

A new integrated-value assessment method for corporate investment

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Executive summary

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COMPANIES ARE UNDER pressure to change their business models and become more sustainable. Corporate governance codes across Europe have introduced the term ‘long-term value creation’ to capture companies’ social responsibility. However, the concept of long-term value creation lacks tools that would enable its application. Companies still steer their investments based on outdated valuation methods, which are entirely based on financial value.

THE CONCEPT OF integrated value would give substance to long-term value creation. Integrated value involves managing and balancing the financial, social and ecological value dimensions of companies. Impact measurement aims to capture social and ecological value alongside financial value.

THE FIRST IMPACT measurements of companies are already taking place using cost-based methods. International reporting standards have been developed to harmonise the measurement and reporting of sustainability information. But there is no guidance on how to use the impact information.

THIS POLICY CONTRIBUTION sets out a proposal on the use of impact information to steer investment decisions. We introduce decision rules based on integrated value. These decision rules allow for the prioritisation of specific types of value, in line with a company’s purpose. A practical example shows how this new decision model can help companies improve their valuation profiles.

SOCIETY EXPECTS COMPANIES to include social and environmental value in their strategies and business models in order to retain (or regain) their social license to operate. Further investment in deepening measurement and decision-making methods based on integrated value can speed up the process. The willingness of corporate executives to use these new methods will be decisive for success.



Recommended citation

Schoenmaker, D. (2021) ‘A new integrated-value assessment method for corporate investment’, *Policy Contribution 19/2021*, Bruegel

1 Introduction

The economic system has brought great prosperity, but its negative social and ecological results are increasingly apparent. There is an urgent need for better outcomes, for social fairness and to stay within planetary boundaries¹. Corporate governance codes across Europe have introduced the concept of long-term value creation as a framework for companies' broader responsibilities². These codes are soft-law instruments: they are endorsed by the government, but provide flexibility to companies on how to achieve the stated principles (including the principle of long-term value creation). The codes are updated periodically, as currently, for example, in the Netherlands.

Companies are therefore under pressure to move away from the classical shareholder model based on the Friedman Doctrine, which states that the government takes care of societal issues including social equality, healthcare, education and the environment, while companies focus on financial profit maximisation (Friedman, 1970). This model assumes the government can manage social and environmental externalities through policy and regulation. But externalities are inextricably linked to industrial production and are difficult to overcome fully by external regulation, because of asymmetric information. Companies know the precise consequences of their operations better than external parties and are therefore better placed to reduce or prevent negative effects by adapting their business models.

In the alternative stakeholder model, all stakeholders matter. Companies seek to create optimal societal value, which requires equal consideration of the various interests. A contemporary stakeholder interpretation takes not only current stakeholders into account, but also future generations. In this way, social and ecological effects can be fully incorporated.

But the stakeholder model scores poorly on accountability because it lacks clear decision-making rules for managing the multiple goals (Tirole, 2001; Bebchuk and Tallarita, 2021). Formal mechanisms, such as co-determination under which employees and possibly other groups along with shareholders elect directors, have proven to be rigid (Coffee, 2020). Moreover, the extent and number of stakeholders evolve over time, while formal mechanisms are static.

An integrated measure that aggregates and balances the different goals of stakeholders, as developed by Schoenmaker and Schramade (2019; Figure 1) can offer the required flexibility. The integrated value model makes staying within social and planetary boundaries more likely. It implies a different approach to steering corporations and requires different decision rules that will help companies balance the various types of value and deal with trade-offs.

Figure 1: Integrated value

$$\text{IV} = \text{FV} + \text{SV} + \text{EV}$$

Source: Schoenmaker and Schramade (2019). Note: IV is integrated value; FV is financial value; SV is social value and EV is ecological value.

The idea behind integrated value is to assess the impact of companies on society and nature as well as the dependence of companies on society and nature. Societal forces put

1 See <https://www.stockholmresilience.org/research/planetary-boundaries.html>.

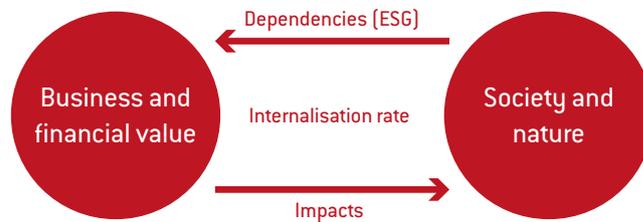
2 See, for example, the UK corporate governance code, <https://www.frc.org.uk/getattachment/88bd8c45-50ea-4841-95b0-d2f4f48069a2/2018-UK-Corporate-Governance-Code-FINAL.pdf>, the Dutch corporate governance code <https://www.mccg.nl/?page=4738>, and the French corporate governance code, https://www.se.com/ww/en/Images/afep-medef-code-revision-january-2020-en_tcm564-134746.pdf.

pressure on business to internalise social and environmental externalities. Business is for its long-term functioning dependent on a vibrant and healthy society; this is the social license to operate. The challenge of sustainable development is to what degree companies can (or can be forced) to internalise their social and environmental impacts, as illustrated by Figure 2. The concept of double materiality means that one is mindful of the company's relationship with society and nature in both directions:

1. The company's reliance on society and nature (ESG analysis);
2. The company's impact on society and nature.

Investors are often only interested in that first relationship: analysis of the influence of environmental, social and governance (ESG) factors on the business and financial value of the firm. The first ESG studies appeared at the turn of the century (Friede *et al*, 2015). But it is a costly error to ignore the second relationship. After all, they are related and the company's impacts on society and nature tend to affect the extent of its dependence on society and nature as well. The integrated value measure includes both relationships.

Figure 2: Double materiality and the internalisation of social and environmental impacts



Source: Bruegel.

This Policy Contribution shows how companies can use this new integrated value approach to guide their investment decisions. It also makes recommendations on how to accelerate the adoption of integrated value by companies, and contributes to the debate on the functioning and strengthening of corporate governance codes across Europe.



2 Measuring integrated value

The standard valuation method in corporate finance is the discounted cash flow model, which derives a company's value from discounted future cash flows. The standard model takes into account only the cash flows derived from financial value. Environmental and social value should also be included. Early attempts to do this included the balanced scorecard and the MultiCapital Scorecard³. These incorporate financial, social and environmental indicators in a qualitative way into strategy setting and decision-making (Kaplan and Norton, 1997; McElroy and Thomas, 2015). Examples of social indicators are net promoter scores⁴ for consumer satisfaction and employee satisfaction scores. Environmental indicators are carbon emissions, water usage and pollution. But scorecards do not have a clear system to weigh and aggregate the different indicators.

³ See <https://www.multicapitalscorecard.com/multicapital-scorecard/>.

⁴ The net promoter score measures to what extent current consumers would recommend (ie promote) a company's products or services to other consumers.

Developments in the last three years in impact valuation enable companies to measure environmental and social effects and express them in monetised form via cost-based prices (Serafeim *et al*, 2019; De Adelhart Toorop *et al*, 2019). The monetisation of the different value components allows aggregation. In the integrated valuation concept, the decision rule for investments moves from net present value of financial flows to integrated present value of financial, social and environmental flows.

But neither the measurement of value nor decision methods for corporate investments have so far been adapted to this. Companies still report their performance through their annual financial reports and use the net present value rule in investment decisions. This rule only looks at the financial cash flows of investment projects and approves a project if the net cash flows are positive. While new methods are not needed, the social and ecological effects must be integrated into current measurement and decision-making methods.

In order to measure integrated value, social and ecological value must be quantified. Social value includes impacts on workers (human capital) and the community (social capital), while ecological value measures impacts on the physical environment (natural capital). Impact valuation allows companies to measure social and environmental value in their own units and then express them in monetary form. The prices used for monetisation are derived from cost-based methods (Serafeim *et al*, 2019; De Adelhart Toorop *et al*, 2019). Measurement of social and environmental value is increasingly possible, although assessments of social and environmental value are generally less robust than those of financial value.

There are some frontrunners internationally. The Harvard Business School in the United States and the Impact Institute in the Netherlands have developed the concept of impact-weighted accounts (Serafeim *et al*, 2019; De Adelhart Toorop *et al*, 2019). The Banking for Impact consortium plans to use this framework to measure impact. Three European banks (ABN AMRO, Danske Bank and UBS) and one Asian bank (DBS) are part of the consortium⁵. ABN AMRO, for example, published in March 2021 an integrated report based on this methodology⁶. In Germany, the Value Balancing Alliance (2021) has developed a methodology for impact statements. Eleven German companies, including BMW and BASF, have conducted a first pilot study⁷ using this methodology.

The impact measurement framework has four elements

- Quantification: measure the outcome or impact of activities in quantitative units (eg the volume of carbon emissions or the number of jobs created);
- Valuation: translate impacts into monetary units; the valuation places different types of impact in the same context (monetary) so that they can be compared;
- Attribution: share the impact across the value chain according to responsibility; while companies create some impact directly (eg paying staff), most impact is indirect through the use of products or facilitation of activities (eg carbon emissions from the use of combustion engine vehicles); companies are still partially responsible for this indirect impact; attribution rules transfer a portion of impact from the end-user to the company;
- Aggregation: sum similar impact information and impacts to make it suitable for comparability and decision-making at company level.

The ultimate goal of these impact measurement methods is to arrive at an international standard that is applied by all companies. International harmonisation would allow comparison between companies. The European Union is leading the way with the European Commission's publication in April 2021 of a proposal for a Corporate Sustainability Reporting

5 See <https://bankingforimpact.org/#wg>.

6 See <https://www.abnamro.com/en/about-abn-amro/product/download-centre>.

7 See: <https://www.value-balancing.com/en/our-work/piloting-results.html>.

Directive⁸. This directive, if adopted, would apply double materiality, meaning both the impact of a company on society and nature, and the impact of society and nature on the (financial) value of the company would be reported. The International Reporting Financial Standards (IFRS) foundation is still one step behind. The IFRS will develop International Sustainability Standards based on a single materiality: the impact of society and nature on company value⁹.

The key question is what can companies do with this new information?

3 Steering on integrated value

This Policy Contribution proposes to use the impact information to steer investment decisions. The idea behind the integrated concept of value is that a socially responsible company would build value in all three areas: financial, social and environmental (Mayer, 2018; Schoenmaker and Schramade, 2019; Edmans, 2020). The economy would then be in quadrant 2 of the value matrix (Figure 3). To achieve this, ecological (E), social (S) and financial (F) value will need to become positive for most companies. Companies now in quadrant 1 will have to move to quadrant 2 to remain in business or face collapse (quadrant 3). The objective is quadrant 2. The same for companies in quadrant 4 (charity). These companies will have to become profitable, if they want to scale up and achieve more societal impact. Transition pathways to move to quadrant 2 are needed for quadrant 1 and 4 (Kurznack *et al*, 2021). That is a business opportunity for the frontrunners, especially at a time when governments are likely to introduce new rules and taxes to internalise social and environmental externalities. For example, many companies, such as Philips and Novozymes, will benefit from a significant carbon price, because these companies have adopted a strategy aimed at reducing carbon emissions ahead of their competitors (Schoenmaker and Schramade, 2019).

Figure 3: Value creation matrix

	E+S value destroying	E+S value creating
F value creating	Quadrant 1: over-exploitation	Quadrant 2: win-win
F value destroying	Quadrant 3: collapse	Quadrant 4: charity

Source: Schramade (2020). Note: F is financial value, E is ecological value and S is social value.

We have designed decision rules for investment projects to get into quadrant 2 and then to stay there (Schramade *et al*, 2021). The following principles underlie the decision model for value balancing:

1. Multivalue creation: value creation is stimulated and is positive for all three value dimensions. This is the long-term goal for all decisions, but is not always immediately possible for existing activities;

⁸ See https://ec.europa.eu/info/business-economy-euro/company-reporting-and-auditing/company-reporting/corporate-sustainability-reporting_en.

⁹ See <https://www.ifrs.org/projects/work-plan/sustainability-reporting/>.

2. Transition: Where value is destroyed, a transition pathway to recovery is established. This applies to all three value dimensions. The path to ending value destruction must be credible;
3. Non-substitutability: in principle, netting is not allowed. In principle, negative effects on one value dimension cannot be compensated for by positive effects on the other value dimension(s);
4. Purpose: companies have scope to define their own purposes and incorporate those into decision-making; the purpose reflects what companies are good at¹⁰; accordingly, the company can prioritise a specific type of value, without neglecting the others.

The balancing of positive and negative values across the financial, social and environmental domains is a key element of the decision model. Just summing of positives and negatives allows for the netting of financial, social and environmental values, which violates principle 3. Imbalances in the social and/or environmental domains can then continue to build up, as is currently happening. Schramade *et al* (2021) suggested weighing negative values more heavily than positive values. Companies thus have an incentive to reduce negative (social and environmental) values over time. A credible transition pathway back to positive on the problematic value dimension(s) would then be a major focus for management (in line with principle 2).

Decision model

The decision model can be formalised in an integrated value measure IV as follows:

$$IV = \{F^+ + \beta \cdot S^+ + \gamma \cdot E^+\} + \delta * \{F^- + \beta \cdot S^- + \gamma \cdot E^-\} \text{ with } \delta > 1$$

Where *F*, *S* and *E* represent financial, social and environment value. The superscript +/- stands for a positive/negative value respectively. β and γ are the weightings for the social and environmental value dimensions, based on a company's preferences. δ reflects the higher weighting of negative values. This higher weight ($\delta > 1$) gives a company an incentive to restore a possible negative value profile (principle 2) and ease netting out (principle 3), while still creating value (principle 1).

The decision model acknowledges the interrelationships between the different types of values and allows a structured balancing of stakeholder interests. By setting the parameters (β , γ and δ) of the decision model for calculating integrated value (IV) in advance, management can be held accountable for delivery of integrated value. More shareholder driven companies will set the parameters of β and γ closer to zero, while stakeholder or mission-driven companies will set the parameters closer to one (Schoenmaker and Schramade, 2019). In the same vein, companies that aim to phase out a negative value faster will set the weight (δ) higher.

Company case study

The ultimate question is whether the decision model would lead to different corporate investment decisions, and in what way. To analyse potential differences, we apply our model to a hypothetical oil company. The first column of Table 1 shows a typical valuation creation profile of an oil company: profitable ($F = 3$), but with major environmental externalities from carbon emissions ($E = -15$) and some social externalities in the supply chain ($S = -2$). While simple adding up of values (Table 1 top rows) produces an annual valuation profile of -14, our new decision model (bottom rows) delivers a large negative annual value creation profile of -31, as the value dimensions are equally weighted ($\beta = \gamma = 1$) and the negative impact of the polluting oil company counts double ($\delta = 2$). The use of a weight of 2 for negative impact

¹⁰ This can be interpreted as a company's comparative advantage (Edmans, 2020).

reflects behavioural findings about losses. Losing a certain sum represents a loss of wellbeing of approximately twice that sum (Kahneman and Tversky, 1979).

Next, columns 2 and 3 of Table 1 summarise the details of the investment projects available to the oil company. Project 1 has profit (1) with no externalities, while project 2 has a positive impact on the environmental side (2), but makes losses (-1). We first analyse the choice of projects on a project base. The traditional net present value rule sees no difference between the projects; they both create a value of 1 (just adding up the value components). Punishing negative values in the new decision model leads to selection of project 1, which has no negatives.

The second step is to analyse the projects in relation to the company's value profile. The last two columns of Table 1 show that simple adding up results in no difference between the projects. Either project would improve the company valuation by 1. By contrast, the new decision model would select project 2, as this project would partly redress the value destruction on the environmental side. The improvement from project 2 would be 3, while from project 1 would be only 1. In terms of Figure 3, the oil company is a quadrant 1 value destructive company, and can improve its value profile through projects that generate positive impact. Box 1 illustrates the operation of the model with a real-world example in the oil industry.

Table 1: Change in value creation by an oil company

Value dimensions/ parameters	Oil co. profile	Project 1	Project 2	Oil Co. after project 1	Oil Co. after project 2
<i>S</i>	-2	0	0	-2	-2
<i>E</i>	-15	0	2	-15	-13
<i>F</i>	3	1	-1	4	2
Annual value creation by simple adding up	-14	1	1	-13	-13
Company improvement				1	1
β, γ	1	1	1	1	1
1	1	1	1	1	
δ	2	2	2	2	2
$\beta \cdot S^+$	0	0	0	0	0
$\gamma \cdot E^+$	0	0	2	0	0
F^+	3	1	0	4	2
$\delta \cdot \beta \cdot S^-$	-4	0	0	-4	-4
$\delta \cdot \gamma \cdot E^-$	-30	0	0	-30	-26
$\delta \cdot F^-$	0	0	-2	0	0
Annual value creation new decision model	-31	1	0	-30	-28
Company improvement				1	3

Source: Bruegel. Note: This table shows the annual value profile of an oil company which has the choice of two projects. The first column shows the valuation profile of the oil company. The next two columns show the value of the projects on a stand-alone basis. The last two columns show the value profile of the oil company after the project (1 or 2). The top rows show the outcome for simple adding up of the three values in rows 1 to 3. The bottom rows show our new decision model, where negative values count double ($\delta = 2$) and the value dimensions are equally weighted ($\beta = \gamma = 1$). The annual value creation is obtained by adding the adjusted values in rows 7 to 12. The company improvement is relative to the original company profile in the first column.

Box 1: Shell (not) in transition

Shell has a negative ecological value because of the carbon emissions of its main products, oil and gas¹¹. This negative ecological value outweighs the positive financial value (profits). Investment in green energy companies, with simultaneous divestment of the exploration of new oil and gas, can reduce this negative value. An example of this was the possible acquisition in 2019 of Eneco, an energy utility company with a green strategy. With the integrated value decision model, Shell would have arrived at a relatively high valuation of Eneco, because Eneco would reduce Shell's negative ecological value score (which outweighs its positive financial value score). However, Shell applied its traditional financial analysis model with a high discount rate, resulting in a low valuation of Eneco. As a result, Japan's Mitsubishi was able to acquire Eneco with a higher bid, and Shell continued to focus its investments on oil and gas exploration¹².

Business already practices value balancing. When strategy-setting, companies develop long-term plans to prepare and adjust their businesses to future disruptions and to a world in which their performance on climate change, consumer trust, employee satisfaction and employee mental health is becoming as important as their financial performance. Leading companies are able to create both economic (F) and societal (E+S) value by continuously adjusting their business and operating models to capture opportunities and mitigate risks created by societal trends (Kurznack *et al*, 2021).

Financial and societal value can reinforce each other over the medium to long term. Examples are sustainable companies that pay lower wages and/or attract higher talent (Krueger *et al*, 2020), realise higher margins through customer awareness (Servaes and Tamayo, 2013) or earn greater trust through social capital during times of crisis (Lins *et al*, 2017). There can also be negative feedback loops. Exploitation of market power (Philippon, 2019), for example, increases profits (F) but reduces consumer surplus (S). Addressing carbon emissions (E) may reduce profits in the short term (F), but improve a company's competitive position in the long run (F) when higher carbon taxes are implemented.

4 Steps to accelerate

The concept of integrated value involves managing and balancing the financial, social and ecological value dimensions of companies. This policy contribution introduces a decision model to steer corporate investment on integrated value. The balancing of positive and negative values across the financial, social and environmental domains is a key element of the decision model. Application of this decision model to concrete investment projects and company valuations provides new forms of societal value creation and new insights.

But more is needed to promote the use of integrated value in the decision-making process. The following four steps can foster acceleration:

¹¹ A May court ruling in the Netherlands ordered Shell to reduce its emissions, showing that society expects companies to include social and environmental value in their strategy strategies and business models in order to retain (or regain) their social license to operate. See <https://www.rechtspraak.nl/Organisatie-en-contact/Organisatie/Rechtbanken/Rechtbank-Den-Haag/Nieuws/Paginas/Royal-Dutch-Shell-must-reduce-CO2-emissions.aspx>.

¹² See <https://fd.nl/ondernemen/1328800/waarom-greep-shell-mis-bij-de-verkoop-van-eneco-jfeIcamKTfwl>.

1. Create an impact measurement standard. The impact-weighted accounts and the value balancing alliance offer an interesting methodology for impact statements. Further work is needed to define and refine the core metrics of impact measurement. The ultimate goal is to have a core set of impact metrics, which is harmonised internationally (see step 3). Impact statements can be combined with the annual financial report to arrive at integrated reporting.
2. Publish faster and more frequently. Social and ecological impact data are still too far behind financial-economic data. The speed and frequency must be increased so that managers can include this data in their investment decisions. Up-to-date social and ecological data is crucial for integrated decision-making.
3. Support international harmonisation. Measuring integrated value, both in terms of impact measurement and reporting standards, requires international harmonisation. That is an important lesson from the history of accounting, which led to the successful International Financial Reporting Standards (IFRS). The European Union and the IFRS Foundation are already working on this.
4. Create international networks of companies. More companies are experimenting with impact statements. Because no one knows exactly what the international sustainability standards will look like, it is important to join forces and share knowledge. There is a lot of willingness to share the knowledge with the IFRS foundation, which can eventually set the international standard.

Even more important than new measurement and decision-making methods is the willingness of company managers to focus on integrated value instead of financial value. To make the cultural change, we must first of all adapt business, finance and accounting courses at business schools and develop new textbooks based on concepts that include the social and ecological value dimension. The integrated value concept (see Figure 1) is an example. Other variants are also possible.

A culture change provides the foundations for the introduction of management information and reporting systems that include social and ecological aspects. Based on these systems, managers can then apply integrated thinking and decision-making in their everyday practice. Knauer and Serafeim (2014) showed that companies can attract long-term investors through integrated thinking, decision-making and reporting. This allows companies to foster long-term value creation.

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