



Connecting the Dots on ESG & Valuation

New York
October 16, 2014



SASB

Agenda

- Katie Schmitz Eulitt, Director, Stakeholder Engagement
Welcome
- Bruno Bertocci, Managing Director – Global Equities, UBS
The importance of standards
- Jerome Lavigne-Delville, Director of Standards Development, SASB
 - *An Introduction to SASB*
 - *SASB & Portfolio-level Analysis*
 - *SASB & Industry-level Analysis*
 - *SASB & Firm-level Analysis*
- Erika Karp, Founder and CEO, Cornerstone Capital and members of the Cornerstone Capital team
Mock Investment Review Committee



The Importance of Standards

Bruno Bertocci
Senior Portfolio Manager



Why sustainability data helps the investment process

- Graham and Dodd, *Security Analysis* (1935) first describe **mosaic theory**
- In 1935 book value and market value closely related
- Aimed to provide investors with a logical way to make good decisions
- Focused on financial data but includes non-financial factors
- Material sustainability data extends the mosaic of fundamental data **beyond financial analysis**
- Today market value is a multiple of book value because it includes intellectual property, patent libraries, brand equity and other intangible assets
- **The emergence of material non-financial data is the modern way to extend the mosaic theory of investing to better assess business models**
- Completely **compatible with traditional fundamental investing**, portfolio construction and financial theory

Why the SASB matters

- **Standards** are important because they provide a common reference point for conversations
- **Standards** for material Sustainability data should create equivalence with traditional financial data
- **Standards** extend the mosaic of information in a way that is consistent with the history, tradition and financial theory of fundamental investing
- **Standards** make sustainability data an accepted part of the analytical and decision-making process

Development of the end market – moving to the mainstream

- **Pension Funds and Institutional Investors** are interested in Sustainable Investing from an **alpha generating and risk reduction approach**
- **High Net Worth, Endowments and Foundations** are interested in Sustainable Investing from a **philosophical and mission alignment approach**. Recent US Trust study found that 45% of HNW would like to have a conversation with their advisor on being able to invest in line with their values.
- **Large wirehouses** (UBS, Merrill Lynch and Morgan Stanley) have **strategic values-based investing programs** that are open architecture and have clear AUM goals
- Many investors want **both** alpha generating/ risk reduction and mission alignment
- **The development of accounting standards for sustainability data can make all this possible**



An Introduction to SASB –
Jerome Lavigne-Delville,
Director of Standards Development, SASB

Narrowing The Focus

SASB's prioritization starts with a comprehensive set of sustainability issues

Environment

- Climate change
- Environmental accidents and remediation
- Water use and management
- Energy management
- Fuel management and transportation
- GHG emissions and air pollution
- Waste management and effluents
- Biodiversity impacts

Social capital

- Communications and engagement
- Community development
- Customer satisfaction
- Customer health and safety
- Disclosure and labeling
- Marketing and ethical advertising
- Access to services
- Customer privacy
- New markets

Human capital

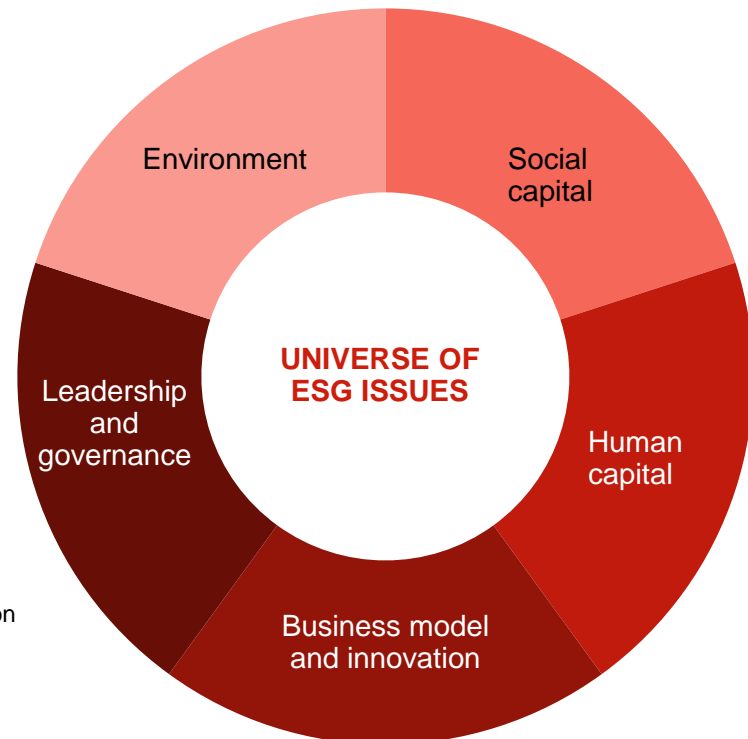
- Diversity and opportunity
- Training and development
- Recruitment and retention
- Compensation and benefits
- Labor relations and union practices
- Employee health, safety and wellness
- Child and forced labor

Business model and innovation

- Long term viability of core business
- Accounting for externalities
- Research, development and innovation
- Product societal value
- Product lifecycle impact
- Packaging
- Product pricing
- Product quality and safety

Leadership and governance

- Regulatory and legal challenges
- Policies, standards, codes of conduct
- Business ethics and competitive behavior
- Shareholder engagement
- Board structure and independence
- Executive compensation
- Lobbying and political contributions
- Raw material demand
- Supply chain standards and selection
- Supply chain engagement and transparency



The SASB Method

SASB is guided by the Supreme Court definition in prioritizing disclosure topics



*“Material information” is defined by the Supreme Court as presenting a substantial likelihood that the **disclosure** of the omitted fact **would** have been viewed by **the reasonable investor** as having significantly altered **the “total mix” of information** made available.*

TSC Industries, Inc. v. Northway, Inc., 426 U.S. 438 (1976)

EVIDENCE OF INTEREST

Issue frequency in five data-driven tests:

- Financial risks
- Legal drivers
- Industry norms
- Stakeholder concerns
- Innovation opportunity

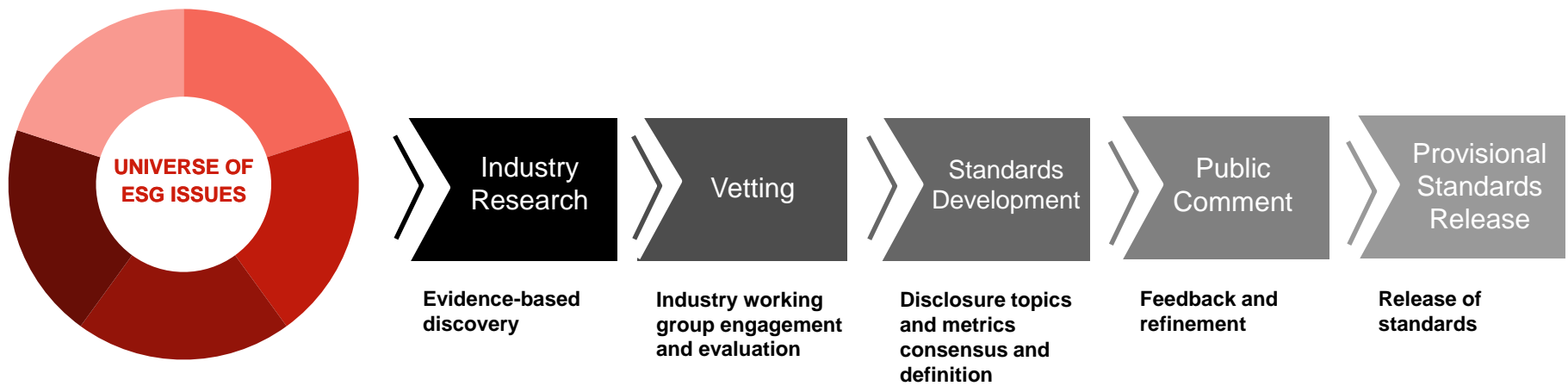
EVIDENCE OF FINANCIAL IMPACT

Issue impact on four business value drivers:

- Revenue
- Return on capital
- Risk management
- Management quality

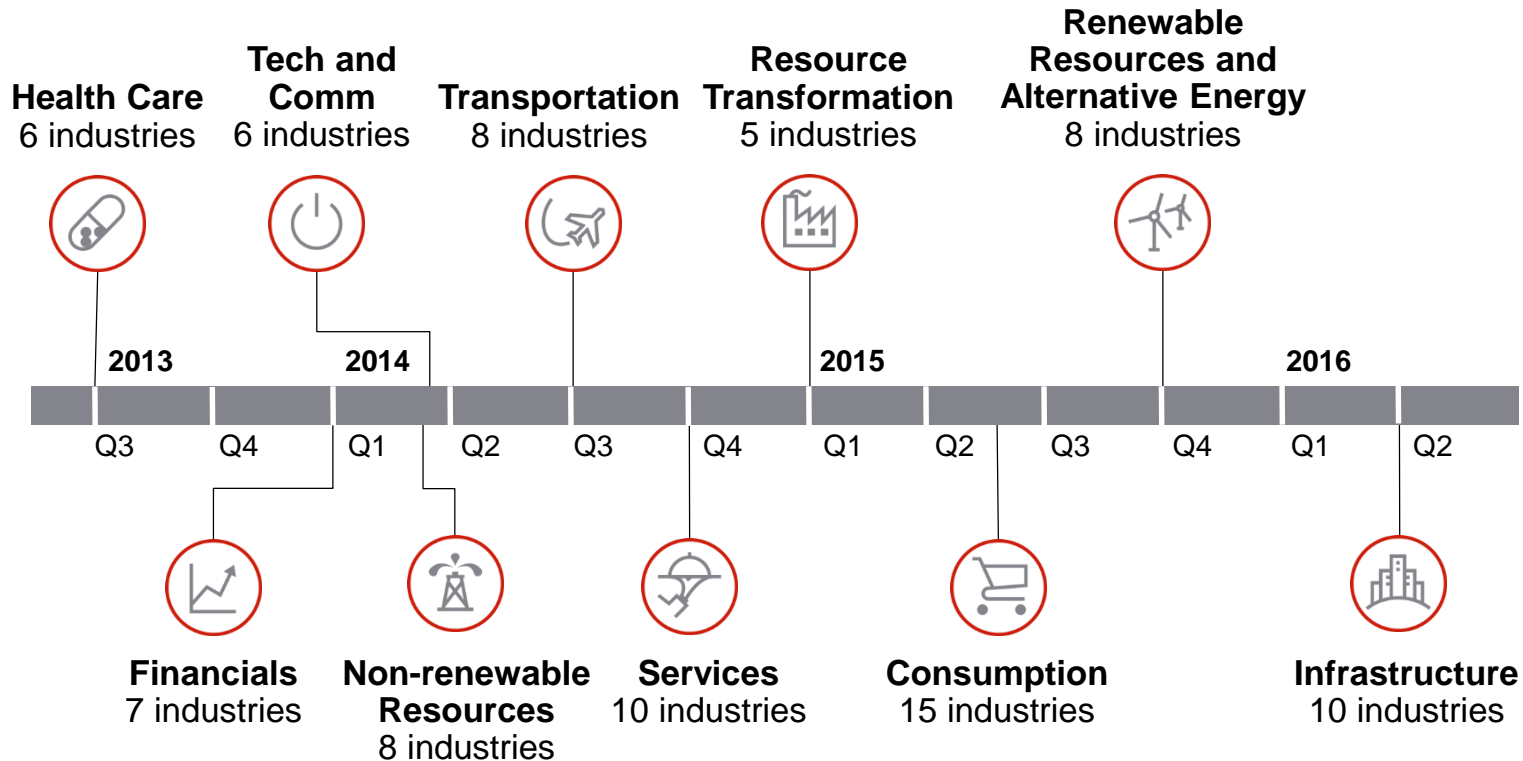
Rigorous, Transparent Process

SASB standards are rooted in evidence and shaped by consensus



Consistent Progress

By 2016, SASB will have issued standards for more than 80 industries in 10 sectors



Robust Standards

SASB standards contain more than just metrics

SASB Standards and Technical Protocol

SASB Industry Brief

Table 1. Material Sustainability Topics & Accounting Metrics

TOPIC	CODE	ACCOUNTING METRIC
Access to Medicines	HC0102-01	Description of initiatives to promote access to health care products
	HC0102-02	Access to Medicines
Drug Safety and Side Effects	HC0102-03	Description of initiatives to improve drug safety and side effects
	HC0102-04	Drug Safety and Side Effects
	HC0102-05	Drug Safety and Side Effects
	HC0102-06	Drug Safety and Side Effects
Safety of Clinical Trial Participants	HC0102-07	Description of initiatives to improve safety of clinical trial participants
	HC0102-08	Safety of Clinical Trial Participants

Description

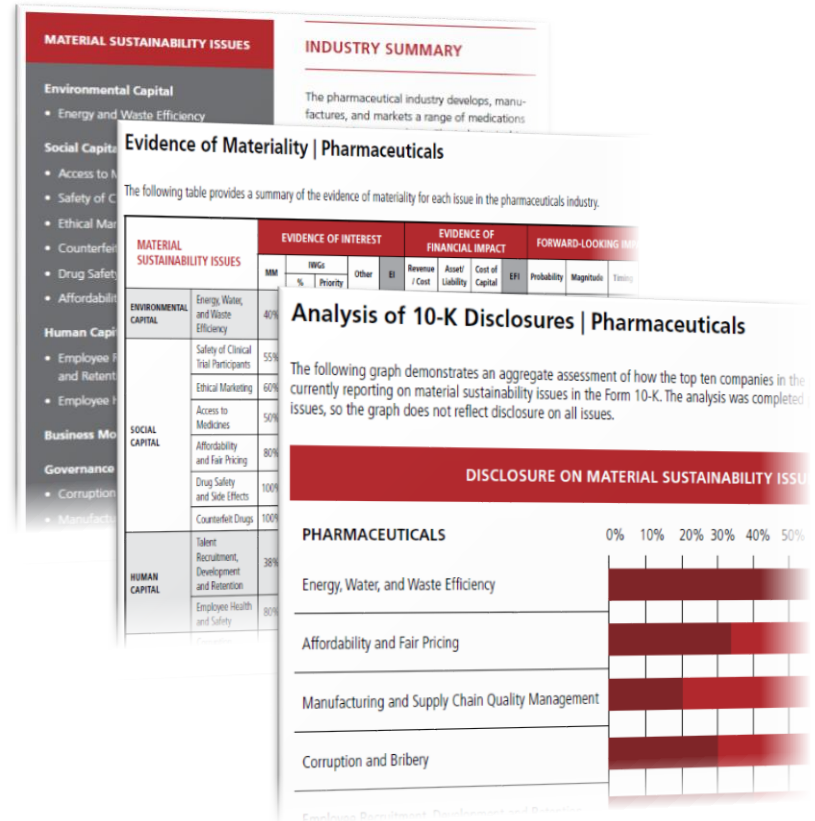
Pharmaceutical companies play an important role in providing access to health care products. Firms can develop pricing frameworks that account for differing levels of needs across various countries. Further, the industry can target priority diseases and develop an approach to access to medicines can yield opportunities for growth, innovation, and can enhance shareholder value.

Accounting Metrics

HC0102-01. Description of initiatives to promote access to health care products defined by the Access to Medicine Index.

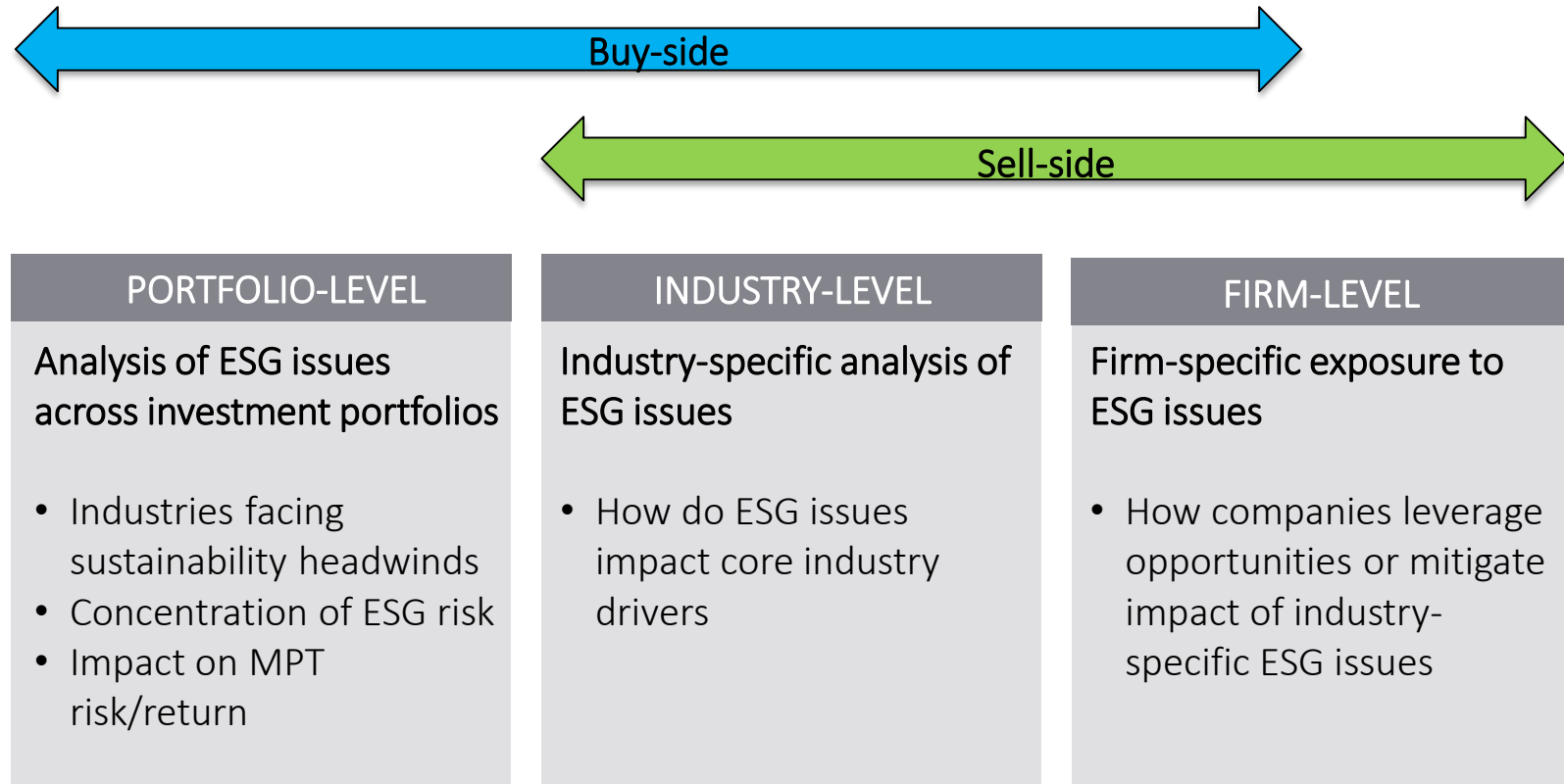
01 Disclosure applies to initiatives the registrant, launched, funded, supported, or planned during the fiscal year that related to improving access to health care in prior years if it was authorized for sale and available during the fiscal year. Initiatives that began or concluded during the fiscal year, however, should indicate this condition.

02 The following issues as they relate to access to health care initiatives should be discussed: research and development, pricing, public policy and market access.



Integrated Into Investment Decisions

SASB standards support various stages of the investment process





SASB & Portfolio-level Analysis

Cross-cutting Issues – Differentiated Impacts

ISSUES	Health Care	Financials	Technology and Communications	Non-Renewable Resources
	Click to expand	Click to expand	Click to expand	Click to expand
Environment				
GHG emissions				
Air quality				
Energy management				
Fuel management				
Water and wastewater management				
Waste and hazardous materials management				
Biodiversity impacts				
Social Capital				
Human rights and community relations				
Access and affordability				
Customer welfare				
Data security and customer privacy				
Fair disclosure and labeling				
Fair marketing and advertising				
Human Capital				
Labor relations				
Fair labor practices				
Employee health, safety and wellbeing				
Diversity and inclusion				
Compensation and benefits				
Recruitment, development and retention				
Business Model and Innovation				
Lifecycle impacts of products and services				
Environmental, social impacts on core assets and operations				
Product packaging				
Product quality and safety				
Leadership and Governance				
Systemic risk management				
Accident and safety management				
Business ethics and transparency of payments				
Competitive behavior				
Regulatory capture and political influence				
Materials sourcing				
Supply chain management				

CONFIDENTIAL & PROPRIETARY



Cross-cutting Issues – Differentiated Impacts

ISSUES	Non-Renewable Resources							
	Oil and Gas - Exploration and Production	Oil and Gas - Midstream	Oil and Gas - Refining and Marketing	Oil and Gas - Services	Coal Operations	Iron and Steel Producers	Metals and Mining	Construction Materials
Environment								
GHG emissions								
Air quality								
Energy management								
Fuel management								
Water and wastewater management								
Waste and hazardous materials management								
Biodiversity impacts								
Social Capital								
Human rights and community relations								
Access and affordability								
Customer welfare								
Data security and customer privacy								
Fair disclosure and labeling								
Fair marketing and advertising								
Human Capital								
Labor relations								
Fair labor practices								
Employee health, safety and wellbeing								
Diversity and inclusion								
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Business Model and Innovation								
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Business ethics and transparency of payments								
Competitive behavior								
Regulatory capture and political influence								
Materials sourcing								
Supply chain management								

Pharmaceuticals

Prev | Next

2 of 4

×

Energy management

Prev | Next

1 of 12

Disclosure Topic: Energy, Water, and Waste Efficiency

Evidence of Materiality

Interest - Low

HM Score: 40

IWG Score: 88%

Financial Impact - Low

☒ Revenue/Cost
 ☐ Asset / Liabilities
 ☐ Cost of Capital

Forward Impact - Yes

☒ Probability / Magnitude
 ☐ Externalities

Accounting Metric

- HC0101-23: Total annual energy consumed (gigajoules) and percentage renewable (e.g., wind, biomass, solar).

The SASB Materiality Map

[illegible]

Cross-cutting Issues – Differentiated Impacts

The Climate example

	Demand for Products & Services	Production Capacity & Cost	Value of Assets & Liabilities
Healthcare			
Biotechnology	CC impacts on H. Health	Energy mgmt	
Pharmaceuticals	CC impacts on H. Health	Energy mgmt	
Medical Equipment and Supplies		Energy mgmt	
Health Care Delivery		Energy mgmt	
Health Care Distribution	CC impacts on H. Health	Energy mgmt	
Managed Care			ESG integration in investments
Finance			
Commercial Banking			ESG integration in investments
Investment Banking	ESG integration in services		
Asset Management	ESG integration in services		
Consumer Finance			
Mortgage Finance	Energy efficient mortgages		Env. risk exposure
Exchanges			
Insurance			Env. risk expos. + ESG integration
Tech & Com			
Hardware			
EMS & ODM			
Semiconductors	Delivering Sustainability Solutions	GHG emissions + Energy mgmt	
Software & IT Services	Delivering Sustainability Solutions	Env. Footprint of Operations	
Internet Media & Services		Env. Footprint of Operations	
Telecom	Delivering Sustainability Solutions	Env. Footprint of Operations	
NRR			
Oil & Gas – Exploration & Production		GHG Emissions	Reserves valuation & Capex
Oil & Gas – Midstream		GHG Emissions	
Oil & Gas – Refining & Marketing	Product specs & clean fuel blends	GHG Emissions	
Oil & Gas – Services	Emissions red. Svcs. & fuels mgmt		
Coal Operations		GHG Emissions	Reserves valuation & Capex
Iron & Steel Producers		GHG emissions + Energy mgmt	
Metals & Mining		GHG emissions + Energy mgmt	
Construction Materials		GHG emissions + Energy mgmt	

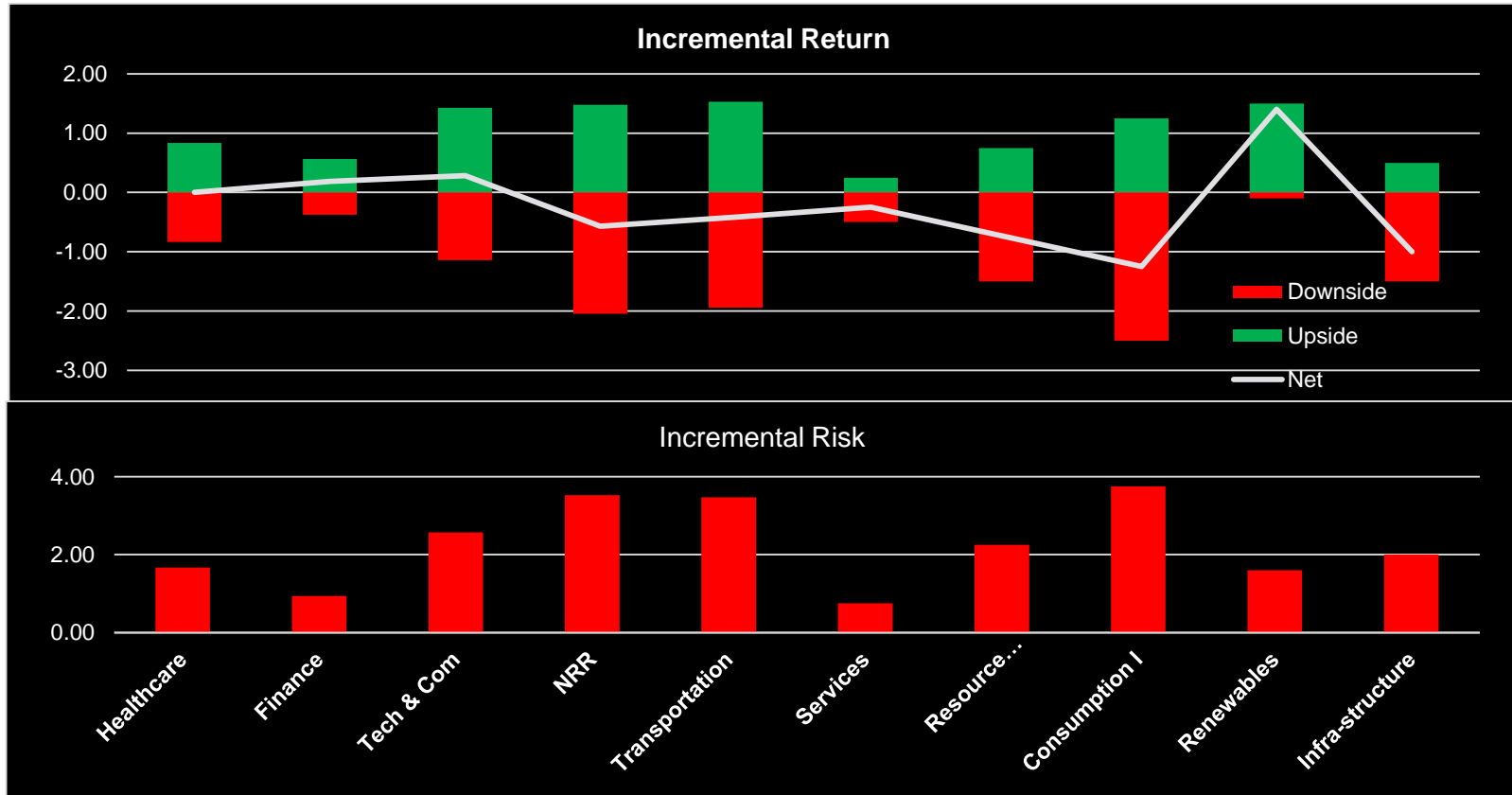
Cross-cutting Issues – Differentiated Impacts

The Climate example

	Demand for Products & Services	Production Capacity & Cost	Value of Assets & Liabilities
Transportation			
Automobiles	Fuel Econ & Use-phase Emissions		
Auto Parts		Energy mgmt	
Car Rental & Leasing	Fuel Econ & Use-phase Emissions		
Airlines		Env. Footprint of Fuel Use	
Air Freight & Logistics		Env. Footprint of Fuel Use	
Marine Transportation		Env. Footprint of Fuel Use	
Rail Transportation		Env. Footprint of Fuel Use	Climate Change Adaptation
Road Transportation		Env. Footprint of Fuel Use	
Services			
Education			
Professional Services			
Hotels & Lodging		Energy mgmt	
Casinos & Gaming		Energy mgmt	
Restaurants		Energy mgmt	
Leisure Facilities		Energy mgmt	
Cruise Lines		Fuel use	
Advertising & Marketing			
Media Production & Distribution			
Cable & Satellite		Energy mgmt	
Resource Transformation			
Chemicals		GHG Emissions	
Aerospace & Defense		Energy mgmt	
Electrical / Electronic Equipment		Energy mgmt	
Industrial Machinery & Goods		Energy mgmt	
Containers & Packaging		GHG emissions + Energy mgmt	
Consumption I			
Agricultural Products		GHG Emissions + Clim. Adaptation	Climate Change Adaptation
Meat, Poultry, and Dairy		GHG Emissions + Clim. Adaptation	Climate Change Adaptation
Processed Foods		GHG emissions + Energy mgmt	
Non-Alcoholic Beverages		GHG emissions + Energy mgmt	
Alcoholic Beverages		GHG emissions + Energy mgmt	
Tobacco			Climate Change Adaptation
Household & Personal Products			

Impact on Risk-adjusted Returns of Portfolios

The Climate example





SASB & Industry-level Analysis

Industry-specific analysis of ESG issues

Pharmaceuticals

Industry Drivers & Valuation Methods	SASB Issues	Sustainability impacts on value drivers
<p>Value Drivers</p> <ul style="list-style-type: none"> - Drug pipeline - Drug development process - Investment in drug development - Patent and post-patent demand <p>Risk factors</p> <ul style="list-style-type: none"> - Clinical and regulatory risk - Generic challenge - Pipeline failure <p>Valuation Methods</p> <ul style="list-style-type: none"> - High P/E (18-20x) for growth - DCF with 0% terminal growth - Real option for pipeline 	<p>Environmental</p> <ul style="list-style-type: none"> • Energy, Water, Waste Efficiency <p>Social</p> <ul style="list-style-type: none"> • Access to Medicines • Affordability and Fair Pricing • Recruitment & Retention • Employee Health and Safety <p>Safety & Ethics</p> <ul style="list-style-type: none"> • Drug Safety and Side Effects • Counterfeit Drugs • Safety of Clinical Trial • Mftg & Supply Chain Quality • Ethical Marketing • Corruption & bribery 	<p>Long-term Growth</p> <ul style="list-style-type: none"> • Access and affordability impacts long-term revenue growth for behind current and pipeline drugs. • Drug safety and marketing impacts affects market share of branded and generic products • Inability to recruit talent can impact market share and growth. <p>Drug development success & costs</p> <p>Clinical trial safety impacts the timing and success of drug development.</p>

Industry-specific analysis of ESG issues

Online Media

Industry Drivers & Valuation Methods	SASB Issues	Sustainability impacts on value drivers
<p>Value Drivers</p> <ul style="list-style-type: none"> • Critical mass/network effects • Number of subscribers and depth of use • Targeted / social ads <p>Risk factors</p> <ul style="list-style-type: none"> • Privacy, security, and regulatory risks <p>Valuation Methods</p> <ul style="list-style-type: none"> • High P/E based on growth • Revenue per user 	<p>Environment</p> <ul style="list-style-type: none"> • Environmental footprint of HW <p>Social</p> <ul style="list-style-type: none"> • Data privacy • Data security • Talent & Diversity <p>Ethics</p> <ul style="list-style-type: none"> • Competition and IP 	<p>Revenue growth</p> <ul style="list-style-type: none"> • Data privacy and security concerns -- from customers or regulators – can impact ability to enhance user experience and serve targeted ads • Competition and IP can restrict license to operate and growth • Ability to recruit talent and can impact market share and growth <p>Costs</p> <p>Water-intensive operations (data centers) in water-stressed areas can lead to high input costs and CAPEX for data-intensive services</p>

Industry-specific analysis of ESG issues

Mining & Metals

Industry Drivers & Valuation Methods	SASB Issues	Sustainability impacts on value drivers
Value Drivers <ul style="list-style-type: none"> Reserves development probability Commodity prices and volatility Cost of operation Leverage Risk factors <ul style="list-style-type: none"> Permitting risk for new mines Political and social risks Valuation Methods <ul style="list-style-type: none"> Real options for development DCF for current mines 	Environmental impact <ul style="list-style-type: none"> Greenhouse Gas Emissions Energy Management Air Quality Water Management Waste Management Biodiversity Impacts Social impact <ul style="list-style-type: none"> Community Relations Human Rights Health & Safety Labor relations Ethics <ul style="list-style-type: none"> Business Ethics & Transparency 	Cost of operations Resource efficiency and Labor relations can impact costs Mine development costs Environmental and social impacts impact can shorten or lengthen development process (permits) Cost of Capital Operations in politically or socially sensitive areas can add to cost of capital. Performance on social impact and ethics can mitigate risk. Option value of reserves Probability of success in mine development impacted by community relations, labor relations and biodiversity impacts

Industry-specific analysis of ESG issues

Automobile

Industry Drivers & Valuation Methods	SASB Issues	Sustainability impacts on value drivers
<p>Value Drivers</p> <ul style="list-style-type: none"> • Leverage; restructuring • Global markets • Product mix <p>Risk factors</p> <ul style="list-style-type: none"> • Rising gas prices • Demand for alternative energy • Rising commodity prices • Large unfunded pension plan <p>Valuation Methods</p> <ul style="list-style-type: none"> • EV/EBITDAPO for incumbents • DCF and revenue-based ratio for new entrants or new markets 	<p>Environmental</p> <ul style="list-style-type: none"> • Fuel economy & use-phase emissions • Materials efficiency & recycling • Materials sourcing <p>Social</p> <ul style="list-style-type: none"> • Product safety • Labor relations 	<p>Revenue Growth. Product mix alignment to demand for smaller, energy efficient and low emission vehicles. Impacts of switching away from large vehicles (more profitable)</p> <p>Operating costs and CAPEX. Materials scarcity can lead to a higher cost and R&D and CAPEX for substitution. Sourcing; materials used and production efficiency can mitigate impact at the firm-level.</p> <p>Option value / Scenario analysis. Large Investment (R&D, Capex) in alternative powertrain (EV fuel cell hybrid) with uncertain outcome.</p>



SASB & Firm-level Analysis

Comparative Analysis

SASB standards enable peer-to-peer comparison



Sustainability Fundamentals: Pharmaceutical Industry

HC Go Lookup Symbol Company Compare Go

This view compares the company you have selected to all other companies in the same industry. Click on the column heading to sort the report on any of the variables shown.

Impacts

Opportunities

Company Name & Ticker		Affordability & Fair Pricing		Ethical Marketing		Safety and Side Effects		Mfg & Supply Ch. Mgmt	Recruitment & Development		EH&S	Energy, Water, and Waste Efficiency				
		Price Increase	ANDA Settlmt.	Fines & Settlmt.	Fatalities	Recalls	Rx-360 facilities	Training	Voluntary Turnover	LAI (1)	Energy	Rnwbl Energy	Water	Water Recycl	Waste	Waste Recycl
		ΔPrice/ΔCPI	\$million	\$million	#/per year	#/per year	%	\$000/FTE	%	/1000 empl	Ggj	%	m3	%	MT	%
Bay-DNA	DNA	3.4%	\$ 8.0	\$ 35.6	1	2	100%	\$ 0.5	9.1%	0.5	18,701,473	9.3%	56,952	14.8%	102,000	25.0%
PharmaCo	PCO	2.6%	\$ 5.2	\$ 21.2	0	0	80%	\$ 2.5	6.4%	0.0	15,240,371	15.0%	73,224	5.1%	115,152	47.3%
TechGenetics	TCI	1.2%	\$ 2.5	\$ 12.0	3	4	95%	\$ 3.2	8.2%	0.2	10,097,298	0.0%	68,137	5.3%	98,745	14.2%
AmeLabs	ALB	0.2%	\$ 0.0	\$ 1.5	0	0	100%	\$ 3.3	2.0%	0.7	7,873,876	13.6%	45,726	18.0%	63,475	24.3%
Bio Life Inc.	BLI	1.0%	\$ 0.0	\$ 3.0	2	1	85%	\$ 8.5	4.6%	1.1	10,123,763	0.0%	22,228	25.2%	54,748	10.0%
Average		1.7%	\$ 3.1	\$ 14.7	1.2	1.4	92%	\$ 3.6	6.1%	0.5	12,407,356	7.6%	53,253	13.7%	67,095	24.2%

Peer Comparison

Complete Data Set

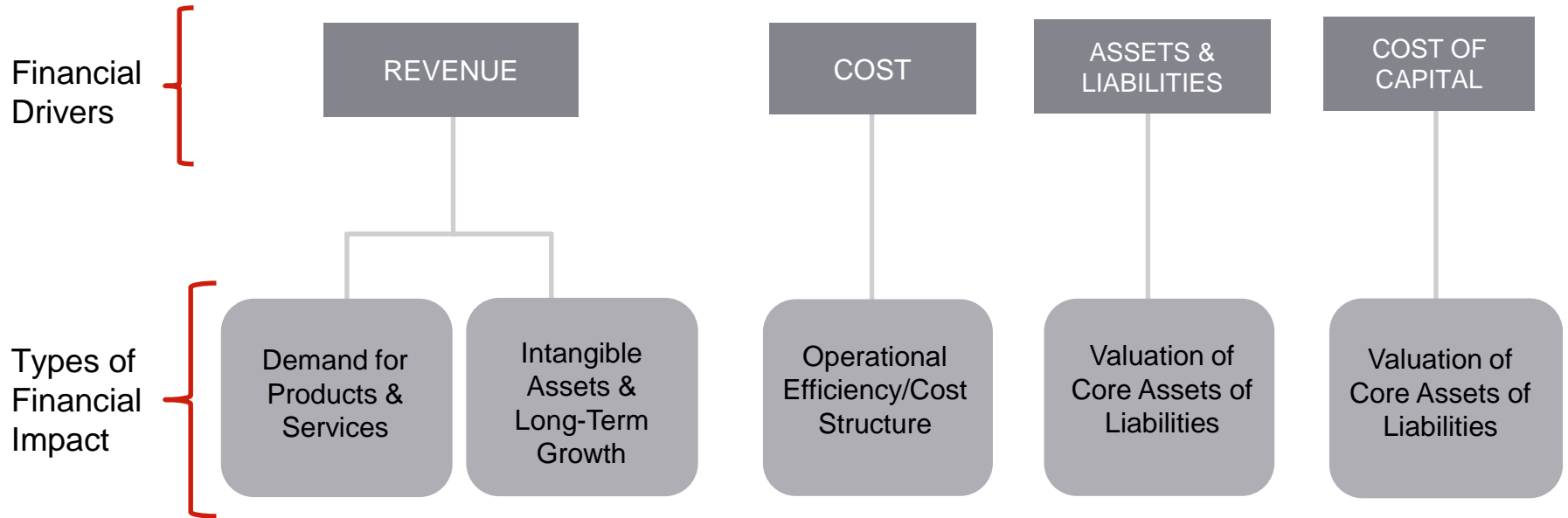
Consistent Units

Benchmarking



Fundamental Valuation

SASB standards address business issues known to impact value creation



Firm-level Analysis

Categorizing Sustainability Issues by Type of Financial Impacts

1. Demand for Core Products & Services	2. Intangible Assets & Long-term Growth	3. Operational Efficiency & Cost Structure	4. Valuation of Core Assets & Liabilities	5. Operational Risk & Cost of Capital
E&S Impact of Products <ul style="list-style-type: none"> Product safety Lifecycle impacts ESG solutions ESG impact on demand <ul style="list-style-type: none"> Disease migration ESG integration in financial services 	Human Capital <ul style="list-style-type: none"> Diversity Customer Responsibility <ul style="list-style-type: none"> Customer privacy Labelling & marketing Ethics & Safety <ul style="list-style-type: none"> Accident & safety Business ethics 	Environmental Externalities <ul style="list-style-type: none"> GHG emissions Human Capital <ul style="list-style-type: none"> Labor relations Health & safety Resource Constraints <ul style="list-style-type: none"> Materials sourcing 	Impacts from Externalities <ul style="list-style-type: none"> ESG integration in investment Stranded assets Climate impacts on agriculture 	License to operate <ul style="list-style-type: none"> Community relations Systemic risk Political spending Resource Constraints <ul style="list-style-type: none"> Materials sourcing Ethics & Safety <ul style="list-style-type: none"> Accident & safety Business ethics
Fundamental and Comparative Analysis				
<ul style="list-style-type: none"> Revenue forecast for DCF Price-based ratios (PE or PEG ratios) 	<ul style="list-style-type: none"> Long-term revenue growth in DCF Price-based ratios (PE or PEG ratios) 	<ul style="list-style-type: none"> Cost drivers for DCF Profitability ratios (e.g. ROI) 	<ul style="list-style-type: none"> Valuation methods for assets & liabilities Asset-based ratio (ROI, RRR, solvency) 	<ul style="list-style-type: none"> Quantification of risk for cost of capital

Firm-level Analysis

Example of Water Management in Agricultural Products

Financial Drivers		Cost	Cost of Capital
Types of Financial Impact		OPERATIONAL EFFICIENCY / COST STRUCTURE	OPERATIONAL RISKS & COST OF CAPITAL
Evidence		<ul style="list-style-type: none">Chiquita Brands reports that the average water footprint of a kilogram of bananas is 400 to 600 liters, and ~90% of this footprint lies in the cultivation phase.	<ul style="list-style-type: none">Drought caused ADM to nearly lose access to water for some of its processing facilities. As a result, the company agreed to pay the city \$2.5 million to develop alternate water sources
Value Impact		<ul style="list-style-type: none">Water scarcity/inefficiency could lead to new regulatory frameworks for water allocation and higher operating costs due to increased water prices	<ul style="list-style-type: none">Reduced availability, higher water prices, and competition with other water consumers for water resources

Using SASB Metrics in Financial Analysis

Managed Care – Access to Coverage

SASB Metric

Medical Loss Ratio (MLR) = Medical costs as percentage of premium revenue

MLR measures the ratio of medical care vs. administrative costs.

The ACA requires MLR > 80%; below that, insurers must issue rebates to their enrollees

Financial Impact

- Lower MLR leads to rebates and lowers profits
- Higher MLR is proxy for better service, likely improving customer satisfaction and market share and revenue growth

Company	Medical Loss Ratio
UnitedHealth Group	81.5
WellPoint Inc.	87.8
Aetna Inc.	82.9
Humana Inc.	85.8
Cigna Corp.	80.9
Centene Corp.	88.6
Health Net Inc.	87.1
Wellcare Health	87.5
Molina Healthcare	87.1
Universal American	83.4
Minimum:	80.9
Maximum:	88.6
Average:	85.3

Using SASB Metrics in Financial Analysis

Telecom – Energy Management

SASB Metric

Total energy consumed, percentage grid electricity, percentage renewable energy; amount of energy consumed by (a) cellular and (b) fixed networks.

Total Energy Consumed

- Absolute & comparative measure of efficiency
- Exposure to future increases in energy prices
- Efficiency requires new processes (R&D, Capex)

% Grid Electricity

- Vulnerability to specific energy sources
- Indirect cost impact from internalization of carbon prices by utilities

% Renewable

- Mitigate environmental footprint
- Mitigate exposure to rising energy cost driven by sustainability impact

Company	Total Energy (Th Mwh)	Efficiency (\$Mil Rev)	% Grid Electricity	% Renewable
AT&T Inc.	66.77	0.52	22%	-
Verizon	-	-	-	-
Nippon T&T	9.19	0.07	-	-
China Mobile	16.68	0.16	90%	-
Telefonica	6.65	0.09	94%	14.9 %
Orange SA	6.00	0.11	72%	2.9 %
America Móvil	2.52	0.04	-	1.8 %
China Telecom	14.53	0.33	-	-
Nettel Holdings	3.29	0.05	87%	-
China Unicom	14.19	0.30	92%	-
Minimum:	2.5	0.04	22%	1.8
Maximum:	66.8	0.52	94%	14.9
Average:	15.5	0.18	76%	-

Using SASB Metrics in Financial Analysis

Metals & Mining – Water Management

SASB Metric

Total fresh water withdrawn, percentage recycled, percentage in regions with High or Extremely High Baseline Water Stress.

Total Fresh Water Withdrawn

- Absolute & comparative measures of efficiency
- Exposure to long-term rise in water costs
- Efficiency requires new processes (R&D, Capex)

% Recycled

- Firm's ability to mitigate its exposure to water cost increases

% in Water Stressed Regions

- Exposure to production disruptions
- Heighten water-risks (costs, investments)
- Relocation not an option due to location of reserves

Company	Total Water With (Th m3)	Efficiency (\$/Mil Rev)	% Recycled	% in Water Stressed
Rio Tinto	731,000	14.3	23.2%	Not Available
Vale SA	373,800	7.9	75.0%	
BHP Billiton	269,100	5.2	N/A	
Aluminum Corp	N/A	N/A	N/A	
Alcoa Inc.	102,200	4.3	N/A	
Freeport-McMoRan	213,900	10.2	69.0%	
Newmont Mining	575,965	69.2	26.7%	
Minimum:	102,200	4.3	27%	
Maximum:	575,965	69.2	75%	
Average:	306,993	18.51	57%	

Using SASB Metrics in Financial Analysis

Oil & Gas – Reserves Valuation

SASB Metrics

- Sensitivity of hydrocarbon reserve levels to future price projection scenarios that account for a price on carbon emissions
- Estimated greenhouse gas emissions potential embedded in proved hydrocarbon reserves
- Discussion of how price and demand for hydrocarbons and/or climate regulation influence the capital expenditure strategy for exploration, acquisition, and development of assets

Climate Impact on Proved Reserves

- Proven reserves based on break-even price and regulatory contractual approvals
- IEA projections of oil prices substantially lower in carbon constrained scenario.
- Climate change can impact regulatory and contractual condition of extraction

Financial Analysis

Main valuation methods of O&G Companies based on reserves

- Reserve Replacement Ratio (RRR)
- Enterprise value (EV) / Reserves.
- Net Asset Value (NAV) model

Mock Investment Review Committee Meeting



**Cornerstone
Capital Group**

Erika Karp, *Founder and CEO*

Mike Shavel, CFA – *Global Thematics Analyst*

Margarita Pirovska, Ph.D. – *Policy & Sustainability Analyst*

Juan Lois – *Director of Business Development*

Alice Petrofsky, CFA – *Executive Director, Institutional Business Development*