Principles for Responsible Investment

INTEGRATED ANALYSIS

HOW INVESTORS ARE ADDRESSING ENVIRONMENTAL, SOCIAL AND GOVERNANCE FACTORS IN FUNDAMENTAL EQUITY VALUATION

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PREPARATION OF THIS DOCUMENT

In September 2011 the PRI Initiative convened a working group of signatories to investigate how equity investors and analysts are integrating environmental, social and governance (ESG) analysis into their fair value calculations. The members of the ESG Integration Working Group are:

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Between March and May 2012 the ESG Integration Working Group interviewed 17 brokers, research providers and investment managers to draw out best practice examples of integrated equity analysis. These case studies form the basis of this review (see Appendix 1 for a list of those interviewed and the research reviewed).

The PRI Secretariat is actively seeking feedback on this document. The case studies included here are by no means definitive and high quality integrated research continues to be released as this report was compiled and published.

The case studies are intended to facilitate debate on the key issues related to this paper and to enable asset owners, investment managers and analysts to benchmark their own integrated analysis techniques. The working group will consider updating the report in due course.

Please send all comments and research contributions to **implementation.support@unpri.org**

Thanks to the PRI ESG Working Group who have written this document in collaboration with the PRI Secretariat. The views expressed are those of the working group members and the Secretariat. They should not be interpreted as representing the views of individual PRI signatories or the PRI Initiative as a whole.

The case studies included in this document have been collected over a period of twelve months and do not necessarily reflect the current view of the research publisher.

This document was produced with the support of the European Commission.

Edited by:
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FOREWORD

By Neil Brown

Chair of the PRI's ESG Integration Working Group

Investment Manager, Sustainable & Responsible Investment Team, Alliance Trust Investments

Successful investment requires an accurate analysis of risk and reward. It is clear to me that environmental, social and governance (ESG) issues are critical to the assessment of both.

In Europe we are living through what happens when both risk and reward are miscalculated and a financial system fails the society it is meant to serve. Globally, of course, societies and natural environments have been struggling with the dangerous aspects of our financial system for decades.

Sustainable and responsible investment seeks to change that system. We invest in companies that are part of the solution to sustainable development and work to improve those that are part of the problem.

For such a straightforward concept sustainable and responsible investment retains some stubborn ambiguity around its practice. Not least, stock picking: how do we integrate ESG issues into our estimate of a stock's fair value?

For the first time in the decade that I've been doing this we have a document that shows unequivocally that integrated analysis can be done and is being done. It is being done by some of the world's largest financial institutions and is being made widely available to institutional investors.

Investors need both investment returns and a society and environment in which to enjoy them. I believe the analysis presented here attempts to deliver all three and sits at the cutting edge of investment practice in 2013.

To all those working on ESG integration, on behalf of the working group, our clients and all those who will live in the environments and societies we leave behind, thank you.

EXECUTIVE SUMMARY

This document – produced by the PRI Listed Equities ESG Integration Working Group - focuses on fundamental equity analysis and the contribution that analysis of ESG factors can make towards an accurate valuation of a listed company. Throughout this document this is referred to as integrated analysis.

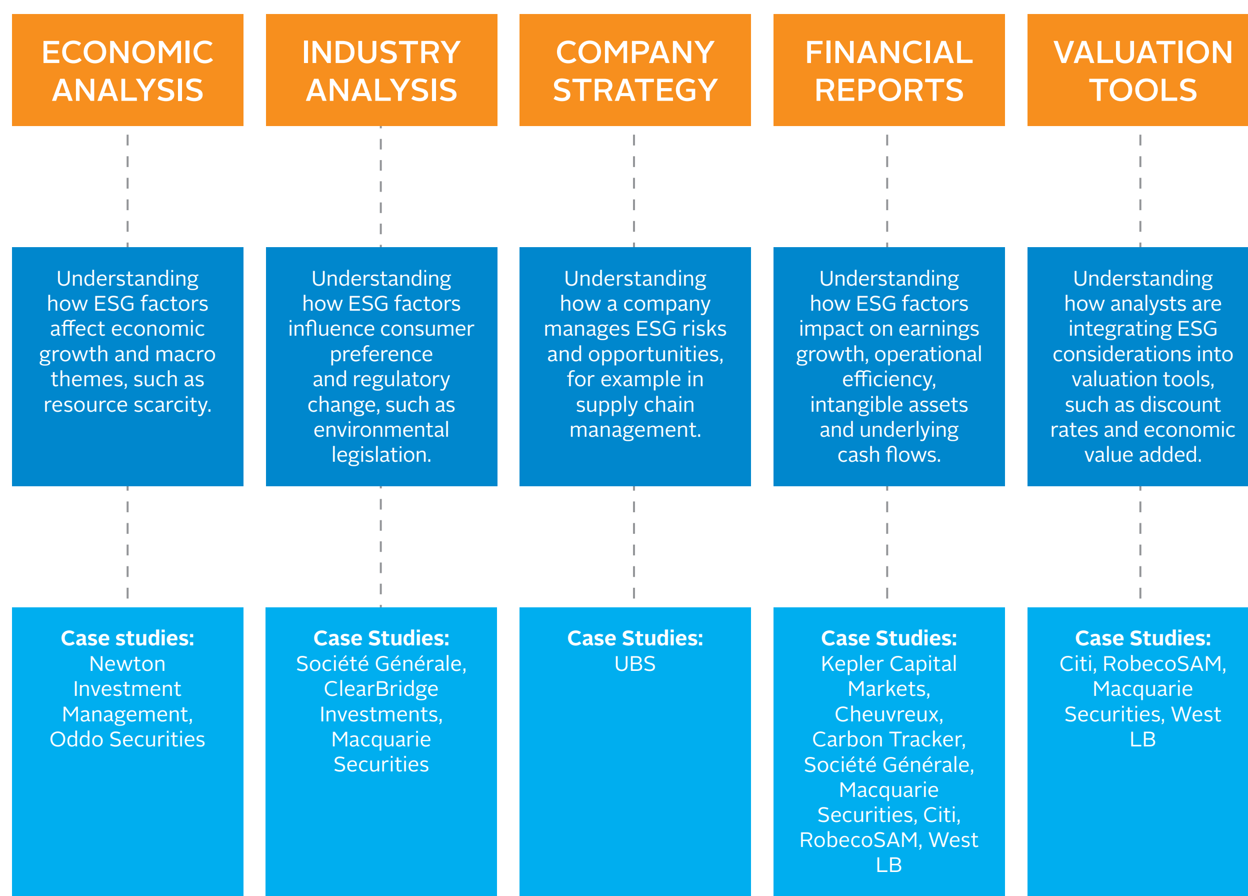
The document showcases integrated analysis from several of the world's leading financial institutions. It is designed to give an indication of the nature and quality of analysis available to investors seeking to make integrated investment decisions.

The structure of the document follows that of a stylised stock review. We use five stages from analysis of the economies in which a company operates, through the industries in which it operates, the way it conducts its operations, the financial impacts of those operations and finally the valuation tools used.

While few of the pieces we assessed followed this process in its entirety, this structure allows us to highlight innovative analysis and common practices at each stage. The stages and their case studies are summarised in Figure 1.

The review found advanced use of integrated analysis in all aspects of fundamental equity valuation, particularly in industry analysis, forecasting earnings and adjusting discount rates. These integrated approaches to estimating fair value point towards significantly improved valuation models that account for scarcity of resources, future regulatory directions and timeframe tensions.

Figure 1: Integrating ESG analysis into listed equity analysis



Source: PRI research

CONCLUSIONS

The good news: there can be no doubt that the high quality integrated analysis that has been demanded by investors for so many years is now being delivered. Questions around structure, utilisation, resourcing and payment should now take the place of those which focus on whether it can be done.

Mainstream ready: nearly all the analysis followed standard research structures mirroring the research output of any sell-side sector research team or investor. ESG issues may present new risks and opportunities but they are assessed through standard models of business performance and valuation. We believe that any investor could make use of the research we reviewed.

Timeframe tensions: the reliance on traditional valuation tools can create a tension between their relatively short timeframes and the longer timeframes needed for many ESG issues to impact companies. Much of the analysis focused on situations where ESG issues were becoming more urgent or where investors are beginning to look to the longer term.

Resource intensive: ESG information remains more resource intensive to acquire and assess than audited financial information. The difficulty of acquiring consistent, comparable, audited information remains a significant hurdle to integrated analysis.

Disclosure is trailing performance: the quality of reporting remains vital but it was noted that companies are frequently doing more than their public disclosure would suggest. This again raises issues of the resources needed to obtain an accurate picture of company performance.

Context is vital: with different regulatory regimes around the world in terms of disclosure requirements, it was noted that raw ESG data without context can be misleading. Carbon emissions were cited as potentially misleading if the location, carbon-penalising mechanism and any free allowances are not known. Integrating raw data into valuation without that context could prove misleading.

The role of ratings: although we found widespread agreement on the value of ratings within responsible investment more broadly, they did not feature heavily in these examples of integration. The underlying performance on ESG metrics was instead used directly in assessing business performance and value. The lack of integrated research produced by independent ESG research providers was noted in the review.

Materiality: the identification of material issues remains an art rather than a science. Whilst for some ESG factors there is broad consensus that the issue could have a significant impact on a firm's performance, the materiality of other aspects depends on individual investors' processes, investment horizons, risk budgets and performance targets.

INTRODUCTION

WHAT IS RESPONSIBLE INVESTMENT?

The PRI defines responsible investment as an approach to investment that explicitly acknowledges the relevance to the investor of ESG factors, and to the long-term health and stability of the market as a whole. It recognises that the generation of long-term sustainable returns is dependent on stable, well-functioning and well-governed social, environmental and economic systems.[1]

Within this overarching definition, responsible investment is generally considered as including: the incorporation of ESG issues into investment decisions; active ownership (or engagement); a commitment to transparency and a commitment to constructive engagement with public policy.[2]

WHAT IS INTEGRATED ANALYSIS?

Integrated analysis is the use of ESG information in investment analysis.

For the purposes of this document, integrated analysis refers to integrated fundamental analysis, that is, the use of ESG information in the estimation of a company's fundamental value.[3]

There is an ever-growing list of ESG factors that can impact on company value drivers.[4] Analysis of the impact of material ESG factors on sales, costs and long-term return on capital can be used to enhance investment decisions.

1. Principles for Responsible Investment: http://www.unpri.org/about-ri/introducing-responsible-investment/
2. See Appendix 5 for further detail on investor uses of ESG information.
3. The document focuses on integrated fundamental analysis as a method of integrating ESG factors into investment decisions.
4. See Appendix 4 for examples of ESG factors.

INTEGRATED ANALYSIS

The case studies are presented in the order of economic analysis, industry analysis, company strategy, financial reports and valuation tools. Investors and analysts interested in final valuation calculations should look to the financial reports and valuation tools sections where the more quantitative case studies can be found.

ECONOMIC ANALYSIS

WHY INTEGRATE INTO ECONOMIC ANALYSIS?

Economic growth is determined among other factors by the availability of environmental resources, referred to here as environmental capital; trends in society which is social capital; the governance of countries, markets and companies which amounts to a country's governance capital; and investment capital. These are key inputs to an economy and companies listed or operating in that region are largely dependent on these sources of capital.

The importance of considering both national and corporate governance has increased in recent times. It has become more apparent as investors have sought to profit from growth in developing and emerging markets where lack of transparency and underdeveloped legal structures exist. The financial crisis that has impacted economies since 2008 is widely considered to be caused by lack of appropriate governance at both company and country levels.

Recent policy developments in various countries have made steps towards protecting resources and pricing externalities, with carbon emission trading schemes emerging in various countries. The development of environmental law has also been furthered – not just in developed markets but also some large developing economies, notably China. In the European Union (EU), the formal introduction of the Polluter Pays and Precautionary Principles is edging responsibility for externalities towards companies.

Emerging international consensus on human rights and labour standards has similar implications for companies operating globally. Investors should be aware of the social and political pressure on companies to internalise social and environmental costs, even though this movement may be in its infancy in many parts of the world.

CURRENT INTEGRATION PRACTICES

The majority of integrated analysis focuses on those resources that face constraints over the next ten years and that are likely to impact growth. Among primary concerns for company operations are the use of water and the risks posed by a two degrees Celsius increase in global temperature, both compounded by shifting demographic patterns. The following two case studies demonstrate the role for integrated analysis in understanding the macro context for listed equity, exploring the dynamics of demographics and water resources.

DEMOGRAPHIC BACKDROP: THE AGE PYRAMID IN FRANCE
CASE STUDY 1:

Name: Oddo Securities

Type of company: Broker (France)

Source of information: The Age Pyramid: Old is Gold (publication)

Authors: Jean-Philippe Desmartin, Hortense Palmier, Lea Sombret

Date: July 2007

IDENTIFYING ESG FACTORS

The French population grew by 13% between 1980 to 2005. However over the next 25 years, the population is expected to increase by 2%.[4] Oddo Securities identified this ageing population shift as a key economic dynamic, particularly for companies operating in France where labour law restricts the dismissal of permanent employees. These restrictions mean that French companies frequently operate with excess staff. The ageing workforce presents opportunities for wage cost savings across a range of sectors.

ANALYSING ESG FACTORS

Oddo identified sectors that have high numbers of older employees on the verge of retirement, such as automotives, telecoms and utilities; and then identified the companies most exposed to this opportunity. The cost savings to exposed companies were estimated by analysing the impact of three, potentially cumulative, scenarios:

- non-replacement – these are the savings made when permanent employees retire and are not replaced;
- relocation – these are the savings made when employees are relocated to another region on a lower salary;
- the 'Noria effect' – these are the savings made from replacing retirees with younger employees on a lower average salary.

Analysts discounted the cost savings at the cost of capital and estimated the minimum impact of the age pyramid on the stock market valuation for 20 companies in Europe. The 12-month upside to valuations ranged from 9% to 20%.

KEY TAKEAWAY

Oddo identified a material macroeconomic factor (a retiring workforce) and analysed the exposure of French industries and specific companies. Analysts estimated anticipated cost savings resulting from the age pyramid dynamics and calculated an impact on company valuation. By integrating social analysis into their economic view Oddo was able to better understand the operating environment of companies under review.

Figure 2: Age Pyramid exposure score and discounting cost savings of 20 stocks

Sector	Company	Overall score (out of 100)	Cost savings (€m)	Capitalisation impact
Aeronautics, defence	EADS	28.0	1904	10.6%
	Thales	**48.0**	**1510**	**17.8%**
	Zodiac	47.0	280	8.5%
Air transport	**Air France**	**42.0**	**1834**	**17.8%**
	Lufthansa	40.5	1478	16.4%
Insurance	AXA	40.5	573	0.9%
	CNP	38.5	96	0.7%
Automotive	**PSA**	**42.0**	**4612**	**32.9%**
	Renault	42.5	2876	9.3%
Components makers	**Michelin**	**49.5**	**3121**	**23.1%**
	Valeo	36.5	289	9.3%
Banks	BNP Paribas	49.0	4944	5.8%
	Crédit Agricole	**46.5**	**4944**	**10.2%**
	Société Générale	47.5	4847	7.3%
	Natixis	37.0	490	2.2%
Telecoms	Deutsche Telekom	27.0	3617	6.0%
	France Telecom	**43.0**	**6941**	**12.6%**
	Telecom Italia	26.5	1514	4.0%
Utilities	EDF	51.0	10502	8.3%
	GDF	**48.5**	**3618**	**10.1%**
Average		**41.6**	**3000**	**10.6%**

Source: Oddo Securities, 2007

4. National Institute of Statistics and Economic Studies (France), Oddo Securities, The Age Pyramid: Old is Gold, Jean-Philippe Desmartin, Hortense Palmier, Lea Sombret, July 2007

RESOURCE DEPLETION: WATER CONSTRAINTS IN CHINA CASE STUDY 2:

Name: Newton Investment Management

Type of company: Investment manager (UK), AUM £49.6bn (as of 31 December 2012)

Source of information: Water – increasing demand, diminishing supply (publication)

Date: October 2007

Link: http://privateclients.newton.co.uk/core/resources/responsible_investment/content/items/2007/content/sri_water_increasing_demand_diminishing_supply_q3.pdf

IDENTIFYING ESG FACTORS

In this 2007 report Newton Investment Management identified the overuse and pollution of Chinese water resources as a material operational risk for companies in affected areas. Water scarcity, particularly in northern China, has been compounded by increasing competition for water from agriculture, industry and cities, as the population and the consumer economy have expanded.

Chinese legislation introduced in 2007 and in 2010 has made it increasingly difficult to obtain and maintain water permits, has limited access to manufacturing sites, placed restrictions on pesticide use and tightened planning requirements. The Chinese government has also since committed US$ 62 bn to a south-to-north water diversion project, US$ 3 bn to desalination and US$ 5 bn to water recycling facilities in the 12th Five Year Plan (2011-2016).[5]

ANALYSING ESG FACTORS

In their analysis of this macro dynamic, Newton Investment Management focused on the details of government policy in terms of supply and demand management, restrictive regulation and infrastructure investment. Between 1990 and 2007 the National People's Congress had enacted more than 40 new environmental laws, effectively tripling China's environmental legislation. In terms of company exposure and response, analysts focused on water-intensive industries, the regional locations of operations and supply chain exposure. In terms of market opportunities, legislation and incentives in China and elsewhere are expected to drive growth in areas such as the production of clean water, storage and transportation of water, water conservancy and recycling.

KEY TAKEAWAY

Newton Investment Management have been closely monitoring these ESG factors in China. Risks may be more immediate than opportunities, particularly in water-intensive sectors such as agriculture, textiles and power generation. Based on information submitted by 185 Global 500 companies, the 2012 CDP Global Water Report[6] reveals that over half of companies (53% up from 38% in 2011) have experienced negative impacts from water-related challenges including water scarcity, flooding, rising compliance costs, regulatory uncertainty and poor water quality in the past five years.

VALUATION INSIGHT: ECONOMIC ANALYSIS

The following questions may be considered by equity analysts looking to integrate ESG analysis:

- How sustainable are economic growth trends?
- Are long-term growth forecasts reflective of ESG constraints?
- How robust and progressive are the environmental laws of the country?
- How is the government regulating land and water use?
- What demographic trends are playing out?
- Does the country have a legal system which protects human rights?
- Are crime levels improving?
- What infrastructure is being invested in?
- Is there improving education and health provision?
- How is government regulating health and safety?
- Is the availability of natural resources impacting or forecasted to impact on trade balance?

Structural steps towards sustainable economic growth may lead to costs for companies in the short term. However sustainable governance structures support long-term investment opportunities and create advantages for companies that already manage these ESG factors well.

5. China Water Risk, 2012 www.chinawaterrisk.org
6. 2012 CDP Global Water Report, https://www.cdproject.net/CDPResults/CDP-Water-Disclosure-Global-Report-2012.pdf

INDUSTRY ANALYSIS

WHY INTEGRATE INTO INDUSTRY ANALYSIS?

The market a company is looking to exploit is usually underpinned by ESG dynamics. For example, social trends driving changing consumer preferences and product safety standards can adjust the competitive landscape for a company. A key source of change emerging in response to macro dynamics is regulation, generating both risks and opportunities within and across industries.

CURRENT INTEGRATION PRACTICES

Analysts are looking for changes in market dynamics that will affect a company's earnings capacity. We found analysts assessing the impact of legal and regulatory changes in each market and identifying consumer trends toward sustainability in response to resource constraints or changing lifestyles.

The following case studies from Société Générale, ClearBridge Investments, and Macquarie Securities showcase integrated analysis at the sector level.

LEGISLATIVE RISKS/OPPORTUNITIES: TOXIC CHEMICAL LEGISLATION IN THE CHEMICAL INDUSTRY
CASE STUDY 3:

Name: Société Générale

Type of company: Broker (Pan-European)

Source of information: SRI: Beyond Integration (publication)

Authors: Niamh Whooley, Yannick Ouaknine, Carole Crozat

Date: March 2011

Link: https://www.sgresearch.com/Default.aspx?ReturnUrl=https%3a%2f%2fwww.sgresearch.com%2f

IDENTIFYING ESG FACTORS

Legislation on the Registration, Evaluation, Authorisation and Restriction of Chemical substances (REACH) had a large impact on the European chemical industry where it was implemented in 2007. Similar regulation may also be pending in the United States, with on-going discussions on the Toxic Chemicals Act of 2011. The global chemical industry is experiencing increased pressure for transparency, greater scrutiny and decreasing demand for products containing high profile chemicals. At the same time, innovation and research and development (R&D) by the chemical industry is providing some of the solutions to key sustainability issues such as climate change and water treatment.

ANALYSING ESG FACTORS

Société Générale identified market leaders via the analysis of material issues that can impact business performance and/or valuations. The socially responsible investment team worked closely with the sector analysts to understand these issues, which in the chemical industry are:

1. Product stewardship of hazards caused by chemicals;
2. Energy management (including the availability of cheap gas in the US) and climate change;
3. Restructuring in Europe and movement towards emerging markets;
4. Innovation providing important sustainability solutions;
5. Health and safety.

Société Générale used several specific key performance indicators (KPIs) to analyse a company's response to each theme. For example, the KPIs for the theme 'product stewardship of hazards caused by chemicals' are:

- percentage use of hazardous chemicals;
- exposure to 'green chemistry';
- compliance costs related to markets, regulation and products.

Based on these KPIs Société Générale evaluated which companies were most exposed to the costs of tightening legislation on hazardous chemicals.

KEY TAKEAWAY

Société Générale's thematic analysis of ESG industry dynamics enabled identification of leaders and laggards in terms of revenue and cost exposure to legislation. Innovation in response to legislative change and wider consumer concerns was also analysed to determine long-term competitive advantage.

REGULATORY RISKS: US POWER SECTOR
CASE STUDY 4:

Name: ClearBridge Investments

Type of company: Investment manager (US), AUM US$ 57.2 bn (as of 31 December 2012)

Source of information: Interview

Date: November 2012

IDENTIFYING ESG FACTORS

In their analysis of the regulated utilities and merchant power providers ClearBridge Investments identified the following relevant legislation:

- Federal climate legislation;
- Federal regulatory requirements and Environmental Protection Agency's regulations;
- State renewable requirements and pollution standards
- Renewable tax legislations.

ClearBridge Investments used Securities and Exchange Commission (SEC) filings, public presentations, trade associations, third party specialty research, CDP data and general media as research sources.

ANALYSING ESG FACTORS

In their analysis ClearBridge Investments researched companies' asset/fuel mix and compliance with the regulatory requirements to identify companies which would benefit from the long-term secular trends. Company positioning with regard to increasing environmental requirements was derived from superior asset mix and therefore lower future compliance cost. The estimated increase in environmental liabilities or spending on specific projects for each company were then integrated into near-term earnings estimates and the net present value.

KEY TAKEAWAY

ClearBridge Investments' case study shows how the costs of compliance with environmental regulation can be integrated into the fair value of regulated utilities and merchant power providers. Companies who have a favourable asset mix in terms of cleaner energy capacity will have greater earnings stability going forward and may have less share price risk in terms of negative news flow and investor concerns over tightening legislation.

CHANGING CONSUMER PREFERENCE: SUSTAINABLE PACKAGING INDUSTRY CASE STUDY 5:

Name: Macquarie Securities

Type of company: Broker (Australia)

Source of information: Presentation titled 'ESG Investment Trends: Determining materiality and driving integration – a focus on measuring and valuing the 'S' in ESG' (interview)

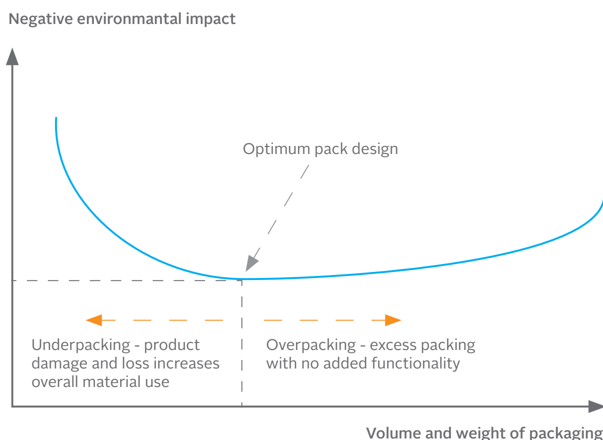
Author: Aimee Kaye

Date: March 2012

IDENTIFYING ESG FACTORS

Macquarie Securities identified long-term opportunities for sustainable packaging as a result of several ESG factors. Regulation, particularly in Europe, is driving retailer demand, especially for industries such as cosmetics and personal care, food and beverage and food service. Rising landfill costs are forcing companies, local government and consumers to consider their use and disposal of packaging. The media are further boosting consumer awareness, and the importance of sustainable packaging is leading to 'green positioning' by companies in anticipation of changing consumer demand. Macquarie Securities anticipated growth in the sustainable packaging industry as a result of these ESG dynamics.

Figure 3: Achieving optimum design in sustainable packaging



Source: Macquarie Securities, 2012

ANALYSING ESG FACTORS

Macquarie Securities modelled estimated growth in sustainable packaging, with the geographic focus of industry participants and found that growth centred on Europe and in particular plastics. Analysis of all the companies operating in the European market revealed Amcor to be a global leader, given its growing capabilities in terms of scale, scope, global footprint and its proprietary life-cycle assessment tool. Macquarie Securities estimated a medium-term 2% to 3% increase in market share in Amcor's key market and then modelled this into revenue projections.

KEY TAKEAWAY

Macquarie Securities' analysis of ESG value drivers in the packaging industry identified regulation, retailer demand and consumer preference as drivers of future growth opportunities. The estimated market growth was used to adjust revenue forecasts and make a stock selection.

VALUATION INSIGHT: INDUSTRY ANALYSIS

The following questions may be considered by equity analysts looking to integrate ESG analysis:

- What specific ESG risks and opportunities are faced by the industry?
- How can legislative and regulatory changes be best monitored?
- Which information services can be used to keep analysts up-to-date on relevant developments?
- How can rapidly changing customer preferences be monitored?
- Are consumer preferences and demand trends being met sustainably in terms of the environmental and social capacity required to maintain supply?
- What ESG factors will drive or constrain preferences and demand trends?

The impact of ESG industry dynamics on company earnings and valuation are explored in more detail in the **Income Statement** and **Valuation Tools** sections of the document.

COMPANY STRATEGY

WHY INTEGRATE INTO ANALYSIS OF COMPANY STRATEGY AND MANAGEMENT?

This section explores investor use of ESG information in the analysis of company strategy and management. Company strategy communicates how the company is seeking to exploit the opportunities and manage the risks presented by the economy and industry in which it operates.

Company management increasingly has to consider a range of stakeholders in its strategic decisions. The rise in shareholder activism, media scrutiny on corporate responsibility and more informed customers means companies are required to manage ESG risks and opportunities in order to achieve long-term strategic success. Company management that is aware of ESG risks and opportunities is well-placed to anticipate regulatory impacts and prepare for potential changes in the company's target market. This ability to respond to constantly changing and multi-stakeholder environments arises from a company's human resources and the quality of its management and its governance structures.

In this way relationships between the company and its community, its environment, its employees and board can be managed to the benefit of long-term shareholder value.

CURRENT INTEGRATION PRACTICES

Analysts are evaluating ESG awareness as an indicator of a company's ability to respond to emerging needs and demand trends. They are using ESG factors to identify which companies are best at exploiting market opportunities and to analyse the strength of their industry position.

The review revealed that frameworks such as Porter's Five Forces[7] are being used to assess a company's response to ESG industry dynamics. Porter's framework is often used by analysts conducting fundamental company research and Figure 4 highlights the materiality of ESG issues to strategy considerations.

Figure 4: Porter's Five Forces and company ESG performance

Industry force	Examples of company ESG performance
Intensity of competition	Can the company manage reputational risks and opportunities?
Threat of new entrants	Does it have motivated and innovative human capital or disruptive technology?
Supplier power	Does it have access to constrained raw materials, credit and a secure licence to operate?
Buyer power	Does it enjoy customer satisfaction and loyalty?
Threat of substitute	What is the environmental profile of its products/ services? Does it have a secure supply chain?

Source: PRI research

Another traditional analyst tool that is being used effectively for integrated analysis is SWOT analysis (strengths, weaknesses, opportunities and threats analysis).

Figure 5 illustrates how SWOT analysis provides a stock-level framework for the analyst to identify and understand ESG issues[8] and to isolate potential ESG catalysts to 'business as usual' opportunities and threats.[9]

Figure 5: SWOT analysis and ESG factors

SWOT	Examples of ESG factors
Strengths	Customer loyalty, product sustainability, motivated staff, operational efficiency
Weaknesses	Unknown supply chain risks, unmanaged externalities/liabilities
Opportunities	Legislation, resource depletion, disruptive technology
Threats	Legislation, resource depletion, disruptive technology

Source: PRI research

7. Porter, M. E, 'How Competitive Forces Shape Strategy?', Harvard Business Review, March 1979 http://hbr.org/1979/03/how-competitive-forces-shape-strategy/ar/1
8. Cheuvreux, Enel: ESG Profile, 22 September 2012
9. UBS, ESG Analyser - Framework, 18 May 2010

INTEGRATED ANALYSIS OF CORE DEMAND DRIVERS
CASE STUDY 6:

Name: UBS

Type of company: Broker (Global)

Source of information: ESG Analyser – Framework (publication)

Authors: Julie Hudson CFA, Hubert Jeaneau, Eva Zlotnicka

Date: May 2010, 2nd ed. 2011, 3rd ed. 2012

Contact: Julie Hudson

IDENTIFYING ESG FACTORS

UBS used Porter's Five Forces as an integration tool, enabling the identification of material ESG issues and their impact on company fundamentals. UBS identified six core drivers: external dependencies, customers, product, supply chain, human capital and reputation; and the financial and ESG metrics material to each driver.

Figure 6: Core value drivers and material ESG metrics

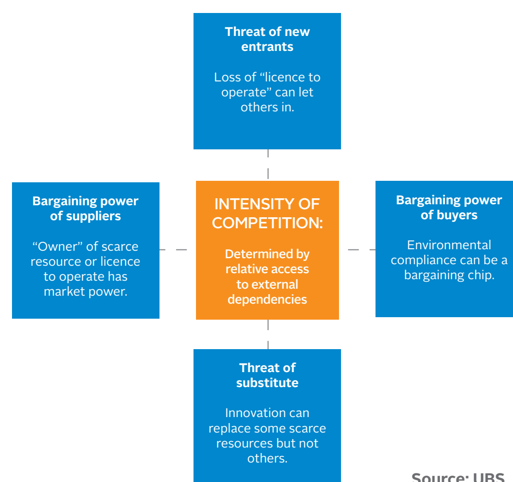
Core inputs	Financial materiality indicators	Environmental and social metrics or narrative
External dependencies	Leverage, interest burden. cost of goods sold (COGS) % of sales. Energy costs % of COGS. Company size: absolute revenues, numbers employed, geographic sales segmentation. Market capital-isation % of local stock market and (for large firms) GDP.	Environmental footprint – emissions to air, water, land. Energy efficiency. Recycling; waste disposal & management.
Customers	Sales growth. Sales segmentation. SGA % of sales. Market share. Number of customers, revenue per customer.	Product labelling. Customer satisfaction. Customer access to necessities (e.g. digital divide, access to medicines, etc.). Customer choice/empowerment.
Product	EBIT margin. R&D % of sales. SGA % of sales. Largest product category % of sales.	Product safety. Product quality. Product lifecycle impacts (incl. impacts from usage).
Supply chain	COGS % of sales. Overseas procurement – % of total or if possible geographic break-down. Number of suppliers.	Supply chain % of audited. Sustainable procurement.
Human capital	Revenue per employee. Wages % of sales. R&D % of sales. SGA % of sales. Wage quintiles and highest minus lowest (or similar). Brand % of SOTP. Trends in sales growth, margins	Health & safety, e.g. accidents, lost injury time, sickness absence. Workforce demographics/diversity. Education – secondary, tertiary, % of workforce. Restructuring. Unionisation if relevant.
Reputation	Brand % of SOTP. Company size. Numbers employed.	Corporate governance. Risk management in respect of all of the above where relevant.

Source: UBS, 2010

ANALYSING ESG FACTORS

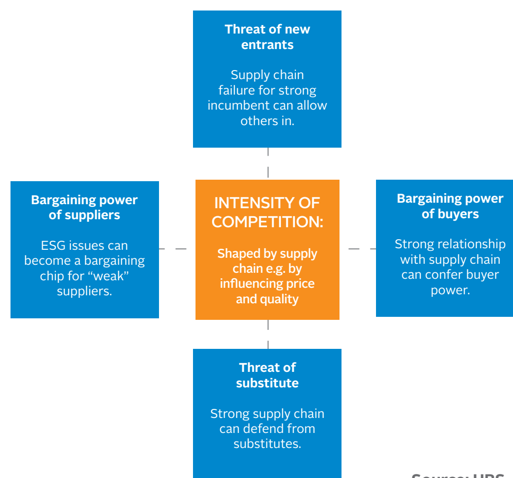
Each core driver was analysed in the context of Porter's Five Forces: intensity of competition, bargaining power of suppliers, bargaining power of buyers, threat of substitutes and threat of new entrants; in order to understand the sustainability of the core drivers. Analysts used Porter's structure to clarify core industry drivers and a company's capacity to profit from these dynamics.

Figure 7: External dependencies in the context of Porter's forces



Source: UBS, 2010

Figure 8: Supply chain in the context of Porter's forces



Source: UBS, 2010

Figure 9: Connecting ESG issues to sector fundamentals and finance

Sector	1. Core drivers	2. Key financial metrics	3. Environmental and social issues potentially affecting core drivers or financials	4. Governance issues potentially affecting core drivers or financials
Aerospace	Air traffic growth, (delivery rates), defence budgets, currency (US$).	Sales growth, EBITA margins, delivery rates, aftermarket growth rates.	More fuel efficient engine and airframe technologies. Staff cuts to deal with reducing government expenditure. Reputational risk in relation to weapons that have an impact on non-military targets, such as land mines and cluster-bombs	All of the companies earn some proportion of earnings directly from government through defence budgets. All companies involved in large government-related contracts are potentially vulnerable to the risk of transparency issues. Several companies have golden shares, which may make them less acquirable by large predators at what could be a peak stage in defence spending.
Airlines	Passenger demand, supply of seats, oil and employee disruptions.	Passenger demand and yields (sales growth), oil price.	Oil price spike, ETS mechanism to come in from 2012 to hit profits. Labour disruption as competition threatens legacy working practices.	How governments can regulate for environmental issues, e.g. incoming ETS scheme from 2012.
Alternative energy	Demand growth, intensity of competition in a fragmented industry.	Revenues growth, gross margins and manufacturing costs, free cash flow	Use of land for wind and solar farms, political acceptance, willingness to subsidise yet uncompetitive electricity supply.	Relationship with governments, management might be highly focused on sales growth, accepting shareholders' dilution to finance growth.
Autos	Customers, credit availability, GDP, unemployment, raw materials.	Sales growth, EBITDA margin, working capital, capex and D&A.	10-15% of total workforce is involved in auto industry in most European countries, CO2 regulation, government intervention	.Conflict of interest between families and shareholders and government intervention
Banks	Reputation, human capital, customers.	Net interest income, assets and liabilities margins, quality and quantum of capital.	Risks are mostly social: taxpayers dissatisfaction, social distress if lending issues remain and progress, customer dissatisfaction, staff cuts, working conditions.	Reputation, reputation, reputation. Regulatory uncertainties over banking industry, sovereign debt issues.
Beverages	Key raw materials inputs agricultural, water, packaging including aluminium, glass, plastic, deal with retailers who try to push prices lower, brand reputation is important.	Organic volume growth, price/mix and margins.	Growing emerging market incomes, political stability and economic health. Government view of beverage industry as a tax source/view that it is unhealthy.	Shareholders have impact on M&A decisions vs familyowned decisions. Management remuneration in line with shareholders.

Source: UBS, 2010

UBS applied this analysis to 44 equity sub-sectors, identifying the material financial and ESG metrics for constituent companies.[10]

KEY TAKEAWAY

The core drivers determined by UBS suggest the value of a company to be largely concentrated in its capacity to manage stakeholders. The use of Porter's framework helped analysts to understand sector dynamics and constituent companies' ability to manage future ESG risks and opportunities, both operational and strategic, and their competitive advantage going forward.

VALUATION INSIGHT: COMPANY STRATEGY AND MANAGEMENT

The following questions may be considered by equity analysts looking to integrate ESG analysis:

- Is the company aware of ESG factors in the economy and the industry in which it operates?
- What importance do management place on ESG challenges?
- How knowledgeable is key management on the company's ESG risks?
- Does the company seek out opportunities arising from ESG dynamics?
- Does company reporting outline future ESG risks and does strategy incorporate these risks?
- How detailed is reporting on ESG performance?
- Is reporting on ESG factors linked to financial performance?
- What is the company's position in relation to current and potential operational licences, supply chain and resource bottlenecks?
- To what extent does management involve stakeholders, particularly customers, employees and government, and how do they gather opinion?
- How responsive is the company to investor engagement?
- Is the company's management of ESG issues supported at board level?

Once the critical issues have been identified, analysts need to source the relevant data and analyse it to build an informed (fact-based) opinion on the company's management of material ESG issues and how it compares to its peers. Investors rely primarily on company reporting and meetings and on broker research for this type of data. However, detailed and competitive analysis can depend on the use of additional information sources.

10. The views and opinions expressed in this article are those of the author and are not necessarily those of UBS Limited. UBS Limited accepts no liability over the content of the article. It is published solely for informational purposes and is not to be construed as a solicitation or an offer to buy or sell any securities or related financial instruments. The views of the author may have changed since the initial publication of this article.

FINANCIAL REPORTS

Integrated analysis can provide a more complete picture of a company's capacity to create value. Building on the analysis of a company's external environment and its industry positioning, the following three sections (income statement, balance sheet and cash flow) explore how integrated analysis is being used to understand and complement standard financial reports.

FINANCIAL REPORTS: INCOME STATEMENT

This section presents case studies on integrated analysis of company earnings, divided into those focused on sales and those on costs.

SALES

WHY INTEGRATE INTO SALES ANALYSIS?

Sales growth is driven by an increase in either volume or price. Trends within society such as consumer taste or fashion lead to either new markets emerging or growth in an established market. Taste preferences can also lead to price increases and branding is central to this pricing power. The reach of global media has amplified demands for corporate accountability, tying responsible behaviour to a company's brand.

CURRENT INTEGRATION PRACTICES

Analysts are using ESG performance to more accurately forecast sales and earnings, focusing on top line growth drivers and what will affect demand going forward. Forecasts are then adjusted to reflect future risks and opportunities.

ROAD SAFETY REGULATION: ADJUSTING SALES FORECASTS
CASE STUDY 7:

Name: Kepler Capital Markets

Type of company: Broker (France)

Source of information: Automobiles & Parts: Playing it safe – looking into road safety (publication)

Authors: Michael Raab, Pierre Boucheny, Xavier Caroen, Fabio Iannelli, Tobias Loskamp

Date: October 2011

IDENTIFYING ESG FACTORS

The United Nations aims to reduce the number of road fatalities by 50% globally by 2020. In response to a request by Alliance Trust Investments, Kepler identified the wide-spread use of accident prevention technologies in achieving these goals, with a focus on measures of active safety over passive. The European Commission 2008 Road Safety Directive focuses on road infrastructure, vehicle technologies and cross-border enforcement, among other priorities, and mandates certain vehicle safety features. Other regions are expected to follow suit, making active safety measures a global megatrend.

ANALYSING ESG FACTORS

Kepler initially focused on technologies that would significantly reduce accident probability as these

technologies are clearly identified by a regulatory driver. They then focused on other electronic technologies which are not yet mandated by regulation, but have the potential to significantly lower accident probability.

Using publicly available information, component prices were modelled with global penetration ratios and volume projections for these technologies for the period 2011-2025E. It was estimated that the overall market for related components would grow from EUR 13 bn in 2011 to EUR 58 bn in 2025E, suggesting a compound annual growth rate (CAGR) of 11%. Global production volume growth in the wider light vehicle industry is estimated at 3.3% for the same term, indicating c. 8% annual structural growth opportunities for companies whose technology portfolio is geared towards the mandated safety features.

KEY TAKEAWAY

Kepler applied these revised growth estimates to existing valuation models to reflect the anticipated structural trend. The resulting forecasts for after-tax earnings before interest and tax (EBIT) were then discounted and translated into potential upside per share.

ADJUSTING EXTRACTIVES REVENUE FORECASTS
CASE STUDY 8:

Name: Carbon Tracker Initiative

Type of company: Non-profit company (UK)

Source of information: Presentation titled 'Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?' (interview)

Author: James Leaton

Date: July 2011

Link: www.carbontracker.org

IDENTIFYING ESG FACTORS

Carbon Tracker introduced a new approach to assessing climate change risk by comparing carbon budgets with the reserves and future production of oil, gas and coal mining companies. The valuation of extractive companies is based on the revenue flows from exploiting reserves. This assumes a consistent market and a certain price level to make the production economically viable. Reinvestment in replacement reserves assumes a continuing market going forward.

The value of oil and gas companies is based on each company maintaining the return on capital employed that was achieved in recent years. This is likely to prove increasingly challenging with the increased costs of developing unconventional oil and gas in more difficult environments. Analysis demonstrated that more than 50% of the value of a mining or oil and gas company resides in the value of cash flows to be generated from year eleven onwards. The context for accessing, exploiting and utilising reserves will probably look very different in ten years' time.

ANALYSING ESG FACTORS

This resulted in leading sell-side research focusing on the large UK diversified mining stocks to assess the impact of reducing emissions in line with the International Energy Agency's 450 parts per million scenario. The research anticipated a decline in coal consumption post-2020 which resulted in coal industry earnings falling by up to 44%. Applying this approach to the European oil sector created a low demand scenario which resulted in low oil prices which put the market value at risk by 40-60%.

KEY TAKEAWAY

The Carbon Tracker Initiative illustrated that the assumptions underlying valuation models based on historical performance may not be valid in the future. Using alternative futures to inform the potential range of revenues can help investors understand the uncertainty that climate change risk can bring to performance.

ADJUSTING EUROPEAN ELECTRICITY EARNINGS FORECASTS CASE STUDY 9:

Name: Cheuvreux, Crédit Agricole Group

Type of company: Broker (France)

Source of information: Presentation titled 'Sustainability Research – Case Studies' (interview)

Authors: Stéphane Voisin and Robert Walker

Date: February 2012

Link: www.cheuvreux.com/public/leading_research.aspx

IDENTIFYING ESG FACTORS

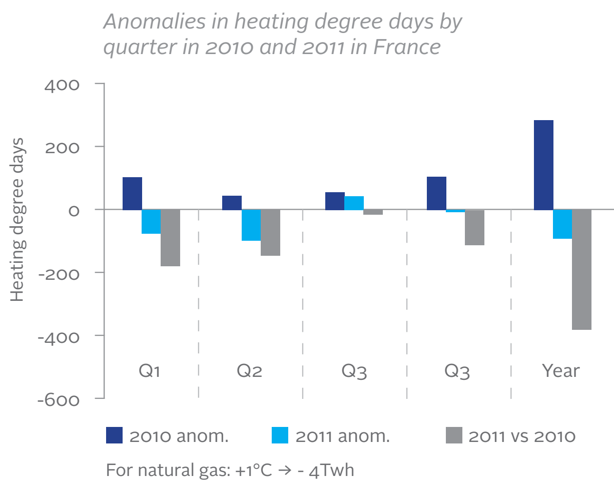
The utilities sector is highly exposed to ESG factors such as legislation, changes in weather patterns and finite fossil fuel resources. European legislation on power plant closure demands investment and innovation from European electricity providers. The EU Emissions Trading Scheme (ETS) requires utilities to pay for the carbon they emit. In their utility sector analysis Cheuvreux explored the impact of weather changes on demand for electricity.

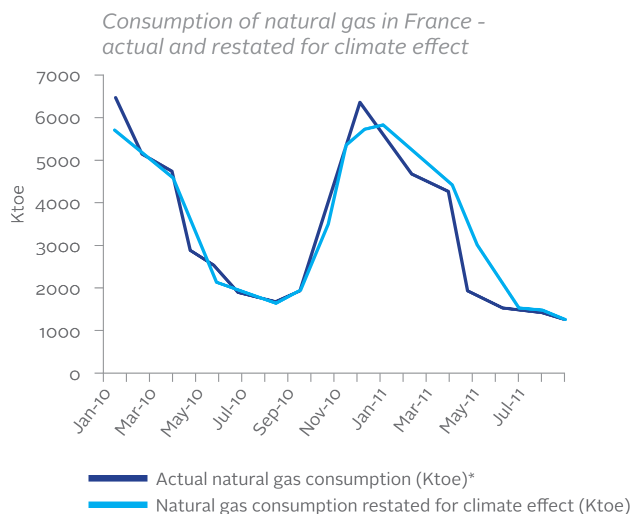
ANALYSING ESG FACTORS

In order to more accurately forecast EBIT, Cheuvreux applied weather probabilities to forecast demand for electricity, both in terms of temperature and precipitation.

Figures 10, 11, 12 and 13: illustrate the economic impacts of weather indicators and precipitation.

Figure 10: From weather indicators to economic impacts

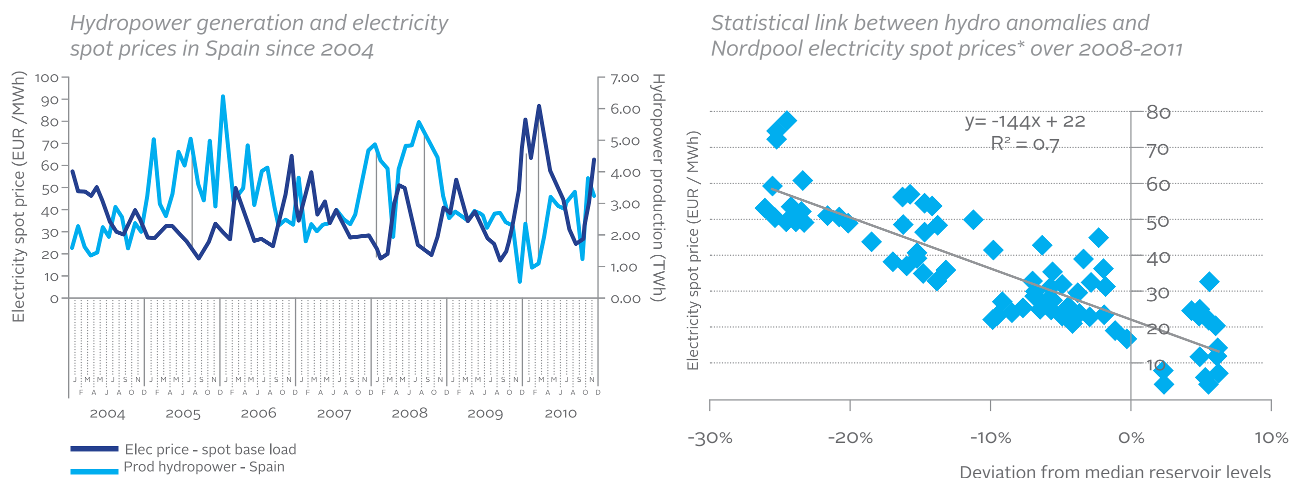




Source: Cheuvreux, 2012

* Kilo-tonne of oil equivalent

Figure 11: From precipitations to economic impacts



Source: Cheuvreux, 2012

Cheuvreux used this projected demand to more accurately forecast earnings before interest, tax, depreciation and amortisation (EBITDA).

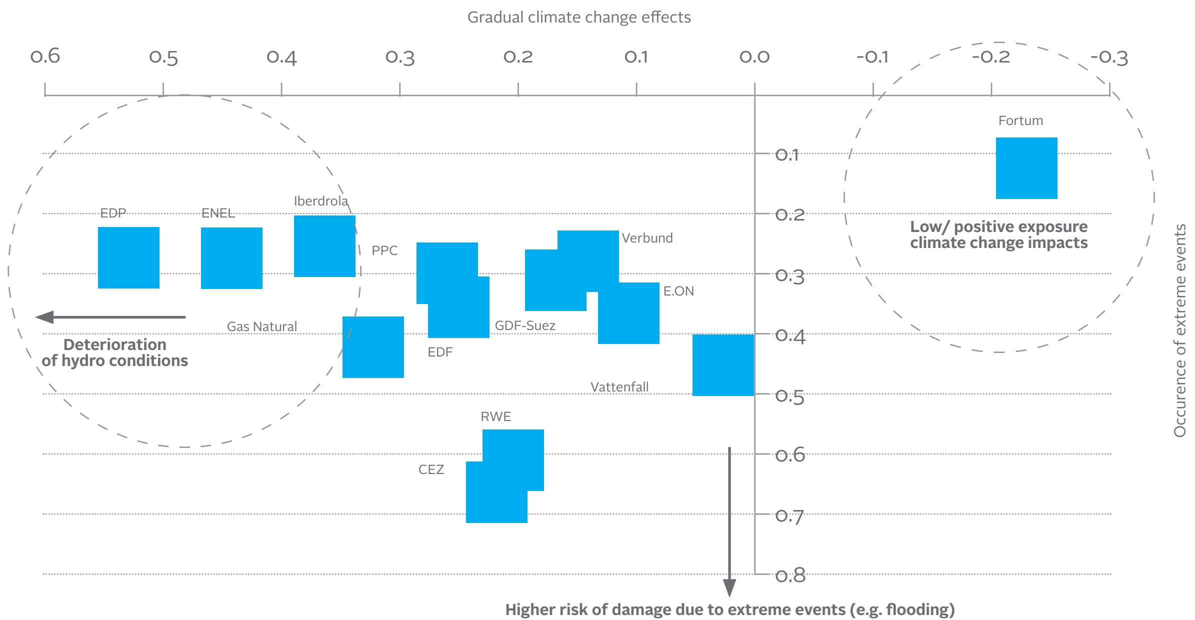
Figure 12: Impact of weather anomalies on GDF Suez's EBITDA - Cheuvreux's estimates for Q4 2011

	H1 2011			Q3 2011	Q4 2011E		FY 2011E
	EUR m	TWh	EBITDA/TWh	EUR m	EUR m	TWh	EUR m
Energy France (incl. -145m hydro)	-305				-125		-430
- gas sales	-160	-16.1	10		-80	-8	-240
- hydro production	-145	-3.2	45		-45	-1	-190
Energy Europe	-50	-3.1	16		0		-50
Infrastructures	-110	-18.2	6		-48	-8	-158
Weather impact in domestic markets	**-465**			**-15**	**-173**		**-653**

Source: Cheuvreux, 2012

And to determine industry positioning in terms of exposure to both extreme events and the gradual effects of climate change:

Figure 13: Climate change long term risk exposure



Source: Cheuvreux, 2012

KEY TAKEAWAY

Cheuvreux's analysis identified future industry-specific risks and quantified them according to company-specific exposure. It expected climate change, in terms of temperature and precipitation, to have more impact on EBIT than foreign exchange risk.

The analysis provided a context in which to analyse the strength of competing companies and enabled a closer understanding of future earnings capacity and of present value. The operational risk for exposed companies will increase as the risk of extreme events increases and the market will apply a discount either gradually or suddenly in response to an event.

VALUATION INSIGHT: SALES

The following questions may be considered by equity analysts looking to integrate ESG analysis:

- What is the company's ability to sustain earnings growth?
- How might ESG trends impact a company's core markets?
- What legislative or regulatory change is anticipated?
- Are the company's key markets sustainable in terms of resource use and disposal?
- Are the company's key markets sustainable in terms of consumer preference and social trends?

The use of earnings and cash flows in fair value estimations is explored in the **Valuation Tools** section of this document.

COSTS

WHY INTEGRATE INTO COST ANALYSIS?

ESG factors can have a significant bearing on the cost of key company inputs: raw materials, labour and R&D. These emerge largely as risks, such as resource bottlenecks, other supply chain issues and competition for talented employees. The ability to manage labour, energy and other asset inputs, and to align financial incentives with strategy and higher capital efficiency is reflected in cost of goods sold, operating expenditure and capital expenditure.[11] Operational efficiency depends on social licence to operate; minimising environmental operational risks; managing rising costs of resources and managing the anticipated costs of internalising externalities (regulation driven).

CURRENT INTEGRATION PRACTICES

ESG factors are being used to more accurately analyse cost lines as follows:

Raw materials

Analysts consider the scarcity of main inputs and whether supply chain risks are appropriately managed. It is possible that the company is paying more for sustainable products,[12] which will increase immediate costs but reduce future costs associated with changing supplier or of supply being restricted.

Access to materials can be a key determinant of company earnings, depending on the industry in question. Analysts assess this access to materials by evaluating the strength of stakeholder relationships, with, for example, suppliers, host governments, local communities and contractors.

Labour

The rise in education levels in developed and developing countries and the growth of service industries requires that employees are considered a significant company asset. Labour costs can account for a majority of operating costs and careful management of this valuable resource will help maintain a competitive edge.

Compensation may remain the primary motivator for accepting a job offer, however the reputation of a company is also an influential concern for prospective employees. The profile of a company frequently encompasses its management of social and environmental responsibilities and companies will struggle to maintain competitive advantage if talented graduates do not want to work for them.

Labour efficiency can be achieved through either higher productivity or lower labour costs, both often achieved through non-monetary benefits. Therefore analysts can gauge the extent to which the company is using non-monetary benefits to incentivise its workforce.

Analysts are also looking at metrics such as staff turnover levels and comparing staff training spend as a percentage of gross profit. Contextualisation is key to the latter as staff training is contingent on the business model and the extent of technology use.[13]

R&D

In many industries R&D drives a company's ability to exploit ESG trends. The review found analysts assessing R&D spend as a percentage of revenues or earnings in order to gauge commitment to R&D and technology differentiation.

Non-recurring/exceptional

Analysts are using a company's exposure to risks such as litigation or weather events to quantify the threat to future earnings.

The following examples explore how Cheuvreux, Macquarie Securities, Société Générale and Citi are integrating these ESG factors into their cost analysis.

11. West LB, Siemens: ESG Analysis of Sustainability Report, 30 July 2010
12. ClearBridge Investments, 2012, 'Paying more for sustainable resources may reduce margins in the short term, however benefits include higher quality products, reduced supply chain risks and reputation.'
13. Contextualisation is further discussed in the document's conclusion.

ESTIMATING TRANSMISSION AND DISTRIBUTION LINE REPAIR COSTS
CASE STUDY 10:

Name: Cheuvreux, Crédit Agricole Group

Type of company: Broker (France)

Source of information: Presentation titled 'Sustainability Research – Case Studies' (interview)

Authors: Stéphane Voisin and Robert Walker

Date: February 2012

Link: www.cheuvreux.com/public/leading_research.aspx

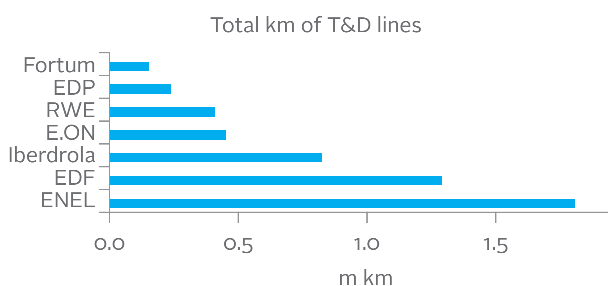
IDENTIFYING ESG FACTORS

In order to better understand the cost impacts of weather events on utility companies, Cheuvreux assessed the vulnerability of European electricity networks to storm damage. The varying frequency of storms across different regions impacts directly on the costs of maintaining transmission and distribution (T&D) lines. The exposure of each company depends on the length of T&D lines and whether they are above or below ground.

ANALYSING ESG FACTORS

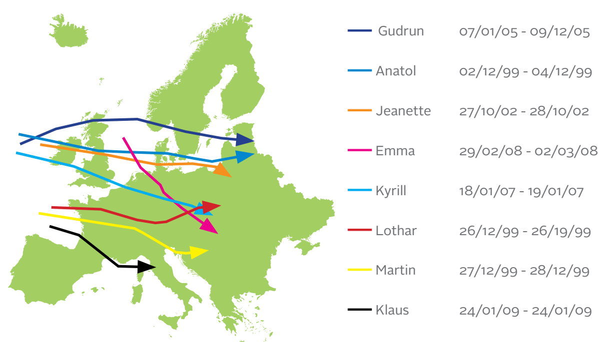
Cheuvreux analysts modelled the total kilometres of T&D lines for each company with the historical costs of repair and the trajectory and frequency of major European storms. This analysis is illustrated in Figures 14, 15 and 16 below.

Figure 14: Vulnerability of electricity networks to storm damage



Source: Cheuvreux, 2012

Figure 15: Trajectory of major storms in Europe in 1998-2009



Source: Cheuvreux, 2012

Figure 16: Research findings

- EDF among the most exposed (last loss reported EUR160m), with E.ON (EUR95m)
- For EDF, vulnerability decreased since 1999/2000 storms which cost the company EUR1.16bn
- Action plan to bury 30,000 km (2%) of mid-voltage cables by 2016
- Underground cables are not climate-proof
- Alternative solution : insurance

Source: Cheuvreux, 2012

KEY TAKEAWAY

Cheuvreux's integrated analysis quantified the ESG issue and enabled investors to understand the exposure of specific companies to this wider industry risk. The analysis provided a basis for discussion with the companies about their awareness and management of these risks leading to a more informed investment decision.

ESTIMATING STAFF TURNOVER COSTS CASE STUDY 11:

Name: Macquarie Securities

Type of company: Broker (Australia)

Source of information: Presentation titled 'ESG Investment Trends: Determining materiality and driving integration – a focus on measuring and valuing the 'S' in ESG' (interview)

Author: Aimee Kaye

Date: March 2012

IDENTIFYING ESG FACTORS

Macquarie Securities highlighted a range of metrics to analyse the quality of company staff and its management. Indicators such as absenteeism, flexible working options, legal actions and safety records can all lead to a better understanding of a company's largest asset, its workers.

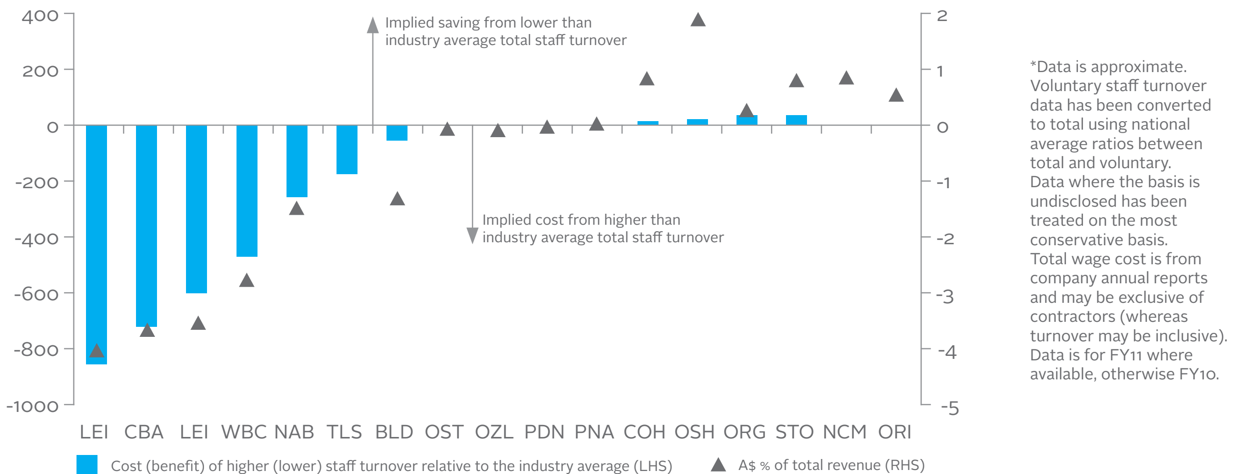
Staff turnover is a useful metric, reported by 25% of the top 100 companies in the Australian Securities Exchange. Macquarie Securities research revealed a large range of performance across sectors. They identified two streams of costs in staff turnover - upfront and implied. Upfront costs such as search fees, temporary replacement staff and training are readily measureable, whereas implied costs such as lost productivity and lost business can be estimates.

ANALYSING ESG FACTORS

Macquarie Securities stated that industry rule-of-thumb is that the total equivalent cost (including lost productivity) of replacing a staff member is 150% of their annual salary.

Researchers used historical percentage staff turnover and reported wage costs to forecast the future cost of staff turnover.

Figure 17: The cost of staff turnover, relative to benchmark



*Data is approximate. Voluntary staff turnover data has been converted to total using national average ratios between total and voluntary. Data where the basis is undisclosed has been treated on the most conservative basis. Total wage cost is from company annual reports and may be exclusive of contractors (whereas turnover may be inclusive). Data is for FY11 where available, otherwise FY10.

Source: Macquarie Securities, 2012

KEY TAKEAWAY

Macquarie Securities' use of estimated staff turnover costs for a company was two-fold. Turnover costs were built directly into cost and earnings projections, leading to more accurate valuations. More importantly they indicated the quality of human resource management and therefore the capacity of the company to attract talented staff in the future. They expected future costs to also serve as a prompt for the company to improve its staff management, which can lead to an improvement in earnings.

ESTIMATING AIRLINE EMISSION COSTS CASE STUDY 12:

Name: Cheuvreux, Crédit Agricole Group

Type of company: Broker (France)

Source of information: Airlines Sector Report (publication)

Authors: Loic Sabatier and Erwan Crehalet

Date: September 2011

Link: www.cheuvreux.com/public/leading_research.aspx

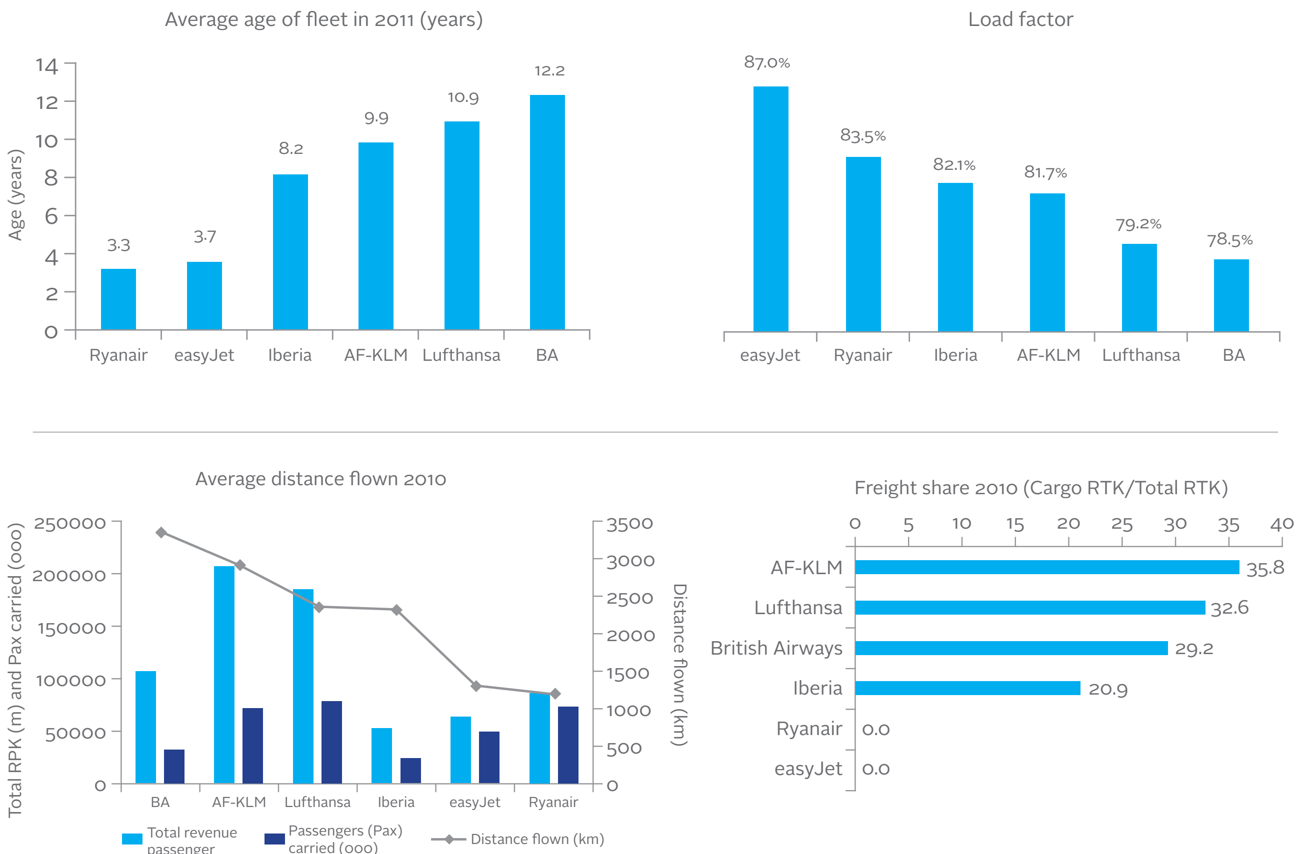
IDENTIFYING ESG FACTORS

The inclusion of airlines within the EU ETS formed the basis of the Cheuvreux's airlines sector report. The EU places a cap on carbon emissions in certain carbon-intensive industries and compliance with the regulation can result in costs for less efficient companies and opportunities for cleaner companies to trade their allocated carbon allowance.

ANALYSING ESG FACTORS

Cheuvreux assessed the impact of legislation in the light of each airline's fuel efficiency drivers (age of fleet, load factor and seating density, distance flown and freight share) and adaptability (fuel efficiency strategy, and pricing power).

Figure 18 and 19: Average age of fleet, load factor and distance flown



Source: Cheuvreux, 2011

Cheuvreux built up two scenarios in their analysis of the impact of the EU ETS on Airlines:

- Scenario 1, in which the European Commission wins and all flights to and from Europe are affected;
- Scenario 2, where non-EU lobbies win, and intra-European flights only are affected.

In each case they assessed the estimated costs of CO_2 for each airline over the next one and two years.

This allowed the analyst to form a view of the likely EBITDAR[14] impact under each scenario. The work showed a 1.1% to 5.5% range of carbon cost as percentage EBITDAR depending on the company and the scenario.

KEY TAKEAWAY

Where a direct pricing mechanism existed or was being considered, analysts were able to factor in the impact of potential pricing legislation, the relative ability of different companies to pass on or mitigate that cost and the resultant impact on earnings. Legislation frequently generates binary outcomes and therefore lends itself to scenario analysis, providing investors with clear implications of either outcome.

14. Earnings before interest, tax, depreciation, amortisation and rent

ESTIMATING PHARMACEUTICAL LITIGATION COSTS
CASE STUDY 13:

Name: Société Générale

Type of company: Broker (Pan-European)

Source of information: Pharmaceuticals Marketing: Beware of Side Effects (publication)

Authors: Carole Crozat, Yannick Ouaknine, Niamh Whooley

Date: September 2011

Link: https://www.sgresearch.com/Default.aspx?ReturnUrl=https%3a%2f%2fwww.sgresearch.com%2f

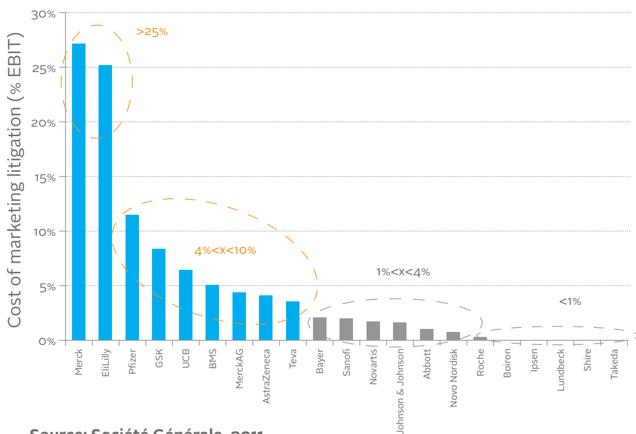
IDENTIFYING ESG FACTORS

In order to better model estimates for the global pharmaceutical industry, Société Générale focused on historical litigation costs. Among various ESG risks to the pharmaceutical industry, global litigation has cost US$ 15 bn since 2007 (as of 2011).

ANALYSING ESG FACTORS

Société Générale calculated litigation costs as a percentage of EBIT for each large cap company and then plotted a score for the integrity of operational management against litigation and reputational risk exposure.

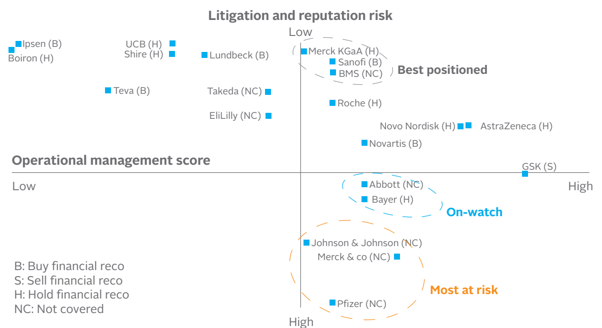
Figure 20: Cost of marketing litigation as a % of EBIT



Source: Société Générale, 2011

The analysts at Société Générale considered the non-ethical practices that were exposing the companies to risk and which products and countries were most vulnerable. By analysing the exposure and management of exposure to this ESG issue, Société Générale was able to identify sector leaders.

Figure 21: Litigation and reputational risk vs operational management score



Source: Société Générale, 2011

KEY TAKEAWAY

Société Générale's analysis of an inherent industry risk allowed for the identification of company-specific exposure to future litigation. This exposure reflected company awareness and management of litigation risk and had implications for the company's wider cost management.

CARBON COSTS FOR AUSTRALIAN MINERS CASE STUDY 14:

Name: Citi

Author: Elaine Prior

Type of company: Broker (Australia)

Date: August 2011

Source of information: Presentation titled 'Australian Carbon Scheme Analysis' (interview)

IDENTIFYING ESG FACTORS

Citi identified the Australian Carbon Scheme as a potentially material factor for carbon-emitting listed companies. The anticipated cost for each company depended on scheme detail, including allocation of any free permits or other assistance.

ANALYSING ESG FACTORS

Analysis was conducted as scheme details were proposed and then fine-tuned by the Australian Government. Citi analysed the detail of the intended scheme and modelled the forecast carbon prices. For some industries, carbon costs would be passed on to customers. The potential impact on shareholder value in most industries was generally modest, due to the levels of assistance allocated, either in the form of free permits or other forms of compensation.

Each industry was considered separately, applying the relevant details of the scheme. Energy Intensive Trade Exposed (EITE) companies were identified as potentially vulnerable to the scheme, and were analysed in some detail.

Coal miners generally would not receive free carbon permits, though a few mines with high fugitive emissions would receive some assistance.

Analysis of companies in the electricity sector included consideration of how costs would change with the carbon price, the impact of industry assistance measures, and how revenues would change with adjustments to the electricity price.

KEY TAKEAWAY

This analysis enabled Citi analysts to incorporate the impact of the carbon scheme in their company models for relevant sectors, coming into the cost or revenue lines, and thus flowing through to cashflow and earnings estimates.

VALUATION INSIGHT: COSTS

The following questions may be considered by equity analysts looking to integrate ESG analysis:

- Is there a risk input costs will rise?
  - Are raw materials scarce?
  - Are operations energy intensive?
  - Are employees sufficiently motivated in the context of peers and management?
- Is the company aware of these risks?
- Do cost projections take account of these risks?
- What is the company doing to mitigate ESG risks?
- Does the company report on these risks?
- What is the company's capacity to sustain or improve operating efficiency?
  - Are operating margins improving versus peers?
  - How is improvement being achieved: technology investment, energy and resource efficiency, new incentive system, economies of scale?
  - Is this sustainable? What is management doing to ensure continued efficiency?

FINANCIAL REPORTS: BALANCE SHEET

A company balance sheet offers a snapshot of corporate health at a period end, in terms of reported assets, liabilities and shareholder equity. This review of material suggested that integrated analysis is providing a clearer understanding of balance sheet strength.

ASSETS

WHY INTEGRATE INTO ASSET ANALYSIS?

Some balance sheet assets are easily measured and audited while others, such as intangible assets, are harder to gauge. ESG analysis can provide a greater degree of certainty in relation to the fair value of some assets. For example, the impact of energy efficiency standards on property values and the effect that changing consumer perceptions, or regulations, related to sustainability will have on the sale value of inventory.[15]

The ability of the market to accurately value intangibles is a frequently debated issue[16] and ESG performance was found to be most useful in the analysis of intangible assets such as capacity for innovation, employee loyalty and company brand. These sources of capital[17] can be a significant determinant of equity value, in relation to both the stock market and mergers and acquisitions. Branding and reputation can be a vital competitive advantage in terms of attracting and retaining customers, staff and suppliers. Analysts need to determine what is driving the brand and how the company is investing in its reputation.

ESG performance, such as employee engagement, environmental efficiency and community investment, can indicate a company's commitment to its reputation, brand, and human capital. Integrated analysis can shed light on the quality of these intangible assets.

CURRENT INTEGRATION PRACTICES

The first case study from RobecoSAM provides detail on why human capital management is material to listed equity value and the following two case studies from West LB explain how ESG performance is being used to analyse innovation capacity and reputational risk.

HUMAN CAPITAL DEVELOPMENT AND INTANGIBLE VALUE CASE STUDY 15:

Name: RobecoSAM / RSM Erasmus University

Type of company: Asset Manager (Switzerland)

Source of information: Human Capital Management and Financial Markets (publication)

Authors: Jeroen Derwall, Nadja Guenster, Kees Koedijk

Date: September 2006

IDENTIFYING ESG FACTORS

This collaborative study looked at the correlation between a company's human capital management (HCM) and the difference between its market value and tangible assets. HCM can result in competitive advantage by developing human capital so that it has value to the company and not its competitors. Human capital is becoming the cornerstone of modern organisations, but many managers and investors are plagued by uncertainty in understanding the economic value of HCM.

ANALYSING ESG FACTORS

The study used a proprietary database from RobecoSAM on company HCM performance, using 35 data points under four HCM categories – Human Capital Development, Organisational Learning, Labour Practice Indicators and Talent Attraction & Retention. The study then sought to answer the following questions:

- Do HCM practices improve profitability (return on assets [ROA])?
- Is corporate investment in HCM systems value relevant (Tobin's q[18])?
- Is the value of HCM understood by financial markets (predictability of stock returns)?

The study found that 'a human capital development system (involving a combination of skill gap management, employee appraisal and training, and formal controlling of HCM effectiveness) is positively associated with Tobin's q[18] and ROA.' The other three HCM indicators showed inconclusive results.

KEY TAKEAWAY

The study found that variations in human capital development scores could increase a company's Tobin's q by 11% to 33% and increase profitability by 2% to 4%. RobecoSAM used a range of metrics to analyse a company's intangible human capital development in their estimation of fair value.

15. Further discussion on working capital can be found in the cash flow section of the document
16. Edmans, A, 'Does the Stock market Fully Value Intangibles? Employee Satisfaction and Equity Prices', Wharton School, University of Pennsylvania, Journal of Financial Economics, 20 January 2010, http://papers.ssrn.com/sol3/papers.cfm?abstract_id=985735
17. The Sigma Guidelines – Toolkit: Sustainability Accounting Guide, The Sigma Project, http://nbis.org/nbisresources/accounting_and_green_banking/signma_sustainability_accounting.pdf
18. Tobin's q = market value of the firm divided by the replacement value of the firm's tangible assets

INNOVATION AS A DRIVER OF REVENUE GROWTH
CASE STUDY 16:

Name: West LB

Type of company: Broker (Germany)

Source of information: Siemens: ESG-related analysis of sustainability report: The link to competitive advantage (publication)

Authors: Thomas Langer, Dr Hendrik Garz, Claudia Volk

Date: July 2010

IDENTIFYING ESG FACTORS

In their analysis of Siemens, West LB's analysts began by setting out their framework 'disentangling the business case for sustainability – the five layers of complexity' in which they used a five stage process to link sustainability to competitive strategy and valuation.

The five stages were:

- Safe harbour mechanisms;
- Operational excellence;
- Product stewardship;
- Fulfil unmet demand;
- Innovation.

West LB considered 'innovation' as the advanced and forward-looking layer of their analysis, seeking to identify disruptive technologies that could be used by the company or their competitors. Innovation can drive a company's revenue growth and its operational efficiency. It arises in response to changing markets and resource constraints, a commitment to long-term strategy and an entrepreneurial culture.

ANALYSING ESG FACTORS

West LB assessed a company's capacity for innovation using both quantitative and qualitative data. Analysts asked the following questions:

- What is the percentage R&D spend?
- What is the product development strategy? What is the percentage sales from new products? Analysts modelled product volume data in order to gain visibility on future revenue growth.
- What are the pending patent applications and is there an in-house venture capital business?
- What are the organisational and incentive structures?
- What is the extent of stakeholder research?

KEY TAKEAWAY

West LB combined analysis of a company's performance on staff and stakeholder management with more traditional measures such as R&D spend to gauge its capacity for innovation. They used this integrated analysis to detect the company's understanding of what kind of new business will be demanded in 3-5 years' time and their consequent commitment to innovative capacity.

ETHICAL BUSINESS STRUCTURE AND BRAND MANAGEMENT CASE STUDY 17:

Name: West LB

Type of company: Broker (Germany)

Source of information: Siemens: ESG-related analysis of sustainability report: The link to competitive advantage (publication)

Authors: Thomas Langer, Dr Hendrik Garz, Claudia Volk

Date: July 2010

IDENTIFYING ESG FACTORS

West LB identified reputational risk as a key determinant of equity risk. While an ethical business structure has importance in terms of employee engagement and efficient corporate governance, it is also key to a company's reputation and share price as global media widens its reach and influence.

ANALYSING ESG FACTORS

Within West LB's 'five layers of complexity' two layers of analysis focused on reputational risk:

- 'Safe harbour mechanism' identified formal structures and procedures to ensure ethical business conduct. These mitigate public relations risk and the risk of not qualifying for tender.
- More positively, 'product stewardship' monitored active and regular management of the supply chain which can increase reputation and brand appeal. A strong brand sustains pricing power.

KEY TAKEAWAY

West LB used integrated analysis to better understand reputational and operational risk. Reputational risk impacts company performance on several levels, including the costs of rectifying a PR disaster, the long-term damage to sales and the share price impact. Analysts need to detect and monitor indicators that the company is aware of these risks and is managing them accordingly.

VALUATION INSIGHT: ASSETS

The following questions may be considered by equity analysts looking to integrate ESG analysis:

- What are the environmental provisions and are they sufficient versus the company's historical costs and those of peers?
- Do notes to the balance sheet recognise environmental risks to physical assets?
- Do notes to the balance sheet (or Management Discussion and Analysis) recognise ESG risks to reputation?
- What is the company litigation history?
- What percentage of total assets are intangible assets? To what extent do brand, reputation, human capital, management quality and intellectual property comprise intangible capital?
- How strong is the company brand?
  - What is the strength of customer satisfaction and loyalty?
  - Does the company have pricing power?
- How are employees incentivised and what is the degree of engagement and staff loyalty?
  - What level of autonomy do employees have?
  - Is there a flat or hierarchical structure in place?
  - How is the company recruiting talented graduates?
- What is the structure (i.e. relevant committees) and diversity of the non-executive board?
- How dynamic and committed is executive management?
- Are pension assets being managed by ESG-aware practitioners?

The importance of asset values and asset ratios varies from industry to industry, not least as company models have moved towards intellectual property rather than physical assets as revenue generators. These changing company dynamics are not well reflected in valuation techniques, which continue to rely largely on information that is easily quantified. Therefore corporate governance, customer relationship management and innovation management are all business assets that are often analysed in the context of ESG performance due to their intangible nature.

LIABILITIES

We found most examples of integrated analysis of liabilities more appropriately included in the cost analysis section. However the following reflections arose, mainly on how a company's leverage policy can frequently indicate governance and management quality:

- Are liabilities short or long term? An ability to negotiate long-term debt agreements can signal a trusted relationship and lender confidence.
- How efficiently is working capital managed?
- How reliable are relationships with suppliers and customers?
- What is the extent of off-balance sheet liabilities?
- Is excessive leverage eroding stakeholder trust and raising the cost of equity?
- Do debt covenants specify any aspects ESG risk management?

FINANCIAL REPORTS: CASH FLOW STATEMENT

The adjustments to sales, earnings and costs showcased in the previous sections impact directly on cash flow. To provide some additional depth to this section, we reflected on how ESG factors can impact cash flows in terms of operating expense, working capital management, asset maintenance and capital costs.

VALUATION INSIGHT: CASH FLOW

Cash flow from operations (CFO)

- Earnings quality: If CFO is significantly less than net income then the income statement may have been manipulated in order to improve headline figures such as EBIT and net income growth. Earnings quality and transparency can indicate ethical and efficient business conduct.
- Is operating expense being reduced by investment in new resource-efficient technology?

Cash flow from investing (CFI)

- Is capital expenditure (capex) covering asset depreciation?
- Does capex investment in operational and resource efficiency today reduce the need for capex in the future and therefore point towards improvements in free cash flows?
- Does due diligence on acquisition targets cover long-term ESG risks? Is there a risk that inadequate ESG due diligence results in greater than expected environmental liabilities post acquisition?

Cash flow from financing (CFF)

- Favourable long-term debt facilities indicate a good relationship with lenders. What are the available borrowing costs?[19] Could the company qualify for a lower rate if it improved its management of ESG risks, specifically in the case of project finance?[20]
- A recent study by Deutsche Bank found a clear negative correlation between 'strong corporate commitment to ESG' and cost of capital. The paper reviews 19 academic studies which find correlations between E, S and G performance and various indicators such as cost of debt, cost of equity, analyst coverage, institutional investment and forecast dispersion. All the studies reviewed indicate that good ESG performance leads to cheaper capital costs and better access to finance.[21] A lower cost of capital can also lead to more capex projects being approved which may lead to earnings growth.

19. Treatment of interest paid as financing cash flow
20 See http://www.equator-principles.com/ for more information on sustainable project financing
21. Deutsche Bank, Sustainable Investing, 2012. https://www.dbadvisors.com/content/_media/Sustainable_Investing_2012.pdf

VALUATION TOOLS

WHY INTEGRATE INTO VALUATION TOOLS?

Investors want to know why the market is adding value to a stock above its book value or discounting it below book value, in some cases excessively. While ESG earnings opportunities and risks tend to play out on medium and long-term timescales, market sentiment and share price catalysts can impact in the short term. Recent environmental and other reputational disasters have resulted in large share price falls and the steady growth of global media technology and corporate accountability serve to heighten these risks for equity investors.

Integrated analysis seeks to reflect these market risks by adjusting valuation tools. For example, analysis of the risks associated with poor corporate governance can be reflected in a higher discount rate and a lower target price[22], and conversely improvements in corporate governance practice can lead to an upward re-rating.[23]

We noted that the use of regular and continuous variables in financial models makes it difficult to integrate risks that are low frequency but high impact. The low probability but high cost of some risks lessens the usefulness of probability-weighted forecasts and widens the price scenarios.

CURRENT INTEGRATION PRACTICES

We found that analysts are more frequently using absolute rather than relative valuation tools to integrate ESG factors, such as discounted cash flow (DCF) calculations and economic value added (EVA). This may reflect the mismatch between price-to-earnings (PE) multiples using short-term time frames of one, two or three years and the medium and long-term time frames in which some social, governance and environmental influences play out.

Many analysts also find it quicker to integrate ESG analysis by adjusting discount rates rather than underlying forecasts, particularly when analysing a conglomerate.[24] Some practitioners felt the discount rate method to be less accurate if one considers that ESG-related revenues and costs can be specific to the timing of new regulation. However others felt discount rates to be a more dynamic (and potentially more holistic) alternative to adjusting forecasts for numerous individual accounting items.[25]

While known and more predictable costs such as carbon or litigation can be integrated into earnings projections, immeasurable risks, such as poor quality management or lack of staff motivation, may be better reflected in discount rates.

During the interviews we discussed the issue of double counting, which is the integration of ESG factors into both cash flows and the discount rate. In some cases it is appropriate to use both approaches, integrating different ESG drivers into a single company valuation.

The following case studies show how analysts are:

- integrating ESG factors into an economic profit model;
- indirectly adjusting the discount rate via adjustments to the beta or the equity risk premium (ERP);
- directly adjusting the discount rate.

22. The discount rate used in a DCF valuation is either a company's weighted average cost of capital (WACC) or its cost of equity. WACC = (% debt x cost of debt) + (% equity x cost of equity). Cost of equity = risk-free rate + (company beta x equity risk premium)
23. Presentation by Macquarie Securities, 2012 'In times of heightened risk aversion when low risk strategies work best, companies with the strongest governance are the ones that outperform.'
24. Presentation on Siemens by Dr Hendrik Garz (West LB), 2012
25. A recorded discussion on this topic can be found on the PRI Signatory Extranet, ESG Integration: 4 cases in 40 minutes, PRI in Person, 28 June 2012

ADJUSTING ECONOMIC VALUE ADDED CASE STUDY 18:

Name: RobecoSAM

Source of information: Presentation titled 'ESG Integration in Practice' (interview)

Authors: Cécile Churet and Mark Glazener

Date: May 2012

Link: http://www.robecosam.com/en/professionals/strategies-services/sustainability-services/index.jsp

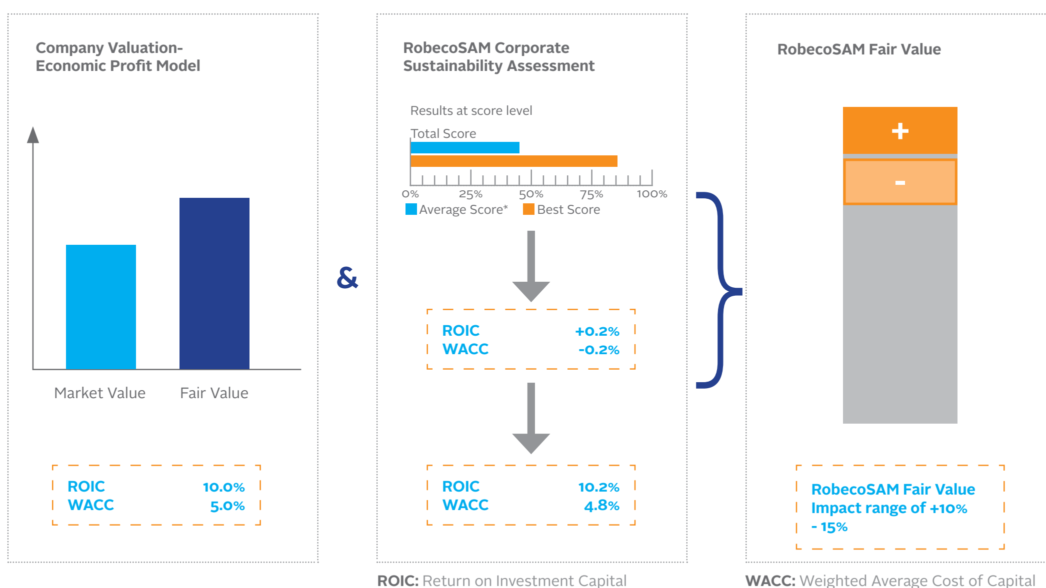
IDENTIFYING ESG FACTORS

The RobecoSAM Corporate Sustainability Assessment gathers industry-specific ESG data from 2,500 companies. This assessment serves as the basis for the Dow Jones Sustainability Indexes. Analysts directly adjust both forecast weighted average cost of capital (WACC) and Return on Invested Capital (ROIC) according to the RobecoSAM Corporate Sustainability Assessment, in order to arrive at an economic profit fair value.

ANALYSING ESG FACTORS

'Sustainability leaders demonstrate a greater ability to manage risks and therefore benefit from lower cost of capital (WACC). Similarly, the competitive advantages that result from a better positioning on sustainability issues can lead to greater operational efficiency and have a positive impact on the company's free cash flows (FCF) and ultimately on its return on invested capital (ROIC). The ROIC and WACC, the two main components of the economic profit model, are therefore adjusted to reflect the sustainability performance of the company.' [26]

Figure 22: RobecoSAM Corporate Sustainability Assessment & Valuation



ROIC: Return on Investment Capital

WACC: Weighted Average Cost of Capital

Source: RobecoSAM, 2012

KEY TAKEAWAY

RobecoSAM's economic profit model demonstrated the integration of sustainability performance into both WACC and ROIC. Both ROIC and WACC can be directly impacted by ESG factors. The reflection of these factors in the valuation process enabled the identification of long-term shareholder value creation, via whether a company is investing to maintain competitive advantage. The RobecoSAM fair value impact of integration ranged from +10% to -15%.

26. RobecoSAM, 'How to integrate sustainability factors into financial valuations', 15th September 2010

ADJUSTING THE BETA
CASE STUDY 19:

Name: West LB

Author: Thomas Langer, Dr Hendrik Garz, Claudia Volk

Type of company: Broker (Germany)

Date: July 2010

Source of information: Siemens: ESG-related analysis of sustainability report: The link to competitive advantage (publication)

IDENTIFYING ESG FACTORS

West LB focused on a deriving a fundamental beta from their five layer sustainability framework (safe harbour mechanisms, operational excellence, product stewardship, fulfil unmet demand, innovation).[27]

In order to analyse each layer West LB developed an analyst 'checklist' of ESG performance, rather than using a specific model which may be restrictive. They made adjustments according to the stress of each of the five layers and to the industry or company in question.[28]

ANALYSING ESG FACTORS

Performance on the five layers was used to adjust the company beta so that it reflected what West LB considered to be an indication of future competitive advantage. This approach has been the subject of academic research which looked at constructing sustainability betas according to the ESG risks inherent in the market, industry or company.

For example:

Sustainability beta = market beta x industry beta x management quality beta [29]

KEY TAKEAWAY

This multi-factor approach allowed various ESG risks to be estimated and reflected in one data point. Using a multi-factor sustainability beta to adjust the discount rate can result in a more detailed, forward looking estimation of value.

27. See the balance sheet section of this document for more detail on West LB's sustainability framework.
28. West LB, Siemens: ESG Analysis of Sustainability Report, 30 July 2010
29. Valery Lucas-Leclin and Sarbjit Nahal, 'Sustainability Analysis', Sustainable Investing: The Art of Long-Term Performance, Krosinsky and Robins, 2008

ADJUSTING THE EQUITY RISK PREMIUM
CASE STUDY 20:

Name: Macquarie Securities

Type of company: Broker (Australia)

Source of information: Presentation titled 'ESG Investment Trends: Determining materiality and driving integration – a focus on measuring and valuing the 'S' in ESG' (interview)

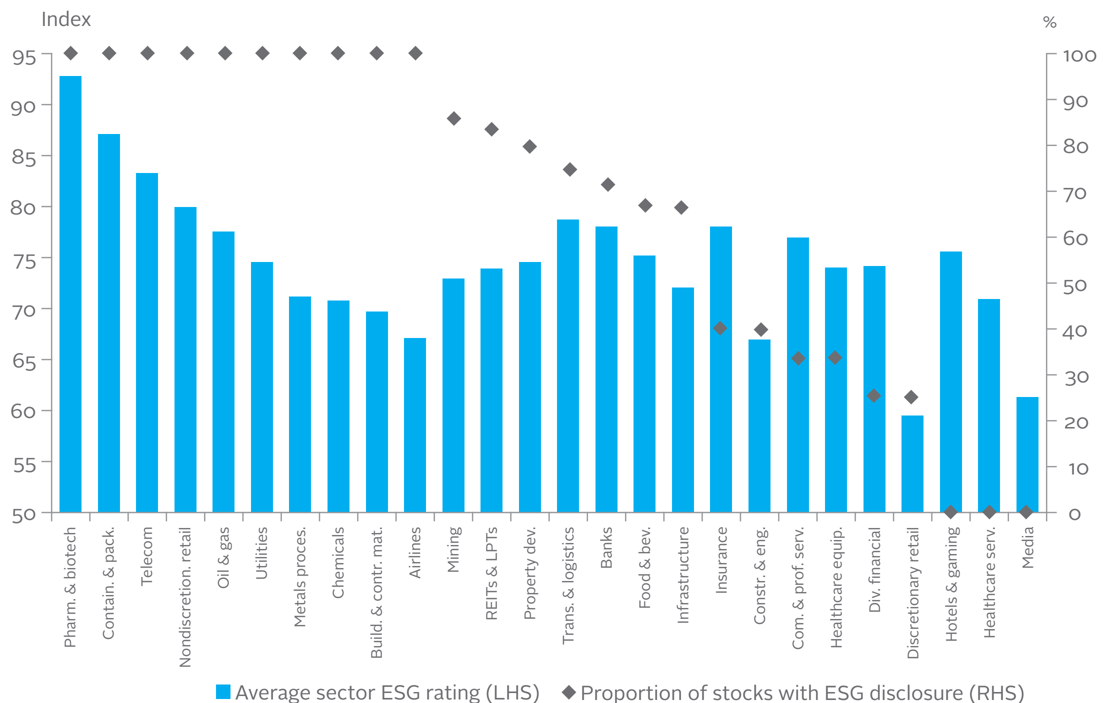
Author: Aimee Kaye

Date: March 2012

IDENTIFYING ESG FACTORS

Macquarie Securities analysts adjusted the ERP to reflect ESG disclosure levels, finding that detailed disclosure of ESG issues demonstrated a greater degree of confidence around performance and management of ESG issues. If the company was not disclosing its ESG performance then the ERP adjustment reflected this uncertainty. Often companies were performing well but not disclosing sufficient detail, in which case the non-disclosure risk persisted.

Figure 23: ESG disclosure versus sector performance



Source: Macquarie Securities, 2012

KEY TAKEAWAY

Macquarie Securities found company disclosure on ESG performance to be a reliable indicator of good ESG management going forward. Both forecast ERP and forecast beta are estimations, which provided Macquarie Securities with an entry point to integrate ESG risk factors into the valuation process and thereby more accurately forecast share price performance.

DIRECTLY ADJUSTING THE DISCOUNT RATE: ESG RISKS AND MINING VALUATIONS CASE STUDY 21:

Name: Citi

Contact: Heath Jansen

Type of company: Broker (US)

Date: March 2006

Source of information: Towards Sustainable Mining: Riding with the cowboys, or hanging with the sheriff? (publication)

Link: www.citivelocity.com

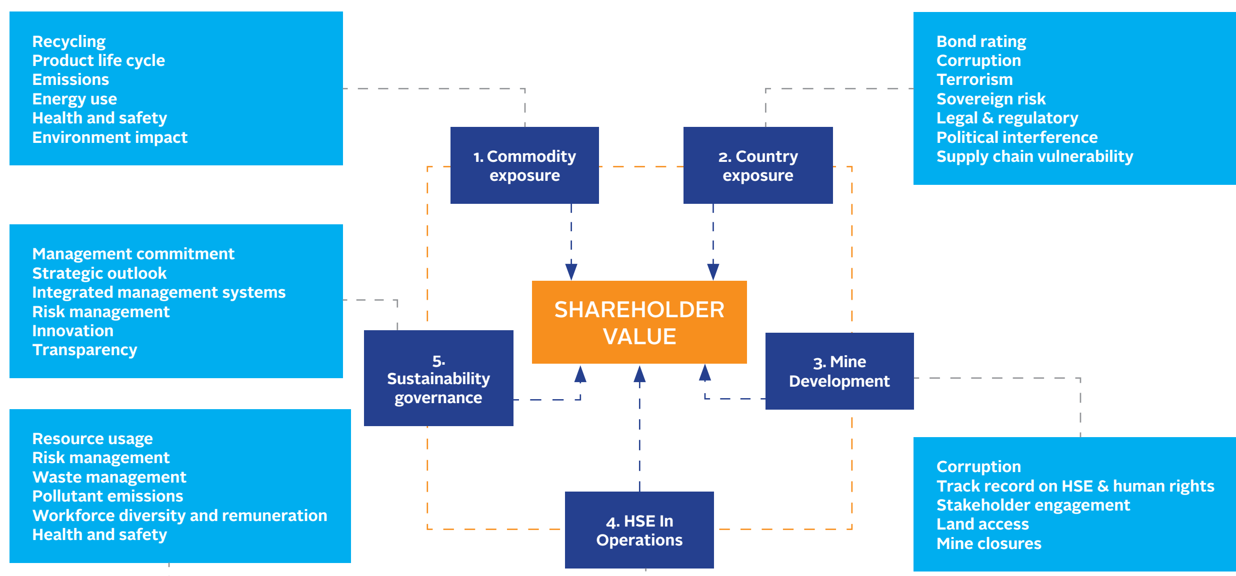
IDENTIFYING ESG FACTORS

The Citi research found that consensus forecasts were mispricing mining risk, finding mining risk to be company-related rather than country-dependent.

'The consensus view is that mining is less risky in countries where political systems are stable and transparent. In this respect, mining has been viewed as any other business or investment activity and as such the financial community has relied on bond markets as the key indicator of risk and driver of valuations. Our analysis suggests that risk is more company-related, than country-dependent.' [30]

Citi used a five force framework to construct their 'Citi Sustainable Mining Index'.

Figure 24: Citigroup's five forces of sustainable development



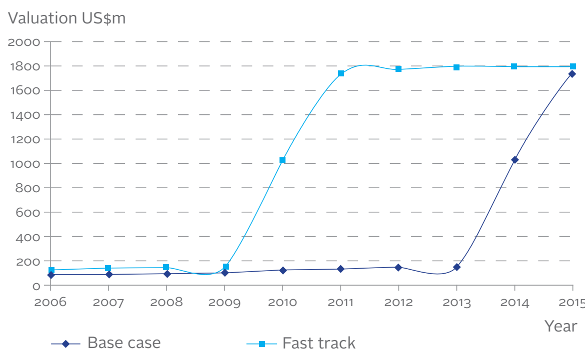
Source: Citigroup Investment Research

30. Heath Jansen, Towards Sustainable Mining: Riding with the cowboys, or hanging with the sheriff? 14 March 2006

For example, mine development is key to the future earnings capacity and valuation of mining companies. Citi identified a company's ability to manage social and political risk as equally important as their project management and technical expertise when developing a mine.

Citi calculated the estimated increase in value arising from shortened lead times which is illustrated in the following graph:

Figure 25: Bring forward of capacity



Source: Citi Investment Research

Recognising that consideration of ESG factors in the capital allocation process can significantly reduce mine development lead times, Citi therefore assessed these factors at project selection; tendering; contracting; capital raising; regulatory permission and mine closure.

ANALYSING ESG FACTORS

In order to analyse ESG management at these stages of mine development Citi used performance indicators such as government relations, local economic and community engagement, quality of closure planning, track record and reputation. Citi similarly researched indicators of the other four sustainable forces - commodities extracted, the ability to control the health, safety, employment and environment (HSEE) in operations, country risk and sustainability governance – and adjusted the discount rate according to these indicators.

'Two mining companies operating in the same country could have substantially different discount rates based on: the commodities extracted, mine development, the ability to control HSEE in operations and sustainability governance.

As a scenario analysis, we have used a risk-adjusted discount rate based on our Citi Sustainability Mining index. We see the largest upside to valuation to occur for the large diversified mining companies .. with potential upside of 23% to 30%.' [31]

Example of Citi valuation table:
Risk-adjusted discount rate

Company	Current WACC	Risk-adjusted discount rate	Current NPV	NPV impact	% change
Mining co.x	10.7%	7.5%	$36.70	$47.27	29%

KEY TAKEAWAY

Citi regarded a company's ability to manage ESG risks as fundamental to delivering projects on time and to budget and ultimately to future earnings capacity. Citi's mining index therefore identified those companies which are best positioned to create long-term shareholder value, given their current sustainability profile.

VALUATION INSIGHT: VALUATION TOOLS

The following questions may be considered by equity analysts looking to integrate ESG analysis:

- What share price risks has the company faced in the past?
- How did the company manage this risk?
- What ESG share price risks have been faced by competitors?
- What is the importance of these issues to investors, consumers and the media?
- How sensitive is the market to news flow on these issues?
- Should discount rates be adjusted to reflect variations in ESG performance?
- Should improvements in corporate governance be reflected in a lower forecast beta?
- Does the process of integrating ESG analysis into fundamental equity valuation reduce or strengthen conviction in a company's intrinsic value?

31. Heath Jansen, Towards Sustainable Mining: Riding with the cowboys, or hanging with the sheriff? 14 March 2006

CONCLUSION

This document showcases the current state of the art in integrated analysis using case studies that we hope will bring transparency to the entire process. We found clear examples of integrated analysis being used to determine the fair value of companies at each stage of fundamental analysis with ESG issues being integrated into:

- analysis of the economic and industry context of a listed company;
- analysis of the quality of a company's management and corporate strategy;
- adjustments to earnings forecasts to more accurately reflect future risks and opportunities;
- adjustments to valuation discount rates to reflect industry or company-specific ESG issues.

The strength of the working group's approach was the ability to review a significant number of reports from both the buy and sell-side at the same time. This unique perspective allows us to draw out some of the common issues that emerged during the review:

The good news: there can be no doubt that the high quality integrated analysis that has been demanded by investors for so many years is now being delivered. Questions around structure, utilisation, resourcing and payment should now take the place of those which focus on whether it can be done.

Mainstream ready: nearly all the analysis followed standard research structures mirroring the research output of any sell-side sector research team or investor. ESG issues may present new risks and opportunities but they are assessed through standard models of business performance and valuation. We believe that any investor could make use of the research we reviewed.

Timeframe tensions: the reliance on traditional valuation tools can create a tension between their relatively short timeframes and the longer timeframes needed for many ESG issues to impact companies. Much of the analysis focused on situations where ESG issues were becoming more urgent or where investors are beginning to look to the longer term.

Resource intensive: ESG information remains more resource intensive to acquire and assess than audited financial account information. The difficulty of acquiring consistent, comparable, audited information remains a significant hurdle to integrated analysis.

Disclosure is trailing performance: the quality of reporting remains vital but it was noted that companies are frequently doing more than their public disclosure would suggest. This again raises issues of the resources needed to obtain an accurate picture of company performance.

Context is vital: with different regulatory regimes around the world in terms of disclosure requirements, it was noted that raw ESG data without context can be misleading. Carbon emissions were cited as potentially misleading if the location, carbon-penalising mechanism and any free allowances are not known. Integrating raw data into valuation without that context could prove misleading.

The role of ratings: although we found widespread agreement on the value of ratings within responsible investment more broadly, they did not feature heavily in these examples of integration. The underlying performance on ESG metrics was instead used directly in assessing business performance and value. The lack of integrated research produced by independent ESG research providers was noted in the review.

Materiality: the identification of material issues remains an art rather than a science. Whilst for some ESG factors there is broad consensus that the issue could have a significant impact on a firm's performance, the materiality of other aspects depends on individual investors' processes, investment horizons, risk budgets and performance targets.

Highlighting current practice also serves to identify where further work is needed. The quality of integrated analysis continued to improve even as this review was collated and published. We hope that by presenting a snapshot of activity today we can continue to drive this new and innovative work from those who are working in integration and prompt wider dissemination from those whose existing work we may have missed.

This on-going collection of expertise will ideally form a live integrated analysis knowledge base to identify the progress being made in this increasingly important aspect of fundamental analysis . It will also help us focus on confronting the challenges that lie ahead.

APPENDIX 1: CONTRIBUTORS AND RESEARCH

The following table includes the brokers and research providers interviewed and research discussed:

Organisation interviewed	Research reviewed	Stocks covered
Bloomberg	Product overview	Various
BoA Merrill Lynch	Product overview	Various
Carbon Tracker Initiative	Unburnable Carbon: Are the world's financial markets carrying a carbon bubble?, July 2011	Various
Cheuvreux*	Enel: ESG Profile, 22 September 2011 Airlines Sector Report, Loic Sabatier and Erwan Crehalet, September 2011	Enel, easyJet, Ryanair, Air France KLM, Vueling, Lufthansa
Citi*	U.S. Autos & Auto Parts: Fuel Economy Focus: Perspectives on 2020 Industry Implications, Itay Michaeli, 14 March 2011 U.S Autos & Auto Parts: Electric Vehicles: Perspectives on a Growing Investment Theme, Itay Michaeli, 23 February 2011	27 auto stocks
Goldman Sachs*	GS Sustain, Disclosing China's Potential – from good to great, Richard Manley, Anthony Ling, Andrew Howard, Santanu Sengupta, 5 November 2010 GS Sustain, Emerging industries: Structural growth is undervalued, Evgeny Titel, Andrew Howard, Richard Manley, Hanna Notte, 27 January 2011 GS Sustain, Growing Pains, Andrew Howard, Richard Manley, Nick Hartley and Derek Bingham, May 2012	1500 stocks
Macquarie Securities*	ESG Ratings Replayed, Aimee Kaye, Gabby Hajj, 26 March 2012	48 Australian stocks
Société Générale*	SRI: Beyond Integration, Niamh Whooley, Yannick Ouaknine, Carole Crozat, 2 March 2011 Pharmaceuticals Marketing: Beware of Side Effects, Carole Crozat, Yannick Ouaknine, Niamh Whooley, September 2011	Sanofi, Merck AG, BMS, Pfiser, J&J, Merck & Co
UBS*	ESG Analyser - Framework, Julie Hudson CFA, Hubert Jeaneau, Eva Zlotnicka, 18 May 2010	Various
West LB	Siemens: ESG Analysis of Sustainability Report (Recommend Add), Thomas Langer, Dr Hendrik Garz, Claudia Volk, 30 July 2010	Siemens

*Presentations available from brokers directly.

Seven investment managers were also interviewed in order to gain insight into how the available ESG research was being integrated into their investment process. These investment managers were Alliance Trust Investments, DWS, Groupama, NEI Investments, Quotient Investors, Robeco and SAM.

The working group thanks the brokers and investment managers for their time and work providing material for this project. In addition the working group thanks ClearBridge Investments, Newton Investment Management, Baillie Gifford, Schroder's, Oddo Securities, Kepler Capital Markets, International Corporate Governance Network's Integrated Business Reporting Committee, Richard Manley, Seb Beloe, Professor Robert Eccles, Professor George Serafeim, Louise O'Halloran and Daniela Carosio for their contributions and guidance.

The PRI Secretariat would like to thank the ESG Integration Working Group members for their extended contribution to the development of this document.

APPENDIX 2: RELATED INDUSTRY INITIATIVES

Several of the working group are involved in the following industry initiatives which are also seeking to improve understanding of how integrated analysis can help accurately value listed equity:

- **Delphi Project**
  The aim of this project is to identify the ESG factors that the investment community considers most likely to add to long-term company value. They are also looking at how to measure these factors and whether these factors and metrics would satisfy the requirements of European institutional investors. A group of European investment managers and asset owners are working together with the European Federation of Financial Analysts Societies (EFFAS) to achieve these goals by March 2013. For more information, contact Michael Polya at michael_polya@ssga.com

- **EFFAS (European Federation of Financial Analysts Societies) KPIs**
  The EFFAS KPI project aims to propose key ESG factors for corporate performance reporting. The objective of KPIs for ESG 3.0 is to propose the basis for the integration of ESG data into corporate performance reporting. To this end, KPIs for ESG 3.0 sets out overall requirements for the presentation of ESG reports, guidelines for the presentation and structure as well as minimum requirements for content to be disclosed. For more information, go to www.effas-esg.com

- **PRI's ESG Investor Briefing: Communicating ESG Value Drivers**
  A group of PRI signatories and Global Compact LEAD companies are joining forces to improve the communication of ESG value drivers beyond reporting in order to ensure that sustainability performance is rewarded by financial markets. The goal of this project is to develop and refine communication of ESG value drivers at the company investor interface. For more information, access the PRI's Clearinghouse (signatories only) at http://intranet.unpri.org

These projects are undertaken in the context of the following influential organisations and their on-going initiatives:

- **Carbon Disclosure Project (CDP)**
  The CDP enables companies around the world to measure, disclose, manage and share climate change and water information. CDP data is used by investment managers and advisors, asset owners, data and index providers, banks and brokers for a growing range of purposes and is available through a range of research providers. For more information, go to www.cdproject.net

- **Global Reporting Initiative (GRI)**
  The GRI continues to develop its sustainability reporting guidelines. The recent guidance (G3.1) and further information can be found at www.globalreporting.org

- **International Integrated Reporting Council (IIRC)**
  In their recently published report 'Towards Integrated Reporting: Communicating Value in the 21st Century' the IIRC considered the rationale for integrated reporting, offering initial proposals for the development of an International Integrated Reporting Framework and outlining the next steps towards its creation and adoption. For more information, please go to www.theiirc.org. PRI signatories can also join the investor working group through the Clearinghouse.

- **The Sustainability Accounting Standards Board™ (SASB™)**
  Launched this year, SASB is a registered non-profit organization engaged in the development and dissemination of industry-specific sustainability accounting standards. SASB will establish an understanding of material sustainability issues facing industries and create sustainability accounting standards suitable for disclosure in standard filings such as the Form 10-K and 20-F. SASB addresses the unique needs of the U.S. market, establishing standards for integrated reporting that are concise, comparable within an industry, and relevant to all 35,000 publicly listed companies in the U.S. For more information, go to www.sasb.org

In academia, studies are advancing beyond links between share price returns and ESG quality ratings to assessments of how ESG factors might impact company operations. Among these Professors Robert Eccles and George Serafeim of the Harvard Business School published their analysis of the links between a corporate culture of sustainability and corporate performance and presented these to the working group.[32]

32. Robert G. Eccles, Ioannis Ioannou, George Serafeim, 'The Impact of a Corporate Culture of Sustainability on Corporate Behavior and Performance', November 2011, http://hbswk.hbs.edu/item/6865.html

APPENDIX 3: EXAMPLES OF REGULATORY DEVELOPMENTS DRIVING IMPROVED RESPONSIBLE INVESTMENT

EUROPE

As part of a larger legislative package on corporate governance and corporate social responsibility (CSR), the European Commission has recently carried out several consultations on ESG disclosure:

Firstly an amendment to the Accounting Directive will update non-financial disclosure obligations by large companies. The proposal was due to be adopted at the end of 2012.

For further information:

- http://www.eurosif.org/images/stories/pdf/Lobbying_Papers/Eurosif_ESG_Reporting_2011_final.pdf

- http://ec.europa.eu/internal_market/consultations/docs/2010/non-financial_reporting/summary_report_en.pdf

In July 2012 another proposal was made for a Key Information Document (KID) for investment products. It is linked to a wider EU initiative to create a sustainable and satisfactory regulatory environment for the sale and disclosures of retail investment products (Packaged Retail Investment Products or PRIPs).

The proposed regulation would make it mandatory for retail investors to be informed about how ESG concerns are taken into account in their investment, whether in a mutual fund or other investment-linked products.

For further information:

- http://www.eurosif.org/images/stories/30July2012KidDisclosureRelease.pdf

- http://ec.europa.eu/internal_market/finservices-retail/docs/investment_products/20120703-proposal_en.pdf

SOUTH AFRICA

The South African government has recently passed Regulation 28 of the Pensions Funds Act. The new regulation contains prudential guidelines for retirement fund investments, placing ESG risks and opportunities in the mainstream.

Further information can be found:

- http://www.world-exchanges.org/insight/views/southern-african-pension-funds-tackle-responsible-investing

- ftp://ftp.fsb.co.za/public/documents/R28_0508.pdf

The Code for Responsible Investing in South Africa (CRISA) was launched in July 2011 in support of this new regulation. CRISA encourages institutional investors and service providers to adopt its principles and practice recommendations on an 'apply or explain' basis. The Code requires institutional investors to fully and publicly disclose to stakeholders at least once a year to what extent the Code has been applied. If an institutional investor has not fully applied one of the Principles of the Code, the reasons should be disclosed. Disclosure as well as policies should be made public.

- http://www.asisa.co.za/index.php/info-centre/responsible-investment.html

UK

In 2000 the UK Pensions Act was amended to require trustees of occupational pension plans to disclose their policy on socially responsible investment as part of their Statement of Investment Principles (SIP). Courts in the United Kingdom have also dictated that the concept of beneficiaries' 'best interests' under a pension trust may extend beyond their financial interests to include their 'views on moral and social matters'. Since 2000, Austria, Belgium (2003), France, Germany, Italy, Spain (2004), and Sweden have also adopted disclosure regulations similar to the ones in place in the United Kingdom.

- http://www.oecd.org/investment/guidelinesformultinationalenterprises/38550550.pdf

The UK Stewardship Code was published in 2010 and revised in September 2012. The Financial Reporting Council (FRC) requires that authorised UK asset managers 'comply or explain' why they are not adhering to the code. The code sets out good practice on engagement with investee companies, with the aim of enhancing long-term returns to shareholders and the efficient exercise of governance responsibilities.

- http://www.frc.org.uk/Our-Work/Codes-Standards/Corporate-governance/UK-Stewardship-Code.aspx

US

In 2011 the US introduced HR 2759, a bill to require large companies to disclose information related to human trafficking and slavery.

- http://maloney.house.gov/press-release/maloney-introduces-bipartisan-bill-fight-human-trafficking

In 2012 the SEC adopted a rule requiring that certain companies disclose the use of conflict minerals that originated in the Democratic Republic of Congo or adjoining countries.

- http://www.sec.gov/news/press/2012/2012-163.htm

APPENDIX 4: ESG FACTORS

There is no comprehensive list or method for categorising ESG issues. This section contains a list of issues investors refer to under the heading of 'ESG'. It is not comprehensive and should not be used in a way that restricts the scope of issues that investors may choose to consider. While some investors may define their own priority ESG issues based on industry sector or geography, the concept of responsible investment implicitly seeks to expand the scope of issues considered in investment descisions.

STABILITY AND HEALTH OF THE MARKET

Environment	Social	Governance	
		Companies	**Funds**
■ Climate change ■ Environmental policy ■ Sustainability best practice ■ Environmental management ■ Water supply ■ Sustainable transport ■ Waste management	■ Consumer rights ■ Supply chain management ■ Health and safety ■ Product safety ■ Labour relations, inc. relationships with unions ■ Community / stake holder relations	■ Board structure ■ Independant directors ■ Chairman / CEO split ■ Exec. pay ■ Shareowner rights ■ Accounting / audit ■ Business ethics ■ Conflicts of interest	■ Fund governance ■ Advisory committee powers and composition ■ Valuation issues ■ Free structures

An ESG factor is an issue that is qualitative or quantitative in nature, which may be material to financial analysis. Such factors manifest at a macro, country, sector or company level.

- At a macro level, ESG megatrends can influence the global economy and may have a profound long-term impact. Examples are resource scarcity and climate change.
- Country and sector level ESG factors are diverse and often interconnected. Examples are legislative changes and supply chain issues.
- At a company level, ESG analysis is specific to size, structure and the nature of operations.
- Material issues may arise from the following categories of company level assessment:

  A. Environmental assessment may include a company's resource efficiency in terms of waste, greenhouse gas emissions and water and energy use; and its efforts to improve this efficiency.

  B. Societal assessment aims to determine the company's social licence to operate, its trade practices and exposure to corruption risk. It can also include product safety, customer loyalty, relationships with the communities in which the company hopes to do business, compliance with labeling laws and marketing practices.

  a. Human rights assessment deals with discrimination, forced labour, indigenous rights and procurement practices.

  b. The assessment of labour practices seeks to evaluate human capital management (including gender diversity), work safety, labour and union relations.

  C. Corporate governance assessment of companies may deal with remuneration practices, board composition and board policies, risk controls and corporate disclosure practices.

APPENDIX 5: INVESTOR USES OF ESG INFORMATION

Use of ESG information	Examples
Quantifying the benefits and costs of specific ESG factors	Investors can integrate their understanding of ESG factors into earnings forecasts or by adjusting the discount rate in DCF valuation.
Identifying risks and opportunities that traditional investment research may not	Companies that operate in politically and socially sensitive areas are potentially subject to high operational risk and share price risks in terms of strikes and volatile unstable institutions.
Identifying leaders and laggards	'Best in class' funds identify leaders and 'focus' funds select companies with poor ESG performance and seek to improve it as a means of adding investment value.
Identifying the beneficiaries of longer-term structural changes in the economy	Thematic research may be used to identify stocks that are then subject to more detailed analysis or to create a thematic fund. An example of an ESG theme would be demographic change such as ageing populations in many developed countries.
Assessing company performance against its ESG objectives and targets	Attention to ESG performance can signal a company's ability to deliver on all areas of business strategy.
Negative or positive screening	Investors can screen their portfolios based on various negative or positive criteria.

Source: PRI research

APPENDIX 6: RESOURCES

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http://www.carbontracker.org

Citi, Towards Sustainable Mining: Riding with the cowboys, or hanging with the sheriff?
http://www.citivelocity.com

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PRI in Person: Nuts and Bolts, Panel Recording, 14 September 2011 - available on PRI Signatory Extranet

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http://www.quotientinvestors.com/News_Files/Quotient_Investors_-_Mainstream_ESG_Equity_Allocations.pdf

RobecoSAM, 'ESG Integration in Practice', presentation by Cécile Churet and Mark Glazener, May 2012

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http://nbis.org/nbisresources/accounting_and_green_banking/signma_sustainability_accounting.pdf

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https://www.sgresearch.com/Default.aspx?ReturnUrl=https%3a%2f%2fwww.sgresearch.com%2f

Société Générale, Pharmaceuticals Marketing: Beware of Side Effects, Carole Crozat, Yannick Ouaknine, Niamh Whooley, September 2011, https://www.sgresearch.com/Default.aspx?ReturnUrl=https%3a%2f%2fwww.sgresearch.com%2f

SRI-Connect, Integrated Analysis: Approaching a Tipping Point
http://www.sri-connect.com/index.php?option=com_content&view=category&layout=blog&id=22&Itemid=104

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