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ARTICLE

The dark side of diversification: Passive finance and fossil-fuel investment

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Abstract

What shapes fossil-fuel investment and divestment decisions? What are pension funds' climate-related considerations? And how do conceptions of portfolio risk influence these issues? Danish pension funds constitute a rare and understudied cohort of investors who have undertaken comparatively progressive fossil-fuel investment decisions. Simultaneously, diversification and market rationality have frequently been invoked as obstacles to divestment and active ownership. Using the Danish experience, this article conducts an archaeological analysis of the concept of portfolio risk, unearthing the various ways in which it has shaped fossil-fuel investment decisions. The analysis identifies five key aspects through which the concept has hampered Danish pension funds' active ownership and fossil-fuel divestment decisions (sector diversification, externalities, market rationality, dispersed ownership, and passive index investing). The article argues that these discursive aspects have reinforced a passive tendency within finance capitalism to bolster the status quo, thereby supporting prevailing market actors and the continued extraction of fossil fuels.

Keywords: risk; modern portfolio theory; fossil-fuel divestment; Danish pension funds; archaeology of finance

Introduction

In 2013, the British think tank Carbon Tracker used the concept of stranded assets to translate climate science into quantifiable investment risk, finding that keeping global warming below 2°C would render up to 80% of declared fossil-fuel reserves (owned by the world's largest listed fossil-fuel companies and their investors) financially unviable (Carbon Tracker, 2013: 2). Around the same time, scholars and NGOs were turning ever more attention to the prominent role of institutional investors in the world's increasingly financialized economy (Clark, 2000; Krippner, 2012; Feher, 2017; Baines and Hager, 2022), as well as the efficacy of fossil-fuel companies' lobbyism and misinformation (Oreskes and Conway, 2010). In Foucault's (1998) terms the combination of these findings problematized – that is to say rendered visible and brought into question – the taken-for-granted rationality behind continued investment in fossil fuels, thus prompting growing calls for investors either to conduct substantial active ownership in fossil-fuel firms or to divest from them entirely.

While many fossil-fuel companies can self-finance and hence are largely management-controlled, they do depend on investors in two key ways. First, investors still account for large sums of fossil-fuel project funding (Cuvelier et al., 2023; Dordi et al., 2022), so

divestment decisions (of shares, bonds, etc.) are likely to affect financing costs as well as management bonuses. Second, since shareholders formally own listed companies, having investors engage in active ownership – particularly voting for boards and resolutions at general meetings – may affect fossil-fuel firms' maneuverability (e.g., Ambrose, 2021). The precise impacts of fossil-fuel divestment remain debated (Braungardt et al., 2019; McDonnell and Gupta, 2023). This essay, however, does not attempt to resolve that particular debate. Instead, the clash between mounting demands for fossil-fuel divestment and the frequency with which investors invoke diversification and market rationality as arguments against divestment problematizes the concept of portfolio risk. With this problematization as its starting point, this essay explores how and to what degree the inherent rationales behind the concept have shaped fossil-fuel investment decisions – in other words, their active ownership and divestment choices.

Compared with other kinds of asset owners, pensions funds, according to Clara McDonnell and Joyeeta Gupta, offer a particularly informative avenue for investigating fossil-fuel investment decisions, as they 'make up the largest category of asset owners; (. . .) are considered to have an interest in the long-term sustainability of their investments (compared to e.g. hedge funds), and are historically active shareholders' (McDonnell and Gupta, 2023: 315). Several studies have explored the special role pension funds play as investors, examining their comparatively long-term investment horizon (Clark, 2000; Anderson, 2019) and the impact that the relationship between trustee representatives and financial experts has on the decision-making process (Clark, 2008; Golka and van der Zwan, 2022; van der Zwan and Golka, 2023). Few studies, however, have distinctly focused on the factors shaping pension funds' fossil-fuel investment decisions.

Literature concerning environmental, social, and governance (ESG) investments is burgeoning (Folkers, 2024a; 2024b; Golka, 2024; Buller, 2022; Leins, 2020). Regarding fossil-fuel divestment decision-making in general, Christophers (2019) and Langley et al. (2021) point out how the asset category and investors' underlying principles both discourage divestment choices. More specifically, examples of the nascent literature concerning divestment decisions and pension funds include Linda Soneryd's (2024) illumination of the assumption that pension savers are passively ignorant of fossil-fuel investments and Darlene Himick's (2023) investigation of how climate concerns drove a New York pension fund to consider tar-sand projects as untenable investments. A gap in most other studies on fossil-fuel divestment decisions is that they contain few cases of substantial, and therefore variated, divestment choices. This shortfall makes the Danish pension funds an interesting subject for a divestment decision study as their fossil-fuel divestment decisions came comparatively early and have been comparatively substantial (Egli et al., 2022). The timing and scale of the Danish funds' divestment decisions are greatly varied, but most funds did not begin substantial divestment activities until about 2020 – with a few coal divestments occurring from about 2015 onwards. As of 2023, the Danish pension funds' fossil-fuel-related divestment decisions and active ownership remain nonetheless substantially mixed (AnsvarligFremtid, 2024; Mellemfolkeligt Samvirke, 2023).

McDonnell and Gupta (2023) highlight the role of pension funds in their recent review of the literature on institutional investors and fossil-fuel companies, finding that such divestment studies have centered on how divestment impacts the respective returns of both investors and fossil-fuel companies. Remarkably absent from these studies is the role of portfolio risk, an absence that is significant since pension funds' investment practices are aimed at balancing return *and* portfolio risk (as pension reports and the interviews in this study attest to). More broadly, numerous studies into the intellectual history of the financial industry and the theories shaping investment choices have provided insight into contemporary institutional investment decisions (MacKenzie, 2008; de Goede, 2005; Bernstein, 1992; Fox, 2013; Ascher, 2016; Doganova, 2024). Notably, several of these studies explore modern portfolio theory (MPT) and the efficient-market hypothesis (EMH), both of

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which constitute the pillars on which the concept of portfolio risk is currently understood. Horacio Ortiz (2021), for instance, has shown how the EMH and MPT lie at the center of financial professionals' practices, despite internal contradictions in their application, and further how this centrality upholds a financial imaginary that obscures the political struggles and consequences of the very valuation practices advocated by these theories. In addition, through a close reading of these theories' rationales, Jon Lukomnik and James R. Hawley argue in *Moving Beyond Modern Portfolio Theory* (2021) that these theories' focus on portfolio risk diversification obscures the portfolio's influence on market risks through the consequences of its broad investments in global society, which they term the 'MPT paradox'. Since institutional investors are invested in most global sectors, Lukomnik and Hawley propose that investors have an interest in actively leveraging this influence to improve society. However, while Lukomnik and Hawley reference MPT's performative effect on investment practices, they do not trace MPT and the EMH's more fine-grained roles in investors' rationales. Moreover, they lack data on a comparable group of institutional investors in which some have actually made substantial divestment and active ownership decisions, nor do they specifically focus on pension funds. Likewise, neither does Ortiz address how these theories influence pension funds and climate-related decisions.

Accordingly, analyzing a rare case of a comparable group of investors with a wide range of fossil-fuel investment choices (Egli et al., 2022) can add nuance to our understanding of fossil-fuel investment decisions and the role portfolio risk plays in them. This analysis complements previous studies on investors' attitudes to fossil-fuel divestment, contributing both knowledge about investors' attitudes in general (Christophers, 2019; Langley et al., 2021) and more granular insights into pension funds' divestment rationales (McDonnell and Gupta, 2023; Himick, 2023; Soneryd, 2024) and the influence of MPT and EMH on investment practices (Ortiz, 2021; Lukomnik and Hawley, 2021). More precisely, this essay traces five interconnected aspects through which the concept of portfolio risk has impacted Danish pension funds' investment decisions around active ownership and fossil-fuel divestment: sector diversification, externalities, market rationality, dispersed ownership, and passive index investing. First, although the concept of portfolio risk does not in itself determine the choices these funds make, its caution against divesting from entire sectors is an aspect factored into their decisions, a caution that is reinforced by the prudent person principle. Second, the concept offers no tools for including societal and climate-related factors. Although the challenges of accounting for so-called externalities cannot be solely attributed to portfolio risk, the concept does perpetuate the issue. Third, the hypothesis of market rationality has alleviated some funds' concerns about unaccounted-for risks of stranded assets. Fourth, portfolio risk has advanced a tendency to diversify ownership, thus diminishing investors' influence on each investee. Fifth, the concept has supported displacing firm ownership to asset managers – with both the fourth and fifth aspects complicating substantial active ownership. Although Danish pension funds may have increasingly divested from fossil fuels (Gjerding, 2022), indicating a trend toward divestment, these five aspects of portfolio risk have variously hampered the funds' divestment and active ownership decisions, ultimately reinforcing a passive tendency within finance capitalism to support predominant market movements and actors.

Finance archaeology

The methodology of this study draws on Michel Foucault's (1966; 2008; 1971) archaeological approach as a framework to trace and identify how the concept of portfolio risk has come to condition the types of fossil-fuel investment decisions that Danish pension funds have deemed practically possible. Whereas Immanuel Kant (1998)

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proposed that the 'conditions of possibility' for knowledge (*Erkenntnis*) should be investigated ahistorically, Foucault (1966: 13) notably emphasized the historically contextual *discursive conditions of possibility* for specific disciplines. Broadly speaking, Foucault's notion of archaeology explores the 'historical conditions of appearance' (Foucault, 2008: 69), which is to say the changing frameworks for what thoughts could be articulated at any given time.[1] Archaeological discourse analysis seeks to 'determine the conditions of a statement's [*énoncé*] existence, define its limits as precisely as possible, establish its correlations with other statements (. . .), and show what other forms of enunciation [*énonciation*] it excludes' (Foucault, 2008: 42). A Foucauldian archaeology of portfolio risk, therefore, reveals the ways in which the concept delimits possible investment choices, narrowing what is considered feasible, whilst at the same time rendering alternative decisions less imaginable.

In recent decades, scholars studying the 'performativity of economics' have sought to examine how economic theories shape the very reality they claim to describe (MacKenzie, 2008; MacKenzie et al., 2007; Clarke, 2012). Whereas many such performativity analyses have a socio-technical focus, an archaeological approach emphasizes the discursive implications of financial theoretical developments. Moreover, following Foucault's (2008: 13) archaeological emphasis on continuities and discontinuities, my inquiry makes no claim of exclusive causality between finance theories and actual investment practices, recognizing that several other material and discursive factors also play a part (e.g., return maximization, governance structures, regional pension regulation, and national sentiment towards the climate crisis).[2] Instead, this study focuses on the theories of MPT and EMH to uncover the rationales expressed in certain pension funds' fossil-fuel investment decisions. The previously mentioned five aspects through which the concept of portfolio risk impacts investment decisions (sector diversification, externalities, market rationality, dispersed ownership, and passive index investment) would exist without the intellectual framework of finance theory. However, an archaeological excavation of the role of the theoretical premises of portfolio risk sheds light on how entrenched economic theories bolster these tendencies by conditioning pension funds' fossil-fuel investment decisions – a development that draws a direct line from portfolio risk to climate risk.

Before further outlining my methodical approach, a few definitions are necessary. For the purposes of this essay, 'climate risk' is broadly defined as 'risks of negative economic consequences of climate change for pension savers' (leaving aside for other studies wider environmental and climate justice considerations). This definition includes the predominant definition of 'climate-related financial risks' – meaning physical investment risks (climate damages) and transition investment risks (cost of changes in policies, markets, and technologies) – as well as the much wider costs for pension savers living in societies where climate change is expected to inflict increasing economic damage. As Hannah Arendt (1998) argues, to the degree that actions and speech have intersubjective consequences, they are necessarily political. Accordingly, different conceptions of climate risk inevitably entail different political questions and investor strategies.[3] This study's aim is not to debate these political questions. Rather, it focuses on the ways in which portfolio risk shapes fossil-fuel investment decisions – specifically the kinds of consequences it reveals or obscures, and the forms of enunciation it enables, hampers and excludes. Additionally, I use the term 'divest' to denote 'excluding shares, bonds, and other investment products of fossil-fuel producers unless they adopt a business model aligned with the Paris Agreement's goals' (keeping global warming below 1.5–2°C). Although the definition of 'Paris-alignment' remains contested (e.g., Grant, 2018), I heuristically confine it to mean that investments in companies starting new fossil-fuel extraction projects are not Paris-aligned, as argued in the International Energy Agency's (2021) *Net Zero Roadmap*.

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In Denmark, there are 17 main pension funds: two are state-sponsored; three are commercial (shareholder-owned or with self-perpetuating boards); five are owned by labor unions and/or employers' organizations; and seven have some degree of direct or indirect member democracies. In member-democratic funds, members have, to varying degrees, the opportunity to raise and vote for general assembly resolutions and to run and vote for the funds' board or board of representatives. Board members' financial or extra-financial backgrounds somewhat reflect whether they were appointed by shareholders, unions, employers' organizations, or members. For the Danish case addressed in this article, I selected a sample of five pension funds: ATP (state-sponsored; limited divestment; some active ownership), PFA (commercial; some divestment; some/limited active ownership), AkademikerPension (member-democratic, substantial divestment; substantial active ownership), Sampension (union of separate funds, some with member democracy; limited divestment; substantial active ownership), and PKA (union of separate funds, with separate member democracies; limited divestment; some/limited active ownership). I used this sample to analyze the portfolio risk concept's influence across funds that have differing *governance structures* and that have made differing *divestment decisions* (this selection criterion is based on their general tendencies between 2018 and 2022 in AnsvarligFremtid, 2018 and Gjerding, 2022) as well as varying *active ownership decisions* (based on their ratings in WWF, 2022 and AnsvarligFremtid, 2024).

As for the archaeological artifacts studied, I examine the statements Danish pension funds have made about fossil-fuel investments and portfolio risk, to identify the underlying logic that renders certain arguments possible while excluding others. This discursive excavation investigates a range of materials, including policies and media coverage, minutes from the funds' general assemblies (2014–2022), reports by funds analyzing the prospects of fossil-fuel investments, reports by NGOs (WWF, ActionAid, and AnsvarligFremtid) and the Danish Financial Supervisory Authority (DFSA, *Finanstilsynet*) on Danish funds' climate-related actions (2013–2022), financial textbooks, and academic and NGO analyses of climate-related investments.

This analysis of pension fund statements is complemented by five semi-structured interviews, one with each of the sample funds' investment department heads: their chief investment officers (CIOs). In the case of PFA, the CIO interviewed was PFA Asset Management's co-CIO and the head of ESG. Although pension fund boards formally set investment policies, in practice CIOs usually shape such policy, as they tend to have more financial theory expertise (Golka and van der Zwan, 2022; Clark, 2008). Whereas Danish pension funds, to varying extents, outsource much of their day-to-day investment management to asset managers, the investment policies are still determined by the pension funds and the varying requirements they pose to their asset managers. Therefore, to gain additional insight into how portfolio risk impacts the investment policies of the studied funds, the interviews addressed the respective CIOs' impressions of the role diversification plays, their belief in market rationality, and other factors shaping their fossil-fuel investment decisions. All informants agreed to be cited by name and were given the opportunity to review their quotations.

In addition, I myself have participated in the Danish divestment movement for the past six years and am an ordinary member of AkademikerPension. As ethnographical research has established (Bourke, 2014), such positionality could bring both potential bias as well as privileged insider knowledge. Indeed, this experience has bolstered my analyses by granting me unique, granular knowledge of the decisions made, the discussions had, and the arguments invoked over the years. Although positionality always shapes research to some extent, I have sought to counter any bias as well as sharpen and solidify my analyses by triangulating the sources, including the interviews, my insider knowledge, reports, media coverage, and minutes.

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The conceptualization of portfolio risk

To identify how the concept of portfolio risk has shaped fossil-fuel investment decisions, it is essential to analyze the discursive development of the central premises that undergird two defining theories of today's understanding of portfolio risk – modern portfolio theory (MPT) and the efficient-market hypothesis (EMH).

Risk as portfolio diversification

In 1906, Irving Fisher (1906) suggested that current investment value should be based on projected yield, and that probability calculations be used to address uncertainty. In 1938, John Burr Williams (1964) furthered Fisher's approach to valuing stocks in his influential book *The Theory of Investment Value*. However, Williams omitted the attempt to value uncertainty. When Harry Markowitz, then a PhD student of economics at the University of Chicago, decided to write about the stock market in 1950, he found flaws in earlier investment theories. Markowitz noted that Williams overlooked actual investors' focus on an investment's risk and lacked 'a notion of the risk of the portfolio as a whole' (Fox, 2013: 54).

In Markowitz's first paper on this subject, 'Portfolio Selection', from 1952, he argued that the conviction 'that the investor does (or should) maximize discounted expected, or anticipated, returns' must be rejected 'both as a hypothesis to explain, and as a [maxim] to guide investment behaviour'. Instead, Markowitz proposed the analytical principle that 'the investor does (or should) consider expected return a desirable thing and variance of return [i.e., risk] an undesirable thing' (Markowitz, 1952: 77).

Markowitz's 1952 paper (later developed into his 1959 monograph, *Portfolio Selection*) suggested an approach for large portfolio investors to consider both return and risk. Markowitz contended that 'security returns are highly correlated, but not perfectly correlated', which implies that 'diversification can reduce risk but not eliminate it' (Markowitz, 1959: 5). Returns on firms in the same sector will have high covariance, as the same factors tend to affect them (Markowitz, 1952: 89). Take, for example, the COVID-19 lockdowns, during which fossil-fuel stocks plummeted, but tech stocks skyrocketed. Because predicting future events' effect on stock prices is next to impossible, Markowitz advised investors to diversify their portfolios across different sectors. Although diversification could not eliminate market risk – so-called systematic risk – since certain market fluctuations affect almost all sectors, it could mitigate the contingent risk associated with individual stocks.

Markowitz successfully conceptualized a formal mathematical theory for determining the optimal relationship between risk and return in a portfolio, thereby revising portfolio investors' discursive conditions of possibility. However, Markowitz's proposed method of portfolio analysis required calculating the covariance between each possible stock in the portfolio (of risk and return), a virtually infeasible task back in the 1950s, given the modest capacity and availability of computers. This was remedied by the capital asset pricing model (CAPM), proposed by William Sharpe among others in the early 1960s. To calculate a stock's exposure to systematic risk, represented as β, or beta, Sharpe proposed that one could get around cross-correlating each individual stock in a portfolio by simply calculating each stock's correlation to an overall market index (Sharpe, 1963: 281; 1964). The CAPM assumes that investors should only be compensated for undiversifiable risk since unsystematic risk can be diversified away, and securities with higher betas should therefore yield higher returns. As such, beta could be used to mathematically calculate a security's risk-return profile and thus its contribution to a portfolio's systematic risk exposure, thus making an individual security's risk a factor measured in relation to market risk.

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Still, calculating portfolio risk left much of the decisions about which factors to include down to 'the judgment of practical men' (Markowitz, 1952: 91; 1959: 5–6) without specifying how to integrate societal factors. Moreover, underlying this conception of portfolio risk was an assumption of a rational market that needed qualification.

Risk and the efficient-market hypothesis

Like the idea of diversification, the belief in market rationality predated the formulation of the EMH. In 1962, Milton Friedman (2002: 160–163) argued that government interventions were less efficient than market forces, drawing on Adam Smith's metaphor of an invisible hand of market exchanges that would cause unintended economic effects. A colleague of Friedman at the University of Chicago, finance professor Eugene Fama, pushed Friedman's expansion of Smith even further.

Fama (1970) claimed that the market was perfectly efficient, a claim that became known as the EMH. Perfect efficiency meant that 'security prices at any time 'fully reflect' all available information.' (Fama, 1970: 383). Described as 'random walks', scholars had already proposed that market price movements were unpredictable, as evidenced in the fact that investors were rarely able to 'beat the market'. Fama (1965: 56) supported and promoted this view. However, if the market could be shown to be efficient, it would be essentially unbeatable since the aggregated market would be more rational than individual investors. In other words, by synthesizing the information provided by each individual buyer and seller at the market, such a market would have integrated more information into its prices than individual investors would generally be aware of. Additionally, as using formal equations to analyze a market assumed to be irrational would be more complicated, the EMH further enabled the use of mathematical equations in finance.

In reviewing previous empirical studies and the theoretical premises of market efficiency, Fama cautioned that 'like any other extreme null hypothesis, we do not expect it to be literally true' (Fama, 1970: 388). Nonetheless, he concluded that 'the evidence in support of the efficient markets model is extensive, and (somewhat uniquely in economics) contradictory evidence is sparse' (Fama, 1970: 416). Initial cautions aside, Fama made a bold case for his hypothesis. Today, the EMH is commonly accepted in its semi-strong form, whereby prices reflect all published information, rather than in its strong or weak forms, with the former positing that markets integrate all available information and the latter that prices reflect all information in past stock price movements. Although even Fama eventually revised his views on the accuracy of the EMH (Fama and French, 1993, 2015), it remains an influential financial analysis principle (Brealey, Myers, and Allen, 2019: 340–358; Fox, 2013: 300).

As a theory, the EMH is distinct from MPT, but the two have important synergies. A market that even most professional investors cannot beat will strengthen the case for diversification, thus solidifying the concept of portfolio risk. In an unbeatable market, diversifying a portfolio to reflect the overall market can help avoid lower returns or higher risks than the market average. As the neoliberal heritage of finance ideas is often underappreciated (Mirowski, 2014: 352), it should be noted that these theories were developed at the neoliberal cradle of the University of Chicago, and that the combination of MPT and the EMH promotes the core neoliberal vision of the market as an information processor superior to human reason (Lundberg, forthcoming-b). In this regard, diversifying shareholder ownership shifts economic agency towards 'rational' market forces rather than human market actors. Together, these ideas constitute the central tenets of the portfolio risk concept. Considering the vital role these theories have played in finance, they must be included in examinations of the ways in which portfolio risk has come to (in)form fossil-fuel investment decisions.

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Portfolio risk and Danish pension funds' fossil-fuel investment decisions

These ideas of portfolio diversification and market rationality, along with the failure to account for externalities, have been disseminated through finance textbooks. Among the most notable textbooks are *Modern Developments in Investment Management* (Brealey and Lorie, 1978) and later two mainstays of finance education, *Principles of Corporate Finance* (Brealey, Myers, and Allen, 2019) and *Fundamentals of Corporate Finance* (Brealey, Myers, and Marcus, 2019). The theoretical framework propagated in this literature has been informing finance researchers and aspiring financial professionals for decades, conditioning the theoretical options they consider possible. Several informants confirmed the centrality of MPT and the EMH in their education, and the names and concepts of these theories permeate the Danish and international financial industry.

Amidst this intellectual context advocating for portfolio diversification and market rationality, Danish NGOs and civil society began calling for fossil-fuel divestment in 2013 (WWF, 2013). Danish pension funds remained reluctant to divest from most fossil-fuel firms until between 2018 and 2020 (AnsvarligFremtid, 2018; WWF, 2019; 2022). As of October 2023, the 16 largest Danish pension funds still collectively held assets worth EUR 3.4 billion in fossil-fuel firms out of a combined EUR ~540 billion AUM (Mellemfolkeligt Samvirke, 2023). Most funds partly justify making these continued investments because they allow them to exercise active ownership. However, this active ownership has frequently entailed supporting the inadequate climate goals these firms propose (AnsvarligFremtid, 2021; 2024). To what extent then can Danish pension funds' arguments and decisions regarding fossil-fuel investments be explained by the previously presented five aspects entailed by the concept of portfolio risk?

Sector divestment

The logic engendered by combining MPT's principle of sector diversification with the EMH both minimizes losses and secures returns that at least match the market average – typically outperforming individual investors. This risk logic principally excludes the possibility of actively divesting from entire sectors, such as the coal, oil, and gas sectors. Investors operating on this logic will have difficulty taking advantage of a key option for influencing corporations: threatening to divest unless a firm significantly improves its performance in a given area, in this case, phasing out fossil-fuel production.

The above logic is noticeable in Danish pension funds, which have attributed some of their reluctance to divestment, citing diversification as a risk management practice. For example, at the 2015 general assembly of AkademikerPension (then Unipension), members raised a divestment resolution that passed by a 761–569 vote. However, the board argued that Danish law did not obligate occupational pension fund boards to follow general assembly decisions, instead ordering an internal report on whether divestment would be financially problematic. MPT was a core theory explicitly informing the analyses in the report, which used the terms 'beta' and 'portfolio diversification' on several occasions. The MPT framework also undergirded a main finding: 'the total risk of the portfolio will rise (...) This is due to the diminished diversification, which substantially impacts the total risk' (Unipension, 2015: 2). The report concluded that, over a 16-year period, fossil-fuel investments had outperformed other sectors and that divestment would reduce the possibility of diversification, thus divestment might lead to lower returns and higher risk. One might question how much this perhaps arbitrary time period actually revealed about the future and the influence of climate actions, and hence whether divesting would, in fact, increase returns and reduce risk.[4] At the time, AkademikerPension chose not to implement the resolution. In 2017, the pension fund updated its analysis, finding that oil divestment would only slightly decrease its risk

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diversification options and increase its management costs. Conversely, it expected a significant risk of stranded assets, which outweighed the other factors under consideration. This outlook was based on expectations that green policies would intensify and on oil price movements over the last 100 years. In the following years, AkademikerPension divested from coal, oil, and gas stocks and bonds. Although other factors, such as the fund's view of stranded assets, also spurred the fund to reassess the importance of risk diversification, this example shows how applying a narrow understanding of sector diversification was a factor prolonging AkademikerPension's fossil-fuel investments. As I detail in another study (Lundberg, forthcoming-a), the revised assessment followed changes in the administration and the board, significant elements of which were driven by members' formal ability to articulate their climate concerns directly through general assembly and board elections. As of 2025, AkademikerPension's divestment criteria are among Danish institutional investors' most progressive.

Several other board responses to divestment resolutions reflect similar fears about the conflict between the call for sector divestment (both regarding fossil fuels and weapons) and the importance of managing risk through portfolio diversification, as seen, for example, at the general assemblies of the Danish member-democratic fund P+ (2020), PKA (2021), and AkademikerPension (2021a). These concerns were, to varying extents, voiced during my interviews. For instance, Sampension's CIO deemed that, from the administration's perspective, 'the more products that are excluded from a given sector, the greater the tracking error'. In his view, however, Sampension's fossil-fuel investment decisions were 'primarily formed by the board's considerations of how best to reach net zero by 2050' (Sampension interview). PFA's co-CIO reasoned that, due to pension funds' long-term risk management perspective,

> We generally do not consider sector divestment as compatible with risk diversification, but (. . .) we have also explored other ways to find financial products with similar characteristics to those of oil and gas products (. . .), e.g., inflation-hedging investments like inflation swaps. (PFA interview)

In a similar vein, PKA's CIO reasoned that PKA had defined a limit for volatility, which also imposed requirements on diversification, stating that 'the short answer is that diversification matters in divestment decisions' (PKA interview). Moreover, several informants maintained that the fossil-fuel sector had been harder to sell off a couple of years ago when it still comprised much of the S&P 500. Although several factors account for this trend, including the rise of other sectors, such as tech, an oil oversupply coupled with the increasing prospects of a large-scale energy transition has played a part (Chung and Cohn, 2025). The above statements resonate with a gradual broadening of exclusion criteria for the fossil-fuel sector (e.g., various fuel types, asset classes, firms' revenue percentages from fossil-fuel production, and upstream/midstream/downstream activities) recently seen in Danish pension funds. On the one hand, engaging in this incremental expansion to circumvent the risk exposure entailed in heightened divestment criteria enables funds to test strategies such as alternative investment products and benchmarks, a practice that makes sector divestment and sector diversification more compatible than full divestment does. On the other hand, this gradual practice excludes the possibility of an immediate and full-scale sector divestment. These examples show not only how the influence of portfolio risk on divestment considerations varies but also how diversification as a central tenet in administrations' divestment considerations has discouraged divestment decisions.

Importantly, the conflict between divestment and sector diversification is not only exacerbated by the finance theories themselves but also by their reinforcement in the

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legal standard of the prudent person principle. Drawing broadly on the philosophical frameworks of Foucault (1994) and Martin Heidegger (2000), this legal principle acts as a technology – a mechanism through which a coherent logic shapes practices.[5] Applied to the present archaeological-discursive investigation, the prudent person principle constitutes a discursive tool that helps extend the portfolio risk concept to finance practice by legally requiring an alignment with predominant finance theories and thereby shaping investment practices. This discursive tool's influence was clearly apparent in the Danish case. One of the first concerns several informants mentioned was their legal obligation to maximize risk-adjusted profit according to the prudent person principle, a concern Danish pension funds have also frequently expressed publicly (cf. Duelund, 2017; 2021; Kattrup and Koch, 2021). The principle is defined by the EU's Solvency II regulation and monitored in Denmark by the Danish Financial Supervisory Authority (DFSA). Fundamentally, the principle states that trustees should oversee beneficiaries' savings as prudent persons would manage their own.

Some scholars and NGOs argue that fiduciary duty laws do or should require investors to prudently halt or diminish their fossil-fuel investments (Barker et al., 2016; Hipple, 2019). Although fiduciary laws can conceivably be interpreted, employed, or altered to mandate greater climate measures from investors, in several jurisdictions the prudent person principle is currently encouraging the opposite. Various neoliberal actors related to the Chicago school have promoted the prudent person principle, and the term 'prudent' has gradually become equated with an adherence to state-of-the-art finance theories, including MPT's emphasis on risk management through portfolio diversification (Montagne, 2012; Lundberg, forthcoming-b). The Danish Ministry of Industry, Business and Financial Affairs and the DFSA have stressed that a failure to comply with this legislation is punishable by law (Erhvervsministeriet, 2018). In 2021, the DFSA issued an official warning to AkademikerPension against its recent divestment from all oil and gas companies that were not Paris-aligned. The fund responded that its updated analyses showed no increased portfolio risk from its divestment decision (AkademikerPension, 2021b). As of 2025, the exact limits of the prudent person principle concerning sector divestment remain unresolved, but the informants nonetheless emphasized the potential illegality of broad divestment decisions. As PKA's CIO stated: 'We don't want an injunction from the DFSA. Of course, employing certain premises, it might be possible to circumvent the prudent person regulation, but the regulation also has certain limits' (PKA interview). Moreover, ActionAid (*Mellemfolkeligt Samvirke*) identified the prudent person principle as a key reason behind Danish pension funds' hesitance to divest (Kattrup and Koch, 2021). This legal investment framework has bolstered state-of-the-art finance theory, of which the concept of portfolio risk is perceived as a fundamental component. As such, the concept has established the discursive conditions of possibility for fossil-fuel investment in yet another manner: although no judicial body has established whether sector divestment violates the prudent person principle, the mere threat of a breach has dampened Danish funds' appetite for divestment. In other words, via both investment theories and laws, the logic of portfolio risk shapes Danish pension funds' sector divestment decisions.

Externalities

Investors evaluating which companies are Paris-aligned (or on track to become so) face a major hurdle in the lack of data and models used to establish individual firms' carbon footprints. This was evident in the observations of a DFSA report on Danish pension funds' policies regarding climate-related financial risks: 'Almost all funds note that the work on measuring climate-related financial risks is at a very early stage and that there are significant shortcomings and great uncertainty associated with both data, models, and methods for measuring climate-related risks' (Finanstilsynet, 2021: 16). Although a

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separate and complicated problem, the data shortfall is also tied to the lack of frameworks to account for this data. Thus, the funds' statements in the report also testify to the limited discursive conditions of possibility for evaluating fossil-fuel investments according to finance theories. Whereas critics have widely pointed out that mainstream economics has failed to account for externalities (Raworth, 2017; Røpke, 1998), the narrow focus of portfolio risk is yet another way in which the lack of a means to account for externalities has had climate-related consequences.

Specifically, studies have highlighted the unfitness of current economic models to take fossil-fuel emissions into account (Taylor, 2023; Folkers, 2024b: 15–16; Gasparini et al., 2024). A challenge pertaining to portfolio risk in this context is that it reproduces, and thus magnifies, the tendency within mainstream economics to view the economy as occurring in a vacuum detached from the environment. At a theoretical level, the CAPM calculates risk with the concept of beta (the sensitivity of a particular stock's value to changes in the entire market portfolio), but neither Markowitz's nor Sharpe's writings flesh out how to integrate external information into the risk calculation. Strictly speaking, in the concept of portfolio risk market sectors are considered as abstract entities across which investors should spread their investments. Essentially, this view reduces the valuation of an asset's risk to a calculation of its market price development and, to some extent, other information familiar to investors, such as annual accounts and capital expenditure. Conversely, this conceptualization promotes a passive approach to climate-related consequences, neither encouraging investors nor providing them with methods to evaluate the concrete relationship between specific sectors or firms and the climate crisis. As Lukomnik and Hawley (2021: 31–45) argue, understanding and concretely calculating and valuing risk as beta restricts the possibility of accounting for a given investment's societal and climate-related factors in terms of potential financial risks for the investor and the investment's environmental and societal consequences.

Further complicating matters, Chenet et al. (2021) argue that even as financial actors increasingly seek ways to render climate-related financial risks transparent, their extreme complexity means that radical uncertainty characterizes them. Although it might be possible to estimate the various costs of climate damages, historical data cannot predict how societies will evolve in the face of events (potential future wars, pandemics, technologies, etc.), let alone how these developments will shape and interact with societies' responses to climate damages. In stark contrast to the general belief in the rational market (Ortiz, 2021), a belief to which the statements in the next section testify, this radical uncertainty makes efficient price discovery impossible. Therefore, Chenet et al. propose taking a precautionary financial approach to minimize long-term unforeseeable risks (e.g., climate tipping points). The above Paris alignment definition (no fossil-fuel expansion) and non-tolerance for disseminating climate misinformation offer, I suggest, two concrete precautionary approaches to risk management.

In summary, the concept of portfolio risk has been conceptualized in a way that has helped translate the absence of externalities in mainstream economics into investors' (rudimentary) possibilities for assessing climate-related financial risks and consequences – thus shaping fossil-fuel investments.

Rationality

Today's stock market prices of fossil-fuel companies may be said to be rational insofar as they reflect the price other investors are still willing to pay for them. If, however, governments meet their climate pledges, many of the largest fossil-fuel firms will soon have dire financial outlooks (Carbon Tracker, 2021). Against this backdrop, Danish pension funds face the challenging dilemma of having to decide the extent to which they believe market prices have already efficiently incorporated the risk of stranded assets and to

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which they want to curtail or push market movements while also balancing their beneficiaries' climate and monetary concerns. In 2018, AkademikerPension (then MP Pension) decided to divest its coal shares on the reasoning that market movements are unpredictable in the short term, but that in the long-term market prices would reflect a considerable decline in the coal sector (MP Pension, 2018: 5–6).

Over the years, however, several Danish pension funds have used an EMH rationale to argue against divestment. A statement by the head of ESG at the P+ fund is emblematic of this tendency: 'We believe that stranded assets will already be factored into share prices (. . .) Our starting point is that financial markets are nearly efficient, so prices reflect the available information, including the report from Carbon Tracker, for example' (Gjerding et al., 2019). This view was echoed in other pension funds' statements (cf. Gjerding et al., 2019; Skinbjerg, 2021). In this argument, the informants expressed variations of two main positions. Some reasoned that 'market prices have factored in the risk of stranded assets. (. . .) There are 50–100 analysts employed at large asset managers. It would be strange if they did not take into account the discussions around the business model of fossil-fuel companies', as ATP's CIO put it (ATP interview). Thus, according to this line of reasoning prices could be expected to be rational. Others reasoned that 'in the short term, the market is a [flickering] voting machine. However, in the long term, the market is a weighing machine [reflecting firms' fundamental value]' (AkademikerPension interview, invoking a Warren Buffett quote). Moreover, several informants stated that, although having excluded some oil and gas companies, they expected the world to continue needing substantial fossil-fuel production in the coming years and did not trust national governments to really deliver a rapid, global green transition, a view also expressed in other investor interviews (cf. Christophers, 2019: 764–766).

The positions expressed in these statements reflect a long-standing dispute in the history of financial valuation. To the extent that the market behaves rationally, the strategy of passively following the market index has its advantages, but other market conceptualization traditions pose challenges to Fama's hypothesis at a theoretical level. John Maynard Keynes (2017 [1936]) argued, for example, that short-term investments are often speculations not on the fundamental value of an investment product but on the value other investors would attribute to the investment, which occasionally causes market bubbles. Modifying Keynes's theory, John Burr Williams (1964) argued that market prices are not rational but that one could calculate the rational price of a firm's financial assets by analyzing the fundamentals (annual accounts, dividend payments, etc.). Although market prices fluctuate, they will eventually move to reflect the fundamentals – as also reasoned by some Danish funds. Valentina Ausserladscheider (2024) has highlighted how investors' considerations of stranded assets should be understood in relation to their imagined future, calling for a sociology of stranded assets. Contributing to this sociological illumination of stranded asset considerations, these Danish actors' rationales show that the extent to which investors adhere to certain market conceptions influences their understanding of stranded assets and market prices.

All other things being equal, the assumption of a rational market and a green transition that progresses at a moderate pace will serve to reinforce the economy's prevailing movements and hinder a faster green transition. Indeed, as the above analysis shows, the thesis that the EMH has shaped the way investors consider stranded assets is partially correct. Although most of the pension funds studied only somewhat assume the EMH, some follow it rather closely, and many invoke the assumption that market prices have to some extent integrated the risk of stranded assets as an argument for deferring further divestment decisions.

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Dispersed ownership

The above-mentioned restraining aspects of portfolio risk are further substantiated by the difficulty Danish pension funds have in exercising sufficient active ownership to push for Paris alignment. Bolstering this difficulty, the concept of portfolio risk encourages share ownership to be dispersed among investors.

AnsvarligFremtid conducted a survey identifying the 16 largest Danish pension funds' active ownership in 10 key companies in the oil and gas and the banking sectors in 2021. The survey documented that even when the pension funds had actually voted at general meetings (which was not always the case), they frequently voted in favor of the boards' positions and against resolutions calling for Paris-aligned business plans (AnsvarligFremtid, 2021; 2024; the inadequate climate-related active ownership of institutional investors is likewise elaborated in McDonnell et al., 2022). Notably, although these reports indicate that AkademikerPension engages in relatively substantial active ownership, its CIO stated that the dispersed ownership of individual firms made it considerably harder for the funds to conduct impactful active ownership. On this front, AkademikerPension's CIO further argued:

> Today, institutional portfolios have become so diversified in terms of risk and ownership that there is rarely anyone who holds power anywhere. This has led to a culture where people no longer perceive themselves as having any power; instead, everything is seen as investments, with the belief that one is a passive investor and that someone else holds power. (AkademikerPension interview)

At a theoretical level, these points can be linked to the implications of portfolio risk: the more investors diversify their portfolios, the fewer shares they own in each company. As a prevalent finance theory, it has not only given financial professionals more precise means of diversification but also generally encouraged them to do so, thereby supporting the further dispersal of share ownership. Certainly, stock ownership had already become dispersed among individual household investors in the US from around WWI onwards (Braun, 2021; Davis, 2008; seminally identified in Berle and Means, 2009 [1932]). However, from about the 1970s, this tendency was succeeded by a concentration of share ownership among fewer owners, namely the rising institutional investors – particularly pension funds – following the passing of several investment legislations, notably the updated prudent person regulation (Braun, 2021; Davis, 2008; Clowes, 2000). Despite this reduction in owners, stock ownership remained dispersed, as institutional investors diversified their portfolios in line with the increasingly predominant portfolio risk concept (disseminated in both textbooks and required through the prudent person principle, as discussed above, see also Clowes, 2000).

Furthermore, McDonnell et al. (2022) have shown that even building alliances of dispersed shareholders has thus far had only limited climate-related impact. For example, in 2022, Climate Action 100+, the largest investor climate alliance, concluded that, despite some progress, the companies targeted during the alliance's five-year existence still 'failed to show progress across key indicators' (Climate Action 100+, 2022). Many Danish pension funds have made this alliance a significant part of their active ownership strategies. For example, PKA's CIO cited the alliance's framework as a main source for the fund's divestment criteria (PKA interview).

Lukomnik and Hawley (2021: 88–94) emphasize that today's widespread diversification makes institutional investors 'universal owners'. As such, their interest lies not in the returns of a particular set of shares but rather in the entire market's ability to generate healthy returns, which consequently grants universal owners an interest in climate mitigation (for a review of the 'universal ownership' theory, see Quigley, 2019). However,

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Lukomnik and Hawley do not sufficiently consider the challenges of coordinating highly dispersed individual investors' efforts. Creating impactful investor coalitions poses one such challenge, as shown by McDonnell et al. (2022) (see above). In an example of a parallel challenge, Arjaliès et al. (2017) analyze the difficulty actors in the investment chain (i.e., from pension members to pension funds, asset managers, credit rating agencies, proxy advisors, brokers, etc., to firms) have coordinating their exercise of active ownership. The difficulties that these examples exhibit are repeated in the challenges dispersed Danish pension funds face both through their individual active ownership and through coalitions such as ClimateAction 100+.

In sum, the concept of portfolio risk has enhanced the conditions for dispersed ownership, and this dispersal has constrained funds' opportunities to exercise active ownership. What is more, Danish pension funds have tended to exercise insufficient active ownership. The concept of portfolio risk complicates these funds' divestment decisions, thus diluting the threat of divestment and thereby further hampering the funds' Paris-aligned active ownership and divestment actions.

Passive index investing

The EMH and MPT imply that investors should diversify their portfolios, as discussed above. By advising investors to diversify their portfolios, they also establish discursive conditions that have supported investors' use of passive index funds, thus tracking various, broadly diversified market indices. As outlined by Benjamin Braun and others (Braun, 2016; 2021; Fichtner et al., 2017; Wigglesworth, 2021), large-scale asset managers who establish index funds will have lower trading and operating costs than individual, institutional managers who diversify their portfolios themselves. Disseminated through publications (by or related to Markowitz, Sharpe, and Fama) and seminars (notably the Center for Research in Security Prices seminars) broadly related to the Chicago school (Wigglesworth, 2021), this logic of index funds and portfolio risk has helped foster the escalating rise of large asset managers with passive index funds, especially advancing towards market dominance following the development of exchange-traded funds (ETFs) in the early 2000s (Braun, 2016). In 2017, Moody's estimated that between 2021 and 2024, assets under management in index funds would exceed those of active funds in the United States (Jahnke, 2019: 4). The asset managers that focus on passive indices largely consist of the 'big three': BlackRock, Vanguard, and State Street (Fichtner et al., 2017).

In the Danish debate, a frequent argument against divestment was echoed by the head of Insurance and Pension Denmark, who said, 'the more we sell off, (. . .) the greater the risk that some swine [*grisehoveder*] will invest in these companies instead' (Færgeman, 2015; cf. Martini, 2022). By this he meant that if one investor divests financial products, other less responsible and engaged investors will simply buy them, so it makes a bigger difference if one stays invested and exercises active ownership. The strength of this argument is contested, as discussed further below, but the advancement of asset managers fortifies its rationale. Patrick Jahnke (2019) documented that, since the Paris Agreement was signed in 2016, some of the largest asset managers have inversely mirrored active investors divesting from coal, as these managers have increased their coal holdings by passively tracking diversified indices. So, even as Danish pension funds, among others, have begun to exclude fossil-fuel firms, index funds that passively track the market might buy these companies' financial assets, which effectively minimizes the pressure on these firms to change their practices (InfluenceMap, 2021).

The rise of passive asset managers is also problematic in relation to fossil-fuel firms' general assemblies because the voting practices of such asset managers deter ESG proposals (Baines and Hager, 2022). To varying degrees, Danish pension funds combine in-house asset management for some asset groups (typically Danish/European markets) with

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external asset managers for other asset groups. The funds have less direct influence over the outsourced part of their portfolios, because it costs extra time and money for them to detail the composition of their investments managed by external asset managers and their votes at general assemblies connected to these investments. Moreover, although asset managers have announced certain climate measures, they continue to pour huge sums into fossil-fuel companies without requiring significant transition plans (Baines and Hager, 2022; Cuvelier et al., 2023).

Hence, insofar as portfolio risk has boosted the ongoing rise of passive asset managers, the concept has conditioned fossil-fuel investment decisions in three ways. First, this upsurge has displaced the power over investment decisions to asset managers, who put insufficient pressure on fossil-fuel firms to make green transitions. Passive index investment has, second, tempered the force of divestment decisions. Third, passive asset managers have displaced investors' direct opportunity to influence firms at general assemblies. As a theoretical underpinning of these asset managers' business model, the portfolio risk concept has advanced a logic that supports existing economic cycles and hierarchies by passively tracking the market average instead of actively trying to alter firm and market behavior. Essentially, the logic dictates that asset managers cannot provide equally good products if they diverge from the chosen index composition – and, after all, these asset managers' revenue depends on their clients' fees for diversified index funds, not on the performance of the firms in these funds (Braun, 2021; 2022). Actively supporting the overall market's long-term potential for delivering steady, risk-adjusted returns – thus also mitigating the climate crisis – might be viewed as being in the interest of universal asset managers and their clients, the universal owners (Lukomnik and Hawley, 2021; Fichtner and Heemskerk, 2020). However, the above examples demonstrate that the fundamental portfolio risk assumptions upon which these asset managers operate have deflected such efforts.

Towards a critical understanding of risk management

The above analysis qualifies significant ways in which the concept of portfolio risk has shaped fossil-fuel investment decisions. To begin with, the concept practically excludes the possibility of divesting from entire sectors. Although Danish pension funds showcase various ways to execute smaller or larger degrees of fossil-fuel sector divestment, their divestment considerations display this fundamental tension between divestment and sector diversification, a tension further reinforced by the prudent person principle. Second, the concept of portfolio risk does not provide tools for taking societal and climate-related factors into account. Danish pension funds have clearly expressed their lack of data and models to address the climate crisis, a complication not limited to portfolio risk but nonetheless reproduced by it. Third, portfolio risk marginalizes arguments that challenge the current status quo. Whereas several Danish pension funds largely treat the market as rational, which has diminished their fear of stranded assets, they have also paid some attention to trends in climate politics. Although the exact extent to which the EMH has conditioned divestment decisions is hard to determine, I can establish that it has decreased concerns about unaccounted-for externalities. Fourth, Danish pension funds' possibilities of exercising active ownership of fossil-fuel firms are complicated, notably because the ownership of individual firms is dispersed, a situation reinforced by portfolio risk. Fifth, the concept of portfolio risk has served as the theoretical foundation for the rise of large asset managers, a phenomenon which has: deflected the force of divestment decisions; displaced investors' ability to influence firms at general meetings; and entrenched a concept of portfolio risk that, through the limited transformative action of asset managers, reinforces existing economic cycles. Hence, my study indicates that the concept's role in

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the rise of asset managers has complicated Danish pension funds' actions towards fossil-fuel firms.

As discussed, focusing on pension funds with different governance structures, different degrees of divestment, and different decisions about active ownership reveals shared tendencies across the funds when it comes to these aspects' influence. Furthermore, the sample indicates that the degree of direct member democracy tends to correlate with increased levels of divestment and active ownership, whereas commercial and state-owned governance structures tend to correlate with a somewhat higher degree of reluctance. However, these indications are not clear-cut. For example, AkademikerPension's member democracy enhanced its divestment and active ownership, but the partially member-democratic Sampension had higher fossil-fuel exposure than the commercial PFA as of 2023 (Mellemfolkeligt Samvirke, 2023). In addition, this study is not intended to draw firm conclusions about the impacts of various governance structures, for which further research would be required.

As this case study demonstrates, Danish pension funds have certainly sought to maximize profits, but they have also endeavored to balance this maximization with ethical concerns to a higher degree than the fully commercial institutional investors usually studied (Christophers, 2019; Langley et al., 2021; Ortiz, 2021), including other commercial pension funds outside Denmark (Clark, 2000; McDonnell and Gupta, 2023). This case study thus adds nuance to discussions of what shapes divestment decisions (Egli et al., 2022; Himick, 2023; Soneryd, 2024) and the role of the portfolio risk concept (Lukomnik and Hawley, 2021).

The portfolio risk identified above is defined by its passivity, a feature that permeates finance capitalism by: passively tracing narrow, rational market numbers; conducting passive risk management through diversification; not encouraging the consideration of externalities; bolstering a diversified shareholder economy that curtails active ownership possibilities; and advancing the rise of asset managers, which has further enhanced the passive diversification of investments and displaced direct active ownership. In practice, investors do not appear to blindly adhere to theories, and the five aspects have had diverging impacts. Still, the role of portfolio risk in co-(in)forming Danish pension funds' fossil-fuel investment decisions has been significant. In short, the concept has advanced a passive tendency to support the predominant movements and actors in the market. Provided the climate crisis demands a break from the status quo, this finding is concerning.

Some limitations to this study should be noted. It is probable that, because Danish pension funds are pension funds in general, and their governance structures are at times more member-democratic, these funds have come to consider climate concerns more closely than other types of institutional or individual investors might, which suggests that further studies on other institutional investors' decision-making could be fruitful. The analysis conducted here explores only how portfolio risk – a concept based on MPT and the EMH – has conditioned the discursive premises of fossil-fuel investment decisions, particularly those made by Danish pension funds.

Moreover, the effects of divestment deserve discussion. Some informants stated that, beyond the above-mentioned fossil-fuel investment considerations, they were not fully convinced of divestment's effects. PFA's co-CIO balanced these considerations as follows: he agreed that direct financing (through bonds or private equity) of fossil-fuel firms can influence their expansion of fossil-fuel extraction, for which reason PFA had terminated its fossil-fuel bond investments. At the time of the interview, PFA had sold off its shares in most fossil-fuel companies, instead concentrating its fossil-fuel investments in Total and Shell, deeming their transition plans the most promising (although later abandoning Shell due to insufficient progress). He noted that portfolio risk diversification also underpinned the decision to retain shares in parts of the fossil-fuel sector. Here, I would like to highlight

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two elements of the impact divestment can have. First, divestment evidently has the most direct impact when targeting financing in the form of (primary market) new shares, bonds, private equity, and loans (see Erlandsson and Sjöström, 2020) – the direct effect of primary market exclusions is often overlooked in debates about divestment. Second, the exact effect of (secondary market) share divestment remains debated, is hard to determine, and may be multi-pronged. Divesting shares has the possible effects of causing changes in share prices (observed in Becht et al., 2023; Curran, 2020; Dordi and Weber, 2019), which only indirectly affects financing costs but directly influences managers' financial motives, and stigmatizing certain business models in the eyes of both investors and politicians (as argued by Bergman, 2018; cf. Braungardt et al., 2019). Although some argue that active ownership might be more impactful (Berk and van Binsbergen, 2021; Gupta et al., 2020), all major oil and gas producers remain locked into fossil-fuel technologies, and almost all these firms still spend less than 5% of their capital expenditure on renewable energy (IEA, 2023), thus making their adoption of Paris-aligned business plans improbable in the foreseeable future (and, after all, time is critical in climate mitigation). Furthermore, no studies to date have demonstrated that active ownership has prompted any significant shifts in fossil-fuel companies' business plans (for an analysis of insignificant active ownership, see McDonnell et al., 2022). I, therefore, conclude that active ownership that does not entertain using the possibility of divestment as the threat holds little leverage, and with regard to fossil-fuel firms, share divestment generally appears to have a greater climate-related impact than trying to change their core business model. However, the precise impact of divestment is a question for other studies to settle.

Continued investment in fossil-fuel firms and delimited possibilities for active ownership are incompatible with the goals of the Paris Agreement. This article does not contest that portfolio diversification can be a useful risk management tool or that pension fund managers should strive to ensure healthy returns for pension members. Instead, my analysis demonstrates how the concept of portfolio risk enhances sustained fossil-fuel investments and limited active ownership opportunities – tendencies that are notably enhanced when diversification and market rationality are narrowly applied, and are likewise strengthened by limited considerations of externalities and by the dispersed, passive ownership structures advanced by the concept. In a broader context, the concept of portfolio risk therefore bolsters a passive tendency within finance capitalism that reinforces the predominant market patterns encompassing continued fossil-fuel extraction.

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Notes

1. All translations are made by the author.
2. A reverse example of this non-perfect performativity can be observed in the emergence of algorithmically-designed roboadvisors who perform the theory of MPT significantly more directly than human finance professionals (Hayes, 2020).
3. For a recent analysis of the Green Swan climate risk concept as an intervening tool, see Engen, 2025. On the challenge of conceptualizing complex climate consequences as financial risks, see Folkers, 2024a; 2024b.
4. For a similar critique of the assumptions in economic models about future climate-related developments, see Gasparini et al., 2024.
5. For a detailed discussion of Foucault and Heidegger's concepts of technology, see Villadsen, 2024.

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