

REWARD VALUE





REWARDING STAKEHOLDER LONG-TERM VALUE CREATION

Executive remuneration today is driven by incentives that may no longer align with shareholder interests or reflect broader societal responsibilities.

Reward Value's mission is to support the development of remuneration policies that contribute to long-term sustainable and inclusive value creation. Our scientific study commissioned to SEO Amsterdam Economics confirms an over-reliance on short-term financial measures in remuneration as a proxy for long-term value creation. Reward Value seeks to further the debate on executive remuneration with investors, business schools, and the business community at large to develop evidence-based, long-term, sustainable, and stakeholder-inclusive executive remuneration policies.

Reward Value is a not-for-profit research initiative. Reward Value can be reached by email (contact@rewardvalue.org). For more information on Reward Value please visit our website www.rewardvalue.org.

This green paper reflects our current line of thinking on improving the practice of executive compensation and comes with suggestions on the way forward. We welcome comments.

Frederic Barge (**Reward Value**)

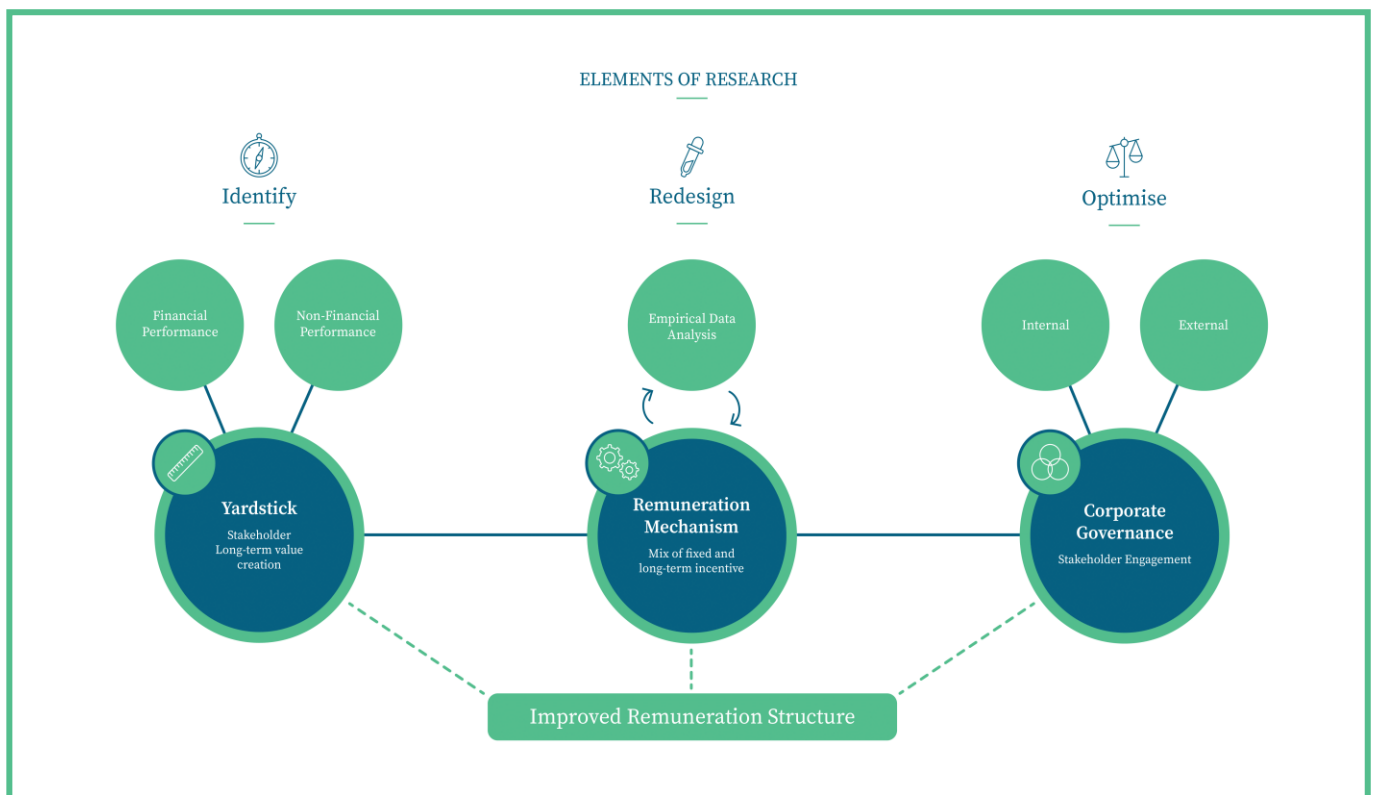
EXECUTIVE SUMMARY

Firms play a key role in shaping beneficial societal outcomes. Firms create jobs, generate wealth and offer desirable goods and services to consumers. At the same time, some firm behaviour comes with social or environmental costs like inequality, poor working conditions, pollution, carbon emissions or the over-exploitation of natural resources. This is well-recognised and has prompted a myriad of initiatives, both public and private. The UN SDGs and the Paris Agreement amongst other mark the public interest in sustainable and inclusive economic outcomes. Private sector efforts such as the UNPRI, World Business Council on Sustainable Development, Focusing Capital on the Long Term and the Global Reporting Initiative aim to promote responsible business practices and disclosures.

The need and direction for a better remuneration model

Achieving outcomes that benefit both shareholders and society requires behavioural change at firms, starting at the board level. Executives are critical to a firm's success and can drive the required change at firms to achieve better social and environment outcomes conjunctively with financial performance. In fact, in response to public debate and as a result of intrinsic motivation and vision, some executives have already made important contributions to better societal outcomes in their own organisations or across the value chain. Stimulating executive behaviour towards sustainable entrepreneurship can be encouraged by aligning the executive compensation policies to the long-term impact of firms on financial, societal and environmental value creation. Over the last decades, executive pay has seen a tremendous growth, resulting in more and more public outcry as well as frequent discontent among the company's stakeholders (including shareholders). Such discontent is not only directed at the level of pay but also at its structure. In many cases, remuneration structures are designed to stimulate short-term profit maximisation instead of creating long-term sustainable value. Often, they disregard environmental, social and governance (ESG) considerations.

A more balanced mix of targets, incentives and accountability can contribute significantly to achieving better societal outcomes. Together with universities and business schools, the business and investment value chain, and societal stakeholders, Reward Value works towards a new evidence-based remuneration model. As a first step to support the envisioned evidence-based nature of the new remuneration model, Reward Value and its partners have undertaken preliminary yet careful research and analysis. This green paper reflects our current line of thinking about the problem of executive compensation and options for the way forward. We welcome comments to guide further research efforts and our engagement with all relevant stakeholders.



Fundamentally, a remuneration model consists of three components: a yardstick to judge performance, a mechanism that links performance to pay, and appropriate governance to ensure the model functions smoothly and as intended. Our research and engagement agenda is centred around these three cornerstones.

An appropriate yardstick for stakeholder long-term value creation



An appropriate yardstick reflects long-term realised performance for both shareholders and stakeholders. True performance attributable to executives comprises of financial and societal returns in excess of those that would have been generated in absence of purposeful executive behaviour. In addition, executives have a unique set of responsibilities focused on a long-term vision and strategy.

The performance yardstick should reflect these unique responsibilities, and thus should be measuring long-term sustainable performance and should not reflect short-term operational goals.



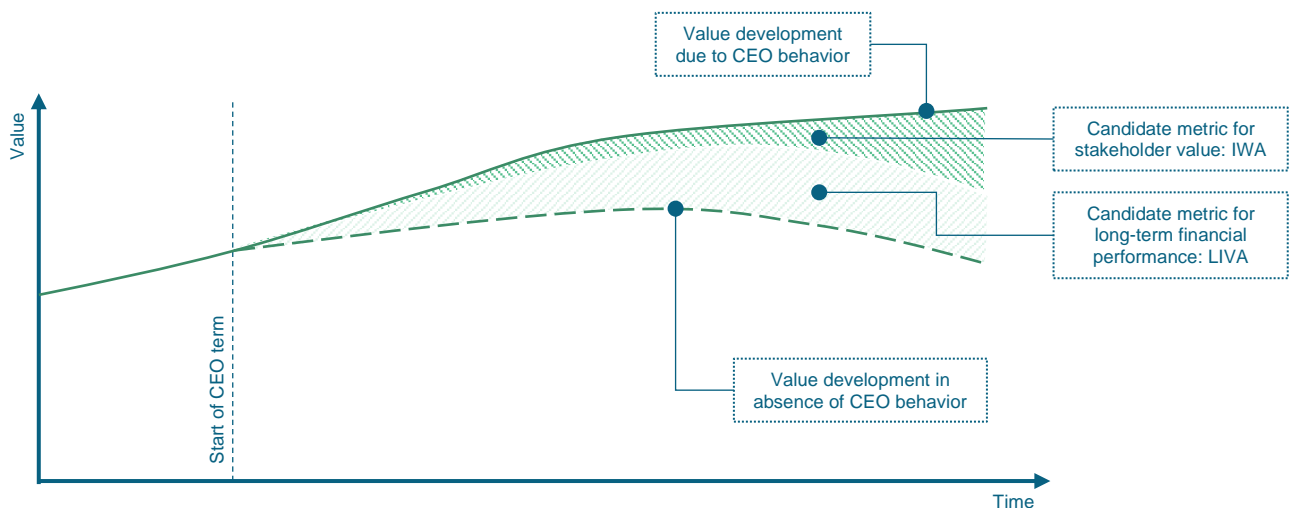
A recent proposal for measuring financial performance is Long-term Investor Value Appropriation – or LIVA for short.¹ LIVA reflects actual cash-in-hand returns over time (share appreciation, buy backs, and dividends) from holding shares in a company net of the opportunity cost of investing in that company. Ultimately, this is what investors care about: long-term value creation. Such a metric then seems a good candidate for an improved yardstick for financial performance in relation to remuneration policy.

The performance yardstick should reflect these unique responsibilities, and thus should be measuring long-term sustainable performance and should not reflect short-term operational goals.



The final performance yardstick, however, should be inclusive of non-financial ESG performance as well. Such an integrated metric requires uniform measurement, accounting and reporting standards which are currently lacking, but which many organisations are currently working on establishing.

Beyond measuring, accounting and reporting ESG performance, bridging the gap between financial and non-financial performance requires quantification of both performances on a common scale. One recent proposal from the literature is Impact Weighted Accounts (IWA), which aims to put monetary valuations on corporate impacts.² Such an integration allows for a one-to-one comparison and assessment of corporate financial and non-financial performance, thus preventing harm to stakeholders and stimulating societal and environmental value creation.



A combined approach of LIVA- and IWA-like measures could thus prove to be a useful measure for Stakeholder Long-Term Value Creation (SLTVC). An approach like LIVA offers a framework to capture long-term relative financial performance. IWA offers the inclusion of non-financial value creation on equal footing with financial value.

¹ Wibbens & Siggelkow (2019). Introducing LIVA to measure long-term firm performance. *SMJ* 41/5.

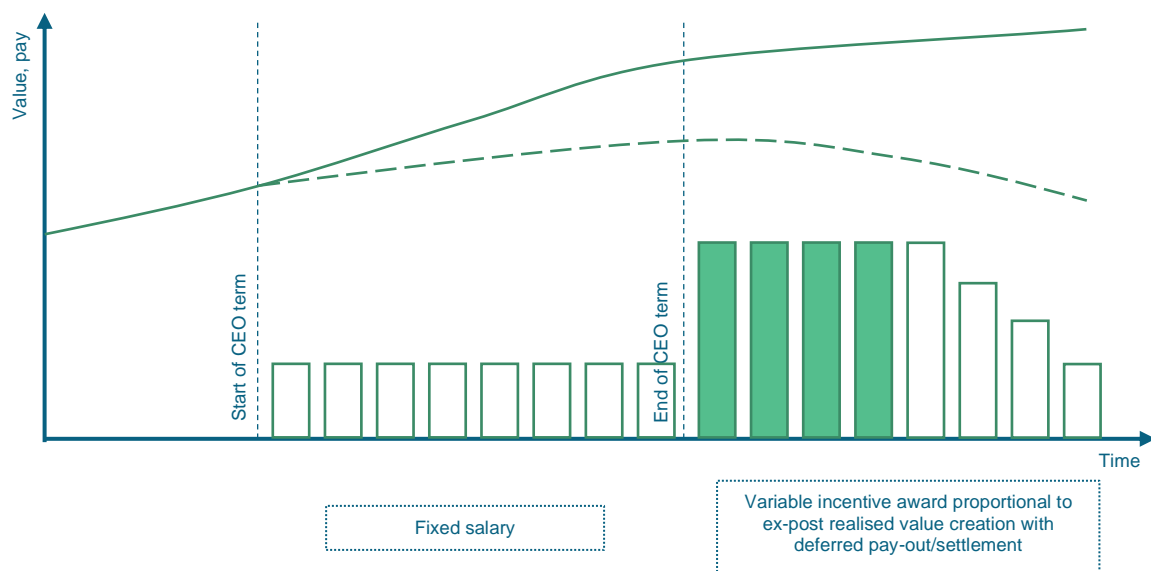
² Serafeim et al. (2019). Impact-weighted financial accounts: The missing piece for an impact economy.

A remuneration mechanism without manipulation and proportional to value creation



A good remuneration mechanism pays executives for realised and durable performance. In current pay models, this link is sometimes tested due to manipulation of corporate performance by executives trying to 'game' their remuneration – often to the detriment of shareholders. Such behaviour stems in part from the design of performance contracts, which often include a complex mixture of (competing) targets with discontinuous pay-out structures (e.g. performance thresholds, pay at a specific point in time during the tenure of an executive, etc.). The key insight is that smooth, continuous and parsimonious performance contracts reduce the room and incentive for manipulation. Likewise, current concerns about corporate short-termism stem in part from short-term incentives. Even worse, also current long-term incentive plans often have partial vesting on an annual basis, reintroducing a short-term interest in an ostensibly long-term compensation instrument. Also, the use of equity stimulates short-term behaviour and impacts investment decisions and corporate announcements around the scheduled vesting dates. In short, a good remuneration mechanism is smooth, continuous and parsimonious, offers remuneration proportional to actual value creation, and pays with a significant deferment using the right instruments at the right times.

We take the preceding to imply that a better compensation model only consists of two components: fixed annual pay and a long-term incentive. The long-term incentive should be tied directly and transparently to SLTVC, expressing what part of value creation is attributable to the executive (akin to a carried interest model) measured as a relative performance compared to its own industry or market. This moves the discussion from 'what is the appropriate level of the long-term incentive' to 'what is the appropriate cut for an executive in relation to his/her value creation'. Lastly, given the much-needed focus on the long term, the pay-out of the long-term incentive should be skewed (either fully or largely) to beyond the term of office of the executive. This liberates the executive from focusing on annual performance targets, avoids unsustainable behaviour maximising end-of-term value (i.e. pay), and allows the executive to capture the durability of his/her value creation.



Several implementations of these guiding principles are possible. Reward Value is currently developing several 'model contracts' which will be tested on their efficacy through (lab) experiments and other (empirical) analyses.

A strong and inclusive governance model



The successful implementation of a new reward model hinges on the quality of corporate governance. The objective of rewarding executives for stakeholder outcomes as opposed to only shareholder outcomes almost instantly and naturally begs the question to which extent broader stakeholders should be included in firm governance (of pay). We deem such representation desirable and are currently investigating innovative models for broader stakeholder engagement.

Specific to pay, a new model requires stronger governance on several fronts. First, the relative nature of performance suggests the need for a peer group. Selecting the optimal peer group is contentious, and it is indeed the case that executives sometimes attempt to use their influence within the firm to select favourable peer groups. This calls for stronger governance, potentially placing peer group selection further outside of the company. Likewise, manipulation of corporate performance could warrant claw backs – another contentious issue. This requires strong independent non-executives, an appropriate legal framework, as well as mindful inclusion of the interest of all relevant stakeholders.

Next steps and the way forward

This green paper marks the outlines on three key components of a potential new remuneration model (yardstick, remuneration mechanism and corporate governance) but also marks that several open questions remain. Together with societal stakeholders, companies, universities and the business and investment value chain, Reward Value will take steps to address these caveats in order to keep working towards a better remuneration model to support long term value creation for all stakeholders. We look forward to your comments, guidance, advice, suggestions and collaboration.

INTRODUCTION

Executives are crucial to firm performance. Better executives create value, motivate workers and are able to build a successful company.³ In contrast, worse executives destroy value and are detrimental not only to firm performance but also to its long-term image and valuation. As a result, boards of firms want to bind their talented executives and pay them for performance.⁴

Executive compensation has been hotly debated over the past decade(s). In light of the need for climate action and rising inequality in developed economies, critics argue that executive pay is unfairly high and only incentivises corporate short-termism. In response, others have pointed out the relation between financial performance and executive remuneration and argued that such incentivised

financial performance aligns with the interests of shareholders – including shareholders with social interests such as pension funds – and that it is ultimately up to shareholders and the boards of companies to decide how executive pay drives executive behaviour in their interest. Yet even this latter view acknowledges that executive remuneration is still far from perfect. Poorly designed incentives allow executives to ‘game’ their pay and/or provide unaligned incentives. In addition, social interests do not always line up with shareholder interest. Furthermore, social and environmental factors are not always reflected in market prices, which means that financial performance alone does not reflect total performance of a company and its impact on the environment and society.

³ Lazear et al. (2015). The Value of Bosses. *JLE* 33/4. Bloom et al. (2017). Management as a Technology? *NBER* 22327.

⁴ Edmans et al. (2017). Executive Compensation; A survey of theory and evidence. *NBER* 23596.

Against this backdrop, Reward Value has initiated a collaborative research agenda with the aim of developing a new remuneration model. Together with the business and investment community, academics and society at large, Reward Value seeks to re-align remuneration with both stake- and shareholders' interests. Reward Value has commissioned SEO Amsterdam Economics (an economics consultancy and research firm) to support the development of this research agenda with analyses and experiments.

Many other initiatives such as Global Reporting Initiative, Sustainability Accounting Standards Board, UN PRI, Focusing Capital on the Long Term, and the World Business Council for Sustainable Development, amongst others, as well as some large companies and institutional investors aim to promote corporate environmental and social responsibility, long-term focus, responsible investing and ESG reporting and disclosure. All these parties share a common belief that (at least) 'something' needs to be done to better align the interests of firms and society. We hope to contribute to these efforts by focussing on an in our view missing piece of the puzzle: remuneration policy.

The remainder of this green paper is structured as follows. In the first section, we outline a typical pay plan. In the second section, we analyse and provide a breakdown of issues with current remuneration policies. Next, we turn to the ingredients of a new remuneration model. In the third section, we discuss the design of a performance metric or 'yardstick' for corporate impact. Section 4 sketches compensation mechanisms and structures that could be tied to such performance metrics to better incentivise long-term value creation and societal impact. The fifth section discusses governance considerations surrounding the design and implementation of a new compensation model. Lastly, a sixth section concludes and outlines the next steps.

This green paper reflects our current line of thinking about the problem of executive compensation and the way forward. We welcome comments.

1. POINT OF DEPARTURE: A TYPICAL PAY PLAN

Summary

- *Attempting to address the principal-agent problem, the bulk of executive pay is variable.*
- *Executives have a complex set of targets largely focussed on financial performance.*
- *The duration of pay is short – either because targets have a one year horizon, or due to the fact that there are annual vesting events.*

Based on an analysis of the largest 195 European companies, the average CEO earned USD 7.7 MM in 2017.⁵ Around 30% of this pay is 'fixed' (salary, pension contributions, other). The remaining 70% is composed of cash bonuses (23%) and equity compensation (47%).

This large variable component is typically argued to help overcome the 'principal-agent' problem. The executive is the agent of the shareholder (the principal) and their interests do not necessarily align. Making pay conditional on performance (variable pay) and/or paying the executive in shareholder value (equity) aims to alleviate this issue.⁶ A related issue is selection. Different pay mixes attract different types of CEOs and shareholders aim to attract the 'right' type for them.

This focus on aligning executive behaviour with shareholder interest has its merits, but the downside is that it leaves the interest of other (societal) stakeholders at risk. This is also reflected in the targets an average executive has. The average CEO in 2017 had 8 targets to meet: 4 accounting

⁵ SEO Amsterdam Economics (2020) analysis based on ISS Incentive Lab data.

⁶ See amongst others Holmstrom's (2016) Nobel lecture Pay for Performance and Beyond.

performance targets, 1 share price target, 2 other financial targets, and only 1 target for non-financial (e.g. corporate social responsibility or sustainability) performance.

This lopsided target and reward structure does not only do little for stakeholders but may even result in suboptimal outcomes for shareholders. The 5 most common financial targets are the share price, Earnings per Share (EPS), sales, Return on Assets/Invested Capital/etc. and Free Cash Flow (FCF). It may be debated whether these metrics even reflect true shareholder value creation. EPS for instance may be artificially inflated through share buy-backs, while FCF may be temporarily bolstered by holding out payments to suppliers.

The incentives for such short-term manipulation can be traced back to the executive's compensation packages. Most absolute performance targets in our dataset data (typically: accounting and other targets) only have a 1-year horizon. Relative performance targets (virtually exclusively: share price/TSR) have a 3-year horizon on average, though overlapping annual vesting cycles imply a horizon that is often shorter.

In some cases, the relative performance incentive is structured as performance stock, in which the actual vesting of shares is dependent on the company's performance over a defined period (against predetermined goals) or by means of restricted stock or options which vest after the predefined period. No additional conditions are applied to the restricted stock as the share price is argued to reflect the fair market value of the company in accordance with the Efficient Market Hypothesis (EMH). Where performance conditions are included in the long-term incentive design, a mix of financial and non-

financial objectives are included both absolute and relative. With respect to the latter, companies often use relative total shareholder return (TSR) as a performance measure against a predefined set of reference companies.

2. DISSECTING THE PROBLEM OF EXECUTIVE COMPENSATION

Summary

- *Executive compensation places too high value on short-term value creation of shareholders, thus disregarding long-term and inclusive stakeholder value creation.*
- *Current compensation designs cause executives to (short-term) inflate corporate performance to 'game' their pay-out.*
- *Such performance manipulation is exacerbated by the (combination of) performance metrics currently employed, as well as the current 'governance of pay'.*
- *A new remuneration model thus needs a better yardstick for performance, an improved compensation mechanism, and better corporate governance.*

A review of the literature suggests that currently there are several problems with executive pay.

- There is a widely held view in society that executives are paid too much.⁷
- Executives focus too much on the short term as a result of their compensation packages.⁸
- Executives manipulate performance to game their pay-out.⁹
- Wrong incentives cause harmful behaviour to both stakeholders and shareholders.¹⁰

⁷ See e.g. Gavett (2014). CEOs Get Paid Too Much, According to Pretty Much Everyone in the World. *HBR*, September 2014.

⁸ See e.g. Edmans et al. (2017), Equity vesting and investment, *RFS*, 30(7), 2229-2271.

⁹ See e.g. Bennett et al. (2017), Compensation goals and firm performance, *JFE*, 124, 307-330.

¹⁰ Flammer et al. (2019). Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: Effectiveness and implications for firm outcomes. *SMJ* 40/7.

- Non-financial value creation for societal and environmental stakeholders is not sufficiently taken into account.¹¹
- Changes in standards, regulation and government policies can cause significant swings in the level and composition of executive pay.¹²
- The transactional mechanism breaks down due to *information asymmetry*. Some parties to a transaction may have more or less information than others, resulting in poor decision making (*adverse selection*). Agents may behave differently if their actions are unobserved (*moral hazard*). Monitoring is costly (*costly state verification*).

Of course, many of these issues are related, resulting in a complex interplay of factors. To untangle the problem, it is useful to go back to first principles and ask why we pay executives for performance in the first place and what outcomes we want firms to achieve.

The (welfare) economics of executive pay

A fundamental result in economics is that markets typically generate optimal societal outcomes. This means that given the *preferences* of economic agents and the *constraints* they face, a *transactional mechanism* (i.e. ‘the market’) results in *behaviour* that leads to the *best obtainable* outcomes *consistent with* the preferences of the agents.

However, there are cases in which the optimal outcomes are not realised. This is a *market failure*.

- Firms may have *market power*, causing consumers and intermediate firms to pay too much or get too little for goods and services.
- Production may cause negative *externalities* such as pollution or CO2 emissions that impose a cost on society, which remains unpriced. The inability to fully internalise the benefits of *positive externalities* (e.g. from innovation) causes inefficient behaviour.
- Firms overuse resources because property rights are lacking, which causes a *tragedy of the common resources*.

The current approach to executive compensation only seems to pay attention to this last market failure. Executives have different preferences than shareholders, resulting in executives not acting in the shareholders’ interests if left unchecked. So, a *contract* is designed in an attempt to make the executive behave as if he/she was a shareholder – often by incorporating equity pay in relation to shareholder value targets.

The fact that the current approach to executive pay only addresses the last market failure, instantly suggests a social problem: what about market power, externalities and common resources? Clearly these should be addressed too for corporate behaviour to contribute to optimal societal outcomes.

Insight #1.

Unresolved market failures result in adverse outcomes for all societal stakeholders (including shareholders).

Of course, governments already attempt to remedy market failures. Anti-trust authorities manage the consequences of market power. Externalities give rise to regulation and *Pigouvian taxes*.¹³ Overuse of public goods is managed through quotas. Essentially, these measures aim to *constrain* firms in their behaviour (cf. ‘*constraint*’ above). Sometimes, market

¹¹ Edmans (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *JFE* 101/3.

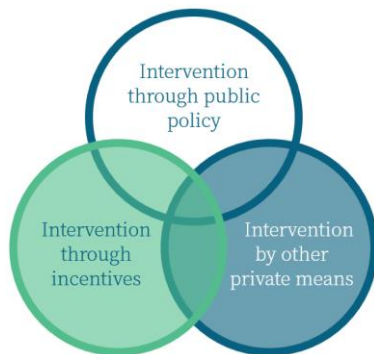
¹² Hayes et al. (2012), Stock options and managerial incentives for risk taking: Evidence from FAS 123R, *JFE*, 105, 174-190.

¹³ A tax so that behaviour that generates (negative) externalities becomes less attractive.

participants are able to alleviate *market failures* themselves through negotiation by striking a *Coasian bargain*.¹⁴

Such government intervention, however, is no panacea. Some market failures are hard to address through policy. Sometimes the costs of implementing and enforcing a policy are prohibitively high. This leaves room for private initiatives such as self-regulation and corporate social responsibility. Executive rewards can help to incentivise such corporate behaviour. Governments recognise this and support it by, for instance, mandating specific corporate disclosures to help private agents to monitor corporate performance.

Figure #1.



It should also be noted that incentives for executives cannot address all issues. Board diversity is one example, as incentives only start to affect executives after they have entered the board. Affecting the selection and appointment of executives through incentives would either require incentivising non-executives and/or other relevant decision makers such as shareholders. Other mechanisms are available, however, such as engagement with companies by advocacy groups and public disclosures. Such measures may in some cases be more appropriate and effective than rewards.

Insight #2.

Some market failures are best addressed through public policy, but others through private initiative (including stakeholder engagement) and incentives. Incentives (by themselves) are imperfect. Governments can support the effectiveness of private monitoring and incentives through e.g. disclosure and corporate governance requirements.



One implication of the welfare economic framework outlined above is a scoping of objectives to incentivise. If there is a well-functioning market without (significant) market failure, then there is no need for corrective action. Similarly, if governments have already taken steps to successfully correct market failures, then there is less need to incentivise 'good' corporate behaviour.¹⁵ Note that the crux here is '*successfully correct market failures*'. Governments can also implement policies aimed to alleviate market failures but fail or fall short, thus leaving scope for private initiative.

The current practices for executive remuneration follow this reasoning. There is a market failure in the relation between executives and shareholders that governments cannot credibly fix (principal-agent). Hence, private action through incentives is a useful tool to achieve better outcomes. Governments

¹⁴ I.e. they broker a deal to compensate or internalise the effects of externalities.

¹⁵ See e.g. Damodaran & Cornell (2020). Valuing ESG: Doing Good or Sounding Good?.

support this through disclosure and other corporate governance requirements.

So, if this tool is available to shareholders, why don't they apply it to achieve broad, socially desirable outcomes? There are two issues, one fundamental and one practical.

First, fundamentally, shareholders and non-shareholders have different preferences in several dimensions.

- Risk. Not all households participate in equity markets and those that do have different preferences and characteristics, including risk appetite.¹⁶
- Time. Social discount rates are significantly lower than the private (market) discount rate implied by the *equity risk premium*.¹⁷
- Valuation of pro-social behaviour. Even though investors have pro-social preferences, they may still value their private benefits more than social costs and benefits.¹⁸ A related issue is that for the individual investor, private benefits typically are (much) larger than social benefits/costs.

Different preferences imply different behaviour, even in the (hypothetical) context of a perfectly functioning market. In the limiting case where everybody is a shareholder, these differences do not matter. But clearly, not everybody is a shareholder.

Second, practically, the necessary pre-conditions for the effective deployment of the 'incentive tool' by shareholders are not met. For instance, investors do not have sufficient information on e.g. sustainability performance to make such performance part of the compensation contract. It is possible to generate this

information (cf. accounting performance), but there is a *coordination failure* in the generation and dissemination of this information.

So, what's the way out? As the name implies, a coordination failure may be addressed through more coordination – challenging, but possible. Addressing the problem of preferences is more difficult. Normally, markets address differences in preferences (if you have a higher preference for ice-cream, you are willing to pay more than somebody with a lower preference). Here, that's not possible as the literal problem is the failure of the market to generate good societal outcomes.

Governments resolve the issue of differences in preferences through a democratic mechanism – a *normative* decision-making process in which all stakeholders have a say. Addressing differences in preferences, then, requires normative decisions on whose preferences should matter more (or less). Investor and corporate stewardship, as well as good governance is needed to resolve issues between stakeholders.

Insight #3.

Private action on residual market failures currently fails due to differences in preferences and a coordination failure.

Resolving the first failure requires normative decisions on whose preference should have more weight, investor/corporate stewardship and good governance.

Resolving the second failure requires more coordination.

¹⁶ See e.g. Campbell (2016). Household finance. *JF* 61/4.

¹⁷ Jorda et al. (2014). The Rate of Return on Everything, 1870–2015. *QJE* 134/3. Frederick et al. (2002). Time Discounting and Time Preference: A Critical Review. *JEL* 40/2.

¹⁸ Hartzmark & Sussman (2019). Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows. *JF* 74/6. Krueger et al. (2020). The Importance of Climate Risks for Institutional Investors. *RFS* 33/3.

Contract design and executive behaviour

Although intrinsic motivation should be the key behavioural driver, in many circumstances it is the actual compensation contract that drives executive behaviour. The good news is that executives are very responsive to their compensation. There is a well-documented relation between pay and financial performance.¹⁹ Recent evidence suggests that executives respond to ESG contracting well: executive with pay tied to ESG performance deliver better ESG results.²⁰ The bad news is that in some cases, executives are *too* responsive to their pay plans, resulting in manipulation.²¹

For a large part, manipulation is the result of contract design. Typically, pay-out in relation to a target is staggered – for example: no pay below performance level *x*, increasing pay between performance level *x* and *y*, and no additional pay after performance level *y*. This results in ‘bunching’ of performance just before or after such pay thresholds.²² In addition, there typically is a (fixed and known) point in time at which performance goals have to be achieved or at which the level of pay is determined. Annual share vesting for instance, sometimes triggers short-term changes in corporate behaviour, often to the detriment of shareholders.²³ This problem also presents itself when CEOs approach the end of their tenures, when executives want to maximise their end-of-term stock value.²⁴

Insight #4.

Discontinuities and non-linearities in contract design can inspire (harmful) manipulation. Contracts should be comparatively simple, smooth,

and continuous – both in terms of target design, as well as in pay-out moments.

The problem of manipulation is exacerbated by the fact that executives typically have multiple targets. Not only does this leave more scope for manipulation on targets individually, but it also implies scope for interaction effects between targets. An executive with both an EPS target and an equity pay-plan can secure a higher payoff from both by manipulating EPS performance, given that the share price is responsive to accounting performance.²⁵ Such interaction carries over to non-financial targets as well. Even well-intended ‘CSR targets’ aimed at stakeholders can exhibit such co-movements. ‘Employee health and safety’ is typically thought of as a target promoting stakeholder outcomes, but at the same time is also just sound operational risk management. Significant accidents depress output (e.g. closing of an oil platform) and thus affect profitability as well as equity valuations.

Co-movement between target outcomes implies the question on which targets executive should focus and be rewarded for. Fundamentally, executives are responsible for strategic level decision making, developing, maintaining and communicating a vision for long-term value creation, and the implementation of strategy and risk management safeguards through the delegation of responsibilities and tasks to the operational layers of the organisation. Remuneration should mimic this unique set of responsibilities and thus be tied to strategic level outcomes.

As a corollary to this insight, it is useful to note that it implies that targets for ‘sub-objectives’ of achieving long-term sustainable value need not be rewarded.

¹⁹ Edmans et al. (2017). Executive Compensation; A survey of theory and evidence. *NBER* 23596.

²⁰ Flammer et al. (2019). Corporate governance and the rise of integrating corporate social responsibility criteria in executive compensation: Effectiveness and implications for firm outcomes. *SMJ* 40/7.

²¹ Bennett et al. (2017), Compensation goals and firm performance, *JFE*, 124, 307-330. Edmans et al. (2018), Strategic news releases in equity vesting months, *RFS.*, 31(11), 4099-4141.

²² Bettis et al. (2018), Performance-vesting options in executive compensation, *J. Account. Econ.*, 66, 194-221.

²³ Edmans et al. (2017). Equity Vesting and Investment. *RFS* 30/7.

²⁴ Marinovic & Varas (2019). CEO Horizon, Optimal Pay Duration, and the Escalation of Short-Termism. *JF* 74/4.

²⁵ SEO Amsterdam Economics (2020) analysis shows that the correlation between EPS and TSR is between 0.2 to 0.4.

This can be seen as a ‘*no additional pay for doing your literal job*’-clause. Much like you pay a car mechanic to fix your car without offering separate incentives for fixing the tires, brakes and engine individually, executives should focus on ‘bottom line’, overall outcomes.

Insight #5.

Avoid rewarding executives twice for the same outcome by having multiple targets that (largely) reflect the same outcome. Avoid targets and rewards that are too operational and too focused on short-term outcomes. Prefer ‘bottom line’ over ‘line item’ targets

Corporate governance

Since the early 1990s companies have increasingly implemented corporate governance measures to better direct corporate and executive behaviour towards good outcomes.²⁶ Despite significant progress, issues surrounding the governance of pay remain. In classical principal-agent theory, the principal sets the pay. In practice, companies (non-executives) make pay proposals which the shareholders can either adopt or reject.

As a result, there remains scope for executives to influence their pay. Even after controlling for performance, CEOs who are also chairperson of the board typically earn significantly more than ‘non-dual’ CEOs – implying that more powerful executives are able to increase their pay unwarranted.²⁷ Executives also use their influence inside the company to select a favourable peer group.²⁸ Lifetime CEO pay responds more to increases than decreases in performance (‘asymmetric pay-for-luck’) because

executives are able to negotiate higher future equity pay during adverse times.²⁹

The fact that executives are able to influence their pay hinges on the fact that some parts of (the design of) a remuneration model currently rely on the discretion of, for instance, non-executive directors. Limiting the room for such discretion as well as ensuring that non-executives are sufficiently ‘strong’ vis-à-vis executives may be key components of a better remuneration model.

Insight #6.

Avoid targets and rewards that permit discretion and/or place discretionary decision-making outside of the company/further outside the executive’s sphere of influence.

Lastly, corporate governance in the classical principal-agent paradigm mostly deals with the relation between companies and shareholders, and thus largely ignores a broader set of societal stakeholders. This leaves the interests of these societal stakeholders underrepresented.

Insight #7.

Make corporate governance more inclusive of societal stakeholder interests as to assign weight to stakeholder preferences (cf. above).

Elements of a new remuneration model

Investor and corporate (executive) stewardship instrumented through remuneration policies can support good societal outcomes. Such a remuneration policy needs three elements – a

²⁶ Bebchuk & Jackson (2016), *The Rise of Corporate Governance*.

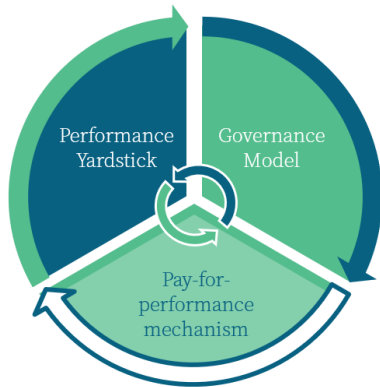
²⁷ Morse et al. (2011), *Are incentives contracts rigged by powerful CEOs?*, *JF*, 56(5), 1779-1821.

²⁸ Bizjak, Lemmon, & Nguyen. (2011). *Are all CEOs above average? An empirical analysis of compensation peer groups and pay design.* *JFE*, 100(3), 538-555.

²⁹ Bell, Pedemonte & Van Reenen (2018). *CEO Pay and the rise of Relative Performance Contracts: A Question of Governance?*. *CEP* 1439. However, there is no consensus in the literature about asymmetry in pay-for-luck, see e.g. See Daniel, Li, & Naveen, (2019), *Symmetry in pay for luck*, *RFS Forthcoming* for a dissenting view.

yardstick for socially desirable performance, a *mechanism* that accurately relates pay to this yardstick, and a *governance model* as to ensure that the overall model functions smoothly.

Figure #2.



3. PERFORMANCE YARDSTICK

Summary

- *'Performance' essentially is a relative concept. A performance metric should reflect this.*
- *A performance metric should reflect realised long-term and stakeholder-inclusive value creation.*
- *The inclusion of non-financial value creation for societal stakeholders in a compensation performance yardstick requires a harmonised accounting methodology.*

The first component of a remuneration model is the yardstick to judge performance by. We will discuss the concept of performance, as well as (issues with) metrics for financial and non-financial performance and possible improvements.

What do we consider 'performance'?

So far, we have used the idea of 'performance' rather off-hand and often synonymous with 'good (societal) outcomes'. In terms of yardstick design, this is insufficient. Good outcomes can also be the result of

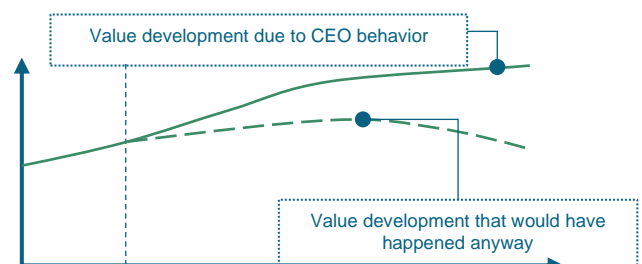
luck or decisions made by third parties. Conceptually then, we need a more precise definition. We adopt a 'next-best executive/next-best decision' approach. Performance is the created value in excess of the value that would have been created in absence of purposeful action by the executive.

From this conceptual point of departure, two empirical questions remain:

- What metric best reflects value (y-axis in Figure 3), or:
 - How to account for financial performance?
 - How to account for non-financial performance?
 - How to combine and align financial and non-financial performance?
- What is the best estimate of value creation that would have resulted without purposeful action by the executive (how to measure the area between the curves in Figure 3)?

We'll turn to these issues in order.

Figure #3.



Financial performance

Beyond a concept, performance needs a measurable outcome variable or *metric*. At the most general level, metrics must satisfy certain properties, such as,

- **Relevance.** Metrics must reflect the responsibilities of executives: long-term, strategic, bottom-line.
- **Controllable.** Executives must be able to take purposeful action to drive the metric, yet not be able to game it.
- **Measurable.** The metric must be measurable and accurately reflect performance.
- **Consistent.** The metric must be consistent over time and across companies.

As a matter of principle, both accounting and share-based metrics could satisfy these criteria. In practice, the actual metrics employed often do not. Box 1 illustrates this in relation to the three most commonly employed metrics, namely TSR, ROA and EPS.

Box #1.

	TSR	ROA	EPS
	<i>(share-based)</i>	<i>(accounting)</i>	<i>(accounting)</i>
Relevance			
<i>long term</i>	<i>Forward looking, indefinite</i>	<i>Backward looking, annual</i>	<i>Backward looking, annual</i>
<i>strategic</i>	<i>Yes, 'bottom line' measure. Not too operational.</i>	<i>Yes, 'bottom line' measure. Not too operational.</i>	<i>Yes, 'bottom line' measure. Not too operational.</i>
<i>shareholders</i>	<i>Yes, in terms of actual cash-in-hand returns (dividends, buy-backs, rising valuations). In addition, equity returns reflect accounting returns.</i>	<i>Yes, in terms of efficiency of investment.</i>	<i>Yes, in terms of efficiency of investment.</i>

	TSR	ROA	EPS
	<i>(share-based)</i>	<i>(accounting)</i>	<i>(accounting)</i>
Relevance			
<i>stakeholders</i>	<i>Partially, to the extent that equity valuations reflect non-financial outcomes.</i>	<i>Partially, to the extent that net income reflects societal preferences.</i>	<i>Partially, to the extent that net income reflects societal preferences.</i>
Controllable			
<i>real actions</i>	Yes	Yes	Yes
<i>manipulation</i>	<i>Sensitive to news releases and as a result indirectly to accounting performance manipulation.</i>	<i>Sensitive to balance sheet changes (denominator effect). Sensitive to earnings manipulation through for instance (short-termist) cost cutting (numerator effect).</i>	<i>Sensitive to share buy-backs (denominator effect). Sensitive to earnings manipulation through for instance (short-termist) cost cutting (numerator effect).</i>
<i>other</i>	<i>Sensitive to shareholder optimism or pessimism.</i>	n/a	n/a
Measurable			
	Yes, market outcome.	Yes, reporting requirements.	Yes, reporting requirements.
Consistent			
<i>over time</i>	Yes, market outcome.	<i>Largely, but sensitive to revisions in accounting standards.</i>	<i>Largely, but sensitive to revisions in accounting standards.</i>
<i>across firms</i>	Yes, market outcome.	<i>Largely, but discretionary deviations from IFRS/US GAAP possible.</i>	<i>Largely, but discretionary deviations from IFRS/US GAAP possible.</i>

The key distinction between share-based and accounting metrics is the extent to which they are forward- and backward-looking respectively. As a shorthand, equity-based performance is a combination of current (annual) accounting performance and expectations of future performance.

From a long-term investing perspective, this forward-looking nature of share-based metrics is useful as it allows executives to sacrifice current (accounting) returns in exchange for expected future (accounting) returns that will be reflected in equity valuations (share performance). As a shorthand again, Tesla's equity returns are high *now* not because they are profitable *now*, but because they are expected to be in the (long-term) *future*. But, of course, there is a trade-off. Expected returns do not always materialise and investors may suffer from bouts of optimism or pessimism that (hopefully) do not affect accounting performance. Conversely again, however, a real economic downturn will actually depress firm profitability – both in terms of equity valuations and accounting returns.

From the perspective of an investor, what matters most are actual delivered returns through value appreciation of shares and cashflows attributable to investors. This implies a preference for share based performance metrics given that it is most directly tied to investor outcomes. Care should be given, however, as to ensure that short-term fluctuations in equity valuations become the driver of corporate and investor behaviour.

Insight #8.

Share-based performance metrics are more reflective of shareholder interests, but short-term asset price fluctuations should not be the driver of firm behaviour.

A recent proposal in the literature aimed at this is the *long-term investor value appropriation* metric, or LIVA for short.³⁰ It holds that value creation for investors is equal to the *realised* dollar amount share return in excess of that of a well-diversified index fund over a long-time horizon. A metric such as or

like LIVA could constitute an improved performance metric.

Financial performance metric candidate: LIVA

A recent proposal from the literature to better measure long-term value creation for shareholders is the LIVA metric, calculated as

$$LIVA = V_T - (1 + r)^T V_0 + \sum_{t=1}^T \frac{FCF_t}{(1 + r)^{t-T}}$$

where V_T is the market value of an investment at time T , V_0 the market value of an investment at time 0, and FCF_t the cash flows flowing to investors over the entire holding period, discounted by a market return r . In essence, it is a backward looking net present value of an investment.

Holding companies to the yardstick of LIVA yields a different picture of top performers over the last 20 years as for instance ROA or annualised excess returns (ER). The best companies in terms of ROA or ER are small and as a result boast high ROAs or ERs. In the case of ROA for instance, top performers are often natural resources royalty trusts. In the same dataset, the best performing companies according to LIVA are well known for their success over the past two decades such as Apple, Amazon, Tencent, Alphabet, and Samsung.

Beyond the key distinction of forward- versus backward-looking, the properties of share- and accounting-based remuneration are remarkably similar. Both could *partially* reflect societal preferences to the extent that investors (for share-based) or consumers (for accounting-based) base their financial decisions on their preferences for societal, non-financial outcomes. This partial nature

³⁰ Wibbens & Siggelkow, (2020), Introducing LIVA to measure long-term firm performance, *SMJ*, Forthcoming, 1-24.

leaves room for improvement, to which we will turn momentarily.

In addition, both share- and accounting-based metrics suffer from manipulation. It seems unlikely that changes to metrics alone can address this issue, so we will return to this issue below in the design of compensation contracts and corporate governance.

Non-financial performance

Above we remarked that financial performance can be partially reflective of non-financial societal performance. Investors for instance value sustainability for instance, affecting asset prices.³¹

This link between non-financial performance, and financial performance metrics, however, is not perfect. Human capital intangibles, for instance, are not fully accounted for by share prices.³² Consumers can be part of market failures too: they might dislike pollution (externality) but might like the (socially inefficiently) low prices for goods and services it drives (they do not pay the social cost).

Of course, companies and executives recognise that their measures for financial performance don't fully capture non-financial performance. Many of the leading companies have committed to the SDG agenda. They have (increasingly) started to resort to incorporating ESG metrics to get a grip on their non-financial value creation, sometimes going as far as making pay conditional on such performance.

While laudable, the current implementation of such CSR contracting falls short of its objectives in several respects.

- Adoption. Not all companies have started to monitor and steer their non-financial

³¹ Hartzmark & Sussman (2019). Do Investors Value Sustainability? A Natural Experiment Examining Ranking and Fund Flows. *JF* 74/6.
³² Edmans (2011). Does the stock market fully value intangibles? Employee satisfaction and equity prices. *JFE* 101/3.

performance. Analysis of ESG targets employed shows that out of a sample of 195 large European companies in 2017, only 74 employ any ESG targets.³³

- Scope. Most companies that employ ESG metrics, employ ad-hoc partial measures that only partially capture non-financial societal value. Many targets are often operational in nature, unreflective of a market failure and/or highly co-moving with financial performance (e.g. customer satisfaction).³⁴
- Consistency. Of the companies that employ CSR targets, few use the same target year-over-year. Of the companies that employ CSR targets, few (pairs of) companies employ the same target. Both lead to lack of comparability, both over time and across firms.³⁵
- Measurement. There is no unified framework that defines the measurement of non-financial indicators, resulting in companies picking their own. Not only does this drive a further lack of comparability, it can also result in manipulation. Indicators are often qualitative, leaving significant room for discretion.
- Disclosure. Disclosure on non-financial performance varies greatly, making it more difficult for investors and societal stakeholders to monitor the company's non-financial performance.

To illustrate the problem these issues cause for investors and societal stakeholders, it is worth noting that even professional organisations specialised in measuring non-financial performance struggle to reconcile differences in reporting and performance between companies. The metrics employed by KLD, Sustainalytics, Vigeo-Eiris, Asset4, and RobecoSAM

³³ SEO Amsterdam Economics (2020) analysis.

³⁴ SEO Amsterdam Economics (2020) analysis.

³⁵ SEO Amsterdam Economics (2020) analysis.

correlate comparatively poorly at 0.61 on average. For reference, credit ratings by Moody's and Standard and Poor's have an average correlation of 0.99.³⁶

There are many different initiatives that aim to support more uniformity, most focusing on either scope, measurement and/or disclosure (adoption and consistency being the responsibility of individual firms). See amongst others the Global Reporting Initiative, Sustainability Accounting Standards Board, Climate Disclosure Standards Board, International Integrated Reporting Council, Carbon Disclosure Project, and United Nations Global Compact.

Ironically, this wealth of (voluntary) disclosure initiatives does little to reduce information asymmetries.³⁷ Companies currently employ standards selectively and implement measurement differently. This heterogeneity in measurement and reporting has resulted in increasing calls for standardisation and some private sector efforts in this direction are underway.

It is unlikely that private sector initiatives alone can solve these informational issues. This suggests that a hybrid public-private approach is required.³⁸ For accounting performance, governments have effectively delegated their public standard setting and regulatory authority to private bodies like IASB and FASB. In addition, the monitoring of the application of these rules has been delegated to certified accounting firms. This model has worked well for financial reporting. Private sector input guarantees quality, measurability and consistency, while public sector requirements guarantee adoption and disclosure.

Insight #9.

There is a need for a uniform standard for measuring non-financial performance. In practice, developing a uniform standard for non-financial performance will be an iterative approach that requires experimentation in its initial stages.

The example of IASB and FASB suggests that a public-private approach works well.

The remaining open question then is what the scope should be of a uniform standard. This standard should be developed collaboratively, but the preceding discussion offers several guiding principles. To avoid a sprawl of potential non-financial metrics, these guiding principles largely aim to reduce the scope of sources of non-financial value to consider.

The welfare economic framework suggest that the standard should target *unresolved market failures*. Market power for example, is regulated through competition law and anti-trust authorities, so there is no need for further private corrective action. However, the social cost of water (a public good) is currently not addressed by public policy, leaving room for private initiative. It should also be pointed out, that this 'unresolved market failure'-criterion implies that periodic revisions of the standards would be needed. Suppose governments at some point in the future institute a tax on water use proportional to the social cost, then there no longer is a need for non-financial performance targeting as this tax would directly affect firms' bottom lines.³⁹

A second point in relation to the market failure approach is that non-financial performance metrics should be closely related to actual behaviour on the

³⁶ Berg et al. (2019). Aggregate Confusion: The Divergence of ESG Ratings.

³⁷ Ho & Park (2019). ESG Disclosure in Comparative Perspective: Optimizing Private Ordering in Public Reporting. *UPJIL* 41/2.

³⁸ Ho & Park (2019). ESG Disclosure in Comparative Perspective: Optimizing Private Ordering in Public Reporting. *UPJIL* 41/2.

³⁹ Additionally, this is also consistent with the principle of no reward the same objective. Furthermore, this typically also is the approach public policy takes, for instance by introduction Pigouvian taxes proportional to the societal cost of the market failure.

market where the failure occurs. In the example of water use, this means measuring *actual* water use, and not for instance a ranking of the company on some index for sustainable water use. As a rule of thumb, measures should be as close as possible to actual goods and services delivered by the company incorporating the full value chain.

A third point related to the market failure approach is that sometimes it is optimal to let a market failure persist due to the fact that the costs of implementing and enforcing a policy outweigh its benefits. To avoid imposing unjustified costs on market participants, there must be a 'doubly material' criterion in the scoping of the standard. This is to mean that the market failure must be material to both the firm and society. As an example, water use may be material to society, but not for all firms. It may be material to companies in e.g. agriculture, but not in financial services. This 'double materiality' criterion could give rise to sectoral differentiation in standards. Note as well that some market failures may be common to all sectors, e.g. the social costs of carbon emissions associated with electricity usage.

Fourthly, even though (measurement of) the metric is as close as possible to the actual delivery of goods and services by the firm, the metric itself must be (made) actionable and impactful at strategic level in order to allow for accurate comparison between strategic financial and strategic non-financial performance.

Insight #10.

Target unresolved market failures, on the markets relevant for the actual delivery of goods and services by the firm, that are 'doubly material' (both to society and to the firm) and that can be affected by strategic decision making by the firm.

Note that this market failure approach to some extent limits the need to assess the value creation of

companies further down the value chain. Take an oil major as an example. By targeting the market failure of electricity use at e.g. an industrial company, their demand for electricity should reduce, prompting supply reductions at the upstream oil major. A related example is banking. By targeting market failures at e.g. an agricultural company, certain investments will become less profitable, reducing demand for financing for those kinds of projects.

Insight #11.

Targeting market failures on specific markets limits the need for individual companies to assess their impact on entire value chains.

Integration versus parallel targets

An open question in terms of remuneration design is whether targets should be parallel or integrated. Parallel is to mean that i) executives have targets for both financial and non-financial performance, ii) that the compensation design puts weights on financial and non-financial performance. Integrated is to mean that executives have a single target that reflects true societal outcomes, and that this measure is automatically reflective of the weights on financial and non-financial performance. In this way, incentives are aligned to create impact for both shareholders and stakeholders.

The parallel approach is principally the same as current practice. Improvements are made through better measurement of these targets, and a governance model that assigns more weight to non-financial vis-à-vis financial outcomes.

The question then becomes how to assign optimal weights to financial and non-financial performance respectively. In deciding on weights, it would be useful if financial and non-financial performance were expressed on the same scale so that (potential)

trade-off between financial and non-financial performance is reflected in the same unit of account.

Two routes are available: express financial performance in terms of non-financial performance, or vice-versa. Practically, this latter route seems preferred for two reasons. First, this already is common practice in social cost-benefit analyses employed in public policy making. Secondly, it aligns closely with policy resolutions of market failures that typically aim to put a price (e.g. a tax) on the societal costs implied by that market failure.

Clearly, efforts towards monetisation should also be standardised. This means that there will have to be a system of (sectoral) common prices or cost-factors for social impact.

Insight #12.

Monetise ESG outcomes (consistently, but possibly with sectoral differentiation).

If non-financial performance is monetised, the question of whether to integrate or not becomes almost insignificant. True societal value creation then is the balance of financial and (monetised) non-financial value. This is also the approach taken in a recent proposal from the literature called *Impact Weighted Accounts*.

Non-financial performance metric candidate: IWA

A recent proposal from the literature suggests working towards a framework that monetises social and environmental impacts so that financial performance becomes impact weighted. The general idea is to net financial impact of non-financial

impact (both positive and negative) to arrive at an overall assessment of value creation.

As a feasibility assessment, Serafeim et al. (2020a) applies a preliminary version of the framework to the automobile industry and quantifies social impact such as health and safety impacts associated with the automobile industry, as well as emissions and recyclability amongst others. This constitutes a proof of concept and suggests significant social and environmental impacts.⁴⁰

In a different paper, Serafeim et al. (2020b) perform a similar analysis focused on environmental impact. Monetised impacts of e.g. water use and carbon emissions are 2% of revenues at the median, but in excess of 10% in 11 of 68 investigated industries. This suggests a significant effect of environmental impact on firm value if priced correctly. Importantly, while sector membership explains 60% of the variance in environmental impact, around 30% is due to firm specific factors.⁴¹ Executives could directly address firm specific factors that drive high environmental impacts.

Alternatively, the entire issue of integration could be sidestepped by having executives focus on the mission of their companies. A pharmaceutical company that defines its purpose as ‘providing affordable medicines to patients’ could implement a target that reflects this mission statement and leave it at that. The downside to this, however, is that it could incentivise a disregard for the firm’s bottom line, putting the continuity of the operations that are necessary for the mission at risk.

⁴⁰ See Serafeim (2020). A Preliminary Framework for Product Impact-Weighted Accounts.

⁴¹ Serafeim (2020). Corporate Environmental Impact: Measurement, Data and Information. HBS Working Paper 20-098.

Determining value creation that would have happened anyway

Our concept of 'performance' is essentially relative. We deem performance value creation in excess of value creation that would have happened anyway and/or under alternative decisions. Unfortunately, this alternative state of the world is unobserved, and we hence need to estimate it.

There are several ways of dealing with this problem. Companies with equity compensation relative to a peer group already employ one of them: relative performance evaluation. Performance is the share price change between two periods relative to the share price change of the peer. Thus, it is the excess stock return over a peer group. This is akin to what in the econometrics literature is known as a *difference-in-difference* analysis.

As a matter of principle, this technique is incredibly powerful. For executives, it provides a hedge against common shocks (they can still outperform their peers even in a declining market). For investors, it provides an incentive for executives to perform better than an alternative investment and it supports efficient risk-sharing.

Current implementations of relative performance evaluation, however, are suboptimal in at least three dimensions.

- For executives, the hedge is broken upon vesting; implying that their *wealth-to-performance-sensitivity* is increasing over their tenure. This either implies that executives will have to be additionally compensated for bearing this risk and/or that executives have increasing incentives for manipulation over their tenure.
- As remarked above, executives often influence peer group selection, resulting in a sub-optimal peer groups and thereby biasing performance evaluation and thus the pay-out.

- Peer groups typically consist of specific peers, often direct competitors. For executives, this means that their hedge is only against common shocks to competitors, not overall market conditions (except when the shock to peers and the overall market is identical). For investors, the question is whether performance relative to competitors is the relevant margin. This latter question depends on how investors make (or should make) decisions. Do they first pick a group of similar companies to invest in, and then pick the best one; or do they aim to find the best investment overall?

Insight #13.

An improved version of relative performance evaluation (akin to an econometric difference-in-difference analysis) is conceptually the best method for assessing 'performance'. In principle, the LIVA approach could accommodate this.

Of interest is that this notion of 'relative performance' is already inherent to a metric such as LIVA in the sense that it calculates financial performance as the returns generated by an investment after taking the opportunity cost of investing in a market portfolio into account. Essentially, this means that LIVA takes 'the market' as the 'control group' for firm performance. It is an open question to what extent 'the market' is the best control group for the value evolution given alternative decisions by executives. In a future paper, we will investigate to what extent different control group can be implemented in a LIVA framework and how that affects observed value creation or destruction.

Taking stock

So, where do we stand now in terms of yardstick design?

The LIVA framework or a metric similar to it could potentially be used to reflect financial value creation over the long term. It offers a way to consistently include all relevant shareholder returns (share value appreciation, dividends, buy backs) over a long horizon and by design is permissive of seeing performance as a relative concept. Likewise, the IWA framework may offer an integrated perspective on shareholder value creation that may be joined with the LIVA approach. Taking the approaches together constitutes a metric for Stakeholder Long-Term Value Creation (SLTVC).

At the same time, some open questions remain with respect to merging IWA or a similar framework to a metric like LIVA. First, the issues noted above with respect to measuring non-financial performance (e.g. harmonised 'rulebook', etc.) will need to be addressed before an integrated approach can be successfully implemented. Beyond this, several 'technical' questions remain with respect to developing an integrated measure, such as the extent to which different sets of peers as 'control groups' matter for the accuracy of the yardstick. We'll return to these 'technical' issues in a future paper.

Another open question in terms of 'yardstick' design is how to deal with 'societal red lines'. Any approach based on a metric like LIVA and/or IWA implicitly allows for trade-offs between financial performance and non-financial performance. Given appropriate cost-benefit factors for non-financial performance this in our view is a desirable feature. It ensures that there is a *socially efficient* total performance. For example, there currently is a need for some CO2 emissions, but also a need for less. This implies a

societal optimum that is achieved naturally if the carbon cost-benefit factor is just rightly calibrated to incentivise the right amount of 'less'.⁴² Too high and you sacrifice too much economic welfare, too low and you still end up with too much carbon emissions.

It can be argued however, that some societal and environmental 'good' (here: as opposed to 'bad') is or should be 'non-negotiable'. Civic or human rights can be one example, social or distributive justice another. It may be argued that the trade-off potential of the LIVA/IWA framework may be undesirable in these areas. Managing such unwanted trade-offs can be made part of the compensation model, for instance through claw backs. We will return to this issue under mechanism design and governance.

A last point with respect to these 'societal red lines' is that tools other than incentives are available. Governments have laws that provide safeguards and enforcement of those laws ensures such lines are not crossed. This could limit the extent to which societal red lines need to be accounted for in compensation policy with the exception that compliance with the law should be a given. Another route for safeguarding societal red lines then is fine-tuning existing regulation and legislation and ensuring compliance.

4. REMUNERATION MECHANISM

Summary

- *A remuneration model should interface well with a stakeholder long-term value creation metric; offer an executive a 'stake' in this value creation.*
- *A remuneration mechanism should be as straightforward as possible and contain as little incentives for manipulation as possible.*
- *Incentivising long-term behaviour requires a long-term compensation duration that extends into the executive's post-term period.*

⁴² Relatedly, this is also the reason why a carbon tax or pricing mechanisms is typically considered the socially optimal way of reducing emissions.

In order to function in a compensation model, a yardstick must be tied to a remuneration mechanism that translates value creation to an incentive for the executive. This essentially is a question of the pay mix and the pay-out model.

Above, we remarked that targets should not be 'too short term' in order to guide the appropriate focus towards long-term, strategic, pro-social outcomes. A natural implication then is that a pay structure needs two main components: annual fixed pay, and long-term variable pay. Minor components can include pension contributions and miscellaneous compensation but not significant short-term variable pay. Short-term incentives are more appropriate for sub targets at an operational level but should not be incorporated in the pay package of the executive who is responsible for the long-term strategic vision.

Insight #14.

The pay-mix should largely consist of

- a fixed component; and
- a long-term variable component.

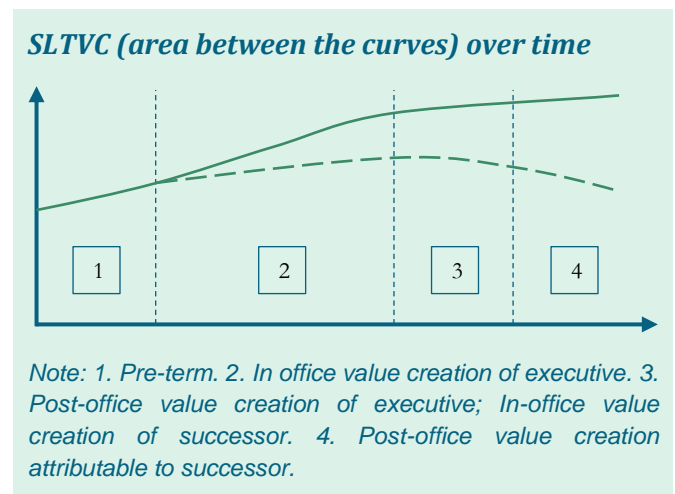
A small portion could be made up of pension contributions or miscellaneous compensation, but short-term compensation should be avoided.

Incentivising the long term requires a specific remuneration structure. Above, we already noted that short-term pay should be avoided. More generally, the compensation design should avoid 'wrong' incentives in terms of risk-taking or the timing of rewards (a 'no harm' principle for compensation design). Given the fact that annual vesting cycles reintroduce short-termism in executive behaviour, annual vesting should be avoided as well.

Taken together, for appropriate remuneration design there are several 'phases' to be considered. The first phase is the pre-term phase. The executive has no

influence over the strategic direction of the company in this phase. The second phase is the term phase. During these years, the executive develops and implements a long-term vision. Here, value creation is equivalent to SLTVC above and beyond the counterfactual SLTVC that would have been generated in the absence of purposeful executive decisions. In the third phase, this value creation continues, but at some point, less and less of this post-term value creation is attributable to the old executive, and more and more to his/her successor (the fourth phase).

Figure #4.



Based on this, the executive should be rewarded in proportion to SLTVC during phase 2 and 3, but with the final settlement of the reward at the end of phase 3 (i.e. after his/her post-term value creation has ended). Deferring final settlement until the end of phase 3 creates an incentive for the executive to be mindful of the long-term success of the company even after his/her term has ended.

We are currently developing several incentive design models that could accommodate this post-term SLTVC remuneration structure. Based on the preceding sections, all designs share the following guiding principles:

- pay the executive for demonstrated, measured, realised performance,

- avoid the potential for manipulation as much as possible,
- align long-term share- and stakeholder interests with the executive pay profile.

Below, we sketch two options satisfying these principles.

1. *Contingent liability approach*

The first approach stays as close as possible to the idea of SLTVC and the desire to defer final settlement of pay until the impact of the executive driven value creation has materialised post-office term. It would work along the following lines:

- Starting when the executives comes into office, every year a percentage of the generated SLTV in that year is put aside for future executive pay (placed in escrow). This is continued for the entirety of phases 2 and 3. Years with negative SLTVs are credited towards this provision as well so that the final grand total of the provision accurately reflects the cumulative nature of SLTVs over a longer horizon. During phase 3, a decreasing proportion of SLTVC is added to the provision due to the fact that value creation during this phase is increasingly shifting from the old to the new executive, as the new executive is driving the strategic agenda.
- At the end of phase 3, the amount in this provision is transferred (in cash) to the executive as pay for performance. If the provision has run negative, there will be no pay-out.

This approach has several merits. It stays close to the 'ideal' SLTVC framework, incentivises the long term as well as investments in social and environmental policies with often a late (post-term) return, and facilitates hold back mechanisms due to the fact that

the actual final settlement and pay is deferred to the end of phase 3.

For the company, however, this creates a contingent liability in the sense that it becomes liable for paying a former executive after he/she has left the company. The accounting of this contingent liability requires careful consideration as it could affect the behaviour of the successor.

Another issue is cost. Performance is measured in SLTVC-terms, but the firm cannot pay the executive in 'SLTVC'. High stakeholder performance raises the SLTVC, but that in turn would imply significant cash expenses for the company. Shareholders and the firm may be negatively affected by this, potentially inducing behavioural effects on part of the successor.

A related cost issue is discounting by the executive. Deferring pay for a long time implies that pay needs to be sufficiently high in order to satisfy the executive's participation constraint if the executive discounts his/her pay significantly. Pay then becomes more expensive for the firm and shareholders, again potentially inducing behavioural effects on part of the successor.

Some of the pressure on the successor may be alleviated by the fact that he/she will be subject to the same pay scheme, but without further (behavioural) research this remains unclear.

Another way to reduce some of these pressures is to not defer the full payment to the end of phase 3, but by paying the executive every year a portion of the built-up rights (starting at e.g. the beginning of phase 3). In this way, the executive retains post-term wealth sensitivity to the contingent liability but reduces the cost effect of executive's discount rate. At the same time, this again pulls the executive's horizon closer to the near-term (reducing the executive long-

term orientation). Whether this effect is strong requires more (behavioural) research.

Lastly, there may be reputational concerns for the company with the contingent approach in the sense that it is liable for pay in the future when things may have turned sour for the company. This could spark public debate over whether it is fair that an executive then still is paid the (residual) value of the provision. Effective and transparent annual disclosure of accrued value in the SLTVC Escrow Account is therefore needed to mitigate surprises.

2. *Adjusted equity grant approach*

A second approach aims to remedy some of the issues with the first by doing away with the conditional liability so that the settlement of pay from the firm's perspective is done after phase 2. Post-term incentives are maintained by paying the executive in a stake in the company, combined with holding requirements. This could work along the following lines:

- At the start of phase 2, a nominal pay-out amount for the end of phase 2 is set – e.g. USD 10 MM;
- At the end of phase 2, determine according to a pre-defined rule a discount or mark-up based on the SLTVC during the tenure of the executive and apply this discount/mark-up to the current share price. Suppose the share price is USD 100 and SLTVC overperformance implies a discount of 50%, the adjusted share price is USD 50. (In case of an underperformance of 50%, the adjusted share price would move to USD 150. A negative SLTVC would always result in no grant of any shares).
- At the end of phase 2, the executive is given q shares based on this adjusted price, i.e. USD 10 MM / USD 50 = 200k shares.

- The executive is required to hold these shares until the end of phase 3, at which time he/she may sell these shares at the current market price.

The advantage of this approach compared to the contingent liability approach is that pay is direct upon the expiration of the executive's term. This avoids the contingent liability for the firm and decreases the time/risk-discounting for the executive (lower pay out is acceptable).

Yet some issues remain, some similar to the remaining issues with the contingent liability approach. A single pay-out moment implies high pay at a single point, potentially sparking public debate. Performance is still measured in SLTVC terms, but actual outlays for compensation are financial.

Other issues with this adjusted equity grant approach are the mirror inverse of some of the benefits of the contingent liability approach. Claw back, for instance, becomes more difficult as the ownership of the assets is transferred at the end of phase 2.

More fundamentally, the lack of a 'contingency' in the design implies a weaker link between pay and performance post-term. Absolute share price fluctuations post-term does not reflect the relative nature of (our definition of) performance (cf. LIVA). In addition, post-term stakeholder value creation is typically not fully reflected in equity valuations, which was one of the reasons to move to a SLTVC metric to begin with. On the margin, this could imply a weaker incentive during the term of the executive to invest in long-term stakeholder value as the incentive structure does not allow the executive to internalise the benefits of stakeholder value creation after his/her term.

Relatedly, settling pay with the executive at the end of phase 2 reintroduces a discrete point in time

within the executive's control at which he/she will want to maximise his/her pay. This could inspire unwanted behavioural effects towards the end of the term. The extent to which this is the case is an open question.

There are institutional investors that prefer to move away from the current incentive practice and move towards restricted stock with holding periods moving into periods beyond the term of the executive (phase 3).⁴³ Using restricted stock is eliminating the direct link between pay and performance (certainly the relative performance), trusting the Efficient Market Hypothesis (EMH) that share prices will reflect the true value of a firm on the long run. Due to vesting moments and limitations in holding periods, the efficiency of the market cannot always be obtained. Not all financial and certainly not non-financial performance is timely reflected in the share price. Also using equity as compensation in the active period of the executive (phase 2) and allowing vesting and sale to happen in phase 2 has proven to result in more short-term behaviour and allows for manipulation. The two approaches above aim to stay as close as possible to the relevant performance (SLTVC) incorporating financial and non-financial performance and to limit manipulation and short-termism to a minimum by either not using equity at all (first approach) or only use equity after the active period of the executive (second approach).

3. Other

Given that this green paper only reflects our current thinking, there may be other avenues worth considering in developing a new pay structure and model. We welcome comments and suggestions.

Similarly, the two sketches of possible models outlined above are at present just that – sketches. These need to be developed further and tested. We will return to this in future research.

How to avoid gaming?

Above, we frequently noted the issue of executives 'gaming' their rewards often to the detriment of shareholders and stakeholders. This clearly should be avoided. The question then is, how?

In part, the answer to this question has also already been touched upon above. A harmonised system of accounting stakeholder impact decreases the room executives have to game. Similarly, a harmonised rulebook of doubly material market failures limits the scope of executives to select favourable ESG impact targets. Furthermore, a remuneration model that solely focusses on long-term stakeholder value creation (using long-term incentives only) offers fewer points in time at which the executive has an option (and incentive) to game. Likewise, the extent to which the compensation of the executive is deferred to after his/her term helps to limit gaming towards the end of his/her tenure. Lastly, employing a single integrated measure and a relatively simple (linear) pay-out mechanism avoids issues with hurdles, thresholds and non-convex pay-outs.

5. CORPORATE GOVERNANCE

Summary

- *Within firms, increased 'voice' for stakeholder interests must be organised.*
- *The governance of pay should be strengthened, especially with respect to the selection and management of peer groups and claw-/holdback.*
- *Better governance and pay practices at firm level only are less fruitful without the incorporation of other actors in the investment value chain. Likewise, governments can offer support to improving remuneration governance through regulation and legislation.*

⁴³ See e.g. Norges Bank (2017). CEO Remuneration Position Paper.

Yet some issues remain. The fact that our proposed yardstick is a relative measure leaves open the question of peer group selection. More generally, a new remuneration model can only work effectively through adequate adoption and implementation. This holds true both at the within-firm level and the across-firm level. At the within-firm level non-executives have to make sure that the compensation model is applied successfully and truthfully. At the across-firm level, there need to be processes for standard setting, updating of the model, etc. A related issue is the extent to which remuneration outcomes are disclosed so that stakeholders can monitor the firm and the executive pay. In short, beyond a yardstick and a pay mechanism, there needs to be good governance.

The distinction between within-firm and across-firm implies two 'levels' of governance – internal, and external.

Internal governance

With 'internal governance', we refer to the organisation of stakeholder engagement, voice and supervision at the firm level. Currently, this 'internal governance' consists of rules and (best) practices regarding shareholder rights, the AGM, the behaviour of non-executive directors, etc.

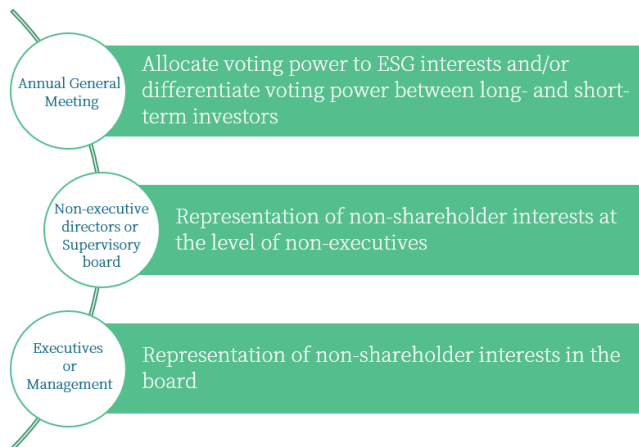
In defining the yardstick, we clearly indicated the importance of the inclusion of non-financial performance next to the financial performance, as a firm is part of society at large. Executives as stewards are to serve the many different stakeholders of the firm to ensure a long-term and sustainable future for the firm and a positive impact of the firm on society. To that extent, an open question is whether and how other stakeholders could or should be incorporated in the internal governance of the firm and through what mechanisms this should influence decision-making within a firm on key issues including compensation. The literature notes that this may be

challenging. The problem is known as the *multiple principal* or *common agency* problem. Akin to the principal-agent problem there is an agent but now there are several principals with potentially diverging interests or opinions. Note that in practice, the single-principal-agent problem already is one of common agency. There are typically multiple shareholders whose interests may of course differ as well.

Currently, shareholders address their differences through several mechanisms. They can directly influence decision-making through engagement or 'voice' (e.g. electing non-executive directors, voting during the AGM), but they can also send signals to management through divestments/'exits'. Both options are not available to broader stakeholders. They have no voting rights, nor can they divest as they have no ownership.

Engagement, voting and/or representation can be an efficient way to resolve issues of common agency. This suggests that one way forward could be to increase the representation of broader stakeholders in the internal governance of firms. Several options are available at various levels of control within the organisation. By including a broader group of stakeholders on the board, decision-making on compensation (but also: in general) could be more reflective of environmental and societal considerations.⁴⁴ At the level of the annual general meeting, corporate behaviour may be more strongly influenced if voting rights are extended more broadly to stakeholder interest groups or differentiated between investors seeking a short-term gain versus a long-term commitment.

⁴⁴ See e.g. Jager et al. (2020). Labor in the Boardroom.

Figure #5.

The efficacy of such ideas is still an open question. Future research will further guide the outlines of a new governance model required for optimising long-term value creation for stakeholders.

Insight #15.

A new governance model more inclusive of broader long-term stakeholder interests may be needed, but it is an open question what this model should look like and how it can be implemented. We will return to this in future research.

The inclusion of stakeholders in internal governance is broader than compensation alone. Specific to compensation, there are areas of internal governance that warrant further attention as well.

Claw-back provisions essentially lengthen the executive pay horizon, and as a result are associated with higher reporting quality and greater pay-for-performance sensitivity. At the same time, such provisions increase the risk for executives resulting in higher overall pay.⁴⁵ Furthermore, the increased risk for executives could prompt executives to aim to

hide 'bad news' or manipulate earnings differently, increasing (tail) risk for the company and its shareholders.⁴⁶ In short, claw back provisions can also induce negative behavioural effects. Effective and fair implementation and execution of such claw back provisions are therefore key in an overall remuneration policy. This highlights the need for strong governance. Beyond this, it is an open question to what extent such negative behavioural effects persist in the new remuneration model sketched above. This will have to be tested in future research.

Insight #16.

Claw back can be a useful instrument but requires strong governance. How claw back interacts with a new remuneration model is still unclear. We will return to this in future research.

Another issue is the governance surrounding the peer group. It is useful to note that there are currently typically multiple peer groups: one for relative performance evaluation for TSR, and one for pay benchmarking at the start of the contract.

Insight #17.

Companies should be explicit about the fact that several peer groups are employed and that their composition may differ.

With respect to the 'performance peer group', the LIVA approach to measuring financial performance is relative and in relation to overall market performance, not a specific peer group. This avoids the issue of peer group selection as the peer group is defined by global market returns. As we remarked above, it is an open question to which extent the use

⁴⁵ Chen et al. (2015). The Costs and Benefits of Clawback Provisions in CEO Compensation. *RCFS* 4/1.

⁴⁶ Bao et al. (2018). Can Shareholders Be at Rest after Adopting Clawback Provisions? Evidence from Stock Price Crash Risk. *CAR*

35/3. Chan et al. (2015). Substitution between Real and Accruals-Based Earnings Management after Voluntary Adoption of Compensation Clawback Provisions. *AR* 90/1.

of a more sharply defined peer group would result in a better 'control group' for executive performance within the LIVA framework. For the non-financial performance component of SLTVC, the issue is more complicated to the extent that there may be sectoral differentiation in material market failures. This would then imply the need for a performance peer group for non-financial performance on at least a sectoral level. Taking the entire sector as the peer group avoids manipulation of the peer group. Alternatively, companies could adhere to external standards for peer group selection (e.g. ISS norms) or take a transparent 'data driven' approach that selects a statistically optimal peer group.

Insight #18.

Attempt to avoid manipulation of the performance peer group by avoiding discretion in peer group selection as much as possible, for instance by taking the market or the sector as the peer group, by adhering to external standards for peer group selection, or by taking a statistical approach to peer group selection.

With respect to the pay-benchmarking peer group, the main objective should be to avoid cherry picking a favourable peer group. This requires 'strong' non-executive directors as well as interaction and consultation with stake- and shareholders. The former implies that non-executives have to be sufficiently independent and capable. The latter requires more extensive transparency and disclosure during the contracting stage with the executives. Solutions to achieve both are still under research, and we will return to this in future work.

Insight #19.

Avoiding cherry picking in the benchmarking peer group requires 'strong' non-executive directors, as well as transparency during the contracting stage. Strong guiding principles or rules as discussed hereabove for the performance peer group is

comparably needed in the pay peer group selection. We will return to this in future research.

External governance

Improvements to the remuneration model and internal governance are only fruitful in a conducive environment. This means that there are requirements for the governance practices outside of the firm as well. We refer to this as 'external governance'.

Above we already remarked the need for uniform standards in measuring, accounting and reporting non-financial performance. We also noted the need for continuous updating of such a harmonised framework in light of changing market failures and/or the extent to which governments take steps to address those as well. Such standard setting and updating requires a widely supported body that works collaboratively with governments, companies and other stakeholders to arrive at the right framework.

The fact that governments may take steps to achieve better societal outcomes bears broader implications. One question is the optimal interaction between private initiatives for good corporate behaviour and proper remuneration practices and public action through regulation and legislation. Governments can support the implementation of a new remuneration model, for instance through reporting requirements, ratification of a harmonised non-financial performance framework, and/or legislation facilitating for instance claw-back (beyond current regulations to empower enforcement). Thus, continuous engagement with policy makers around the world is much needed.

A final issue is the management of incentives in other parts of the investment and business value chain. It is difficult for companies to move away from targeting short-term financial performance if the incentives for

e.g. investors or professional money managers are short term. An asset manager *whose own* incentives are (significantly) based on e.g. quarterly or annually and (mostly only on) financial performance will have a strong interest in driving high short-term, financial returns. Driving remuneration policy changes throughout the entire investment value chain could contribute significantly to better pay practices at individual companies.

Insight #20.

Firms have one part to play but so do standard setters, governments and the investing value chain as a whole.

6. CONCLUSIONS AND NEXT STEPS

Summary

- *While this green paper sketches a way forward in improving executive compensation, several open questions remain. In collaboration with business schools and the business and investment community, we will return to these issues in future studies.*

Above, we outlined the contours of a new remuneration model to incentivise inclusive stakeholder long-term value creation. This has relied on three components: the yardstick, the mechanism, and the governance.

Moving to a better yardstick that better reflects long-term pro-social outcomes is key in incentivising better corporate behaviour. Combining several recent proposals from the literature (LIVA and IWA) suggests that an integrated measure could adequately reflect long-term stakeholder outcomes and corporate impacts.

To this yardstick, we propose to tie a compensation mechanism that in principle is relatively straightforward, consisting largely of fixed-pay and a (significantly deferred) long-term variable pay-out. In practice, open questions remain regarding the actual design and implementation of the contract to which we will return in a future study. Similarly, the effectiveness of the new model remains an open question. There is no data from which we can infer its effectiveness as no firm has implemented this model before. A future study will establish the model's effectiveness through experiments.

It is clear that a remuneration model aimed at stakeholder outcomes will also require a governance model supportive of this. In part, this could be achieved through broader representation of stakeholders in the firms' internal governance. Specific to remuneration, there may be a need for stronger claw back and better governance of compensation peer groups. The specifics of the design and implementation of this inclusive governance, and claw-back and peer group management are left for a future study.

The proposed new model also puts requirements on external governance. Standards with respect to the measurement and accounting of non-financial performance need to be unified and continuously update. Governments can support the implementation of a new remuneration model through legislative and regulatory action. Widespread adoption of the model may also require broader changes throughout the investment and asset management value chain.

Although we believe in the potential of this new remuneration model, this green paper has also marked several remaining open questions. As a next step, Reward Value will continue to contribute to the efforts to improve executive remuneration and will address these open questions in future research in partnership with universities and business schools

and the business and investment community at large. We highlight some of the key questions:

- How can we achieve standardisation in non-financial measurement, accounting and reporting (including scope, potential sector differentiation, and monetisation)?
 - What specific implementation of a mechanism for rewarding executives based on stakeholder long-term value (long-term deferred compensation) is the most effective?
 - How to best deal with 'societal red lines'? Allow a trade-off between various stake- and shareholder interests or specify thresholds for no-pay (e.g. through hold-out and/or claw-back)?
 - How should internal governance at firms be made more reflective of and responsive to stakeholder values and interests?
- What is the optimal interplay between internal governance and external governance (standards, legislation and regulation, and governance at other firms)?
 - What is the optimal interplay between private action (i.e. firms) and public action (i.e. governments)?

We will return to these questions in future studies. We welcome comments, ideas and suggestions, as well as collaboration on this research agenda to develop and achieve a better remuneration model aimed at long-term stakeholder value.

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ANNEX 1. DETAILED LIVA COMPARISON⁴⁷

	Company	Total pay	ROA	LIVA	Rank total pay	Rank ROA	Rank LIVA
Top 10 total pay							
1	Axon Enterprise	\$ 246,026,710	4.06 %	\$ 1,026,848,827	1	816	330
2	Discovery	\$ 129,449,005	1.81 %	\$ 796,557,099	2	1094	376
3	MBIA	\$ 104,395,479	NA	\$ 229,394,247	3	1628	NA
4	T-Mobile US	\$ 66,538,207	3.99 %	\$ 6,724,999,944	4	824	82
5	Disney (Walt)	\$ 57,374,238	12.78 %	\$ 25,072,201,436	5	202	26
6	Twenty-First Century Fox	\$ 50,263,861	8.29 %	\$ 1,9127,979,291	6	409	35
7	PTC	\$ 49,969,164	2.23 %	\$ 3,422,997,892	7	1036	156
8	Lauder (Estee)	\$ 48,164,302	8.82 %	\$ 4,479,374,237	8	381	125
9	CBS	\$ 46,416,750	8.97 %	\$ - 2,527,252,763	9	374	1546
10	J2 Global	\$ 45,062,153	5.03 %	\$ 245,273,908	10	707	584
	Total	\$ 843,659,869		\$ 58,598,374,118			
Top 10 ROA							
1	Antero Midstream	\$ 9,143,022	139.62 %	\$ -1,065,908,446	462	1	1433
2	Innovia	\$ 302,198	72.07 %	\$ 515,250,977	1652	2	465
3	Liveramp Holdings	\$ 12,912,214	69.83 %	\$ 1,106,276,489	270	3	315
4	Park Aerospace	\$ 355,558	60.12 %	\$ 74,974,703	1647	4	737
5	Aspen Technology	\$ 6,325,453	56.12 %	\$ 1,739,332,675	731	5	238
6	Garrett Motion	\$ 7,298,865	56.08 %	\$ -160,393,214	627	6	1045
7	Warrior Met Coal	\$ 3,242,547	49.95 %	\$ 424,041,489	1201	7	495
8	Exelixis	\$ 7,977,535	48.52 %	\$ -2,066,836,369	565	8	1521
9	Domino's Pizza	\$ 9,102,416	39.89 %	\$ 3,610,673,594	470	9	147
10	Yum Brands	\$ 14,013,734	37.34 %	\$ 6,884,000,901	213	10	80
	Total	\$ 70,673,542		\$ 11,061,412,779			
Top 10 LIVA							
1	Amazon	\$ 1,681,840	6.19 %	\$ 229,773,861,836	1454	589	1
2	Microsoft	\$ 25,843,263	6.40 %	\$ 215,746,039,612	38	570	2
3	Merck & Co	\$ 20,934,504	7.53 %	\$ 76,951,646,072	66	471	3
4	Pfizer	\$ 19,549,213	7.00 %	\$ 76,662,174,901	86	517	4
5	Apple	\$ 15,682,219	16.29 %	\$ 65,045,239,389	155	105	5
6	Mastercard	\$ 20,379,353	NA	\$ 58,762,869,220	77	1604	6
7	Visa	\$ 19,493,946	14.88 %	\$ 58,539,171,489	87	137	7
8	United Health Group	\$ 18,107,356	7.87 %	\$ 56,638,405,316	111	436	8
9	Cisco Systems	\$ 17,585,219	0.10 %	\$ 52,290,488,137	120	1340	9
10	Verizon Communications	\$ 18,637,867	5.86 %	\$ 49,351,086,915	100	625	10
	Total	\$ 177,894,780		\$ 939,760,982,887			

47 SEO Amsterdam Economics, based on ExecuComp, Compustat US, and Wibbens & Siggelkow (2020). The table only includes companies with data for both total compensation and LIVA.