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REVIEWING THE EVIDENCE: 10 QUESTIONS FOR THE FSB CLIMATE DISCLOSURE TASK FORCE

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Policymakers have an interest in ensuring that the financial system is resilient to all forms of risk. Possible climate-related risks fall into three broad categories: physical risks, liability risks and transition risks. It is essential these risks are managed. Appropriate disclosures are a prerequisite for stakeholders not only to manage

and providers of disclosures from a wide range of backgrounds. The Task Force will conduct its work in two stages. During the first stage, the Task Force will determine the scope and high-level objectives for its work. It is expected that this first stage will be completed by end-March 2016. During the second stage, the Task Forces work will focus on delivering specific recommendations for voluntary disclosure principles and leading practices, if appropriate, with a view to issuing a report for public consultation by end-2016. Policymakers have an interest in ensuring that the financial system is resilient to all forms of risk. Possible climate-related risks fall into three broad categories: physical risks, liability risks and transition risks. It is essential these risks are managed. Appropriate disclosures are a prerequisite for stakeholders not only to manage and

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INTRODUCTION

On November 9th, 2015, the Financial Stability Board (FSB) published a 5 page background note as part of the announcement of the establishment of an industry-led Task Force on Climate-related Financial Disclosures (*Task Force*). The note mapped the key questions to be addressed by the Task Force, whose composition was released on January 21st, 2016. The objective of the Task Force was defined as developing “voluntary, consistent climate-related financial risk disclosures for use by companies in providing information to investors, lenders, insurers, and other stakeholders.” The group met for the first time in February 2016.

In laying out the need for the Task Force, the FSB has identified three types of climate-related financial risks potentially in need of greater corporate disclosure:



Climate risk relates to the physical impacts of climate change and the extent to which these may destroy economic value. These include risks to assets themselves (e.g. a drought leading to water shortages inhibiting coal power production), market infrastructure (e.g. a storm wiping out a power transmission line), or downstream consumer demand (e.g. a flood in a region damaging the purchasing power of a specific market for goods of a company).



Transition risk (or carbon asset risk) relates to risks of changes in policy and market variables associated with the transition to a low-carbon economy that influence the relative economics of goods and services (e.g. a carbon tax, fuel economy mandates, drop in costs of production of solar panels, changes in commodity prices, etc.) (Portfolio Carbon Initiative 2015)



Legal risk refers to potential risks to companies arising as a result of environmental liabilities or corporate mismanagement. The materiality of this risk has not been explored in depth to date. Back of the envelope calculations suggest it could range from less than <1% of an oil & gas company’s annual income to a multiple of that company’s income (2nd 2013)

This report discusses 10 core questions about the Task Force’s objectives and scope, building on a growing international body of research on the relationship between climate and financial markets. In some cases, existing evidence allows for clear guidance. In other cases, several potential alternatives are available with different pros and cons and potential trade-offs. Here we attempt to summarize the state of the discussion and elucidate the implications of different strategic choices. The note also seeks to map what we see as the best way forward on maximizing the impact of the work of the Task Force.



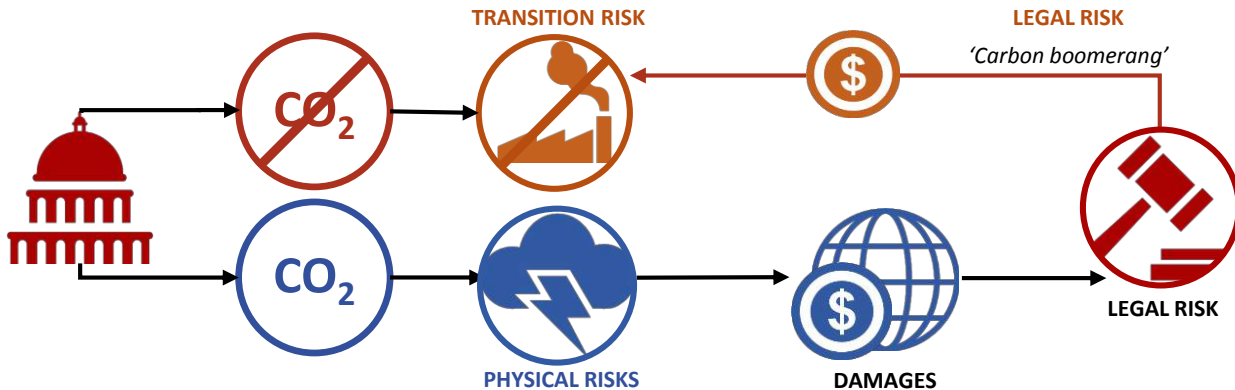
**1. SHOULD ALL TYPES
OF RISKS BE COVERED?**

The three types of climate-related risks are fundamentally different, only linked by some relationship to climate change. Significant differences relevant to their assessment and potential disclosure include the overall state of knowledge, geographical and temporal dimensions, affected industries, and crucially the expertise needed to quantitatively assess them (Portfolio Carbon Initiative 2015). For transition and physical risks, the risk drivers are diametrically opposed (see figure below).

Physical risk is a well-understood field not limited to climate or companies. Climate-related physical risks, primarily event risks accruing to weather- and natural resource-dependent industries and infrastructure, are perhaps the most studied of the three risks. Indeed, an entire IPCC Working Group studied the issue in detail (IPCC 2013) and several insurance industry groups exist already in the space. Such risks are by no means limited to climate-related phenomena (terrorism, earthquakes, etc.) and a full understanding of the financial consequences of such risks must necessarily go beyond corporate-owned physical assets.

Public statements (cf. p. 11) and the Task Force's composition suggest a greater focus on transition, and possibly legal risk. The industry mix represented (mining, fuels, energy-intensive industry) reflects a close parallel to the industries most exposed to the energy transition. The fairly new space of climate litigation will likely affect a similar group (Thornton and Covington 2015).

RECOMMENDATION: Focus on transition and legal risks.



2. WHAT DO WE KNOW ABOUT MATERIALITY FOR INVESTORS?



Existing evidence suggests that the risks the task force will address may be material to individual assets and companies, but are unlikely to be material to diversified portfolios over the 1 to 5 years horizon of most investors (Fig 1).

- Examples of **physical risk** research in the public sphere include reports published by Aviva / EIU (2015), CISL (2015), and Mercer (2015). There are huge uncertainties associated with these risks given the range of damage functions found in climate impact models and the uncertainty around the time horizon of impacts.
- **Transition risk** is limited to specific sectors (extractives, heavy industry, automotive and their low-carbon competitors) and thus only a small share in various asset classes (Fig. 2). Research on the potential impact on equities and bonds suggest that a worst case scenario would have a magnitude similar to what investors already face with fluctuation of energy prices (2°ii 2015c). At portfolio level, the industry-leading report by Mercer (2015) finds less than a 1% net impact across all scenarios and asset classes from transition risk *and climate risk combined*, using a 10 year investment horizon.
- The exposed entities in the case of **legal risks** are largely similar to transition risk, but there is little to no research on the scale of impact, likelihood and timeframe in a worst case scenario. Back of the envelope calculations suggest liability could range from <1% of an oil & gas company’s annual income to up to 350% or more (2°ii 2013).

The main knowledge gaps relate to legal risks scenarios and the correlations or reverse correlations between assets within and across asset classes, as opposed to company level risk assessment. Existing evidence on materiality and the limited traction enjoyed by existing climate-related financial risk tools designed for investors suggests limited demand for additional company-level disclosure.

RECOMMENDATION: Consider the implications of limited current investor demand for climate-related risk analysis in the design of the disclosure regime.

FIG 1: ILLUSTRATIVE TIME HORIZON ACROSS THE INVESTMENT CHAIN (2°ii 2015)

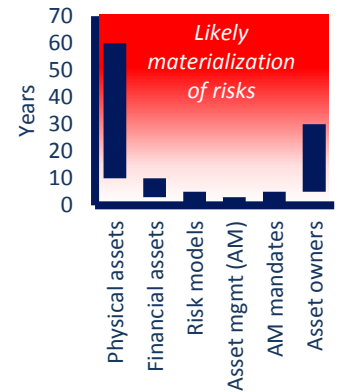
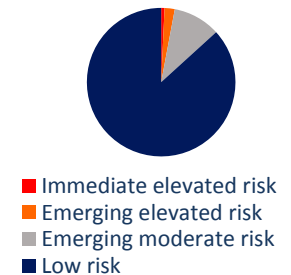


FIG 2: RISK EXPOSURE IN MOODY’S CREDIT RATING UNIVERSE (MOODY’S 2015)



3. IS THERE A FINANCIAL STABILITY CONCERN?



Some stakeholders have suggested that climate-related risks may pose a financial stability concern (ESRB 2016). Financial stability risks require that financial markets *significantly (i) and systematically (ii) misprice risks with impact over the time horizon of systemic risk assessment (iii)*. There are reasons why mispricing could exist (e.g. cognitive bias, tail risks, etc.). However, additional data would only marginally address these. Moreover, the ‘financial stability’ criteria appear not to hold:

- (i) **While risks could be mispriced, there is little evidence that this is significant.** MSCI (2016) carbon-intensive sector indices suggest fundamentals (e.g. P/E, etc.) don’t appear misaligned with other sectors and recent large losses in such sectors suggest current over-valuation is unlikely.
- (ii) **There is no reason to believe climate-related risks should be systemic.** Risks only affect parts of financial portfolios (Fig 2) and likely offset each other across a diversified portfolio (Fig. 3 & 4). Systemic risks would in any event go beyond the listed corporate space (private companies, infrastructure, etc.) and focus more on risk correlation than single positions.
- (iii) **Generally risks (> 20 years) appear beyond the systemic risk time horizon (<2-3 years) and it is unclear that markets would reprice quickly.** Each type of risk likely involves prior, graduated signals (e.g. advancing climate science, initial rulings, forecasted political changes) that are unlikely to materialize overnight, though admittedly foresight of such events is difficult.

RECOMMENDATION: If the Task Force chooses to examine systemic risk, widen the focus from corporate disclosure to include risk correlation and other financial instruments (e.g. derivatives).

FIG 3: CLIMATE IMPACT ON RETURNS BY SECTORS OVER 35 YEARS (SOURCE: MERCER 2015)

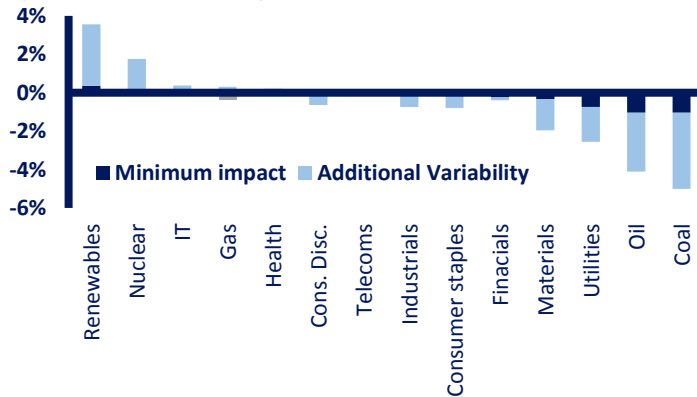
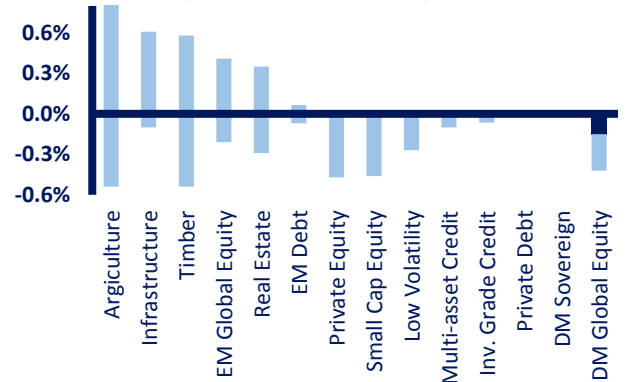


FIG 4: CLIMATE IMPACT ON RETURNS BY ASSET CLASS OVER 35 YEARS (SOURCE: MERCER 2015)



4. IS THIS EVEN A RISK STORY?

Paris, France




The public statements by key potential users (see quotes) suggest addressing financial stability is not their core objective. It appears instead that there is a dual objective of assessing *corporate-level risk* (a business objective) and enabling the energy transition through assessing companies' *contribution* to it (a societal objective).

The two objectives, while closely related, are not the same and may involve different metrics that are not correlated (Portfolio Carbon Initiative 2015b). Whereas 'contribution to financing the transition' indicators require physical units (e.g. deployment of renewable power, etc.), financial risk will in almost all cases be measured in monetary terms or a related risk indicator to cash flows.

There appears to be a genuine demand for indicators that create transparency in financial markets on their alignment with climate goals. The COP21 Paris Agreement explicitly commits to making financing flows consistent with climate objectives (see quote). Art. 173 of the French law on the Energy and Ecological Transition will require investors to set financing targets aligned with national and international decarbonization pathways. The current demand from investors related to low-carbon investing strategies (e.g. Divest movement, Portfolio Decarbonization Coalition, etc.) appears primarily driven by reputational concerns according to leading investment consultants (e.g. Mercer).

The public statements, coupled with the composition of the Task Force, also suggest that transition-related issues are considered more important than physical and legal risks. This note will thus similarly emphasize transition risk for the remainder of the discussion, although referencing all three throughout.

RECOMMENDATION: Be clear about the objectives and respond to the demand associated with the societal objective.



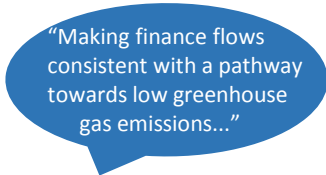
"It is our responsibility to consider carbon as a risk and to accompany the global energy transition."

Henri de Castries, AXA CEO



"...help to accelerate global investments in technological innovation and clean energy by increasing transparency and (...) make markets more efficient."

Michael Bloomberg, Task Force Chairman



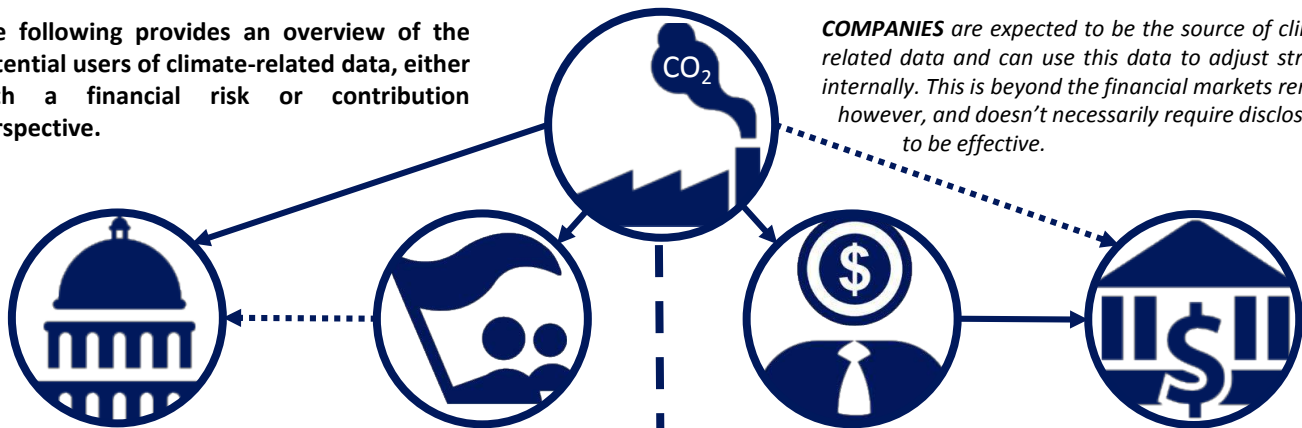
"Making finance flows consistent with a pathway towards low greenhouse gas emissions..."

Paris Agreement Art. 2.1(c)

5. WHO IS REALLY THE TARGET AUDIENCE?



The following provides an overview of the potential users of climate-related data, either with a financial risk or contribution perspective.



COMPANIES are expected to be the source of climate-related data and can use this data to adjust strategy internally. This is beyond the financial markets remit, however, and doesn't necessarily require disclosure to be effective.

POLICYMAKERS: Given the constraints around demand by private sector actors, we expect policymakers to be the primary user of climate-related data, in measuring alignment of financing flows with climate goals, ensuring an orderly transition, and designing new policies (tax incentives, regulation, etc.).

'CLIMATE FRIENDS' refers to civil society actors, ESG analysts, and 'socially responsible' investors. These actors can be expected to be a key user of climate-related data, either as part of climate-related investing strategies or civil society engagement with private sector stakeholders. Pressure from civil society may influence policymakers and disclosing companies.

EQUITY / CREDIT ANALYSTS: Most stakeholders believe analysts to be the main target audience of climate-related disclosure in their role of intermediating and translating company-level disclosure into risk and valuation metrics. However, their demand is unclear due to short time horizons and the perceived low short-term materiality of climate-related risks.

FINANCIAL INSTITUTIONS are expected to be the end-users. However, leading risk tools (e.g. Mercer TRIPS model) have seen less demand than metrics designed primarily for communication (e.g. carbon footprint). Thus, the ultimate demand is unclear. *Financial institutions also disclose data on risk. In this case, targeted users are clear (e.g. civil society and policymakers).*

CLEAR DEMAND: Primarily focused on 'contributing to the transition'

UNCLEAR DEMAND: Primarily focused on financial risk

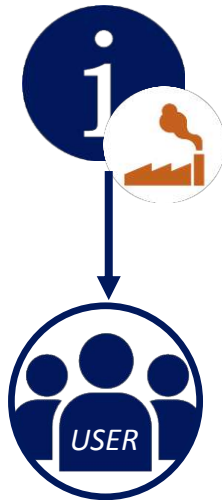
RECOMMENDATION: Treat policymakers and 'climate friends' as a primary audience.

6. WHO SHOULD PERFORM THE ANALYSIS?



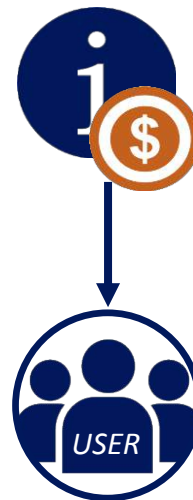
Both the listed objectives require a quantitative assessment. The key question for the Task Force is the nature of data required and disclosure to facilitate the assessment. Determining the answer to this key question requires first identifying who is expected to perform the assessment. There are two options in this regard:

COMPANIES DISCLOSE RAW DATA



One option is that companies simply provide the raw data without any underlying analysis. The analysis is then done by third parties (e.g. analysts, policymakers, think tanks / NGOs, etc.). This is currently the standard model underlying most elements of risk infrastructure in financial markets. The advantage here is that raw data can be used by third parties for any purpose and with any scenario. However, this potentially requires substantial amounts of business-sensitive information to be disclosed broadly. Moreover, it assumes both expertise and time/willingness for investors or analysts to construct scenarios and model risk.

COMPANIES DISCLOSE ANALYSIS



Companies could instead make the assessment themselves and publish the results. In this case, no further disclosure of climate-related data would be necessary beyond the minimum amount to make the result credible. This model is unlikely to be viable for the societal objective as it creates challenges around taking a systemic view and data aggregation. Business risk, however, could be measured at company level in the form of e.g. asset impairment tests, and the model ensures that company boards see and sign off on stress test results. This model likely requires standardization of scenarios, inputs, and reporting templates to ensure comparability.

Different civil society actors are advocating for an emphasis on either one or the other, or a hybrid of both (e.g. CTI / CDSB 2015). As outlined above, both models have clear positive and negative elements given the dual objectives of the task force.

RECOMMENDATION: Consider the tradeoffs and prioritize. If raw data disclosure is prioritized, focus on material data gaps (c.f. p. 16-19). If analysis is prioritized, focus on standardized scenarios to ensure disclosure comparability.



7. WHAT TYPE OF RAW DATA IS NEEDED?

The different characteristics of each risk suggest key differences in terms of quantitative data needs (see table below):

- Physical and transition risk / alignment require forward looking information, while legal risk likely requires looking backward;
- Physical risk is specific to an asset’s geolocation, whereas transition and alignment assessment are specific to market or political region. The relevance of geography for legal risk depends on the type of legal action and questions of jurisdiction.

One of the most critical questions is the degree to which information is needed at *physical asset level* or *company level*.

Physical risk requires *asset level information*, legal risk primarily *company-level information*, and transition risk and alignment both detailed asset level information and information at company level about how asset mix changes with time.

RECOMMENDATION: Limit guidance to material indicators at asset and company levels.

	<i>Time Horizon</i>	<i>Geography</i>	<i>Modeling approach</i>	<i>Asset Level Information</i>	<i>Security/Company level information</i>
Physical Climate Risk	Forward-looking	Geolocation-specific	Physical climate / integrated assessment model	<ul style="list-style-type: none"> • Location and asset-related revenues • Climate sensitivity of own assets + upstream / downstream 	<ul style="list-style-type: none"> • Insurance levels • Adaptation strategies / company level risk mitigation strategies
Transition Risk	Forward-looking	Country/ market-specific	Techno-economic and risk / cash flow models	<ul style="list-style-type: none"> • Location • Cost of production & revenues • Size / capacity / production • Emissions intensity 	<ul style="list-style-type: none"> • Asset-specific capex / retirement strategy • Climate-relevant R&D • Market positioning
Legal / Liability Risk	Backward-looking	Depends on legal theory	Legal theories	<ul style="list-style-type: none"> • Asset level data similar to transition risk relevant for asset-specific litigation 	<ul style="list-style-type: none"> • Historic GHG emissions • Exposure to ‘risky’ jurisdictions • Potentially fraudulent actions
Alignment with 2°C Goal	Forward-looking	Country / region specific	Techno-economic and investment models	<ul style="list-style-type: none"> • Location • Cost of production • Size / capacity / production • Emissions intensity 	<ul style="list-style-type: none"> • Asset-specific capex / retirement strategy • Climate-relevant R&D

A satellite view of Earth at night, showing city lights and a bright horizontal band across the center. The text is overlaid on the bright band.

8. WHICH DATA ALREADY EXIST?

The most prominent climate-related indicator in the market today is the annual, company-level carbon footprint. This indicator is largely irrelevant to the remit of the task force. Backward-looking GHG emissions data are not relevant from a physical climate risk perspective (cf. p. 17). For it to be material to specific types of legal risk (i.e. general tort claims), it would likely have to be cumulative and historical. Transition risk requires forward-looking, country / market specific data at asset level (2°ii 2015). The same is largely true for the ‘aligning finance with climate goals’ objective. Increased disclosure on the carbon footprint, including increased disclosure of Scope 3 GHG emissions, is thus not material for the objectives of the Task Force.

Comprehensive asset-level databases exists for most of the key industries relevant from a transition risk perspective, although some data gaps remain (cf. p. 28) (Portfolio Carbon Initiative 2015b; Oxford SAP 2016). The level of granularity of these databases is nevertheless unmatched by traditional corporate reporting, including forward-looking data (e.g. capital expenditure), cost / revenue indicators at asset level (e.g. breakeven price), age, capacity, and various other technical indicators relevant from a climate perspective (e.g. fuel efficiency). The biggest challenge here appears to not necessarily be a lack of disclosure, except potentially for a minority of indicators, but challenges around cost and ease of access for financial institutions.

CURRENT COVERAGE OF INDUSTRY DATABASES (PORTFOLIO CARBON INITIATIVE 2015b)



At company level, key data gaps include climate-related R&D and forward-looking capital management plans. Such data is virtually unreported, especially quantitatively. As outlined above (cf. p. 15), climate-related risk metrics at company level are also lacking, although it is unclear if companies ‘should’ report these.

RECOMMENDATION: Limit the reporting burden for companies by focusing new requirements on bridging disclosure gaps, in particular capital and R&D current and planned expenditures.

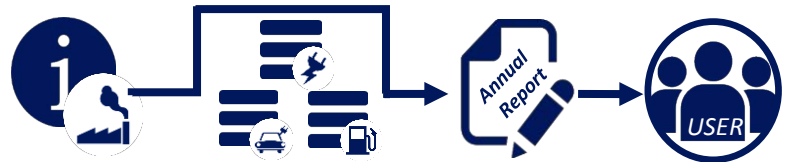
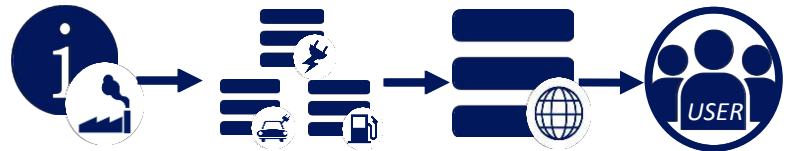
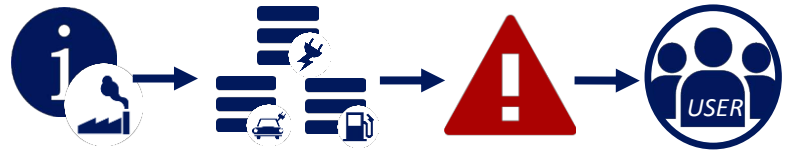
9. HOW CAN WE GET THE EXISTING DATA TO USERS?



While data already exist, the costs are prohibitively high for users today. The range of databases forces users to purchase data from at least half a dozen providers. Added to that are costs of data treatment to bring the different databases together in a usable way. Finally, databases frequently lack key information relevant for financial market actors (e.g. ISINs, Bloomberg tickers, etc.). **There are two potential solutions:**

SOLUTION 1: DATA AGGREGATION – One solution is for the Task Force to develop a data aggregation ‘one-stop-shop’ model that reduces costs and is tailored to users needs (e.g. security / portfolio level analytics). This could be integrated into financial databases or operate separately.

SOLUTION 2: EXPANDING CORPORATE REPORTING - The alternative is to focus on expanding current corporate reporting to allow this data to easily be integrated into mainstream financial databases. This option appears less efficient, increasing corporate reporting burden and requiring close to 100% reporting to be effective. It does, however, make companies liable for potential misrepresentation, an important advantage.



RECOMMENDATION: Explore a data aggregation solution to get current data to users. Focus report requirements by companies on the validation of these databases.



10. WHAT ABOUT FINANCIAL SECTOR DISCLOSURE?

Part of the remit of the Task Force is the question of financial institutions' disclosure, particularly relevant if there is an interest to explore financial stability questions (cf. p. 9). FI disclosure has the potential to drive demand for corporate disclosure given the role of corporate-owned assets in both risk and alignment at portfolio level. It helps avoid the 'disclosure for the sake of disclosure'. Generally, three types of indicators are relevant from a reporting perspective, all of which are reflected in the recent mandatory climate disclosure legislation passed in France (2^oii 2015b):

- *Investment practices* involves communicating to stakeholders the extent to which investors are operating as responsible stewards of capital, both in their actual investment decisions, and their capacity as owners of companies. Disclosure here for example could relate to shareholder engagement (e.g. voting practices on shareholder resolutions, etc.).
- *Financial risk metrics disclosure* involves communicating on portfolio-level climate-related risks. If the Task Force is interested in pursuing a financial stability objective, this type of disclosure will be the most important piece and should be the primary emphasis of the work. Given our assessment, it appears that reporting at this level only makes sense if it covers all three types of risks and focuses on correlation across assets and asset classes.
- *Alignment with climate goals disclosure* speaks to the alignment objective defined above. It is the centerpiece of the French Art. 173 on investor climate disclosure, where it asks investors to report on "the contribution to the international goal of limiting global warming and to the achievement of the objectives of the energy and ecological transition. That contribution will be assessed in particular with regards to indicative targets" Disclosure in this regard could focus on the alignment of portfolio financing flows and exposure with energy transition pathways, measured e.g. in energy technology metrics (2^oii 2015d).

RECOMMENDATION: Push for financial institution disclosure to create a 'demand' for disclosed corporate data, and include both risk and alignment objectives.

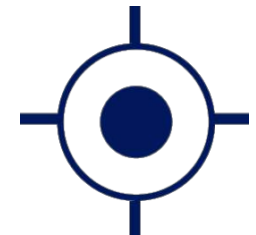
1. Investment practices / Engagement



2. Financial risk metrics



3. Alignment with climate goals



KEY CONCLUSIONS & THE WAY FORWARD

The following summarizes what we interpret to be the key opportunities for the Task Force to have impact:



We recommend exploring a data aggregation solution creating a one-stop shop of industry and financial databases (e.g. ISINs, other financials, etc.). *If such a solution is considered a public good*, such a solution should be made available for free or very limited cost to commercial users. The most cost-effective path here involves a public-private partnership with existing data providers. *If such a solution is not considered a public good*, a data aggregation platform could be an industry-led initiative, perhaps involving limited public support.



Independent of who performs the risk analysis, standardized scenarios should be developed to facilitate meaningful and comparable risk assessment. They may also address some of the broader barriers to proper climate-related risk pricing (p. 9). These scenarios should build on economic and climate roadmaps across scenarios (e.g. 2°C, 6°C, etc.).



Combining scenarios with a data aggregation solution can create a toolbox allowing for standardized risk assessment as well as benchmarking of companies, portfolios, and markets more generally to climate policy goals. Such a toolbox can be part of a public or private commercial solution and link both the risk and alignment objectives.



Finally, a role remains to bridge key data gaps. Notable examples may be R&D and capital expenditure plans data and some gaps in asset-level data. These can potentially be solved through asset level data collection, engagement with companies on externally estimated data, and / or additional disclosure guidance on key missing values.

ANNEX: SAMPLE OF EXISTING INDUSTRY DATABASES

	# of assets	Indicators			Data Gaps	Data sources (examples)
		Time horizon	Geography	Sample indicators		
Electric power	92,000 power plants	Planned capital expenditure measured in MW	Est. >50% geolocation coverage / 100% country coverage	Capacity, investment, age,	Retirements, revenues, production*, carbon intensity	GlobalData, Platts
Coal mining	>1,400	Planned projects	Geolocation	Production, capital expenditure, breakeven price		Wood Mackenzie
Oil & gas production	25,000 oil fields	Current + planned production & capital expenditure	Geolocation	Production, capital expenditure, type of oil, breakeven price		GlobalData, Rystad, Wood Mackenzie
Automobile	>95 million vehicles	Current + planned production	Country level production	Production, registrations, drive train, current fuel efficiency	Future fuel efficiency	WardsAuto, Marklines, IHS
Aviation	>40,000 airplanes	Current assets + order book	N/A	Sales		CAPA
Shipping	>91,000 vessels + 5,000 vessels in order book	Current assets + order book	N/A	Size, weight, age, type, efficiency / GHG intensity	Fuel sources	Clarksons, Rightship

*Some data providers plan to add this for 2016 -2017

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ABOUT 2° INVESTING INITIATIVE

The 2° Investing Initiative [2°ii] is a multi-stakeholder think tank working to align the financial sector with 2°C climate goals. Our research work seeks to align investment processes of financial institutions with climate goals; develop the metrics and tools to measure the climate friendliness of financial institutions; and mobilize regulatory and policy incentives to shift capital to energy transition financing. The association was founded in 2012 and has offices in Paris, London, and New York City.

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