Educate yourself on both sustainability and investment theories. Failing to grasp the secular trend of sustainability means missing out on a significant opportunity for the near future.

IPBES, the global assessment on biodiversity

The Intergovernmental science policy platform on biodiversity and ecosystem services. The 7th plenary meeting at Unesco in Paris. Participation of 130 countries and fully science based. Great report although the introduction is impossible to read. Just skip it.

It is all about Nature and the contribution is has to people. Biodiversity and ecosystem functions deteriorate, and hence we degrade the biosphere. It causes major losses in what nature can deliver to people like food, clean water, energy but also less obvious things like a diverse genetic pool and medicine. We need to restore the regenerative ability of nature and protect diversity to reach a stable sustainable society. People have increased crop productivity three times per square meter in recent history but it was accompanied with a 23% of terrestrial degradation. IPBES recognizes that a healthy planet and healthy people are intertwined. One cannot go without the other.

[47] The personal beliefs have always been discussed by me along the (in Dutch) 'Schaal van Walgelijkheid' or (in English) 'Scale of Disgustingness'. It refers to the level on significant harm an organization or person wants to be linked. Difficult assessments have to made on the absolute level of Sustainability or the rate of positive change of Sustainability (think about Human Rights as an example; accepting clients from a country is not the same as being present in the same country).

IPBES also defines the nature contribution to people (NCP). The contribution is via biophysical processes and delivery of anthropogenic assets like knowledge and technology. Examples are; nature solves pollution, delivers mental health, regulates diseases, delivers coastal protection, drinking water, food etc. Nature also causes pollination and reduces acidification. In short, our dependence on nature is much wider than one might expect. We extract too much from Earth and cause pollution. Waste water, fishing, logging and many other things put pressure on the regenerative ability of Nature. We need to define what 'a good life' is and need to reduce inequalities in the world. That are the main drivers we need to fix. Better use of land and sea, manage climate and pollution are the main relationships to the mentioned SDGs. Great article to realize that biodiversity is bigger than climate. Climate is just part of biodiversity. Not the other way around and definitely two things we need to manage. Fixing NCP means fixing climate.

University of Leeds, White Rose Research consortium

A short academic overview publishes around the doughnut-shaped and Just Space framework. In short, an overview what people are doing to Nature via some predetermined KPIs. A tool how to develop a stable and resilient planet. It needs to become 'Safe and Just'. It describes two concepts; First, the Planet Earth system that delivers ecological services but there are planetary boundaries to that. How many of these critical boundaries have already been breached? Second, it studies the social impact on human deprivation which is aligned to the UN SDGs for social development. The doughnut is just a way of presenting. The researchers have ranked 140 countries based on progression on ecological improvements and social shortfalls. Obviously one can see that rich countries like Germany do better on social systems while some EM countries do better on ecological services. Germany has actually not made any progress on Nature. The conclusion is that in last decades many countries make progress on the social items. The impact on reaching the 12 SDGs that can be treated as 'social' is somewhat positive. However, most countries do not deliver on the Nature side and actually 6 out of the 7 planetary boundaries that are being measured see an overshoot. The scientists calculate that only a 3% redistribution of wealth / income could solve the extreme poverty (which has declined in recent decades).

TNFD, the nature related risk and opportunity management and disclosure framework, a prototype for consultation with market participants, March 2022

About half the world economic output is moderately or largely dependent on Nature. However companies, lenders, asset managers and investors do not take that into account in their decisions. The TNFD is like the TCFD a reporting and disclosure initiative to improve information gathering on biodiversity. Biodiversity drives quality and resilience of Nature. Natural assets and ecosystems are the things to study. Biodiversity for TNFD is about land, ocean, freshwater and atmosphere. These are the inputs. Then a complex iteration starts with definitions on natural capital (natural resources) and environmental assets (forest, coral reef or agricultural assets) of which the differences are a bit unclear to me. The TNFD prescribes a system of governance, strategy, risk management and target setting for organizations to deal

with biodiversity. Just like the TCFD. Like the TCFD is offers a risk assessment for corporates on Nature called LEAP; Locate (interface with nature), Evaluate (dependence), Assess (risk and opportunities) and Prepare (respond and report to investors). Risk framework is defined as physical risks, transition risks, systemic risks and opportunities.

IPCC, the intergovernmental panel on climate change, report on climate change 2021, the physical science basis, summary for policy makers

I keep this one extremely short. It provides a large number of graphs with evidence that humans are causing global warming, the speed is unprecedented and consequences are clear. More extremely wet periods and droughts cause large damage. Natural land and sea carbon sinks are under pressure.

CellPress, Open Access, Defining a sustainable development target space for 2030 and 2050, One Earth

The academics define 36 targets to achieve the SDGs. It studies how to achieve all SDGs together and analyse the interlinkages and off sets. Very much in line with the thesis of Jan Anton van Zanten's work in his Doctoral dissertation on the Nexus, the relationship among the SDGs. It is all about the world in 2050. More information can be found on www.twi2050.org. Scientists show modelling and scenarios. It is about demographics, responsible consumption, decarbonization, sustainable land use, sustainable cities and the digital revolution. The targets are grouped in 5 key areas; a) dignity, poverty and equality, b) prosperous lives, c) protecting from degradation and planetary boundaries, d) governance, peace and a Just and inclusive trajectory and e) sustainable resources. It shows that e.g. on poverty and hunger society is making progress. We do not make progress on carbon or education.

Sustainable Development Report 2022, from crisis to sustainable development; the SDGs as roadmap to 2030 and beyond, Cambridge

The main conclusion is that SDG progress has been halted since 2019. Great graph in summary about stalling progress. It is even not taking into account yet the Ukrainian war. It is clear that the SDGs are the number one international language to communicate about the future progress towards a sustainable world. We have an opportunity if we keep investing in SDG frameworks. The biggest disappointments according to the Cambridge study is the progress on SDG 1 and 8. Low Income Counties (LIC) mainly are lagging here. Conclusions are that we need much more debt forgiveness, fiscal transfers, philanthropy and capital to invest for the LIC. Cambridge shows a very hypothetical but insightful calculation on how more capital and primarily cheap interest rates could close the gap for LICs.

***Sustainable Development Report 2021*, the decade of action for the Sustainable Development Goals, includes the SDG index and dashboards; Cambridge**

A report on the progress on achieving the SDG goals. A check on whether we 'leave no one behind'. This is important and is benchmarked via the progress report on high and low income countries. The world needs to decouple carbon from growth. The 'leave no one behind' SDGs and the 'circularity and decoupling' SDGs seem to be the most important which make sense. Moving from ESG to impact is a key item going forward.

***Our future in the Anthropocene biosphere*, Kungl. Vetenskapsakademien, Folke and Polasky and Rockstrom**

One of the best articles on sustainability to me. The Anthropocene is the epoch in which humans are the driving force behind climate change, increasing inequality and the loss of biodiversity. Planet Earth has boundaries we should not break since these might be irreversible. A nice chapter on how biodiversity increases resilience and regenerative capacity.

***Science Based Targets for Financial Sector*, pilot version 1.1, April 2021, cooperation with WWF, UNGC, CDP**

Financial institutions are strange entities in the field of climate change. The sector is not directly responsible for emissions but indirectly. The article gives some examples how one calculate progress on e.g. decarbonization in real estate financing.

***The Alignment Cookbook*, a technical review of methodologies assessing a portfolio's alignment with low carbon trajectories or temperature goal, Louis Bachelier Institute, in partnership with WWF and with the contribution of the European Union Life program, Julie Raynaud lead author, 2020**

An interesting part in this article in the fact it tries to come up with an implied temperature rise gauge for a portfolio. Basically the holy grail. We also tried to do that in cooperation with CISL/Cambridge.

***IPCC working group on III contribution to the IPCC assessment report (AR 6),* IPCC intergovernmental panel on climate change, draft of draft 18th January 2021, a technical summary**

An overview of the carbon emission through time. What is our cumulative budget for carbon emissions if one wants to limit global warming to two degrees? Interesting to see that these science based number are probability weighted outcomes with only 60% reliability. Good to remember.

Biography

Victor Verberk began his career as a Global Fixed Income Portfolio Manager at AXA Investment Managers, where he honed his expertise in credit management, particularly during the development of the European capital markets following the introduction of the Euro. At Mn Services, he served as Head of Fixed Income, gaining experience in balance sheet management, risk assessment, multi-manager selection and high-yield investments. Before the 2008 Financial Crisis, Victor managed a long-short credit hedge fund as a partner and Chief Investment Officer, further expanding his skills in risk management, derivative trading, and special situation research.

At Robeco, Victor held various roles, including serving on the Executive Committee as Deputy Head of Investments and later as the Chief Investment Officer for Fixed Income and Sustainability. His role at Robeco added client servicing, strategy, team leadership, and technological innovation to his skill set. His most rewarding experience was overseeing the development of one of the world's leading Sustainable Investing knowledge centers. Committed to lifelong learning, Victor plans to continue expanding his knowledge and skills for the next twenty-five years.