

Outcomes, Risk-Taking and Incentives: Evidence from Asset Managers^{*}

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Abstract

We study incentive contracts used by asset management firms in Norway, focusing on how bonus structures impact performance. The incentive contracts in our sample are heterogeneous, with firms rewarding fund managers based on both quantitative and qualitative targets. We find that higher potential bonuses tied to quantitative metrics, such as the information ratio, lead to better risk-adjusted performance at year-end. Managers at risk of missing bonus thresholds attempt to boost performance through portfolio adjustments, but these efforts backfire, resulting in worse outcomes in the latter part of the year.

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1 Introduction

How are mutual fund managers actually compensated? Despite seeming straightforward, this question has generated extensive research without producing a definitive answer. The problem is that most mutual fund managers work for large financial institutions that keep the compensation contracts confidential. This opacity has prompted researchers in recent years to turn to register data, using it to indirectly infer the factors that affect compensation (e.g., [Ibert, Kaniel, Van Nieuwerburgh, and Vestman \(2017\)](#); [Ma, Tang, and Gómez \(2019\)](#)). This paper takes a different approach. Rather than inferring compensation structures indirectly, we, to the best of our knowledge, for the first time, systematically document and analyze actual employment contracts obtained directly from Norwegian asset management firms that shared detailed data on their contracts, bonus awards, and investment outcomes. We supplement this with survey results covering the majority of assets under management (AUM) in the Norwegian market.

We find a distinct compensation structure, regardless of data source: fund managers receive a fixed salary plus performance-based bonuses tied to information ratios or benchmark-relative returns, with AUM playing a minor role – contrasting with recent register-based findings from the US (e.g., [Cen, Dou, Kogan, and Wu \(2023\)](#)). This structure has real effects on investment behavior. First, higher potential bonuses are associated with higher information ratios and excess returns, without increased risk-taking. Second, fund managers at risk of missing mid-year bonus thresholds actively attempt to boost returns, but these efforts result in worse performance. Together, these findings suggest that compensation incentives influence fund performance and portfolio management decisions.

Our hand-collected data of actual bonus contracts comes from four Norwegian asset management firms over the years 2011-2015, covering 37 individual fund managers. Rather than inferring incentive structures from aggregate data, we observe the actual

bonus rules, performance metrics, evaluation periods, thresholds, and caps that each manager faces. This detailed contract-level information in combination with data on related portfolio performance allow us to calculate the bonus each fund manager earns and also track how they adjust their portfolios in response to their compensation. Our sample spans different firm sizes, asset classes, and organizational structures. To generalize our findings and ensure they reflect broader market practices, we surveyed Norwegian asset management firms in 2025, including all member firms of the Norwegian Fund and Asset Management Association (VFF).¹ Survey respondents collectively manage more than 60% of all AUM of the asset managers invited into the survey. This broad market coverage confirms that the bonus structures we document are representative of industry practices and have remained stable.

Norway provides an ideal institutional setting for this analysis. Since 2010, EU regulations have standardized the bonus regimes across the European Economic Area², creating a uniform regulatory environment that eliminates country-specific confounds. These regulations impose caps on bonuses relative to fixed salary, require a significant portion of earned bonuses to be deferred in a risk-exposed bonus bank over three years, and apply uniformly to all fund managers. This supports the general applicability of our results.

We document three main findings. The first finding is descriptive: we document the actual structure of compensation schemes used across asset management firms. All firms combine a fixed salary with quantitative and qualitative bonuses, consistent with [Palomino and Prat \(2003\)](#). The primary quantitative metric is the information ratio (IR)³, a measure of risk-adjusted return relative to a benchmark, as their primary quantitative performance metric. Excess returns come up as a second relevant metric. Quali-

¹See www.vff.no for more information.

²Norway has been a member of the European Economic Area since its inception in 1994. Financial market regulations in Norway are thus following the EU regulations.

³ $IR = \frac{r_a - r_b}{TE}$, where R_p is the fund's return, R_b is the return of its benchmark, and TE is the tracking error of the fund's return relative to the benchmark. $TE = \sigma(R_p - R_b)$.

tative bonuses, which range from negligible to 50% of total bonuses across firms, reward dimensions beyond quantitative performance such as teamwork and client relationships. Quantitative bonuses employ ex-ante rules defined at year-start, while qualitative bonuses use either ex-ante milestones or ex-post assessments – with evaluation horizons ranging from one to three years.

Our second contribution examines how bonus structures shape fund manager behavior, outcomes and the measurement of outcomes. We focus on the weight firms place on quantitative versus qualitative bonuses – and which quantitative performance metrics they use – finding that this split significantly relates to both performance and risk-taking behavior. Fund managers rewarded with higher potential bonuses tied to individual quantitative metrics deliver higher information ratios at year-end, but they don’t achieve this by taking more risk. Instead, they deliver better risk-adjusted returns through superior portfolio selection and tighter risk control, alleviating the fears about excessive risk-taking voiced in the literature since [Grinblatt and Titman \(1989\)](#).

The third finding shows that fund managers facing the prospect of missing their bonus respond with portfolio changes that backfire, resulting in worse overall performance. We identify “underwater managers” – those whose performance falls short of the bonus threshold – using the exact bonus allocation rules for each fund manager. Their attempts to improve their position result in worse overall performance and lower IRs at year-end than they would have realized by maintaining their existing portfolio strategy. This is in contrast to earlier results (e.g. [Brown, Harlow, and Starks \(1996\)](#)) documenting that fund managers who have not earned a bonus by mid-year increase risk-taking in an attempt to catch up. By including person fixed effects, we rule out the possibility that these patterns reflect differences in fund manager quality or sorting effects. The within-manager variation shows that the same individual performs differently when underwater compared to when on track for a bonus, confirming that interim bonus positions shape investment

decisions throughout the year, in contrast to the irrelevance results of [Stoughton \(1993\)](#) and [Admati and Pfleiderer \(1997\)](#).

A large body of literature examines how asset management firms should design compensation to align employee incentives with investor interests, but focuses primarily on the investor-firm rather than firm-employee relationship. The theoretical literature presents conflicting views on compensation effectiveness. While some argue incentives should not affect managerial effort ([Stoughton \(1993\)](#); [Admati and Pfleiderer \(1997\)](#)), others suggest that current performance targets shape investment decisions ([Palomino and Prat \(2003\)](#)). An optimal contract balances fixed fees with performance incentives. We provide evidence that this balance—achieved through combining quantitative metrics with qualitative evaluation—is commonly used and show that managers with steeper incentives deliver superior risk-adjusted returns. Bonus structures may also encourage excessive risk-taking ([Grinblatt and Titman \(1989\)](#)), though others doubt this effect ([Carpenter \(2000\)](#); [Ross \(2004\)](#)). We return to this theoretical foundation in detail in Section 4. Empirical studies document a positive correlation between incentives and fund performance, yet rely on aggregate fee structures rather than detailed compensation contracts (e.g., [Brown et al. \(1996\)](#); [Massa and Patgiri \(2008\)](#)). We extend this work by providing the first systematic documentation of actual individual-level bonus contracts and examining how underwater managers’ efforts backfire with measurable performance consequences.

The remainder of the paper is organized as follows. Section 2 provides a brief institutional background, and Section 3 details the data sources. Section 4 discusses the theoretical framework underlying incentive contracts in portfolio management. Section 5 presents the compensation structures and incentive designs used by Norwegian firms. Section 6 examines the impact of bonus structures on outcomes and risk-taking, while Section 7 concludes.

2 The Norwegian Asset Management Industry

2.1 The Norwegian Asset Managers

Our data is from Norway, a country with an advanced asset management industry, but internationally more known for its 2 trillion USD Sovereign Wealth Fund.⁴ The asset management industry in Norway consists of managers of mutual funds as well as discretionary asset managers, the customers are individuals, municipalities, companies and financial institutions like insurance companies, and the assets in the public markets cover all classes with significant international diversification. The main industry association is the Norwegian Fund and Asset Management Association which has 22 member firms managing NOK 2,450 billion (USD 216 billion) in mutual fund assets as of end-2024, in addition to discretionary assets. Within the mutual funds, 63% are equity funds, 32% fixed income funds and 5% represents combined mandates. The Norwegian investors in these mutual funds are 26% individuals, 46% institutional and 22% from defined contribution pension contracts. Foreign investors own 6% of the mutual funds managed by Norwegian asset managers.⁵

2.2 Institutional Background

Norway is not a member of the European Union but is a member of the European Economic Area (EEA). The EEA agreement covers regulations of financial institutions and markets, including how banks and asset managers incentivize their fund managers, so the relevant regulations are effectively EU-law implemented in Norway. In 2011, the EU introduced new rules to curb excessive risk-taking by fund managers, motivated by the risk-taking that contributed to the financial crisis.⁶ These rules set limits on bonuses

⁴See <https://www.nbim.no/en/the-fund/market-value/>

⁵<https://vff.no/historisk-statistikk>

⁶EU Directive 2010/76 and subsequent amendments (<https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:329:0003:0035:EN:PDF>). The Norwegian implementa-

and required that they be paid out over time. Specifically, of the bonus to fund managers a substantial portion needs to be deferred, typically at least 50% in Norway⁷ spread over a minimum of three years—with at least 50% delivered in fund units or other non-cash instruments exposed to market risk. Eventual payouts are thus subject to future portfolio outcomes and the regulation aims to curb short-term opportunistic risk-taking. Additionally, no bonus can exceed three times an employee’s fixed salary. These rules apply to employees who can expose the firm’s capital and have been interpreted to cover all employees involved in making asset management decisions, denoted fund managers here, not just unit leaders, or the firm’s CEO. These regulations are implemented across the EU and the EEA, covering countries such as Sweden, Germany, France, and the UK.⁸ According to the [European Fund and Asset Management Association \(2025\)](#), the total size of the European Asset Management Market was about 33 trillion Euros (2024) equivalent to approximately 60% of the US domestic market.

Norwegian asset managers are regulated by Finanstilsynet⁹, the financial sector supervisory agency. This agency is responsible for both the implementation of compensation regulations, as well as on-going supervision. This practice constrains the overall level and deferral structure of variable pay, which aids comparability across firms, but firms retain considerable discretion over the internal composition and scaling of incentives (bonus caps, quantitative vs qualitative weights, horizons, and firm- vs individual-level components).

tion can be found at <https://lovdata.no/dokument/LTI/forskrift/2010-12-01-1507>.

⁷The directive strictly only required 40%.

⁸The asset managers in our sample adhere to an interpretation of how EU regulations are reflected in Norwegian regulations and supervisory practices. The precise implementations may differ across jurisdictions.

⁹See <https://www.finanstilsynet.no/en/>

3 Data

3.1 Bonus schemes

We collected detailed data on manager compensation from four Norwegian asset management firms over a five-year period (2011–2015), with supplementary data from adjacent years at some firms. This hand-collected dataset captures both *ex-ante* compensation contracts (the bonus schemes in effect) and *ex-post* outcomes (actual bonuses earned and paid out). The identities of both the asset management firms and the individual fund managers are confidential.

We have asked each asset management firm to give us information about the specific responsibilities of their individual fund managers and the structure of their *ex-ante* bonus schemes as well as annual individual *ex-post* outcomes. Since each firm has its own bonus scheme, we dedicated significant time to understanding the specific structure of each one and consolidating the information into a standardized format. Each data collection process began with several meetings with the individuals responsible for overseeing the bonus schemes at each firm to develop a custom data collection template. The schemes differ across several dimensions, including whether they are based on quantitative and/or qualitative measures of performance, individual or team performance, the performance metrics used, the evaluation period, the range of maximum, expected, and actual outcomes, and the degree of discretion exercised by management after performance is assessed.

We combined several data sources into a standardized data template. We asked each firm to provide details over time about each employee’s responsibilities within the firm including which asset categories or funds they managed and how these responsibilities were weighted together for bonus calculations. Additionally, we collected information on the overall structure of the *ex-ante* bonus scheme, such as the maximum possible bonus, the relevant metrics used for calculating bonuses, and the actual *ex-post* outcomes. We

also received any written, individual, qualitative criteria used in determining bonuses. As each firm maintains a bonus bank we have also separately tracked the annual bonus earned and the combined payout, including from earlier years, for each person.¹⁰

3.2 Portfolios

The assets managed by individuals in our sample primarily consist of publicly traded securities held for institutional investors or mutual funds. Some of these funds are available to the general public, allowing any investors to buy shares, while others are managed internally, funded by the asset managers' own resources. These assets are mainly Norwegian or Nordic (from Norway, Denmark, Finland, or Sweden) and span across fixed income, equities, and money market securities. We have excluded private equity, real estate, and hedge fund assets from our analysis, as these lack regular market pricing, comparable benchmarks, and require longer investment commitments, making them and their incentive structures less suitable for comparison.

Our fund return data primarily comes from Datastream, and where possible, we also use Datastream's benchmark returns. However, for the internal funds in our sample, neither Datastream nor Morningstar tracks these returns. In such cases, we rely on performance and benchmark data provided directly by the firms. Typically, this data is only available on a monthly, rather than daily, basis. The same limitation often applies to data on benchmark returns, as firms may adjust internal benchmarks to account for specific constraints within a fund's investment universe.

We construct our dataset by combining monthly and daily return observations with benchmark data. Next, we apply the specific bonus schemes and calculate each person's monthly "bonus status" based on their individual bonus contract. Although the bonus schemes operate on an annual cycle, we use specific formulas to determine each person's

¹⁰For privacy reasons we specifically asked for anonymised data, so that we do not know the names or any other identifying information.

year-to-date bonus status for the quantitative portion of the schemes. We only observe bonuses based on qualitative performance annually.

3.3 Persons and Time

Our dataset comprises 37 individual fund managers observed over the period 2011–2015, yielding 143 person-year and 1,637 person-month observations. Since managers frequently oversee multiple funds, the maximum potential sample size is 3,358 observations. However, data attrition due to missing fund characteristics, incomplete reporting periods, and other data quality issues reduces the final sample to 2,362 monthly and 216 yearly observations.

Regarding individual characteristics, the fund managers in the sample are predominantly male, with only one female manager. To preserve anonymity, we exclude gender from our analysis. Similarly, we do not report educational background or tenure with the firm, as one fund specifically requested the exclusion of such information to protect participant privacy. Consequently, our analysis focuses on fund-level and time-series variation in performance and trading behavior rather than individual manager characteristics.

3.4 Survey

To complement our hand-collected data and assess the general compensation practices across the Norwegian asset management industry, we ran a survey of compensation structures during summer 2025. This survey extends our institutional knowledge of four firms to an industry-level perspective on how portfolio managers are compensated.

The survey employed a set of structured questions designed to parallel the dimensions examined in our hand-collected data while allowing comparative analysis across firms and asset classes, see the survey questions in the appendix. We distributed the electronic questionnaire to all 22 member firms of the Norwegian Fund and Asset Man-

agement Association (VFF) – the primary industry association representing Norwegian asset managers – as well as to relevant non-member asset managers identified through Norwegian financial databases. We sent the survey directly to the CEOs of the asset management firms and followed up with two repeated invitations. Given the specific scope of the survey – compensation practices – we sent it to only one recipient in each firm. In total, 34 recipients received our survey.

We received complete survey responses from 12 Norwegian asset management firms spanning the full range of firm sizes (from below USD one billion to above USD 200 billion in AUM) and asset classes (equity, fixed income, money market, and alternatives). These respondent firms collectively managed approximately USD 490 billion in total assets under management as of December 31, 2024. Their Norwegian assets under management totals approximately USD 156 billion, this amount equals approximately 62% of total VFF member assets.¹¹

The survey was administered in 2025, approximately 10 years after our primary hand-collected data collection period (2011-2015). While compensation practices could in principle have evolved over this interval, we have two reasons to expect survey responses to be relevant also for the 2011-2015 regulatory and market environment. First, EU financial regulations governing asset manager compensation were finalized by 2011 and have remained substantively unchanged through 2025, providing regulatory continuity across the two periods. Second, and more importantly, the close alignment between our hand-collected and survey firms’ compensation structures across all major dimensions (quantitative-qualitative bonus splits, performance metric choices, qualitative theme prevalence) provides empirical evidence that compensation practices have remained relatively stable. This empirical alignment validates that survey data from 2025 provide reasonable industry-level context for interpreting our hand-collected findings from 2011-

¹¹We do not have data on assets under management in discretionary mandates.

2015.¹²

4 Theories of Incentive Contracts in Portfolio Management

The literature on contracts in portfolio management spans decades, dating back to [Heckerman \(1975\)](#). Given the breadth of this field, our approach focuses on papers addressing issues for which our data and the organizational structure of the mutual fund industry are directly relevant. We first focus on the impact of agency costs on contract design before we briefly review the literature on risk taking, given a compensation contract.

4.1 Incentives and Agency Problems

There are two central agency problems in delegated portfolio management that compensation contracts aim to address: an effort problem and a selection problem, or in the words of [Bhattacharya and Pfleiderer \(1985\)](#)—a problem of delegation and a problem of screening.¹³ The theoretical literature has sought to derive optimal contracts that mitigate these agency costs, yet as [Stracca \(2006\)](#) comprehensively surveys, no consensus exists on what such an optimal contract should entail. This non-result exists even under the assumptions of [Holmström and Milgrom \(1991\)](#) and even in the most straightforward settings. The literature has produced primarily negative results, and the search for an optimal contract has remained inconclusive.¹⁴

In fact, [Stoughton \(1993\)](#) and [Admati and Pfleiderer \(1997\)](#) present an “irrelevance

¹²Three of the four firms in our hand-collected sample are also represented among the survey respondents; however, we keep the two data sources separate for confidentiality.

¹³We set aside settings where asset management demand arises purely from frictions such as limited wealth or trading costs.

¹⁴[Ou-Yang \(2003\)](#) is an exception but abstracts away from the incentive problems raised in [Bhattacharya and Pfleiderer \(1985\)](#).

result” showing that rewarding agents for effort does not affect their effort choices within this framework, although both papers overlook selection issues. The “irrelevance result” is caused by agents that have too much “control”, allowing them to undo any incentives provided. A second finding, also from [Admati and Pfleiderer \(1997\)](#), suggests that principals should provide greater insurance to agents in riskier situations rather than less insurance. [Prendergast \(2002\)](#), however, predicts the opposite outcome.

From an empirical perspective, the literature suffers from a significant limitation: it typically relies on a simplified principal-agent framework that ignores the critical role of financial intermediaries. As illustrated in Panel A of Figure 1, this standard approach models a direct contractual link where the investor (Principal) compensates the manager (Agent). While this abstraction may be defensible in contexts like private equity or hedge funds—where managers often hold significant personal stakes and share directly in profits – it fails to capture the institutional reality of the mutual fund industry.

Panel B of Figure 1 presents the actual three-party structure in delegated asset management. In this structure, the direct link is severed; the principal pays a fee based on assets under management to the financial intermediary (the firm), which in turn employs and compensates the agent (the fund manager). Crucially, this means the principal cannot observe, let alone influence, the specific terms of the agent’s compensation contract.¹⁵ Consequently, the incentives driving the fund manager are determined by an internal employment agreement rather than a direct profit-sharing arrangement with the investor.¹⁶ To our knowledge, no existing research attempts to develop a general theoretical model that fully incorporates this intermediary structure. The presence of an intermediary creates additional complexities: because the contract between the firm and its employees

¹⁵This setup is also what makes register data less useful as the actual employment contracts are not observed.

¹⁶While we did not collect information about this specific part of the investor-intermediary relationship, anecdotal evidence suggests that few funds in Norway use incentive fees or profit sharing in their client contracts. The main user of incentive fees in the Norwegian market is notably absent from our sample.

lies outside the principal’s control, the transmission of incentives is distorted. Employees face limited consequences of poor performance, effectively introducing limited liability constraints into the contractual arrangement.¹⁷ The fact that the incentive contracts address risk related to the principal’s return and not primarily the risk to the intermediary’s profitability also underlines the value of including all three parties in the analysis. Private conversations with the Norwegian regulator (Finanstilsynet) confirmed that contracts offering only variable pay for employees are generally not tolerated, effectively imposing limited liability.

Interestingly, this more complex relationship dynamic is addressed by a strand of the literature examining how limited liability affects contract design. [Stoughton \(1993\)](#) shows that linear (AUM based) contracts are dominated by non-linear contracts, such as the one suggested by [Bhattacharya and Pfleiderer \(1985\)](#). [Palomino and Prat \(2003\)](#) show that under limited liability, the optimal contract is a simple bonus contract combining a fixed fee with a bonus or call option.¹⁸ This insight forms our first hypothesis:

H.1 - Bonus schemes take a specific form, consisting of a fixed salary plus a performance-based bonus.

4.2 Risk-Taking Implications

A second strain of the literature focuses on risk-taking behavior induced by compensation contracts rather than effort provision. Starting with [Grinblatt and Titman \(1989\)](#), the literature identifies two important implications of bonus contract design for agent behavior. First, because bonus contracts structurally resemble call options, they create incentives that may lead agents to undertake excessive risk-taking. Second, when agents

¹⁷Disregarding situations where the fund manager’s performance and potentially her behavior are unacceptably unsatisfactory.

¹⁸The quadratic contract of [Bhattacharya and Pfleiderer \(1985\)](#) is dominated by a standard bonus once ”output” can be destroyed.

have unrestricted ability to engage in personal trading, they can effectively neutralize the intended effects of bonus schemes through hedging strategies, thereby producing an irrelevance result that parallels the findings of [Admati and Pfleiderer \(1997\)](#).

However, [Carpenter \(2000\)](#) and [Ross \(2004\)](#) challenge the standard view proposed by [Grinblatt and Titman \(1989\)](#). In managerial settings, this theoretical prediction often fails to hold, as managers may choose different risk levels than a simple option pricing framework would predict. These empirical observations motivate our second hypothesis:

H.2 - Risk-taking is a major concern in contract design.

If contracts are indeed designed to balance these risk concerns effectively, we should observe that stronger incentives translate into better manager effort and outcomes. Empirically, [Brown et al. \(1996\)](#) and [Massa and Patgiri \(2008\)](#) support this view, providing evidence of a positive relationship between incentive strength and fund performance. However, a critical limitation of these studies is that neither has access to detailed information on fund manager compensation contracts. Instead, both rely on variation in the fee structures that principals pay to intermediaries, which may not fully capture the incentive environment facing individual managers.¹⁹ Despite this data limitation, the consistent finding of a positive incentive-performance relationship across studies motivates our third hypothesis, which we can summarize as follows:

H.3 - There is a positive relationship between incentives and outcomes.

This general formulation however makes it difficult to distinguish whether incentives or selection (of fund managers) are driving this relationship as both have the same implications. To understand this better, consider the case where the irrelevance results in [Stoughton \(1993\)](#) and [Admati and Pfleiderer \(1997\)](#) were to hold. In such a case **H3**

¹⁹In this sense, they remain within the framework of Panel A of Figure 1.

might still be true - as shown by [Bhattacharya and Pfleiderer \(1985\)](#), higher-powered incentives can also serve as a screening device, attracting more skilled managers. It is therefore important to distinguish between two mechanisms:

H.3a - Stronger incentives lead to higher effort and better performance

whereas as if only screening matters we would need to modify **H3** to:

H.3b - Higher-powered incentives attract more capable agents, producing higher observed outcomes.

Note that it is possible that both **H3a** and **H3b** hold at the same time.

5 Compensation Structure and Incentive Design

5.1 Overview

Understanding how bonus schemes influence managerial incentives requires examining both their formal contractual terms and how they operate in practice. We document the bonus schemes used by Norwegian asset managers in our sample and analyze how design features affect fund performance and risk-taking. To do this, we first outline the contracting framework and then present a detailed descriptive analysis of the quantitative and qualitative bonus components across firms and asset classes, documenting their economic significance. To extend our findings beyond the four firms we studied in depth, we incorporate survey responses from additional Norwegian asset managers, offering a comprehensive perspective on how compensation contracts are structured across the industry.

Bonus compensation is universal in our sample, consistent with US evidence showing that 98% of fund managers receive bonuses ([Ma et al., 2019](#)). All bonus schemes combine a fixed salary with performance-based bonuses containing both quantitative (objective) and qualitative (subjective) elements, consistent with theoretical predictions, in line with

H1. Norwegian financial regulations prohibit compensation structures based solely on variable pay, effectively imposing manager limited liability.

A general formulation²⁰ applied to our setting follows:

$$S = F + \min\{Cap, \alpha f(a \cdot PM) + (1 - \alpha)g(b \cdot Q)\}, \quad (1)$$

where S represents total compensation, F is the fixed salary, Cap is the maximum bonus cap (which ranges from $0.5F$ to $3F$), α weights the quantitative bonus component, a and b denote performance attainment rates, and $f(\cdot)$ and $g(\cdot)$ are positive mapping functions that transform performance metrics into bonus amounts. The quantitative component is anchored by the performance metric (PM), while the qualitative component (Q) captures subjective performance goals.²¹

We then proceed to describe how firms implement this compensation structure.

5.2 Quantitative versus Qualitative Incentives

All four firms in our sample combine quantitative and qualitative components in their bonus schemes, but they allocate weight to each component differently. Table 1 summarizes the detailed structure across firms, showing that the quantitative weight ranging from 40% to 75%. With one exception, these weights are fixed and disclosed to employees at the start of the annual bonus period, providing transparency regarding performance

²⁰One firm departs from this standard structure, employing a CEO-assigned subjective bonus scheme where bonuses represent a predetermined share of firm profits. This approach proves feasible given the firm's small size—fewer than 30 employees—which allows the CEO to directly monitor individual contributions to firm performance. According to our interview with the CEO, the firm's scale creates sufficient transparency that employees recognize how their actions directly affect profitability, reducing wasteful discretionary spending.

²¹We do not observe restricted stock or stock option grants in our sample, though we cannot definitively determine whether this reflects industry practice or results from the firms being unlisted. Additionally, compensation structures do not typically adjust for career stage; our interview partners noted that bonus bank provisions require employees to have more than three years of tenure before becoming eligible for the full bonus amount.

expectations. The qualitative bonus component comprises the remainder. This division reflects a deliberate multitasking choice: rather than incentivizing only measurable performance (IR, returns), firms intentionally reserve bonus weight for subjective, non-risk taking dimensions of the job. Based on our dialogues with the firms, this is motivated by the need to also reward employees for important contributions to teamwork, development, training, client dialogues and other activities which are not directly captured by the ex post performance metrics. We provide a detailed examination of these bonus components in Section 5.4.

To assess whether this quantitative–qualitative split is systematic across the Norwegian industry, Figure 2 displays the bonus composition for the twelve firms from our survey. In the top panel, the left bars for each respondent firm show the quantitative–qualitative division; the right bars further decompose each bonus element into ex-post judgment, ex-ante milestones, and individual/team/firm performance components. Figure 2 shows considerable heterogeneity: qualitative bonus weights range from near-zero at some firms to as high as 50% at others. Within the qualitative component, firms employ divergent approaches—most anchor bonuses to ex-ante milestones while others rely more heavily on ex-post discretionary judgment. Within quantitative bonuses, firm-level and individual-level performance metrics clearly dominate over team-based measures, though the balance between them varies across firms. This heterogeneity mirrors the patterns observed in our four firms, suggesting that the quantitative–qualitative tradeoff is a key strategic choice in asset management compensation and that firms manage risk incentives through their choice of how much of the compensation is placed on quantitative versus qualitative objectives, as well as how each element is composed. The bottom panel of Figure 2, aggregates compositions across firms showing the mean weight of each component using three alternative weighting schemes (equal-weighted, AUM-weighted, fund-number-weighted). Results are consistent regardless of weighting scheme: quan-

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titative incentives account for roughly 80% of bonuses on average, and the individual component is the largest single basis for estimating performance.

The economic logic underlying these splits draws from multitasking theory (Holmström and Milgrom, 1991). When firms incentivize only a single quantitative metric – say, the information ratio – managers face incentives to neglect other valuable tasks: collaborative effort, risk management discipline, operational excellence, and compliance. More critically, a pure quantitative bonus that rewards high returns without controlling sufficiently for risk can create incentives for excessive risk-taking, as managers pursue high-variance strategies to maximize bonus payouts. Qualitative bonus components serve a dual purpose: they reduce risk-seeking incentives by explicitly rewarding non-return dimensions (such as adherence to risk protocols and operational discipline), and they broaden incentives beyond quantitative performance metrics alone. By reserving meaningful bonus weight for qualitative goals, firms effectively implement a risk-management constraint on compensation, preventing the bonus structure from encouraging managers to pursue tail-risk strategies at the expense of long-term fund performance.²²

5.3 Performance Metrics

In the previous sections we established that all firms combine quantitative and qualitative bonuses. Panel 1 of Table 1 looks at the metrics used in the quantitative bonus schemes. Of our four sample firms, three use standard quantitative performance metrics: the information ratio and excess returns (relative to benchmark), while Firm 3 represents an outlier, conditioning compensation entirely on firm-level profit rather than fund-specific performance.

The performance metrics themselves vary by fund type: active equity funds are eval-

²²When asked about the rationale for qualitative bonuses, all firms provided explanations consistent with multitasking concerns (Holmström and Milgrom, 1991). One firm explicitly stated that a bonus scheme based solely on investment results would discourage investment in shared tasks and resources.

uated using the IR, passive funds by relative performance, and fixed income funds by absolute performance. Firm 3 represents a notable exception—as its bonus structure is based firm profits, AUM becomes a direct determinant of manager compensation. The quantitative bonus functions vary across firms. Firms 2 and 4 use linear functions with bounds on the IR, while Firm 1 employs a non-linear specification. Unlike the CEO compensation literature, which documents frequent bonus discontinuities and hurdle rates (e.g., [Edmans, Gabaix, and Jenter \(2017\)](#); [Bettis, Bizjak, Coles, and Kalpathy \(2018\)](#)), we find no such abrupt jumps in the manager compensation contracts we examined.

The evaluation horizon for bonus calculations varies significantly across firms. Firm 1 employs a three-year horizon, Firm 4 a two-year horizon, and one firm uses a one-year measurement period. This heterogeneity contrasts with much of the older literature on US financial firms (e.g., [Starks \(1987\)](#); [Chevalier and Ellison \(1997\)](#)), which typically assumes annual bonus calculations, though not with the more recent results reported by [Ma et al. \(2019\)](#).

Using survey data, Figure 3 shows remarkably similar results regarding the choice of performance metrics as the basis for quantitative bonuses. Splitting the data by asset class, the top panels show that, within equity, fixed-income, and money-market mandates, most firms rely heavily on IR or excess returns (often 80–100% of the quantitative bonus).²³ Absolute returns (AbsRet), Sharpe ratio (SR), and alpha receive minimal weight, while AUM appears in only a few firms’ schemes (with large weights only in survey firms 3 and 9), confirming that explicit AUM-based incentives are rare.²⁴ The bottom panel aggregates across firms and asset classes, showing the mean weight of each metric by fund type using the same three weighting schemes as above. Regardless of weighting method, IR and excess return account for 70–90% of quantitative incentives, while

Figure 3 about here

²³Missing observations on some survey respondents are due to the fact that not all asset managers manage all asset classes.

²⁴This shows that fund managers are primarily rewarded for the investors’ returns and not the commercial success of the intermediary through fees from growing AUM.

AUM-based compensation represents a smaller share, consistent with [Ma et al. \(2019\)](#)’s finding that approximately 20% of US asset managers receive compensation based on assets under management. Interestingly, [Cen et al. \(2023\)](#) have very different conclusions based on U.S. register data finding that manager compensation is predominantly driven by AUM, with performance metrics influencing pay primarily through their effect on asset flows. These apparently divergent findings can be reconciled by considering the performance-flow relationship literature, which documents a positive association between fund outperformance relative to benchmarks and subsequent growth in AUM (e.g. [Sirri and Tufano \(1998\)](#)). Since superior performance generates asset inflows, an indirect channel connects performance to compensation through AUM expansion. Our evidence suggests that managers receive remuneration principally for delivering outperformance rather than for AUM accumulation per se. The structural limitation of earlier register-based studies is that when AUM is the only observable metric, researchers cannot rule out or definitively refute the presence of performance-based compensation mechanisms.

This systematic preference for risk-adjusted metrics aligns with [Holmström \(1979\)](#)’s informativeness principle: by filtering out common shocks—market conditions, interest rate movements—that managers do not control, contracts can reward managers for the skill and effort they actually contribute. By conditioning bonuses on IR rather than absolute returns, firms explicitly recognize that a 10% return in a booming market is less impressive than a 5% outperformance in a bear market. This design also mitigates herding incentives: since bonuses reward deviation from the benchmark relative to the risk of that deviation, managers are discouraged from simply mimicking market movements. The consistency of this metric choice across firms and asset classes suggests that compensation design practices reflect deliberate choices to disincentivize excessive risk-taking.²⁵

²⁵Anecdotal evidence tells us that one of the largest asset managers in Norway introduced IR as the basis for quantitative bonus to equity fund managers as early as 1998.

5.4 Qualitative Milestones and Firm Objectives

Qualitative bonuses can have three goals: first, avoid gaming of performance measures, reduction of risk-taking, and to provide a minimum bonus, either to retain key personnel or not to lose the yearly bonus bank payment.²⁶

All firms in our sample incorporate qualitative components into their bonus schemes—typically accounting for 25–60% of total bonus. Panel 2 of Table 1 describes the structure of the qualitative bonus component. All firms incorporate qualitative elements into their compensation schemes, though they differ substantially in whether qualitative goals are set *ex-ante* or determined *ex-post*. Firm 1 employs purely *ex-post* judgment without pre-set milestones, whereas Firms 2 and 4 establish explicit performance targets at the beginning of the evaluation period. Firm 3 combines both approaches, using both *ex-ante* milestones and *ex-post* discretionary adjustments. Additionally, Firm 4 includes a “good faith” clause that provides flexibility beyond its stated objectives. Each approach involves trade-offs: *ex-ante* commitments may encourage greater effort but invite gaming, while *ex-post* assessment offers management flexibility but weakens agents’ confidence in receiving bonuses, reducing incentive strength. [Bienz and Hirsch \(2011\)](#) provide evidence of a similar trade-off in venture capital contracting.

Table 2 illustrates these goals for two randomly selected fund managers. Person 1’s qualitative objectives span foreign exchange management (35% weight), interest rate hedging (30%), default handbook development (25%), and competence building (10%), with specific activities such as “develop alternative hedging methods,” “present the chosen method to the investment committee,” and “transfer forex skills to Person X.” Person 2’s goals emphasize market-functioning contributions (40% weight), operational improvements (20%), and strategic planning (40%), with concrete targets like “establish a forum

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²⁶A survey respondent noted that qualitative bonuses are used to maintain bonus bank distributions even in years of poor performance.

for market participants,” “present opinions externally,” and “evaluate joint management for Norway/Nordics”. These are not subjective personality (or relationship!) assessments; they are project-based and task-specific, making them partially ex-ante verifiable.

To extend beyond these examples, Figure 4 presents qualitative themes across all survey firms and asset classes. The left panels display heatmaps indicating whether each of seven themes – sales, operations, product development, collaboration, client management, compliance, and mentoring – appears in fund managers’ qualitative goals for each firm–asset class combination. The right panel aggregates by asset class, showing the percentage of firms that include each theme in their goals.

Figure 4 about here

Product development and client relationships emerge as the backbone of qualitative incentives. Product-development goals are nearly universal—built into every equity scheme, over 90% of fixed-income schemes, and two thirds of money-market schemes—indicating that firms see continuous product innovation as a core responsibility of portfolio managers, not just a marketing or back-office task. Client-relationship management is similarly central: more than 80% of equity schemes, 75% of fixed-income schemes, and half of money-market schemes explicitly reward developing and deepening client relationships.

Collaboration, operational improvements, compliance, and mentoring form a second layer focused on “how the house runs.” Around 60% of equity and fixed-income schemes include collaboration and operational-improvement goals, compared with only one third of money-market schemes, reflecting that more complex active mandates require coordination and process refinement absent from commoditized money-market products. Compliance goals appear in about half of equity and fixed-income schemes, and mentoring in roughly half, indicating that firms reward regulatory discipline and junior-staff development as strategic priorities distinct from pure return generation. Sales goals are rare across all asset classes (about one quarter of schemes), showing that most firms deliberately shield investment staff from commercial targets to avoid distorting investment

decisions. At the same time, roughly 40% of equity and fixed-income schemes and one third of money-market schemes include “other” idiosyncratic goals, showing that many firms fine-tune their qualitative incentives to reflect specific strategic priorities – such as ESG, data capabilities, or cross-business initiatives – that do not fit into standard categories.

Crucially, these qualitative goals reflect a deliberate strategy to balance the incentive structure. By explicitly valuing observable milestones in areas like compliance and operations, they broaden the performance focus beyond financial metrics and ensure that essential non-investment tasks are not neglected. Simultaneously, this structure acts as a constraint on risk-taking, preventing the exclusive focus on returns from compromising portfolio stability. Furthermore, qualitative criteria offer a mechanism for compensation smoothing, allowing firms to award a baseline bonus—or maintain bonus bank distributions—to retain key personnel even during periods of weaker financial performance. As Figure 4 illustrates, this design effectively aligns individual financial goals with the firm’s broader need for organizational resilience.

5.5 Does Bonus Size Matter?

All four firms operate within the applied EU regulatory framework, which mandates a bonus bank structure – typically 50% paid immediately, 50% deferred over three years—and bonuses capped at three times fixed salary.²⁷ While Firms 1, 3, and 4 adopt

²⁷This constraint transforms previous call option-like schemes into a more complex structure. Notably, all schemes remain asymmetric: employees face no liability for underperformance and simply forfeit bonuses or bonus bank payments. The new structure can be represented as $c(b_l) - p(b_h)$, where $c(b_l)$ denotes the bonus portion increasing beyond the lower bound, and $p(b_h)$ is akin to a put option that employees sell, activating once the cap is reached. In derivatives terminology, this resembles a “bull spread,” with implications for risk-taking behavior. Unlike a simple call option whose Vega ($\frac{\partial c(b_l)}{\partial \sigma}$)—the sensitivity to volatility—is always positive, a bull spread’s Vega can be positive or negative depending on moneyness. Around the upper bonus threshold, the Vega turns negative, dampening risk-taking incentives once the cap is reached. The bonus cap also removes convexity from the bonus function, further mitigating risk-taking. However, derivatives intuition does not directly apply here. As [Carpenter \(2000\)](#) and [Ross \(2004\)](#) note, compensation schedules move the evaluation of any gamble to a different

the regulatory maximum, Firm 2 imposes a substantially stricter cap of 0.5 times salary, likely reflecting internal governance preferences or fund-specific supervisory requirements. The mandatory deferral creates multi-year performance accountability, extending risk management beyond the immediate bonus award.²⁸

These institutional constraints shape the salary and bonus patterns shown in Table 3. Panel 1 reports that bonuses awarded average 39 percent of total compensation (bonus awarded + fixed salary) across our sample period, with little time-variation.

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This figure substantially exceeds the conventional wisdom in the literature (see for example Ibert et al. (2017) or Cen et al. (2023)); indeed, it implies that performance-based pay constitutes a large share of the typical manager’s remuneration package. It is important to note that this represents the actual bonus awards rather than realized bonus payouts, which may explain why it exceeds previously reported figures, based on register data. For perspective, the average total compensation of NOK 1.6 million²⁹ (approximately USD 300,000 at prevailing 2010–2015 exchange rates) compares to a median Norwegian salary of approximately NOK 500,000³⁰, indicating that fund managers potentially earn roughly three times the national median, with bonuses representing the marginal component that separates their compensation from that of equivalently skilled professionals in other sectors.³¹ These observed magnitudes suggest that incentives matter, even without directly estimating a pay-for-performance sensitivity.

The bonus bank matters just as much.³² Panel 1 shows that the amounts collected in part of the utility function, where risk aversion can vary. Predicting a bonus scheme’s impact on risk-taking requires knowing the agent’s precise utility function.

²⁸When it comes to firms in the survey, they report bonus caps from 0.5 to 3 times salary as well.

²⁹We should note that the average salary is not dissimilar to that reported in Ibert et al. (2017) when translated from Swedish into Norwegian Kroner (the exchange rate at the time was around 1:1)

³⁰The median salary for Norwegian employees over the same period according to the Norwegian Statistical Office.

³¹Salary size is considerably lower than what is reported for the US though: Bai, Ma, Mullally, and Tang (2023) state that US fund managers earned about USD 1.6m in their sample, or about NOK 9m at 2010–2015 exchange rates.

³²We need to distinguish here between the individual or personal bonus banks we face here and firm wide bonus banks, as say discussed in Ibert et al. (2017). A firm wide bonus bank is akin to the profit

the bonus bank are large, averaging 30 percent of total compensation, nearly matching the 27 percent from immediate payouts.³³ This creates a lasting stake in fund performance that stretches well beyond the current year. For a typical manager, the bonus bank balance often exceeds six months of fixed salary—a significant financial commitment.

Panel 2 shows that the cross-sectional dispersion in bonus awarded should be large enough to create strong ex-ante incentives. The maximum bonus in 2011 (NOK 2.05 million) is more than twice the average fixed salary, while the minimum bonus (NOK 80,000) is below 5 percent of the maximum. This large difference is not driven by a few extreme observations: the standard deviation of bonus awarded ranges from NOK 400,000 to 750,000 across years, indicating that payoffs vary substantially across managers. This dispersion is precisely what tournament-style incentive schemes depend on, as it creates substantial stakes tied to relative ranking and bonus outcomes. At the same time, the maximum bonus remains below the legal cap of three times fixed salary, suggesting that internal policies or risk preferences of compensation committees might bind before the regulatory limit. Compared to [Ma et al. \(2019\)](#), who report also on (maximum) bonus size relative to salary our results do not stand out, and neither does the maximum bonus amount reported in Table 1.

The presence of a bonus bank also matters for how we interpret empirical results. [Ibert et al. \(2017\)](#) document a weak relationship between bonuses and performance. One possible explanation is mechanical: if large awards in strong years are partly offset by lower payouts in subsequent weak years, observed payouts may understate the underlying incentive strength. Our data are consistent with such a channel. The bonus bank defers a sizable share of awards and smooths payouts over time, so compensation in any given year

sharing scheme of one of our sample firms - a share of firm profits is set aside to be distributed among employees. The individual bonus bank is independent of firm profit and is the sum of all accumulated but not paid out profits awarded to an individual.

³³The bonus bank was first introduced in 2011. In later years, as the bonus bank accumulates, it surpasses the annual bonus payout in size.

is likely less volatile than the performance that generated it. This setup can lower the contemporaneous correlation between performance and pay and adds a dynamic element that simple cross-sectional regressions do not capture. Taken together, these patterns suggest that the weak bonus–performance relationship documented in earlier work partly reflects the methodology used to measure incentives, and does not necessarily indicate an absence of meaningful performance-based pay.

Our findings also contribute to the discussion in [Ibert et al. \(2017\)](#) about the relative importance of firm-level versus individual-level incentives. Figure 2 shows that there are three components to each persons bonus scheme: an individual, team and firm component. About 50% of the total bonus is individual specific, with the rest split between team and firm performance. Interestingly, the firm component takes different forms. For some asset managers, namely firm three in our sample, the bonus pool is a fraction of firm profit. In other cases, the firm bonus pool is somewhat connected from firm profits - firm performance can also imply that all funds managed by the firm need to have a positive return rather than the firm running a profit.³⁴ Overall our data supports the finding in [Ibert et al. \(2017\)](#) that firm level returns can affect compensation, though, to our knowledge, the finding that team-level performance affects compensation is novel.

In summary, the evidence points to both the level of bonus awarded and the structure of the bonus bank being economically sizeable. Bonuses account for a large share of total compensation, exhibit substantial cross-sectional variation across managers, and are subject to deferral rules that tie a portion of pay to future outcomes. These features make it plausible that performance-based pay affects risk-taking and investment decisions, given that the associated financial stakes are neither small nor short-lived.

³⁴Since most survey firms operate as part of larger entities, linking compensation to firm profits may be impractical given that profits reflect factors outside the asset management unit’s control.

5.6 Other Considerations

Beyond the core quantitative and qualitative components, bonus schemes incorporate several additional features that shape managerial incentives and reflect post-crisis regulatory adaptation.

For example, one firm ties bonuses not only to investment performance but also to fund flows, allowing managers to share net fee increases generated by higher assets under management. This creates an additional incentive to attract and retain investors. Several firms have profit-sharing agreements with ultimate investors, though only one extends these arrangements directly to individual fund managers. Another firm shares overall profits with employees, but this link to individual fund manager performance remains indirect and relatively weak. Notably, passive fund managers face smaller weights on quantitative components than active managers. Following [Prendergast \(2002\)](#), since there is little need to base pay on output when inputs can be directly monitored, passive managers receive lower performance-based bonuses than their active counterparts.

In contrast to these direct performance linkages, we observe no evidence of a “ratchet effect,” where performance targets tighten over time, making bonuses progressively harder to achieve. This absence contrasts with theoretical predictions suggesting that repeated principal-agent interactions should lead to better ability assessments and tighter performance thresholds (e.g. [Laffont and Tirole \(1988\)](#)). Such inertia in target-setting may reflect either the difficulty of reassessing manager ability in real-time or deliberate compensation committee choices to avoid excessive tightening that could undermine effort incentives.

The financial crisis prompted substantial changes to bonus scheme design. Previously, some funds paid bonuses to managers despite the firm incurring losses, as schemes lacked firm profitability clauses. Now, nearly all schemes condition bonuses on the firm itself remaining profitable, aligning individual payouts with overall organizational health. This

shift reflects both regulatory pressure and internal governance responses to perceived misalignment between manager rewards and shareholder losses during downturns.

Finally, a common feature across bonus schemes is a “good behavior” clause conditioning payouts on appropriate conduct. These clauses are intentionally broad to encompass situations where misconduct is difficult to define explicitly – for example, one firm requires managers to “run the FX business in a good manner,” as detailed in Table 2. Such provisions serve as a catch-all risk-control mechanism, allowing compensation committees to withhold bonuses when managers engage in problematic conduct that does not necessarily violate formal policies but reflects poor judgment or operational discipline.

6 Incentives and Risk Taking

We study the relationship between incentives schemes, risk taking, and outcomes. We start by analyzing how the components of each manager’s bonus scheme relate to performance – specifically, whether a higher promised bonus payment results in improved outcomes based on the metrics specified in the scheme. This analysis focuses on the static relationship between bonus structure and behavior, examining whether compensation design alone influences outcomes. We then extend this framework to consider dynamic effects, analyzing how managers’ forward-looking expectations about bonus payouts influence their behavior.

6.1 Risk Taking and Bonus Schemes

To examine how incentives set at the beginning of the year influence outcomes, we estimate regressions with various outcomes as dependent variables and bonus scheme components as independent variables. This setup tests **H3**, that posits a positive relationship between incentives and outcomes. The primary outcome of interest is the fund’s IR, as it

is the metric on which bonuses are most commonly based.³⁵ We also decompose the IR into its two components: the return differential relative to the fund’s benchmark and the fund’s tracking error, defined as $TE = \sigma(R_p - R_b)$. Additionally, we examine the fund’s total volatility, measured as the standard deviation of returns. These risk measures capture distinct dimensions of fund behavior: tracking error quantifies deviation from the benchmark with a theoretical minimum of zero, while standard deviation measures total risk regardless of benchmark. Examining both allows us to distinguish whether managers adjust systematic risk exposure, idiosyncratic risk relative to benchmarks, or both in response to incentive structure.

We analyze four bonus components: individual (*Ind*), team (*Team*), firm (*Firm*) bonus weight, and the weight of the qualitative component (*Qual*).³⁶ These components sum to one across all managers. We exclude the *Team* component from the regression due to multicollinearity. Given that the overall bonus level in our sample ranges from 0.5 to three times fixed salary, we scale the component weights by the total bonus level to reflect actual compensation incentives. Table 4 reports the summary statistics of all our variables.

Our specification includes controls for fund type (equity, fixed income, or money market) and fund size, along with year fixed effects to capture time-varying market conditions. Standard errors are clustered by fund to account for correlation within fund-specific decisions.³⁷ The specification then is:

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$$Outcome_{i,j} = \alpha + \beta Ind_{i,j} + \gamma Firm_{i,j} + \delta Qual_{i,j} + \gamma X_{i,j} + \theta_t + \lambda_j + \epsilon_{i,j} \quad (2)$$

³⁵Firm 4 uses the return difference for passively managed equity funds instead of the information ratio. Although this affects only a small number of observations, we include them in our sample and also consider the return difference as an outcome variable.

³⁶See Table A.1 for detailed variable definitions.

³⁷Firm or individual fixed effects cannot be included, as the bonus schemes remain constant over the sample period.

where i indexes each person and j each fund, θ_t is a year fixed effect and λ_j is fund type fixed effect, and X are controls. $Outcome_{i,j}$ is then either the end of year IR, excess-return, tracking error or volatility.

Table 5 presents the results. Column one shows that individual bonus size is positively and significantly related to fund performance measured by IR. In contrast, a higher weight on the qualitative bonus component—which is independent of IR—reduces performance, though this effect is not statistically significant. Columns two and three decompose IR into its components: return difference and tracking error. For the individual bonus component, we find the expected results: statistically significant improvements in return difference and statistically significant reductions in tracking error. We find no systematic effects for firm or qualitative bonus size on these metrics. Individual bonuses do not affect volatility, whereas firm and qualitative bonus components reduce it.

Panel 2 excludes Firm 3 (and all its funds), which uniquely conditions compensation on overall firm profitability rather than fund-specific IR. The individual bonus coefficient on the information ratio increases, and the tracking error effect strengthens. Effects on returns and volatility remain stable. Note that we lose the firm bonus size variable in this regression due to multicollinearity. The persistence of results when omitting Firm 3 suggests that selection may not fully drive our findings, though we cannot entirely rule out this concern. The strengthening of individual bonus effects indicates that Firm 3’s atypical compensation structure somewhat dampens the estimated relationships, but the core patterns remain consistent across samples.

In a second test, we analyze monthly results rather than yearly ones. As we need enough observations to compute both tracking error and standard deviation, we use all monthly observations from July through to December, using the earlier months to compute our proxies.

The monthly results, reported in Table 6, largely corroborate the annual findings.

Individual bonuses consistently improve risk-adjusted returns and reduce tracking error. In Panel 2, individual bonuses show a statistically significant positive association with volatility at the ten percent level, though the effect is economically small and likely reflects measurement differences between frequencies rather than a fundamental change in manager behavior.

Overall our results suggest that higher individual incentives result in higher IR and abnormal returns and lower tracking error, consistent with both the incentive explanation of [Palomino and Prat \(2003\)](#) and [Bhattacharya and Pfleiderer \(1985\)](#), but also with the screening explanation of [Bhattacharya and Pfleiderer \(1985\)](#), supporting hypothesis **H3**. However, because bonus schemes do not change during our sample period, we are limited in the tests we can conduct to further explore this question. Additionally, we find no relationship between incentive strength and risk-taking, a major concern in the literature since [Grinblatt and Titman \(1989\)](#). While this might not be surprising given how incentives are structured in our sample, it is worth pointing out.

6.2 Bonus Position and Behavior

We examine whether performance influences fund managers' efforts to improve their IR by end of year to increase their chances of receiving a bonus. If compensation structures do not influence manager behavior, performance should not affect IR activity, allowing us to test hypothesis **H3a**. We start our sample each year in June and look at the changes in performances metrics in the following months relative to mid-year.

Given our focus on IR-based incentives, we exclude Firm 3 from this analysis.³⁸

To examine this relationship, we define two key explanatory variables. The first, *Bonus Underwater*, measures the gap between the IR and the threshold required to qualify

³⁸Employees in this firm will be largely unaware of firm profitability, as this is an accounting measure available only at year-end. Results remain qualitatively similar when Firm 3 is included, though effects are somewhat weaker.

for a year-end bonus. Higher values indicate that a manager is significantly “underwater” or far from bonus eligibility. The second, *Dummy Underwater*, is a binary indicator equal to one if the IR is insufficient to qualify for a bonus by December, and zero otherwise. These variables quantify the extent of the performance short and its implications for managerial behavior. We estimate the following equation:

$$\Delta Outcome_{June \rightarrow t, i, j} = \alpha + \beta Underwater_{t-1, i, j} + \gamma X_{i, j} + \theta_t + \lambda_j + \delta_i + \epsilon_{i, j} \quad (3)$$

where i indexes each person and j each fund. We use three dependent variables, each measured as the change from June to subsequent months t : the Information Ratio (IR), the numerator of the IR (the change in excess return of the fund over its benchmark), and the denominator of the IR (the change in tracking error). *Underwater* corresponds to either *Bonus Underwater* or *Dummy Underwater*. We control for Assets Under Management (AUM), fund type dummies (λ_j), and date (θ_t) and person (δ_i) fixed effects to account for unobserved time and manager-level heterogeneity. The results are presented in Table 7.

Table 7 Panel 1 documents clear incentive-driven behavior over the June-to-December period. When using *Bonus Underwater*, we observe a significant negative effect on changes in IR at the 5% level, suggesting that managers further from their bonus targets actively work to improve performance by year-end. *Bonus Underwater* is associated with a decrease in the Information Ratio by 0.166 standard deviations and a drop in returns by 0.203 standard deviations, showing moderate performance deterioration. However, when using a binary indicator showing whether the manager is underwater or not, the effects are much larger— risk-adjusted performance increases by 0.560 standard deviations and returns by 0.379 standard deviations. This shows that crossing the underwater threshold causes a significant behavioral change in managers. Notably, in this specification, the *Dummy Underwater* variable is associated with a significant increase in tracking error,

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whereas the continuous *Bonus Underwater* measure shows no significant effect. This might suggest that only clearly underwater managers meaningfully raise active risk, even though across the other specifications, the tracking-error responses are generally small and not significant.

Table 7 Panel 2 confirms the robustness of our findings using daily data.³⁹ *Bonus Underwater* shows significant negative effects on IR changes at the 1% level and on excess returns at the 5% level, with negligible effects on tracking error. Similarly, *Dummy Underwater* produces highly significant negative coefficients for both IR and its return component, but no significant tracking error effect.

Overall our results indicate that the effort channel (or hypothesis **H3a**) cannot be ruled out in our sample, suggesting that the incentive channel of [Bhattacharya and Pfleiderer \(1985\)](#) and [Palomino and Prat \(2003\)](#) matters. It also refutes the irrelevance results of [Stoughton \(1993\)](#) and [Admati and Pfleiderer \(1997\)](#), though the underlying mechanism remains unclear.⁴⁰ Importantly, these results do not preclude selection effects; they simply confirm that the incentive channel operates in our setting.

To assess robustness across shorter horizons and address potential bias from an arbitrary June cutoff, we recalculate all variables monthly from January onward and relate monthly levels—rather than changes—to the underwater indicators from the prior month. Panel 3 maintains consistency with earlier findings. Both underwater measures show significant negative associations with the information ratio, with *Bonus Underwater* significant at the 1% level and *Dummy Underwater* likewise significant at the 1% level. Excess returns show modest but significant negative effects and tracking error remains positive but statistically insignificant across specifications.

These findings highlight the substantial impact of performance-based compensation

³⁹One of the fund only discloses monthly data and as such this analysis focus on the remaining funds.

⁴⁰At least two possible reasons stand out. First, the fact that fund managers are employed by an intermediary could mean that any hedging that undoes incentives is prevented by the intermediary, or alternatively that the models are somehow misspecified.

on managerial behavior in the asset management industry. Fund managers who risk missing out on bonus eligibility appear to adjust their portfolios in ways that raise active risk but are associated with lower excess returns and lower IR, indicating that attempts to recover performance do not succeed on average. The increase in tracking error when managers are clearly underwater, combined with deteriorating outcomes, suggests that these incentive-driven adjustments backfire, leading to worse overall returns and risk-adjusted performance.

Additionally, the use of person fixed effects in our analysis allows us to conclude that incentive schemes influence behavior beyond simply attracting high-quality employees with attractive compensation packages. While selection effects cannot be fully ruled out, our findings suggest that at least some of the observed effects are driven by managers' responses to their current bonus position.

7 Conclusion

This paper investigates how incentive contracts influence fund manager behavior and performance outcomes in asset management firms. Using hand-collected data on actual bonus contracts from four Norwegian asset management firms covering 37 managers over 2011–2015, combined with industry-wide survey data from 2025, we provide a detailed description of the bonus schemes used within these firms, an aspect that has not been directly explored in previous research. To the best of our knowledge, no other study has specifically examined how bonuses are structured internally within fund management firms. While earlier studies like [Farnsworth and Taylor \(2006\)](#) and [Ma et al. \(2019\)](#) offer some indirect insights, our study focuses on the actual bonus schemes used by asset management firms.

We find that all firms combine fixed salaries with performance-based bonuses con-

taining quantitative and qualitative components. Quantitative bonuses primarily reward information ratios or excess returns relative to benchmarks, while qualitative bonuses reward collaboration, compliance, and risk discipline. This mix reflects a deliberate choice to prevent incentives from encouraging excessive risk-taking.

Our findings contribute to the existing literature on compensation and managerial behavior in several ways. First, we document that fund managers rewarded with higher potential bonuses tied to quantitative metrics deliver superior risk-adjusted returns without increased risk-taking. This suggests that when incentives are structured appropriately – using risk-adjusted performance metrics combined with qualitative components – managers exercise greater discipline rather than pursuing excessive risk. The prevalence of information-ratio-based compensation across Norwegian firms indicates industry recognition that rewarding risk-adjusted performance, rather than absolute returns, aligns individual incentives with long-term fund performance and reduces gaming incentives. Second, we examine how managers respond when facing the prospect of missing their bonus. By applying each manager’s specific bonus rules, we identify those whose performance metric falls short of the bonus threshold and observe how they adjust their portfolios. Managers in this position end the year with lower information ratios and excess returns than they would have realized by maintaining their existing strategies. This within-manager variation demonstrates that interim bonus positions shape portfolio decisions and influence realized fund performance.

From a policy perspective, these findings suggest that compensation incentives are economically significant determinants of fund manager behavior. The EU’s post-crisis regulatory framework – requiring bonus deferral over three years and partial payment – aims to constrain short-term risk-taking by aligning deferred payouts with future portfolio performance. Our evidence supports the effectiveness of this approach: the prevalence of information-ratio-based compensation combined with qualitative components across

Norwegian firms reflects conscious industry recognition that carefully structured incentives can motivate effort while managing risk. Together, these findings highlight the importance of compensation design in delegated asset management and underscore the value of regulatory oversight in ensuring that incentive structures align manager behavior with long-term fund performance.

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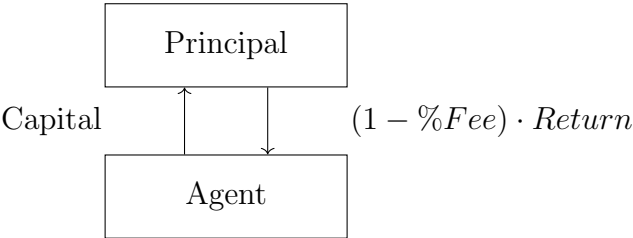
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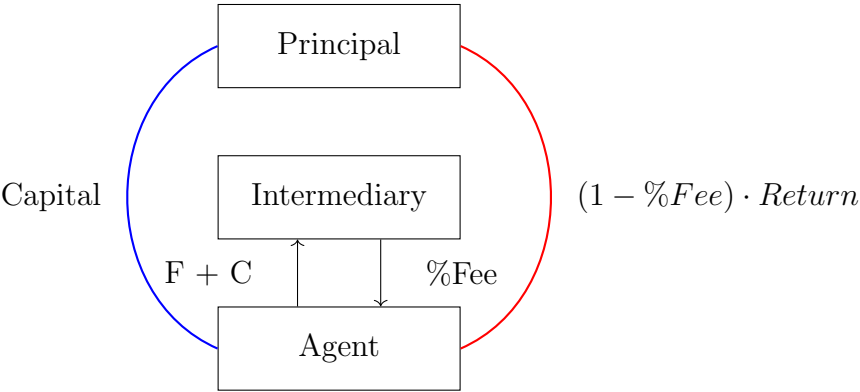
10.1111/j.1467-6419.2006.00271.x. URL <http://dx.doi.org/10.1111/j.1467-6419.2006.00271.x>.

Figure 1: Fund Management Relationships

Panel A: Simple Two-Party Relationship



Panel B: Three-Party Relationship with Contracts



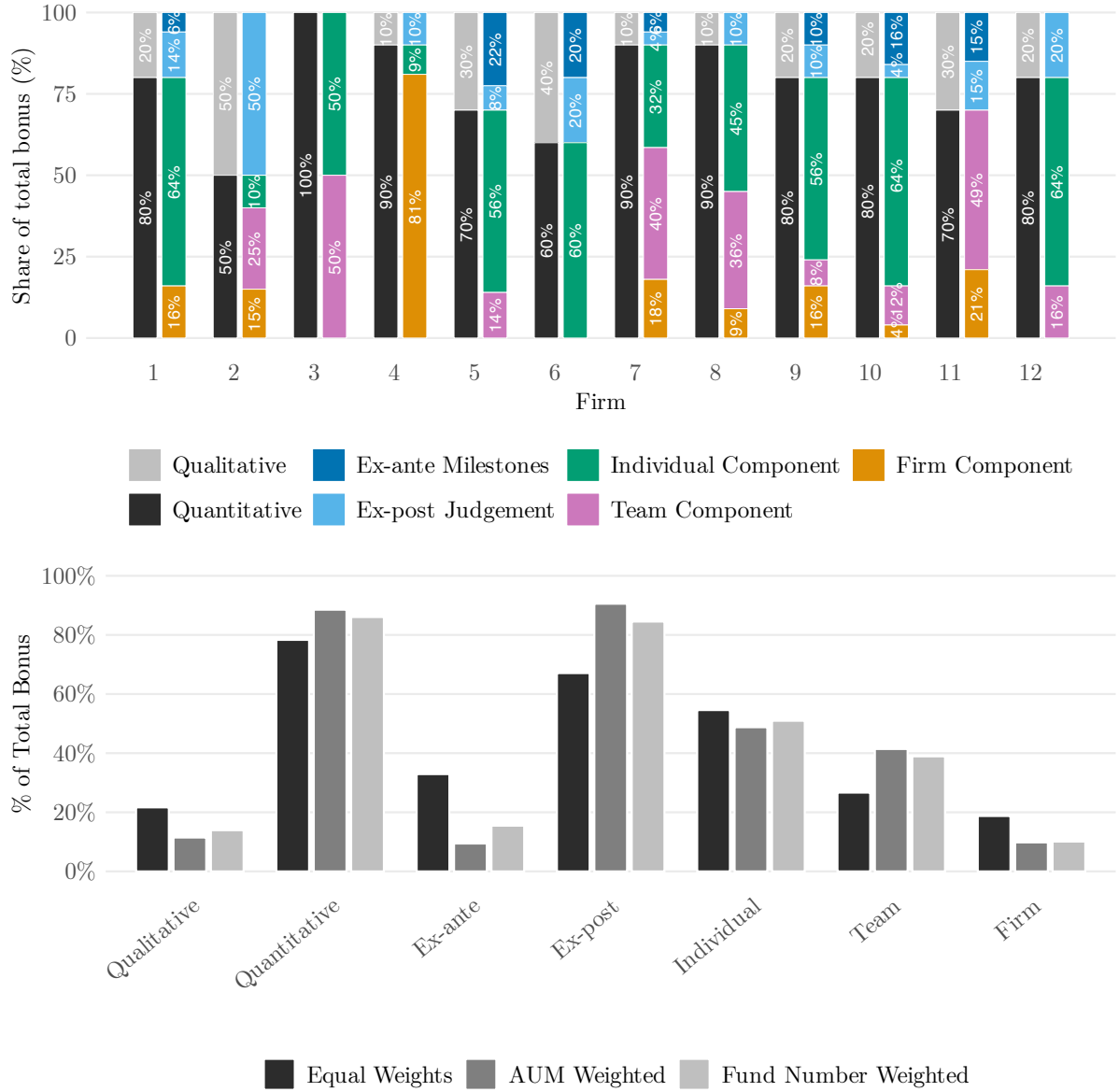


Figure 2: **Survey Bonus Scheme**

This figure shows the composition of portfolio manager bonus contracts. The upper panels shows bonus contracts composition across the twelve survey firms. For each firm, the left bar shows the total share of the bonus linked to quantitative versus qualitative goals (quantitative in dark grey, qualitative in light grey). The right bar decomposes the bonus into five components: ex-post qualitative judgement, ex-ante qualitative milestones, and quantitative rewards based on individual, team, and firm-level performance, each expressed as a percentage of total bonus. The lower panel reports mean percentage weights for the quantitative/qualitative weights and each individual component, using three aggregation schemes: equal-weighted across firms, AUM-weighted, and fund-number-weighted. Bars compare how the relative importance of each bonus varies across weighting methods.

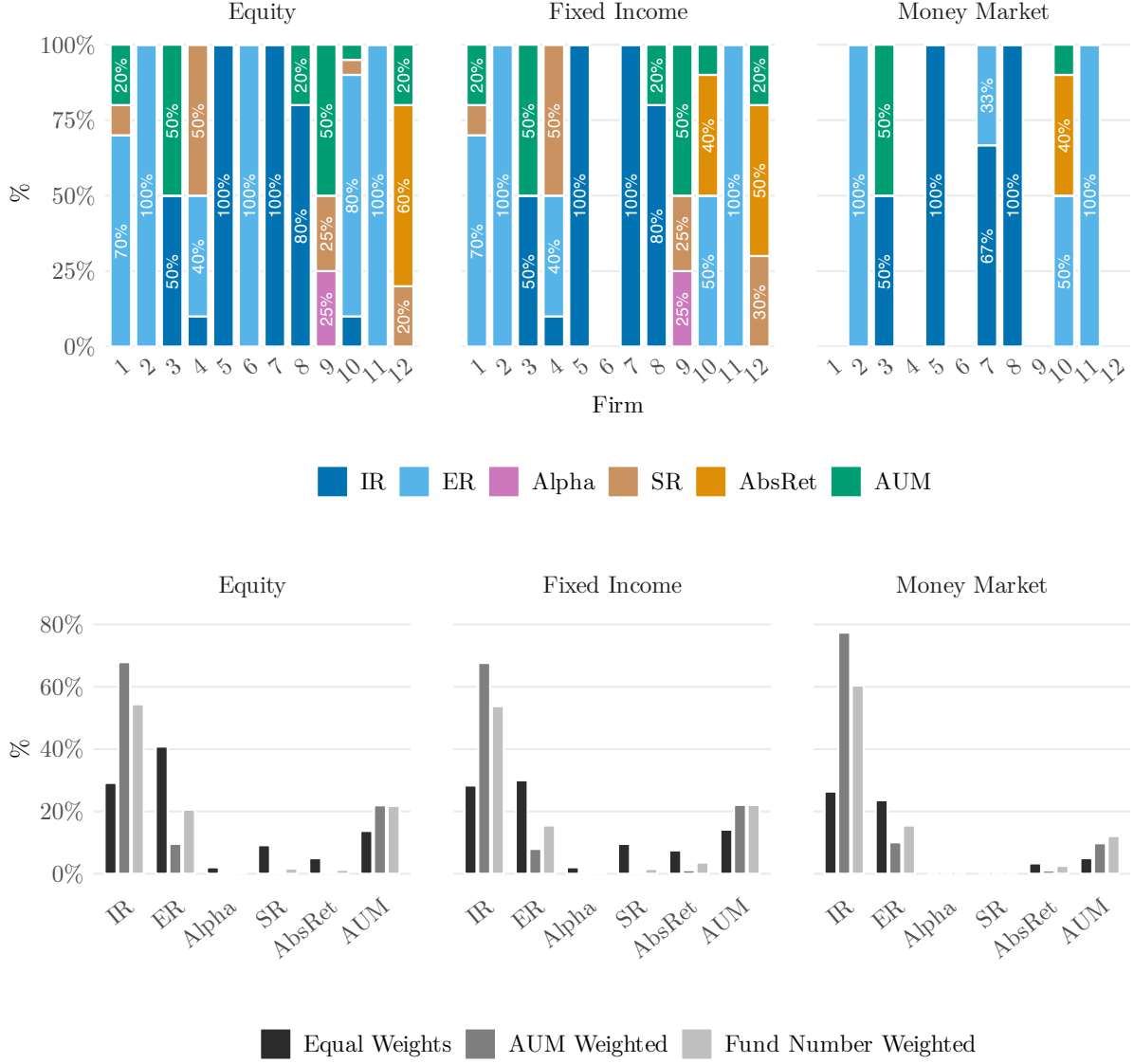


Figure 3: **Incentive metrics by firm and asset class.**

This figure shows how six incentive metrics contribute to the overall fund incentive mix for 12 firms across equity, fixed income, and money market mandates. The top panel displays, for each firm–asset-class pair, a 100% stacked bar in which the shares of information ratio (IR), excess return (ER), alpha, Sharpe ratio, absolute return, and assets under management (AUM) sum to 100%, with percentage labels shown for components of at least 15%. The lower panel reports mean percentage weights for the same six metrics by asset class, using three aggregation schemes: equal-weighted across firms, AUM-weighted, and fund-number-weighted. Bars compare how the relative importance of each incentive metric varies across asset classes and weighting methods.

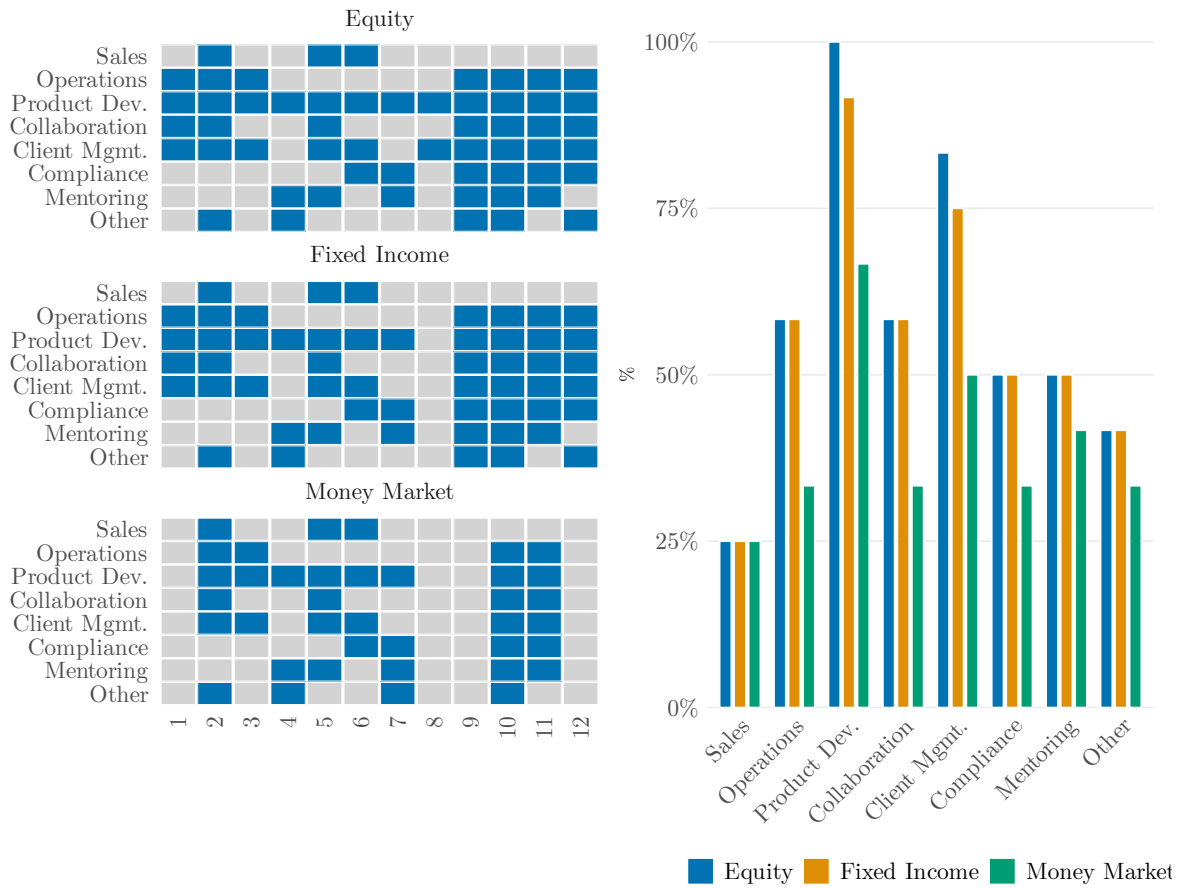


Figure 4: Milestone achievement by firm and asset class.

This figure summarizes the qualitative milestone goals set for fund managers across equity, fixed income, and money market mandates. Heatmaps on the left indicate, for each firm and asset class, whether milestones related to sales, operations, product development, collaboration, client relationship management, compliance, mentoring, and other themes are explicitly included in managers' goals. The bar chart on the right reports, for each asset class, the mean percentage of firms that include each milestone type in their goals. Bars show the share of firms with a given milestone marked as "Yes" in the qualitative objectives.

Table 1: **Bonus Scheme Description**

This table summarizes four bonus schemes used by Norwegian asset managers, distinguishing quantitative, qualitative, and other components. Panel 1 reports quantitative incentives, including the weights on individual, team, firm, and AUM-based performance, the underlying performance metric, and the bonus duration. Panel 2 describes the qualitative component, covering the use of ex-ante milestones, ex-post judgment, and the relative weight of qualitative pay. Panel 3 reports additional contractual features, such as bonus banks, caps, carry sharing, and whether scheme weights are set ex ante or ex post.

Firm	1	2	3	4	
				Active	Passive
Panel 1: Quantitative Bonus					
Individual Component	0%	50%	0%	80%	80%
Team Component	100%	50%	0%	10%	10%
Firm Component	0%	0%	100%	10%	10%
AUM Component	yes	no	yes	no	no
Metric	IR	IR	Profit	IR	ΔR
Bonus Duration	3	1	1	2	2
Panel 2: Qualitative Bonus					
Ex-ante Milestones	no	yes	yes	yes	yes
Ex-post Judgement	yes	no	yes	no	no
Individual only	yes	yes	yes	no	no
Percentage weight of qualitative bonus	2/5	1/3	1/2 (3/5)	1/4	1/2
Panel 3: Other Components					
Bonus Bank	yes	yes	yes	yes	yes
Bonus bank length in years	3	3	3	3	3
Bonus Cap (in x times fixed salary)	3	0.5	3	3	3
Carry sharing (if fund charges carry)	yes	na	no	na	na
Bonus scheme inception	na	2011	2005	na	na
Weights	Ex-post	Ex-ante	na	Ex-ante	Ex-ante

Table 2: **Examples of Qualitative Goals**

This table provides illustrative examples of qualitative performance goals for two fund managers, organized by focus area, weight, and specific activities. Person 1's goals emphasize foreign exchange, interest rate hedging, default procedures, and competence-building, with activities such as developing hedging methods, collaborating with fixed-income teams, and transferring skills. Person 2's goals focus on contributing to well-functioning markets, improving operational structures, and updating the strategic plan for fixed-income operations, including establishing market forums, presenting strategies internally and externally, and advising on strategic initiatives.

Person	Area	Weight	Activity
Person 1	Foreign Exchange	35%	Develop alternative hedging methods Present the chosen method to the investment committee Try to automate certain types of orders Run the FX business in a good manner
	Interest Rate Hedging	30%	Assume some tasks from the fixed income team in a constructive manner Work together with the fixed income team in a constructive manner Establish the possibility to use short-duration swaps for the treasury portfolio (<1 yr) Run the IRH business in a good manner
	Default Handbook	25%	Set up the default handbook together with Person X
	Competence	10%	Transfer forex skills to Person X Transfer skills in IHR to others in the group Participate in at least one course/seminar and implement at least one thing you learned during the course/seminar
	Contribute to functioning markets and present our firm as a professional actor	40%	Establish/further develop a forum for market participants, if possible Present opinions externally to showcase our firm as a significant market actor
	Improve Operations	20%	Present the result of above activities to the investment committee, board, etc. Evaluate joint management for Norway/Nordics, conclude Alternatively evaluate the High Yield Market in the Nordics, conclude Operationalize decisions
Person 2	Update the strategic plan for fixed income operations	40%	Secure acceptance internally (Investment committee and board) and externally Assess adding new items to the strategy, potentially by offering advice to the Ministry of Finance

Table 3: Fund Manager Compensation: Bonus and Bonus Bank Dynamics

This table summarizes the level and distribution of fund managers' compensation and bonus bank balances. Panel 1 reports, by year, the average bonus awarded, fixed salary, total compensation, the bonus bank stock, and the awarded bonus paid immediately, both in NOK and as a share of total compensation. Panel 2 shows, for each year, the cross-sectional dispersion of bonus awarded, bonus banked, and fixed salary, reporting the number of observations together with the minimum, median, maximum, and standard deviation of each component.

Panel 1: Average Compensation by Year					
Year	(1) Bonus Awarded	(2) Fixed Salary	(3) Total Comp	(4) Bonus Bank	(5) Bonus Paid
2011	617,490 41%	901,762 59%	1,519,252 —	308,745 20%	308,745 20%
2012	711,876 44%	919,609 56%	1,631,485 —	501,014 31%	456,591 28%
2013	469,960 33%	942,504 67%	1,412,464 —	473,266 34%	403,396 29%
2014	541,412 36%	961,840 64%	1,503,252 —	500,435 33%	426,827 28%
2015	785,305 43%	1,046,046 57%	1,831,351 —	714,184 39%	606,254 33%
Averages	616,198 39%	959,716 61%	1,575,915 1	470,839 30%	431,043 27%
Panel 2: Cross-Sectional Dispersion by Year					
Year	Obs	Min	Median	Max	Std Deviation
2011	29	Bonus Awarded	80,000	381,333	2,045,508
		Bonus Bank	40,000	190,667	1,022,754
		Fixed Salary	489,996	800,000	1,450,000
2012	28	Bonus Awarded	61,620	366,667	2,275,350
		Bonus Bank	77,477	260,007	1,496,147
		Fixed Salary	539,996	800,000	1,450,000
2013	27	Bonus Awarded	60,667	326,957	1,988,982
		Bonus Bank	111,870	292,667	1,659,445
		Fixed Salary	564,000	828,000	1,486,250
2014	27	Bonus Awarded	140,627	366,667	1,473,689
		Bonus Bank	133,505	322,165	1,683,483
		Fixed Salary	624,000	828,000	1,501,113
2015	15	Bonus Awarded	252,000	552,000	1,583,531
		Bonus Bank	217,690	638,564	1,808,649
		Fixed Salary	624,000	1,055,000	1,591,180

Table 4: **Summary Statistics**

This table presents descriptive statistics for Norwegian asset managers, focusing on performance outcomes, incentive structures, and fund characteristics. Panel 1 reports summary statistics for the full fund-month sample, including performance measures (information ratio, fund return, tracking error, and volatility), bonus variables (individual, team, firm, and qualitative bonus sizes, and underwater bonus measures), and assets under management (AUM). Panel 2 reports the same performance and bonus variables at the yearly level, while Panel 3 summarizes six-month changes in key performance and risk measures (e.g., changes in IR, returns, and tracking error). The definitions of all variables are provided in the Appendix.

Panel 1: All Data					
	N	Mean	SD	Min	Max
Information Ratio (IR)	2362	0.84	2.62	-5.83	13.65
Fund Return (Ret)	2362	0.00	0.07	-0.43	0.51
Tracking Error (TE)	2362	0.03	0.03	0.01	0.21
Fund Volatility (Vol)	2362	0.06	0.05	0.01	0.19
Bonus Underwater	2362	0.11	0.75	0.00	10.98
Dummy Underwater	2362	0.11	0.32	0.00	1.00
Individual Bonus Size	2362	0.71	0.71	0.00	1.80
Team Bonus Size	2362	0.87	0.68	0.00	1.80
Firm Bonus Size	2362	0.09	0.11	0.00	0.25
Qualitative Bonus Size	2362	0.86	0.32	0.25	1.20
AUM (in NOK \$bn)	2362	15.48	23.43	0.04	90.68
<i>Fund Type Dummy</i>					
Equity	2362	0.38	0.49	0.00	1.00
Money Market	2362	0.11	0.31	0.00	1.00
Fixed Income	2362	0.51	0.50	0.00	1.00
Panel 2: Yearly Data					
Information Ratio (IR)	216	0.90	2.40	-3.54	9.47
Fund Return (Ret)	216	0.01	0.07	-0.20	0.22
Tracking Error (TE)	216	0.03	0.03	0.01	0.12
Fund Volatility (Vol)	216	0.07	0.05	0.01	0.19
Individual Bonus Size	216	0.71	0.71	0.00	1.80
Team Bonus Size	216	0.87	0.68	0.00	1.80
Firm Bonus Size	216	0.09	0.11	0.00	0.25
Qualitative Bonus Size	216	0.86	0.32	0.25	1.20
AUM (in NOK \$bn)	216	15.90	24.09	0.04	89.11
Panel 3: Jun-Dec Data					
ΔIR	1212	0.16	1.87	-7.19	12.56
ΔRet	1212	0.01	0.03	-0.14	0.23
ΔTE	1212	0.00	0.01	-0.03	0.06

Table 5: **Fund Results and Bonus Schemes Part 1**

This table reports annual regressions of fund performance and risk measures on bonus scheme variables for Norwegian asset managers. Panel 1 shows estimates for the full set of firms, while Panel 2 excludes Firm 3. Continuous variables are standardized to have mean zero and standard deviation one. Standard errors, clustered at the fund level, are reported in parentheses. All regressions include year and fund-type fixed effects. Statistical significance is denoted by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Panel 1: All Firms				
	(1) IR	(2) Ret	(3) TE	(4) Vol
Individual Bonus Size	0.384*** (0.0861)	0.334** (0.136)	-0.491*** (0.147)	0.0106 (0.104)
Firm Bonus Size	-0.0279 (0.165)	-0.111 (0.254)	0.504* (0.290)	-0.339* (0.184)
Qualitative Bonus Size	-0.0142 (0.173)	-0.0237 (0.239)	0.0445 (0.232)	-0.326** (0.148)
AUM	-0.0137 (0.0886)	0.0120 (0.136)	0.0342 (0.171)	-0.105 (0.0941)
Fund Type Dummy	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Observations	216	216	216	216
R-squared	0.319	0.170	0.504	0.730
Panel 2: Without Firm 3				
	(1) IR	(2) Ret	(3) TE	(4) Vol
Individual Bonus Size	0.435*** (0.108)	0.290* (0.164)	-0.605** (0.215)	0.230 (0.145)
Firm Bonus Size	-0.101 (0.110)	-0.0318 (0.216)	0.579** (0.268)	-0.387** (0.152)
AUM	-0.0286 (0.0653)	0.0449 (0.136)	0.0621 (0.165)	-0.145 (0.0919)
Fund Type Dummy	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Observations	175	175	175	175
R-squared	0.342	0.155	0.270	0.696

Table 6: **Fund Results and Bonus Schemes Part II**

This table reports monthly regressions of fund performance and risk measures on bonus scheme variables for Norwegian asset managers from June to December. Panel 1 presents estimates for all firms, and Panel 2 excludes Firm 3. Continuous variables are standardized to have mean zero and standard deviation one. Standard errors, clustered at the fund level, are reported in parentheses. All regressions include year and fund-type fixed effects. Statistical significance is denoted by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Panel 1: All Firms				
	(1) IR	(2) Ret	(3) TE	(4) Vol
Individual Bonus Size	0.285*** (0.0762)	0.223** (0.0950)	-0.464*** (0.134)	0.0153 (0.101)
Firm Bonus Size	0.0559 (0.141)	-0.0412 (0.185)	0.415 (0.271)	-0.350* (0.177)
Qualitative Bonus Size	0.0836 (0.156)	-0.00451 (0.192)	-0.101 (0.219)	-0.334** (0.142)
AUM	-0.0310 (0.0718)	0.0151 (0.109)	0.0725 (0.186)	-0.114 (0.0949)
Fund Type Dummy	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Month FE	yes	yes	yes	yes
Observations	1,503	1,503	1,503	1,503
R-squared	0.234	0.129	0.479	0.731
Panel 2: Without Firm 3				
	(1) IR	(2) Ret	(3) TE	(4) Vol
Individual Bonus Size	0.300*** (0.100)	0.168 (0.118)	-0.512** (0.198)	0.239* (0.137)
Firm Bonus Size	-0.0367 (0.0907)	0.0159 (0.157)	0.505* (0.251)	-0.399** (0.146)
AUM	-0.0477 (0.0472)	0.0392 (0.106)	0.0977 (0.181)	-0.155 (0.0910)
Fund Type Dummy	yes	yes	yes	yes
Year FE	yes	yes	yes	yes
Month FE	yes	yes	yes	yes
Observations	1,218	1,218	1,218	1,218
R-squared	0.260	0.107	0.189	0.699

Table 7: **Bonus Situation**

This table investigates how a manager's mid-year performance is associated with subsequent changes in the Information Ratio (IR), its return and tracking-error components, and related measures. Panel 1 constructs the Bonus Underwater and Dummy Underwater indicators for each month after June and relates changes in IR, benchmark-adjusted returns, and tracking error to whether the manager is underwater. Panel 2 replicates this analysis using daily data. Panel 3 computes IR, excess return, and tracking error at the monthly frequency from January onward and, for each month after January, recomputes the underwater variables and relates them to the contemporaneous monthly levels of IR, excess return, and tracking error. Continuous variables are standardized to have mean zero and standard deviation one. Cluster-robust standard errors at the fund level are reported in parentheses. All specifications include date, individual, and fund-type fixed effects, and statistical significance is denoted by *, **, and *** for significance at the 10%, 5%, and 1% levels, respectively.

Panel 1: Monthly Data Rolling Underwater Proxy						
	(1) Δ IR	(2) Δ Ret	(3) Δ TE	(4) Δ IR	(5) Δ Ret	(6) Δ TE
Bonus Underwater	-0.166** (0.0739)	-0.203*** (0.0547)	0.106 (0.0659)			
Dummy Underwater				-0.560*** (0.164)	-0.379*** (0.102)	0.275** (0.118)
AUM	-0.0379 (0.0290)	0.350*** (0.0996)	0.858*** (0.244)	-0.0378 (0.0315)	0.346*** (0.0982)	0.859*** (0.246)
Fund Type Dummy	yes	yes	yes	yes	yes	yes
Date FE	yes	yes	yes	yes	yes	yes
Person FE	yes	yes	yes	yes	yes	yes
Observations	1,212	1,212	1,212	1,212	1,212	1,212
R-squared	0.229	0.250	0.426	0.256	0.251	0.430
Panel 2: Daily Data Rolling Underwater Proxy						
	(1) Δ IR	(2) Δ Ret	(3) Δ TE	(4) Δ IR	(5) Δ Ret	(6) Δ TE
Bonus Underwater	-0.348*** (0.0781)	-0.0586** (0.0218)	0.0619 (0.104)			
Dummy Underwater				-0.516*** (0.140)	-0.0970*** (0.0301)	0.233 (0.164)
AUM	0.0550 (0.0624)	-0.00409 (0.00923)	-0.0321 (0.138)	0.0537 (0.0623)	-0.00439 (0.00927)	-0.0309 (0.136)
Fund Type Dummy	yes	yes	yes	yes	yes	yes
Date FE	yes	yes	yes	yes	yes	yes
Person FE	yes	yes	yes	yes	yes	yes
Observations	540	540	540	540	540	540
R-squared	0.405	0.309	0.257	0.391	0.309	0.261
Panel 3: Rolling Underwater Proxy						
	(1) IR_t	(2) Ret_t	(3) TE_t	(4) IR_t	(5) Ret_t	(6) TE_t
Bonus Underwater $_{t-1}$	-0.205*** (0.0280)	-0.0401** (0.0181)	0.000204 (0.0146)			
Dummy Underwater $_{t-1}$				-0.729*** (0.119)	-0.185** (0.0821)	0.0390 (0.0546)
AUM	0.119 (0.121)	0.00645 (0.0209)	-0.0149 (0.0378)	0.120 (0.122)	0.00608 (0.0209)	-0.0144 (0.0371)
Fund Type Dummy	yes	yes	yes	yes	yes	yes
Date FE	yes	yes	yes	yes	yes	yes
Person FE	yes	yes	yes	yes	yes	yes
Observations	861	861	861	861	861	861
R-squared	0.328	0.266	0.896	0.326	0.266	0.896

Appendix

Table A.1: **Variable Definitions**

Information Ratio (IR)	The fund's information ratio, defined as the within-year excess return over the benchmark divided by the within-year standard deviation of this excess return.
Fund Return (Ret)	The fund's return minus the corresponding benchmark return.
Tracking Error (TE)	The rolling within-year standard deviation of the excess return (fund return minus benchmark return).
Volatility (Vol)	The rolling within-year standard deviation of fund returns.
Bonus Underwater	A positive continuous measure of how far the fund's performance falls short of the bonus eligibility threshold (in terms of IR or return relative to a specified target).
Dummy Underwater	An indicator variable equal to one if the fund is below the performance threshold required to earn a bonus, and zero otherwise.
Individual Bonus Size	The size of the bonus linked to individual performance.
Team Bonus Size	The size of the bonus linked to team performance.
Firm Bonus Size	The size of the bonus linked to firm-level performance.
Qualitative Bonus Size	The size of the bonus linked to qualitative performance criteria.
AUM	Total assets under management of the fund, measured in billions of NOK.

Survey Questions

Respondent Profile

Preamble: Thank you for contributing by taking this survey on incentive contracts in Norwegian asset management organizations by Carsten Bienz (NHH), Diego Bonelli (Banco de España), Aksel Mjøs (NHH), and Francisco Santos (NHH). Please contact Carsten Bienz (carsten.bienz@nhh.no) for any questions that you have. All responses will be kept confidential and we will aggregate all information so that no individual employer or employee can be identified.

1. Legal name of the investment organization.
2. Where are your fund managers primarily located?
3. If you said “other” in the last question, could you please elaborate (leave free otherwise).
4. What type of asset management does your company do?
☐ Mutual funds ☐ Discretionary asset management ☐ Managing of own assets ☐ Other
5. Under which country’s regulations do your funds operate? (Multiple answers possible)
☐ Norway ☐ Sweden ☐ Denmark ☐ Finland ☐ Luxembourg ☐ Germany ☐ France
☐ Other(s),
6. Assets under Management (AUM) (€billions, 31.12.24)
7. Main asset classes - Please indicate approximate assets under management (AUM) shares (%). Enter percentage for each asset class. Should add to 100%.
Equities: _____% Fixed Income: _____% Money Market: _____% Alternatives (Hedge fund, real estate or PE): _____%
8. Number of portfolio managers (individuals)
9. Number of mutual funds (if relevant)

Performance Metrics & Use of Information Ratio

Q10–15 In the next set of questions we will ask you about the choice of performance measure for Equity, Fixed Income and Money Market managers.

10. Main performance metric used to evaluate EQUITY portfolio managers - Please weight by importance. Should add to 100%. If not applicable, please set NA to

100.

Not applicable (NA): _____% Information Ratio (IR): _____%

Benchmark excess return: _____% Factor alpha: _____%

Sharpe ratio: _____% Absolute return: _____%

Assets under Management or growth in this: _____% Profit Split: _____%

11. Main performance metric used to evaluate FIXED INCOME portfolio managers - Please weight by importance. Should add to 100%. If not applicable, please set NA to 100.

Not applicable (NA): _____% Information Ratio (IR): _____%

Benchmark excess return: _____% Factor alpha: _____%

Sharpe ratio: _____% Absolute return: _____%

Assets under Management or growth in this: _____% Profit Split: _____%

12. Main performance metric used to evaluate MONEY MARKET portfolio managers - Please weight by importance. Should add to 100%. If not applicable, please set NA to 100.

Not applicable (NA): _____% Information Ratio (IR): _____%

Benchmark excess return: _____% Factor alpha: _____%

Sharpe ratio: _____% Absolute return: _____%

Assets under Management or growth in this: _____% Profit Split: _____%

13. Could you please comment on your firm's choice of investment performance metric(s):
14. Is your firm's use of performance metrics aligned with industry practice?
☐ Yes (1) ☐ No (2)
15. Could you please provide a short comment about the last question, regardless of your answer?

Quantitative Bonus Design

Q16–20 In this set of questions we would like to understand the design of the quantitative bonus elements in more detail.

16. Typical weights in the calculation of bonus for (active) portfolio managers? Should add to 100%.
- Quantitative measures: _____%
- Qualitative, based on less measurable performance: _____%

17. Do the weights differ between active and passive assets/portfolios? If so can you please elaborate?
18. What is the maximum size of the bonus relative to the fixed salary in %? (Can be above 100%).
 Bonus as multiple of fixed salary: _____
19. How is the calculation of the Quantitative element split (%) - Total should equal 100%.
 Individual performance: _____% Team performance: _____%
 Firm performance: _____%

Qualitative Bonus Design

Q20–25 In the final set of questions we will move from quantitative to qualitative bonus elements.

20. Structure of Qualitative element of bonus (%) - Total should equal 100%. Enter percentage for each component.
 Specified ex-ante milestones for the evaluation period: _____%
 Specified ex-post milestones for the evaluation period: _____%
21. Themes included in Qualitative milestones/goals I

	Equity	Fixed Income	Money Market
Collaboration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Client relationship management	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Compliance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mentoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Operational improvements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Product Development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sales	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other(s)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

22. Does the qualitative part of your bonus system align with your competitors and the industry in general?
☐ Yes (1) ☐ No (2)
23. Could you please provide a short comment about your firm's qualitative bonus elements?
24. Given our focus on incentives in asset management, please share any related reflections which have not been covered in our survey: