Long-term asset management:

Norwegian sovereign wealth fund examples

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Foreword

The purpose of this book is to examine and explain the fundamental principles of long-term asset management. It is not the kind of text you rush through; it calls for slow, attentive reading, and thoughtful consideration, that is, everything contrary to mindlessly scrolling past cat videos on Instagram.

I have chosen to self-publish this book, which allows me to retain all rights and to make necessary updates or corrections promptly. If you identify any inaccuracies or potential misinterpretations, I encourage you to contact me. The book is intended as a dynamic document that evolves alongside an ever-changing world. Additional resources, including slides, are available here: Long-term asset management

I use this book in two courses on asset management and private equity that I teach at NHH Norwegian School of Economics. More information about my work is available on my website: Trond Døskeland. I can be contacted by email at mailto:trond.doskeland@nhh.no.

I have used generative AI as an aid in drafting parts of the text and have also drawn extensively on existing work by others. I have made every effort to credit all relevant sources. If there is anything that could be improved, let me know and I will consider revising the document.

I consider this book to encapsulate many of the achievements of my professional life, summarizing the insights gained from a career in asset management and from working with the Norwegian sovereign wealth fund. Writing the book has also been a revitalizing process that allowed me to step away from the pressures of daily life and enter a state of flow.

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Chapter 1

Introduction

Making decisions for long-term investments involves dealing with uncertainty. Given that it is not possible to foresee the future, we are unable to make decisions with absolute foresight. However, uncertainty presents opportunities for extra gains. Securing a favorable return on investment is based on making long-term decisions guided by data insights, supported by robust theories, clear examples, and logical reasoning. In doing so, we can achieve solid returns without taking on excessive risk. This book aims to lay the foundation for making well-informed choices regarding key elements of long-term asset management.

1.1 Roadmap

1.1.1 Four main decisions

The book offers an overview of the four most important choices involved in an investment procedure. As illustrated in Figure 1, we first separate the decisions into two components, namely *asset allocation and spending*, and *active vs. passive*. Each of these is further divided into two distinct decisions, resulting in a total of four important choices.

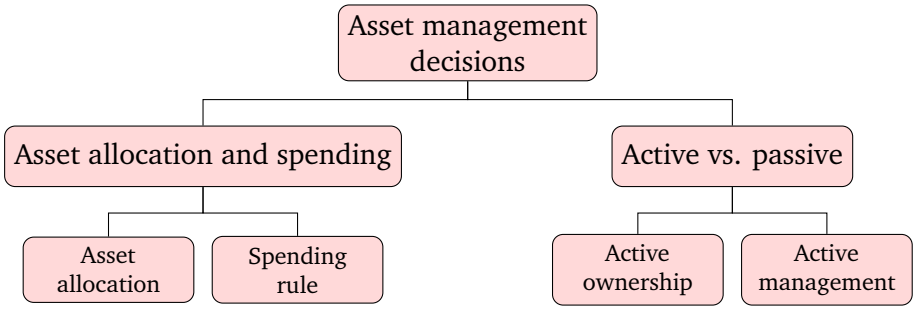


Figure 1. Asset management decisions

Asset allocation and spending are divided into, yes, asset allocation decisions and to spending rule decisions. These choices are determined at the macro-level of the portfolio, also known as *portfolio choice*. Active vs. passive are split into active ownership and active management. These decisions are made at a more granular level. This typically involves the method of interacting with the companies included in the portfolio. As we will discuss in more detail shortly, in active ownership, the owner determines how to influence with the company's activities. In contrast, in active management, we change the *weights* in the portfolio companies. This means that we increase the allocation to stocks we believe are undervalued and decrease or eliminate exposure to those we expect to underperform.

1.1.2 Theories: Risk sharing and frictions

In long-term asset management, we incorporate a variety of subjects from economics and associated disciplines. However, we focus on two specific areas within the field of economics, namely *risk sharing* and *financial frictions*. These areas represent crucial elements in microeconomics and, consequently, in financial economics, which falls under the umbrella of microeconomics.

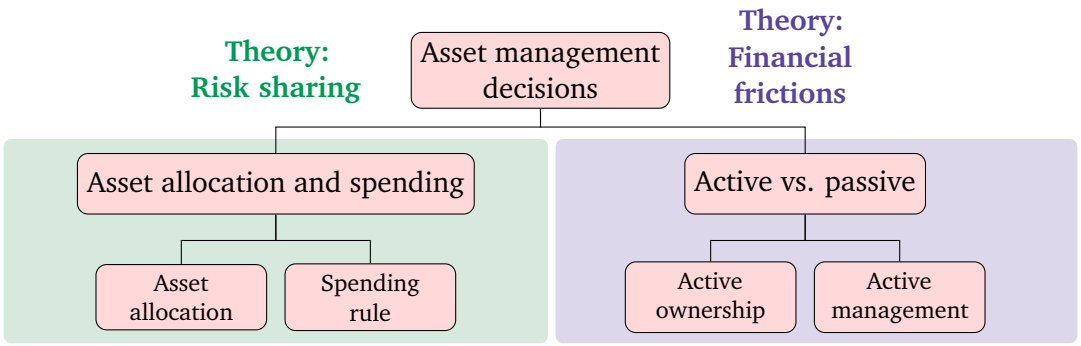


Figure 2. Theories: Risk sharing and frictions

Risk sharing

Given an unpredictable future, decisions are characterized by uncertainty or *risk*. A substantial body of literature within economics addresses the topic of risk; for an overview, see Campbell (2017). As we shall see, long-term investment is much about sharing risk.

An established result is that we can reduce risk by sharing it with others. There are many academic contributions that can help us in supporting decisions, but achieving perfect *theoretical risk sharing* requires the fulfillment of numerous assumptions.[1] In a simple scenario, people facing independent and identically distributed risks and sharing the same preferences benefit from pooling their risks and equally distributing them, similar to an insurance cooperative. Therefore, achieving *Pareto improvement*, meaning everyone benefits, is impossible. An additional gain for any person must come at the expense of another.

In *practice*, risk reduction is achieved by distributing resources across different activities with minimally correlated outcomes. This method is referred to as *diversification*. Asset owners also have varying degrees of willingness to bear risk.

As illustrated in Figure 2, we derive knowledge from the *risk sharing theory* to get a better basis for making decisions about asset allocation and spending rule. Further discussion of the theory and these choices can be found in Part I.

Financial frictions

In the first part, Part I, we assume that asset owners have complete information on the economic variables important for decision making. Later, In Part II, we explore the effects of various frictions or obstructions in the financial markets. Frictions in financial markets create costs that obstruct transactions made by rational participants. This again can lead to distorted economic behavior and inefficient allocation of resources. However, it is also possible to exploit these frictions and improve resource allocation.

[1] For a deeper discussion, see Section 4.1.6 and Chapter 11 in Campbell (2017). A key figure in the evolution of risk sharing theory is the Norwegian economist Karl Borch. See Pratt (2000) for a discussion and Borch (1962) for the original paper.

A substantial body of literature within economics addresses frictions in financial markets; see, for example, Chapter 12 in Campbell (2017).

- **Agency problems:** One potential friction can be the information gap between different participants, indicating the presence of asymmetric information. For example, without frictions, it would be possible to monitor the productivity of asset managers. Then, asset owners would guarantee that their managers operated effectively. However, owners cannot supervise all the actions of managers, who possess more information than owners. Information asymmetry therefore leads to the so-called *agency problems*.
- **Inefficient markets:** Another potential friction is that prices do *not* reflect all available information. This opens up the possibility of making a risk-adjusted profit, a so-called alpha.

As illustrated in Figure 2, we derive knowledge from the *financial friction theory* to get a better basis for making decisions about active ownership and active management. Further discussion of the theory and these choices can be found in Part II.

Trade-off between risk sharing and frictions

In most cases, the ownership of companies is separate from their management; that is, there is a divergence between who owns the company and who controls it. To effectively supervise companies, a well-defined framework of regulations, procedures, and practices is necessary to guide and manage a company. This framework is commonly referred to as *corporate governance*.

There are two main types of ownership structures: one is known as *distributed ownership*, depicted in the lower right corner of Figure 3. This form of ownership is characterized by minor ownership shares and liquid financial markets, which facilitate efficient risk sharing and substantial diversification. However, from a governance perspective, this set-up represents the weakest ownership form. Owners often remain uninformed and passive, as the minimal ownership shares associated with diversification fail to provide sufficient influence over the firm's governance or motivate investors to incur the fixed costs necessary for becoming informed and actively involved.

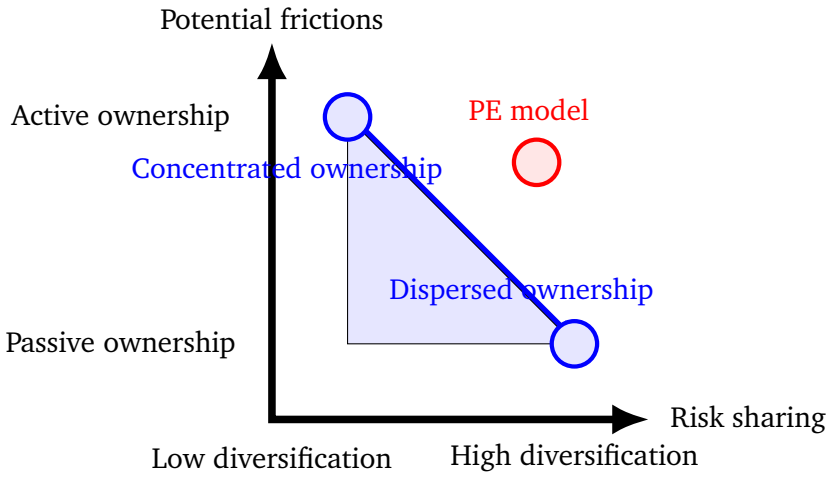


Figure 3. Trade-off between risk sharing and frictions

The alternative ownership configuration is known as *concentrated ownership*; refer to the upper left corner of Figure 3. Effective governance requires owners who hold significant equity positions. These large stakes give them the ability and the incentive to exercise active ownership of the company. In some sense, the ultimate corporate governance model is the owner-managed firm, where there is no

separation between ownership and control, and governance problems (at least between owners and managers) do not exist.

However, the problem with this model is that as firms grow, large ownership stakes impose significant risks on the owner due to a lack of diversification. This, in turn, increases the required return of the owner to invest in the firm's equity and decreases the willingness to take on leverage, since this increases equity risk further. Consequently, the firm's cost of capital will increase. Concentrated ownership also creates highly asymmetric information relative to outside investors. This, again, leads to less liquidity.

Consequently, there is a balancing act between corporate governance, favoring concentrated ownership and long-term involvement, and the cost of capital, which encourages dispersed ownership, liquidity, and a more focus on short-term ownership.

In the 1980s, during a wave of buyouts, Jensen (1989) predicted that the *private equity model* would become a dominant organizational framework for companies. He contended that the private equity model, through its concentrated ownership, effectively tackles the agency problem inherent in the traditional publicly-owned corporation, characterized by dispersed shareholders and weak corporate governance. Moreover, Jensen argued that this model, with its high leverage, is more efficient and better aligned with the interests of the company's stakeholders. He also noted that the rise of this model allows investors to maintain diversified portfolios.

1.1.3 Degree of friction: Market portfolio plus tilting

As we will see throughout the book, there are no clear answers to the trade-off between risk-sharing and financial frictions; often the answer is *depends on*, and it is best to choose the option where you can do a little bit of everything. If we are not concerned with "frictions," we should choose passive complete diversification. As we show in Chapter 3, this is the market portfolio, illustrated in a so-called risk-reward diagram in Figure 4.

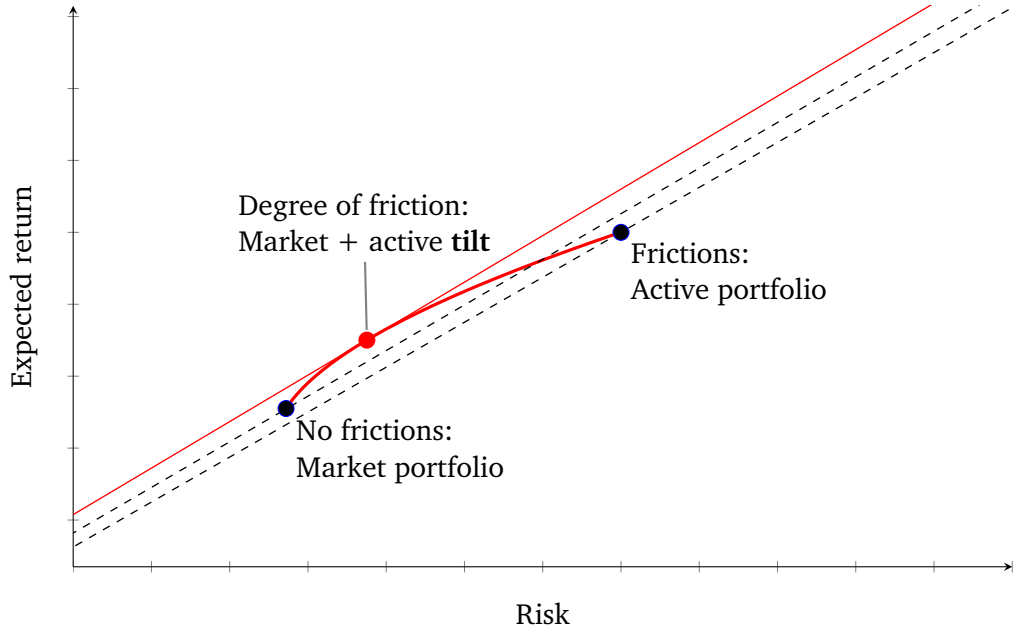


Figure 4. Adding alternative asset to existing portfolio

Alternatively, we must *account for* and *exploit* frictions. This creates an alternative portfolio. Since there are strong theoretical arguments for the market portfolio, there should be a legitimate explanation for moving the portfolio away or tilting the portfolio against the alternative portfolio. In Figure 5, we

illustrate four "justifications" for leaving the market portfolio and adding a tilt to the total portfolio. Each of them will be discussed in detail later in the book.

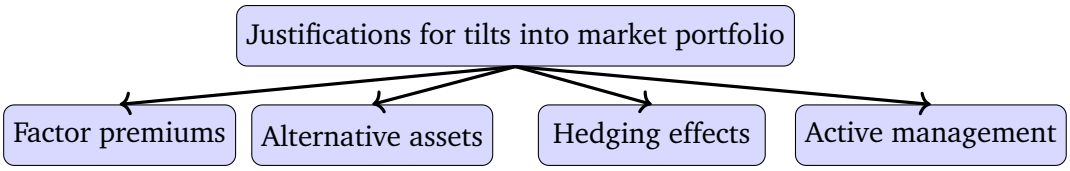


Figure 5. Reasons for adding tilts into the market portfolio

In Figure 4 we illustrate the trade-off between the market portfolio and a *tilt* towards an alternative portfolio. This asset allocation decision can be expressed as follows:

$$\text{Long-term asset allocation} = \text{market portfolio} + \text{alternative tilt.} \tag{1}$$

Having decided asset allocation first, we implicitly also define alternative *benchmark* portfolios. We use benchmarks to evaluate how we respond to distortions that result from friction.

1.1.4 Decision makers: Asset owner and manager

In our setup there are two main decision makers, the *asset owners* and the *asset managers*. Asset owners[2] are responsible for all these four decisions; however, two of them can be partially delegated to asset managers. Those two are active ownership and management decisions.

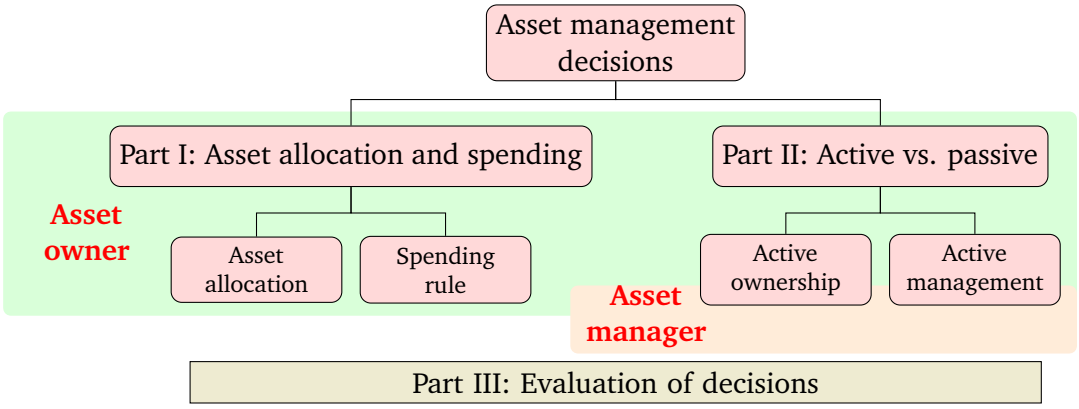


Figure 6. Asset management decisions

The structure in Figure 6 will shape the outline of the book. In Part I, we examine both the asset allocation and spending rule decisions. We show that these are tied together. In Part II, we ask whether asset owners should leave the passive market alternative and make decisions based on their own expertise regarding active ownership and active management. In this part, we also discuss the delegation of tasks between the asset owner and the manager. Finally, in Part III, we examine how to evaluate the main decisions of asset owners and managers.

In the next section, we give an overview of the main example that will follow us through the book, i.e., the Norwegian sovereign wealth fund, aka the Fund.

[2]We often use investor or shareholder interchangeably with asset owner. However, an intermediary, such as an asset manager, can also be an investor/shareholder. Thus, the most precise description is that asset owners own the capital, and an asset manager is an intermediary that manages the money on behalf of the owner. An investor or shareholder can be both an asset owner and manager.

1.2 Our example: The Norwegian sovereign wealth fund

We will use examples from the Norwegian sovereign wealth fund throughout the book. There are several motivations behind our choice. Firstly, using an example or case serves as an educational strategy to facilitate learning. Additionally, the investment strategy relevant to the Fund is applicable to nearly all asset owners, such as individuals saving for education or large pension funds. We argue that numerous other asset owners can *learn* from the Fund's framework. The Fund is effectively managed and is based on a well-documented decision-making framework. In the Appendices B.2 and B.3, we include what we believe to be the most important reports. Lastly, the book also compares the Fund with current research, uncovering potential areas for improvement.

The Fund

We will name the Norwegian sovereign wealth fund for *the Fund*. However, there are also many other names for the same fund; the formal name is *the Global Government Pension Fund (GPFG)*. Among Norwegians, the Fund is often called the *oil fund*. The reason is that the Fund's initial capital is derived from income from oil and gas.

The reader will learn more about the Fund throughout the book, but we start with some basic facts. Norway established the Fund in 1990, and the initial transfer from the government followed in 1996. As we can see in Figure 7, the value of the Fund has increased rapidly since the turn of the millennium.

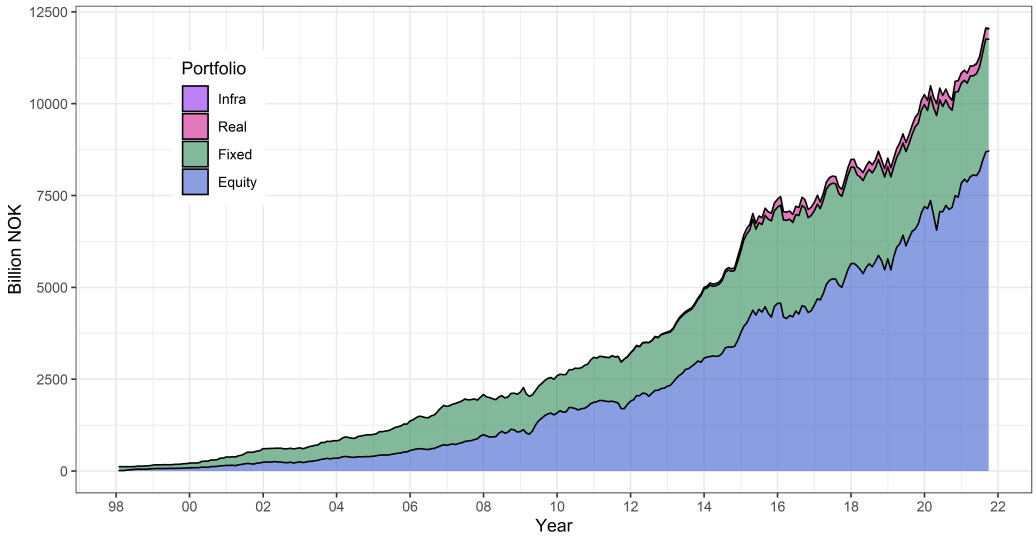


Figure 7. Development asset classes and total AUM for the Fund

The Fund's initial investments were allocated to government fixed income securities. As the Fund grew, the allocations expanded to other asset classes. In January 1998, the Fund began to acquire equity, starting with a strategic asset allocation of 40% equity and 60% fixed income. The allocation to equity has continued to grow. Today, the strategic allocation to equity is 70%. In 2010, the MoF authorized the addition of unlisted real estate to the portfolio, and, finally, during the summer of 2021, the first renewable infrastructure investment took place.[3]

Today's value is about NOK 16 trillion or USD 1.5 trillion. Recall that a trillion is a million million. See live update of the value on `www.nbim.no/en`. The Fund is one of the world's largest sovereign wealth funds (SWF); see SWF Institute. The Fund is three times Norway's GDP or covers the import for

[3] In connection with the Fund's 25th anniversary, the Fund has published its own history in several review papers (see NBIM, 2020*e*,*a*,*d*,*c*,*b*,*f*,*g*, 2021*c*).

about 13 years (NBIM (2020*d*), chart 1 and 2). As shown in Figure 7, the largest asset class is equity. This portfolio represents approximately 1.5% of the global listed equity.

Since people in an open democracy own the Fund, it is essential to have a governance model that has public support. Transparency is crucial to maintaining legitimacy. This is achieved with many measures. For example, the market value is continuously updated, the complete list of security holdings is published annually, voting records are published, and performance is reported quarterly. Numerous government documents and research are posted on the Ministry of Finance and NBIM websites. Much of the literature behind this book is based on the many expert reports written for the Ministry of Finance (MoF) and reports written by NBIM. All that we use are listed in the reference list; however, we also list them in Appendices B.2 and B.3.

1.3 Asset owner decisions: Mandate

The asset owner is not surprisingly the owner of the money. In our example, it is the Norwegian people, but the ownership is carried out by the Ministry of Finance. The owner must participate in the decisions regarding the four areas we discuss in this book, that is, asset allocation, spending rule, active ownership, and active management, see Figure 8. These decisions should be formulated as a strategy or mandate. This mandate also includes the framework under which asset managers should work. In our example, the asset manager is NBIM, for a visualization, see the figure in Example 60 . In the following, we show parts of the Fund mandate in Example 1 .

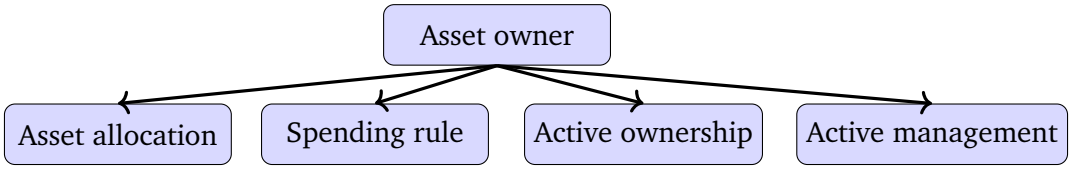


Figure 8. Asset owner decisions

Example 1 : Asset owner the Fund

The mandate consists of many chapters, divided into sections and subsections. We have organized the different guidelines into four main areas. See Ministry of Finance (2023) for the entire mandate.

- **Asset allocation**
  - Section 1-5 (2): The benchmark index for the equity portfolio constitutes 70% of the strategic benchmark index. The benchmark index for the fixed income portfolio constitutes 30% of the strategic benchmark index.
  - Section 2-2 (1): The benchmark index for the fixed-income portfolio has fixed weights with monthly rebalancing to the following sub-indices:
    - Government bond portion: 70 percent
    - Corporate bond portion: 30 percent
  - Section 2-3 (1): The benchmark index for the equity portfolio is composed on the basis of the FTSE Global All Cap Index.
- **Spending rule**: Not included in the mandate, but see Handlingsregelen.
- **Active ownership**

  - Section 1-3 (2): The Bank shall make investment decisions and exercise ownership rights independently of the Ministry.
  - Section 1-3 (3): Responsible management shall form an integral part of the management of the investment portfolio (...). A good long-term return is considered to depend on sustainable economic, environmental and social development, as well as on well-functioning, legitimate and efficient markets.
  - Chapter 4 includes details on responsible management.

- **Active management**

  - Section 1-7 (1): The Executive Board shall adopt a strategic plan for the execution of the management assignment.
  - Section 2-4 (6): (...)the expected annualised standard deviation of the excess return between the investment portfolio and the actual benchmark index (expected tracking error) does not exceed 1.25 percentage points.
  - Section 1-6 (4): Rebalancing is triggered when the equity share of the actual benchmark index deviates by more than two percentage points from the equity share of the strategic benchmark index (...).

Asset allocation

The key decision lies in determining the *strategic asset allocation*, which involves selecting the asset classes for capital investment. Within these classes, decisions must be made regarding the allocation of capital to different countries and sectors. A simple method is to use the market weights which reflect the relative size of each asset in the market. The asset allocation process establishes a benchmark, for which the asset owner is accountable for the benchmark return R_B. We elaborate the asset allocation decision further in Chapters 2-10.

Spending rule

The asset owner must also determine how the capital is allocated. As will be discussed, this choice is related to the asset allocation strategy. Increased risk can result in better anticipated returns, but it also increases the chance of falling short of future spending. This matter will be analyzed in Chapter 11.

Active ownership

Both the owner and the manager perform active ownership. As is the case for the Fund, the roles often must be clarified. According to Example 1 , the Ministry instructs the asset manager to exercise ownership independently. However, later in the mandate (in Chapter 4) is a detailed description of responsible management. In addition, the responsible investment strategy is described in the manager's investment strategy, that is, NBIM (2022*b*). Thus, ownership can be done by both the owner and the manager, but it is important that the different roles are clarified. The asset manager's strategy should be deducted from the owner's preferences, for example, regarding impact motives. We will treat the topic collectively, that is, both for the owner and the manager of the asset, in Chapters 13-14.

Active management

The owner must also decide how much and in which form to perform active management. When asset owners are active, they choose different allocations of capital to companies than those given by the benchmark. In some cases, owners perform this task themselves. However, they often decide to delegate the execution to active managers. The degree of active management is usually determined by the owner of the asset and is described in the mandate. We examine the background of the active management decisions made by the owner in Chapter 15.

1.4 Asset manager decisions: Active strategies

Based on the decisions made by asset owners, often formulated in a mandate, asset managers can perform their active management. These strategies are related to creating more value than the benchmark given by the asset owner, illustrated in Figure 9. The results of the active strategies are the active return R_A. This is the difference between the actual total return of the portfolio, R_P, and the performance of the benchmark, R_B. We can think of the benchmark as an *alternative cost of capital*. The difference is sometimes called alpha, and sometimes it is called active return. We use these interchangeably, but the correct notation is that the active return is the difference, while alpha is the risk-adjusted active return.

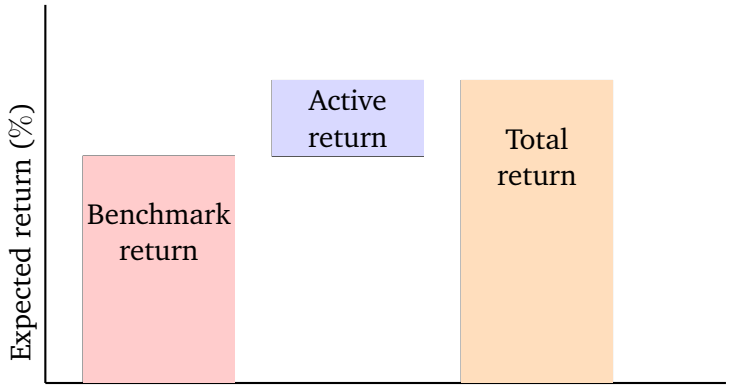


Figure 9. Active returns

As we show in Chapter 16, we can even split the active returns into a more detailed analysis. In the following are extracts of NBIMs active strategies.

Example 2 : Excepts from investment strategy of NBIM

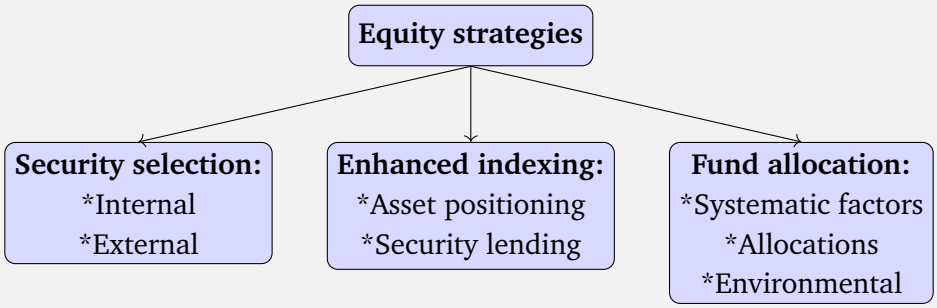


Figure 15 in Bauer, Christiansen and Døskeland (2022) gives an overview of the main equity strategies. In a slightly different organized way, these strategies are also described by the investment strategy of NBIM in NBIM (2022*b*). In the following, we have taken some extracts

from the equity strategy.

- Our equity management is based on two main strategies: market exposure and securities selection based on fundamental research.
- **Market exposure**
  - We will enhance portfolio returns by continuing to take active positions around corporate actions and capital market events.
  - We will continue to lend our equities responsibly and seek to capture more of the income while maintaining acceptable counterparty risk.
- **Security selection**
  - We will take sector risk when risk-reward is particularly attractive and use our specialist knowledge to identify trends that make us expect higher long-term returns in some sectors than others.
  - We will expand our forensic accounting and behavioural analysis to reduce exposure to companies we expect to underperform.
  - We will identify quality companies and take slightly larger stakes when we have reason to believe they will outperform.
  - We will use external managers in segments and markets where we believe they will enhance returns. In some markets, we also believe external managers will reduce the risk of our investments by avoiding certain companies with problematic business models and weak corporate governance.
  - We will pursue the opportunity to invest in companies before they list (pre-IPO). This would give us access to companies earlier in the company life cycle and potentially enhance returns.

1.5 Evaluation

As shown at the bottom of Figure 6, an essential part of the investment process is to evaluate or, even more generally, to supervise the decisions involved in asset management.

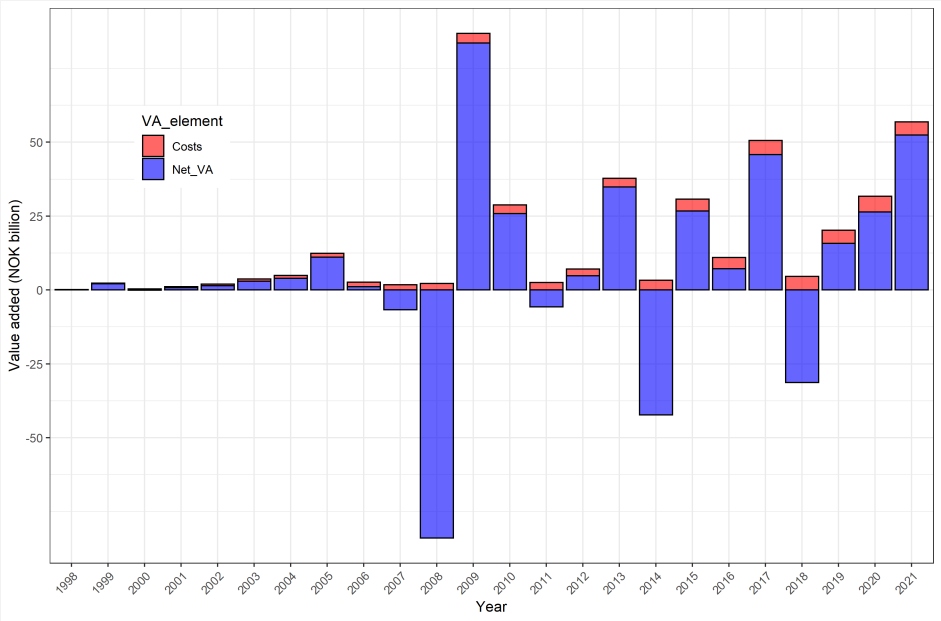
However, the evaluation process is complex. The formulation of strategy and mandate occurs in an *ex-ante* context, focused on making *decisions*, whereas evaluation takes place in an *ex-post* context, where the *outcomes* or returns are observed. The process we handle is noisy, and our working environment is constantly changing. A poor result does not necessarily indicate that a poor decision was made. Consequently, the evaluation should incorporate both quantitative *and* qualitative analyses.

Owners and managers should evaluate their work. However, the easiest part to evaluate is quantitative measurement, such as the return of active management. Regarding the Fund, as we can see from Example 3 , the focus has been on evaluating active management.

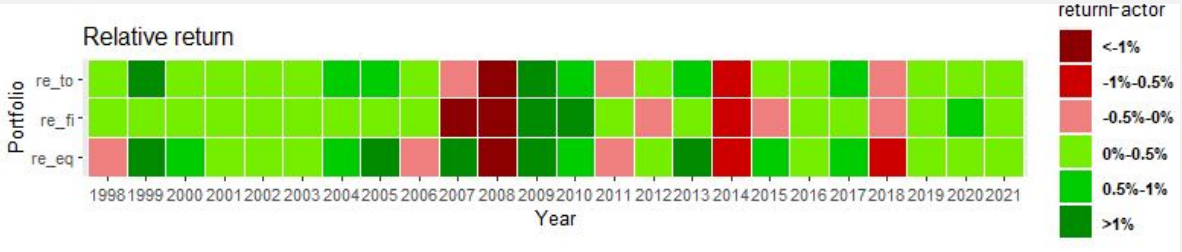
Example 3 : Evaluation the Fund

With respect to the Fund, the primary assessments have been for active management decisions. As shown below, the Fund has added value for the owner, both before and after management costs. The blue bars show the net value added, while the red bars show the costs. The sum of the two is the gross value added. Until 2007 there were relatively small changes in value added, whereas in the more recent years there have been larger variations. This is unsurprising since

the active returns are weighted based on the Fund's size, which has been on the rise.



As illustrated in the heat diagram below, active management has given a small but surprisingly stable active return. Green indicates a positive active return, while red indicates negative. The first horizontal line is the total portfolio. The second is the fixed income portfolio, and the last line is the equity portfolio.



In the following, we list links to the four external evaluation reports on active management. More reports can be found on the page for Reports Ministry of Finance.

- First review: Ang, Goetzmann and Schaefer (2009)
- Second review: Ang, Brandt and Denison (2014)
- Third review: Dahlquist and Ødegaard (2018)
- Fourth review: Bauer et al. (2022)

Future assessment should have a broader focus, including decisions made regarding asset allocation, spending rule and active ownership.

1.6 Asset management industry

As described, these decisions are not taken without purpose or in a "vacuum." We start our journey by explaining why and in which "landscape," called the asset management industry, these decisions are

taken.

1.6.1 Savings "services"

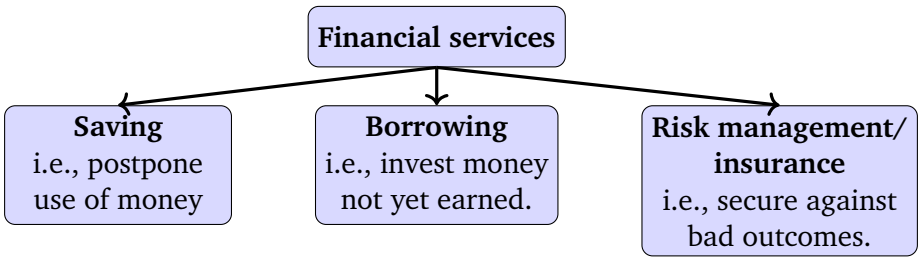


Figure 10. Financial services

As we can see in Figure 10, the financial markets provide three primary services, i.e., saving, borrowing, and risk management. Financial markets allow households to transport savings over time by borrowing money or selling shares if they wish to consume today. Households can also lend money or buy shares if they prefer to consume in the future. Financial markets allow shareholders to adjust the risk they bear. If a company becomes too risky for asset owners, they can adjust their investment portfolio to make it safer. They can sell shares in the risky firm and buy a safer one or government bonds. This book examines how to utilize savings "services."

Asset owners are lucky to have more assets (or capital) than they need today. They want to save these resources for later use. Before the development of capitalism, this "moving of resources over time" was more challenging than it is today. However, today we can "invest" in financial assets that we hope will give a good return when we later want to use the money on what we then need.

1.6.2 Investment chain

So, how is the capital moved from the owner to the identity that "makes money grow"? In Figure 11, we illustrate the *investment chain*. There are many different ways that money can go from asset owners into company projects. We divide the chain into four "units":

1. **Asset owner**
2. **Asset manager**
3. **Financial markets**
4. **Company**

Various intermediaries commonly seek monetary returns in exchange for providing capital to projects. Although we plan to delve deeper into the specifics and variations of the investment chain later on, for now we will focus on the "units." Our primary emphasis will be on asset owners and asset managers.

1.6.3 Asset owners

At the beginning, we have the owner of the capital. As illustrated in Figure 11, the ultimate owner of money is often a household. However, tasks are already outsourced in this unit, often to so-called financial intermediaries. Thus, households can hold capital through governments such as central banks and sovereign wealth funds.

1. **Households:** saving for iPhone, vacations, education, housing, retirement, or future generations.

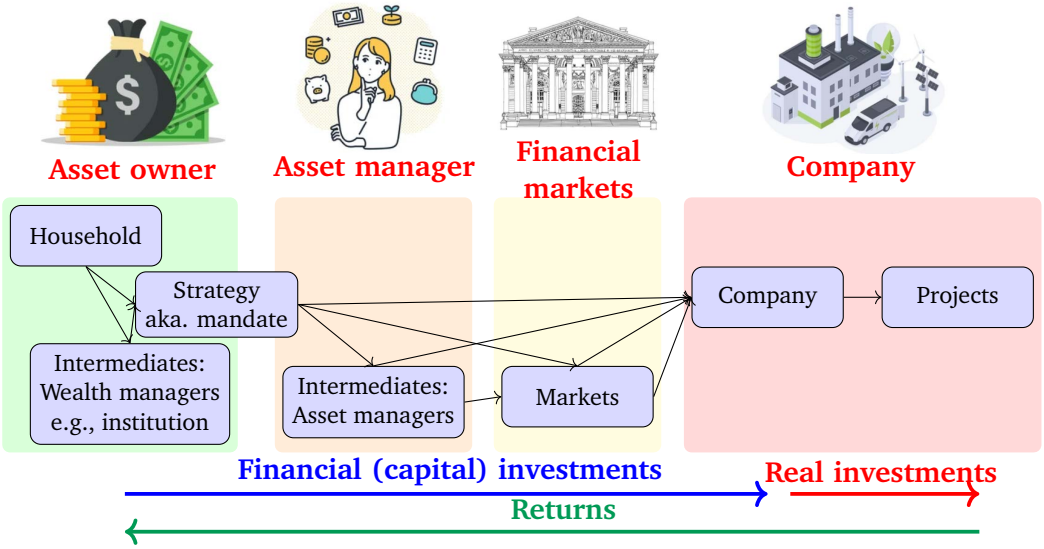


Figure 11. Investment chain

2. **Intermediaries as financial institutions:** such as funds, banks, insurance companies, pension funds, foundations and endowments.
3. **Intermediaries as governments:** such as central banks and sovereign wealth funds.

The asset owner, with or without the help of intermediaries, makes the most important decisions. These decisions constitute an essential part of the investment strategy. All asset owners define a strategy to develop capital directly or implicitly. This strategy helps to delegate the responsibility for the money. A written strategy or plan is often named a *mandate*. We will examine the rationale for these decisions throughout the book.

Some asset owners invest directly in companies or companies through the financial market. However, before this unit, the capital often goes through an extra "unit," i.e., an intermediate called asset managers.

1.6.4 Asset managers

There exist multiple categories of asset managers. Among them are traditional mutual fund managers as well as "alternative" asset managers, which include hedge funds, private equity, and venture capital funds. Gillan, Starks et al. (2007) report a rise in institutional ownership of U.S. public equities, increasing from about 10% in the early 1950s to over 70% by 2006. This trend is similarly reflected in most other public markets. These institutions deploy capital on behalf of households via pension savings, life insurance claims, and mutual fund investments. The industry continues to evolve rapidly.

1.6.5 Financial markets

The next unit is the financial markets. Companies and investors can connect directly rather than meeting on the market. Figure 11 shows some arrows that go through the financial market and others that do not. Financial markets are systems that allow people to buy and sell financial instruments. These instruments include bonds, equities, different international currencies, and derivatives.

Financial markets facilitate the interaction between those who need capital and those with money to invest. In markets, prices are established, and resources are allocated. Prices reflect available information on the financial value of companies. Markets do this decentralisedly by providing price

signals to market participants. Resource allocation is the ultimate function of the markets and a justification for the costs of operating them.

When buyers and sellers can trade without transaction cost under symmetric information, capital goes to new projects that create more value per dollar invested than existing projects. In this way, the markets determine which companies are viable and which should die. A sound financial system is crucial for economic growth because it helps entrepreneurs find capital to realize their ideas. It also assists established companies in attracting additional funding to grow and move forward from good to great.

Non-market alternatives are often worse than markets, even with significant problems associated with markets. Regulating financial markets has been necessary to mitigate market problems throughout history. Although it is not an easy task and can sometimes lead to worse outcomes than an unregulated market, it is still necessary.

1.6.6 Company

In the end, the capital is ultimately received by the companies. A company or corporation is a legal entity owned by its shareholders.[4] Firms fund their projects by selling claims on the cash flow they will make in the future. These claims are called *financial assets*. Shareholders have limited liabilities, meaning that they cannot be held personally responsible for the company's debt.

A company can either be *public* or *private*, depending on whether it is listed on a stock exchange. Although a company may have numerous shareholders, they do not have direct control or management of the firm. Separation of ownership and control in firms provides them with permanence. Shareholders can sell their shares to new investors without disrupting business operations. The separation of ownership and control can lead to managers acting in their own interest rather than the shareholders' interest. We will address this matter later in this chapter and Chapter 13.

Companies invest their money in various projects to generate profits or achieve certain goals. Projects are investments in *real assets*, both tangible assets, such as oil fields, factories, and machines, or intangible assets, such as patents, brands, and corporate culture. Thus, when we save, we allocate resources to projects.

Companies play an important role because social and environmental impacts are generated primarily in the corporate sector. However, *externalities* can distort investments, so we get a misallocation of capital in projects. Stern (2007) describes climate change as "the greatest market failure the world has seen." Thus, the capital allocation process presents both opportunities and responsibilities.

Summing up

This introductory chapter looks at the asset management industry and the investment process. The rest of the book focuses on four major decisions and how to evaluate those decisions. Again, we use the Fund, i.e., the Norwegian sovereign wealth fund, as an example.

[4] We use firm, company and corporation interchangeably.