CARBON PRICING LEADERSHIP COALITION

Executive Briefing
MAY 2018

Carbon Pricing and the Task Force on Climate-related Financial Disclosures (TCFD)

THE COST OF CLIMATE CHANGE

As greenhouse gas emissions continue to warm the planet, the world must plan for uncertain economic and social effects. Climate change risks bear increasing costs which all sectors would benefit from considering in forward-looking analyses to build resilient business strategies. In acknowledgment of these risks, almost every national government, backed by an unprecedented number of non-state actors, agreed to strengthen the global response to the threat of climate change at the UN Climate Change Conference in December 2015. Formally referred to as the Paris Agreement, this pledge aims to limit the global average temperature from rising above 2°C relative to pre-industrial levels with efforts not to exceed 1.5°C.

In response, companies and financial institutions are adapting to this new paradigm by assessing risk within a 2°C constraint and seeking low-carbon opportunities. At the beginning of 2018, pension funds in New York City announced legal action against five of the biggest oil companies for climate change-related damages and announced that the city would divest $5 billion from companies associated with the fossil fuel industry.[i] Following 2017, a record year of natural disaster damage in the United States, valued at over US $300 billion dollars, ratings agencies Moody's Investors Services and S&P Global Ratings have indicated potentially integrating disaster forecasting into individual ratings.[ii]

KEY MESSAGES

- Financial institutions are increasingly prioritizing climate-related risks and opportunities as part of their financial planning and budding climate strategies.
- The TCFD outlines recommendations to manage climate-related risks and opportunities, including the application of internal carbon pricing in scenario analysis, which banks can incorporate into investment decisions across their portfolios.
- Internal carbon pricing has emerged as a critical forward-looking metric that can help organizations manage climate-related transition risks and opportunities.
- Banks primarily apply carbon pricing at the operational level, where carbon emissions and related risks are low; financial institutions are recommended to extend pricing to assess the material risk in their financed emissions as well.

To help companies and financial institutions navigate these risks, the Financial Stability Board of the G20 Finance Ministers and Central Bank Governors, chaired by Bank of England Governor Mark Carney, commissioned the Task Force on Climate-related Financial Disclosures (TCFD or Task Force). Driven by consensus among the financial sector on the lack of guidance for pricing risk, Chair Michael Bloomberg and the Task Force set out to design a set of Recommendations to further understanding for stakeholders on climate risk exposure through carbon-related assets.

THE TCFD RECOMMENDATIONS

The TCFD published its framework of recommendations in June of 2017. Combining insights from experts, stakeholders, and existing disclosure regimes, the Task Force aims to illuminate the financial view of climate change as a necessary consideration in investing and lending activities to manage risk. Member insights came from a breadth of financial institutions such as Banco Bradesco, Deloitte, the Industrial and Commercial Bank of China, JPMorgan Chase, Moody's, S&P and more.

Climate-related risks are real. One academic study posits investors' value at risk from climate change at up to 20% in reduced portfolio value over a decade. Schroders estimates that were carbon prices to rise to $100 per ton, such as through mandatory regulation, companies could face a loss of more than 20% in earnings.

To guide companies in the implementation of climate-related financial disclosures, the Task Force developed four Recommendations mimicking an organizational structure: Governance, Strategy, Risk Management, and Metrics and Targets (see Figure 1).[iii] An internal carbon price is one proposed metric through which entities can safeguard their businesses by internalizing market signals.

The TCFD recommends that these disclosures are published in an organization's mainstream financial filings on an annual basis. Specifically, investors and lenders can and should account for these risks and opportunities to gauge how climate change may affect their portfolios.

Figure 1: Recommendations of the Task Force on Climate-related Financial Disclosures

Governance	Strategy	Risk Management	Metrics and Targets
Disclose the organization's governance around climate-related risks and opportunities.	Disclose the actual and potential impacts of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning where such information is material.	Disclose how the organization identifies, assesses, and manages climate-related risks.	Disclose the metrics and targets used to assess and manage releveant climate-related risks and opportunities where such information is material.
Recommended Disclosures	**Recommended Disclosures**	**Recommended Disclosures**	**Recommended Disclosures**
a) Describe the board's oversight of climate-related risks and opportunities.	a) Describe the climate-related risks and opportunities the organization has identified over the short, medium, and long term.	a) Describe the organization's processes for identifying and assessing climate-related risks.	a) Describe the metrics used by the organization to assess cliamte-related risks and opportunities in line with its strategy and risk management process.
b) Describe management's role in assessing and managing climate-related risks and opportunities.	b) Describe the impact of climate-related risks and opportunities on the organization's businesses, strategy, and financial planning.	b) Describe the organization's processes for managing climate-related risks.	b) Disclose Scope 1, Scope 2, and, if appropriate, Scope 3 greenhouse gas (GHG) emissions, and the related risks.
	c) Describe the resilience of the organization's strategy, taking into consideration different climate-related scenarios, including a 2˚C or lower scenario.	c) Describe how processes for identifying, assessing, and managing cimate-related risks are integrated into the organization's overall risk management.	c) Describe the targets used by the organization to manage climate-related risks and opportunties and performance against targets.

WHAT ARE THE RISKS?

> *"**Extreme weather events can pose a physical climate risk for our financed clients**, [such as] in the agricultural sector in particular as extreme weather (droughts, rain, flooding) can negatively impact production levels (crop yields)."*
>
> **– ABN Amro Holding, Netherlands (acute physical)**

> *"**Rising seas and increasingly severe weather** are expected to increase the areas of the US at risk...Increased flood incidence and severity could lead to our clients defaulting on their mortgage payments if, for example, flood insurance premiums become unaffordable."*
>
> **– Bank of America, USA (chronic physical)**

The Task Force's disclosure framework categorizes climate risk into physical and transition risks – respectively, the physical effects on a business from climate change events, and risks associated with the transition to a low-carbon economy. Loans and investments made irrespective of these risks are prone to partial or complete devaluation should resources become impaired, or "stranded," assets.[iv]

Physical risks are subdivided into acute risks, driven by a singular event such as a natural disaster, or chronic risks, anticipated over a longer time horizon but repetitive in nature when they do occur, such as rising average temperatures. Physical risks associated with weather-driven or climate change events can be modeled in terms of the true financial cost to physical assets.

Banks reporting to CDP express concern for clients in energy-intensive industries or emerging markets who may suffer price shocks or supply chain disruptions resulting from physical climate events, affecting their loan repayment capabilities or decreasing collateral value should they lack alternative recourse. While physical risks should be considered in making financial decisions, this report will focus exclusively on the application of internal carbon pricing to transition risks.

Transition risks may be driven by changes in policy and/or legal frameworks, technological developments (or lack thereof), market forces, or reputational concerns. Banks may not be directly exposed to these risks as in the adjacent examples, but they may be indirectly exposed through their clients, in particular loans to or investments in high-emitting entities such as fossil fuel producers, energy-intensive consumers, and other companies dependent on carbon-intensive inputs.[v] Banks should start considering these risks more extensively when managing their portfolios.

For example, the incorporation of climate-related risks into financial decisions is an increasingly accepted component of fiduciary duty to reduce liability risk. Ignoring these risks may result in legal action by shareholders. The Commonwealth Bank of Australia found themselves facing a lawsuit of this nature when accused by shareholders that in neglecting to report climate change risks, the Bank overlooked crucial investment criteria. Like the TCFD, the lawsuit called for increased disclosures of climate-related risks.[vi]

> *"**Uncertainty surrounding new regulation** can affect the business model of BCP's corporate clients, on **lending & financing portfolios**. This could lead to a shift in the profitability of the enterprise, its cash flow, and ultimately its credit rating."*
>
> **– Banco Comercial Português SA, Portugal (policy & legal)**

> *"The **transition to a low-carbon economy** requires large amounts of **innovation in business models and technology**. This will likely result in increased disruption for traditional business models and industries thereby impacting the financial stability of ING clients."*
>
> **– ING Group, Netherlands (technology)**

> *"There is an **increasing demand for low-carbon products** and 'green' products such as SRI funds, renovation credit and green loans due to constantly increasing Climate Change awareness."*
>
> **– KBC Group, Belgium (market)**

> *"The way in which ANZ responds to and manages the risks associated with climate change has the **potential to impact our reputation and brand**...We are **under scrutiny from a range of stakeholders**, including NGOs, investors, our customers and employees."*
>
> **– Australia and New Zealand Banking Group (reputational)**

TRADITIONAL RISKS AND NEW OPPORTUNITIES FOR BANKS

In overlooking the incorporation of portfolio risks as part of their own management strategy, banks may expose themselves to high levels of material risk through their financed emissions. Materiality should not be dismissed by assumptions of degrees of separation between bank and client or long-term time horizons.

Transition risks are particularly relevant for resource-intensive industries that may be the first targeted should constraints to achieve a 2°C or less scenario be enacted. These risks may manifest in banks' portfolios as **traditional credit or market risks** or as **operational risks** for the bank's functioning itself,[vii] leading to devaluation of assets when cash flows are disrupted. Investing within a 2°C scenario could protect long-term returns for diversified portfolios.[viii]

Additional banking guidance by the TCFD advises that **"banks should consider characterizing their climate-related risks in the context of traditional banking industry risk categories such as credit risk, market risk, liquidity risk, and operational risk."**[ix] In other words, climate-related risks may not warrant unique categorization, and as they are increasingly identified in banking portfolios, naturally fall under traditional banking risks.

Addressing climate-related risks also presents **opportunities** for banks to develop new investment strategies and financial products that hedge against carbon-intensive assets, capitalizing on market shifts and new technology as well as boosting reputation.[x] For one, traditional financial instruments can serve to foster risk-adjusted returns as well as produce environmental benefits in the revamped form of green bonds, which finance sustainable projects.

Examples include clean or low-carbon investments in buildings, public infrastructure, and renewable energy. Such projects correlate with the rise of green certification schemes, such as green buildings or energy-efficient appliances. Investments may also be made to secure vulnerable commodities, such as drought-tolerant seeds or resilient irrigation systems[xi] Such opportunities serve to reinforce and normalize higher sustainability standards, such as the TCFD Recommendations, as well as to stimulate innovation.

> *"Climate change is the next century's biggest financial and business opportunity. Everything our group of companies has done to try and improve energy (consumption) or to reduce greenhouse gas emissions has given us a return. We have to dispel the idea that there is a trade-off (for business)."*
>
> **– Anand Mahindra: Chairman, Mahindra Group**

HOW DOES AN INTERNAL CARBON PRICE FACTOR IN?

Internal carbon pricing has emerged in the corporate sector as a critical forward-looking metric. The Task Force defines an **internal carbon price** as "an internally developed estimated cost of carbon emissions," which "can be used as a planning tool to **help identify revenue opportunities and risks**, as an incentive to **drive energy efficiencies** to reduce costs, and to **guide capital investment decisions**."[xii]

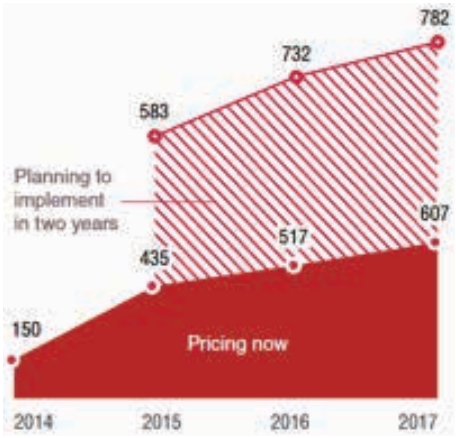
> *"Internalizing carbon price signals is something the Task Force spent much time discussing. It can play an important role in companies internalizing transition risk and making different decisions within the company as a result."*
>
> **– Mark Lewis: Head of Research, Carbon Tracker, and Member of the TCFD**

As regulation of carbon emissions increases around the world, through emissions trading schemes and/or taxes, organizations are correspondingly implementing internal carbon pricing in anticipation of policies within their own countries of operation.[xiii] Carbon pricing policies currently exist in 42 countries at the national level and 25 areas at the subnational level, almost doubling in number since 2012.[xiv]

In many geographies, implicit carbon pricing signals are also arising from changing technological, regulatory and market dynamics – for example, energy efficiency standards and support for renewable energy, as well as shifts in supply and demand for low-carbon commodities, products and services. These factors, combined with policies, signal the present and future cost of carbon. Leading companies have started to calculate and internalize this cost using an internal carbon price as a proxy for a broader set of transition risks.[xv]

The number of companies disclosing use of an internal carbon price to CDP has quadrupled to over 600 since 2014 (see Figure 2) and tripled for banks to over 30.[xvi] By incorporating an internal carbon price in anticipation of climate-related risks, companies gain an edge over their competitors who ignore these risks and do not pursue low-carbon alternatives in their own operations or along their value chain. **Banks face direct operational risk at the facility-level and are indirectly vulnerable to credit and market risks through their portfolios.**

Figure 2: Growth of internal carbon pricing



While it is certainly not the only tool to curb emissions, the TCFD identifies internal carbon pricing as a fundamental metric to assess climate-related risks and opportunities as a component of the Metrics and Targets Recommendation. By attributing a financial cost to risks associated with carbon emissions, translating them into a uniform metric, financial decision-makers can integrate transition risks into their business decisions and fill the analysis gap for assets of various time horizons, such as through CDP's Carbon Pricing Corridors work.[xvii]

The TCFD advises that *"banks should provide the metrics used to assess the impact of (transition and physical) climate-related risks on their lending and other financial intermediary business activities in the short, medium, and long term."*[xviii] Banks and financial institutions in general tend to focus on returns in the short- to medium-terms. For some organizations, climate-related risks are already material in the present, but for those who have not yet felt any effects, these short forecast periods may lead to oversight of climate-related risks in the long-run.

To avoid this oversight, the TCFD recommends that organizations use scenario analysis – a process of analyzing future events by considering alternative possible outcomes – as a tool "to assess potential business, strategic, and financial implications of climate-related risks and opportunities."[xix] Scenario analysis helps organizations identify indicators to monitor changes in the external environment and enables them to adapt their strategies and financial planning accordingly.

The Task Force suggests a **2°C or lower scenario** as a start and at least two to three others relevant on a case-by-case basis. Financial institutions should use scenario analysis to evaluate the potential impact of climate-related risks on assets and investments on an individual basis or by sector or region.[xx] (Before finalizing a portfolio, however, it is advised to examine assets at a more granular level so as not to mistake sector-, region-, or portfolio-level averages as reflections of individual assets.[xxi])

While scenarios should fall into a plausible narrative, they should also challenge conventional assumptions about future outcomes to robustly account for any unanticipated risks. This forward-looking practice is significant as the effects of climate change are historically unprecedented and therefore do not fall into traditional financial models.

CARBON PRICING CORRIDORS

CDP developed one such scenario analysis framework called the Carbon Pricing Corridors, which provides a range of carbon price levels to meet a 2°C scenario at five-year intervals. Through the Corridors Initiative, CDP and its partners are working with industry leaders to develop reference scenarios for specific sectors and provide a carbon price companies can apply to risk assessment decisions. This is applicable not only for companies evaluating the appropriate price for their own operations, but also for banks who can apply this price in evaluating their clients' risk exposures. The Corridors can be used as a reference guide/proxy that encompasses the multiple changes occurring in a transitioning market as carbon pricing matures and evolves as a key driving force to a low-carbon economy.

WHAT ARE BANKS DOING NOW? POTENTIAL IMPLICATIONS?

As of 2017, only 23% of banks reported using an internal carbon price to CDP, with an additional 21% indicating their plans to implement one within the next two years. **Notably, the most prominently reported application of internal carbon pricing for banks has been at the operational level**, at which carbon emissions are not significantly high. According to CDP disclosures, banks are primarily applying an internal carbon price to facility-related operations to incentivize energy efficiency improvements and sustainable procurement. Over half of banks disclosing to CDP report using carbon offsets or credits to lower their emissions or meet carbon neutrality goals, a majority of which also report the cost of purchasing these offsets as their internal carbon price.

> ***"Less than half (49%) [of banks] are implementing risk assessments or 2°C scenario analysis**, which means decision-making on portfolio shifts is not supported by robust data."*
>
> **– Boston Common Asset Management**

As highlighted in the previous section, companies have been applying an internal carbon price across their emissions profile to facilitate a low-carbon transition, a shift banks are encouraged to follow. **Extending the application of carbon pricing to the portfolio level would surface climate-related risks in light of traditional credit and market risks for banks and have the most significant impact on emissions reductions.**

The trend towards portfolio application of internal carbon pricing is being demonstrated by a small number of vanguard banks that have developed methodologies to apply to their financial decisions. Development banks have already blazed the trail on this front by considering climate-related risks, as proxied by an internal carbon price, in their project finance decisions worldwide. The sample of banks presented have developed unique methodologies incorporating an internal carbon price to assess risk in their portfolios.

KEY TAKEAWAYS & NEXT STEPS

Financial institutions are concerned over climate change; the TCFD is a direct result of this consensus. While the TCFD cites internal carbon pricing as a metric for managing climate-related risks, it does not expand upon what this means for the banking sector specifically. This briefing covered the basics of the TCFD Recommendations as well as how a bank can benefit from and initiate the implementation of an internal carbon price to manage traditional risks and identify new opportunities.

Using an internal carbon price to assess the carbon-related risks of a bank's financed emissions is still in its nascent stages. This can be attributed to a lack of precedent applying it to a broader set of credit and market risks. Banks have expressed challenges with taking this next step including, but not limited to, the following: (1) a lack of standardized methodologies to measure the carbon emissions embedded in their debt and equity investments; (2) difficulty in identifying the point of application in the business decision-making process; and (3) internal organizational barriers.[xxiv]

Internal Carbon Pricing Methodologies in the Banking Industry

Bank	Internal Carbon Price Application[xxii]
BNP Paribas France	"BNP Paribas has decided to factor climate change considerations related to energy transition into its **rating methodology for the projects and companies which it finances**: the **use of an internal carbon audit** will be gradually systematized in order to **account for changes brought about by energy transition and the related risks in its financing decisions**. In 2016, a methodology was developed, based on a carbon price assumption of between 25 and 40 dollars per tonne of equivalent CO_2. Covering the six industrial sectors which generate the most emissions, the first tests were conducted in two of these sectors, oil and transport."
Credit Agricole France	"Crédit Agricole CIB has progressively introduced an **analysis in relation to climate change** issues (in particular carbon price) when **reviewing credit applications**. A specific methodology [P9XCA] has been developed at the initiative of CACIB by the sustainable development Chair of the Paris Dauphine University for **counting the financed emissions**. It allows for a first classification of industry macro-sectors and geographical zones according to their carbon intensity measured in tCO_2/EUR of financing. The analysis relating to climate change and carbon price is therefore being introduced, as a first step, for structured transactions which tenor is over 2020 and the main clients of the Bank."
International Finance Corporation Multilateral Development Bank	IFC has operated a **carbon pricing pilot** since November 2016 using price levels of $30/ton CO_2e in 2016, increasing to $80 by 2050. The price is **applied to the economic rate of return analysis of project finance investments** in three emissions-intensive sectors (cement, thermal power and chemicals), and is considered as **one of several inputs into the investment decision**. IFC will also pilot the application of a carbon price to project finance investments in other sectors with annual emissions above 25,000 t CO_2e. IFC will also **pilot the application of carbon pricing to corporate loans with known use of proceeds**, and will continue to align with the World Bank on the price levels to be used. For more information, please refer to the CPLC Leadership Report
Itausa Investimentos Itau S.A. Brazil	"We use a **price estimate for carbon emissions** in our company evaluation models as **part of the investment process for the management of third-party assets**...Estimating a carbon price and using it in **DCF models** helps us better **understand winners and losers in a carbon-constrained future**. This approach makes carbon data reliability a big concern for investors...The creation of scenarios, using the carbon price of the European market, enables the company to better understand what financial implications this would have on its business from the standpoint of taxes and fees on products and services that emit CO_2, penalties if reduction targets are not reached and also how to manage this risk and/or opportunity."
Piraeus Bank Greece	"Piraeus Bank has developed the **"Climate Risk Management Model"** through which, it **estimates in monetary terms the volume of climate risk (both regulatory and physical climate risk) of its business borrowers**. The Model **examines corporate borrowers from specific sections of the loan portfolio**, belonging to sectors of economic activity considered may be adversely affected by climate change. One of the parameters inserted in the Model in order for the calculation procedure to be implemented, is the one of unit price of GHG emission allowances (in € per tonne of CO_2 equivalent), mainly affecting the amount of regulatory risk."
World Bank Multilateral Development Bank	The World Bank updated its approach in September 2017 with new, higher price levels based on the Stern and Stiglitz Commission's report. The use of a shadow price of carbon in the economic analysis is a corporate commitment for all IDA/IBRD investment project financing in sectors that are subject to Greenhouse Gas (GHG) accounting (energy, forestry, agriculture, transport, water and urban) and that have concept notes approved on or after July 1, 2017. Projects' economic analysis is required to use a low and high estimate of the shadow carbon price starting at US$40 and 80 t/$CO_2e$, respectively, in 2020 and increasing to US$50 and 100 by 2030, and beyond that rising at a rate of 2.25% per year to 2050, leading to values of US$78 and $156 by 2050.
T.GARANTI BANKASI A.S. Turkey	"As stated in our **Climate Change Action Plan**, we are now enhancing our approach to better reflect the global trend on carbon pricing among the private sector and to further i**ncrease the share of low-carbon investments in our loan portfolio**...We **apply our own shadow carbon price** in evaluating the economics of all greenfield/brownfield fossil fuel-based and renewable energy production investments in our project finance activities. If the host country already implements an emissions trading scheme (both voluntary and regulatory) or a carbon tax, then we use the actual price for carbon. If not, we use a fixed price per tonne of CO_2e emitted."

MORE INFORMATION

Context: Portfolio application of an internal carbon price can induce a domino effect of lower-carbon initiatives along the lending and investment chains. Banks in particular have the capacity to act as leaders through client engagement and have demonstrated the interest to do so, such as through the **Carbon Pricing Leadership Coalition** (CPLC), which brings private, public, and civil society stakeholders together to drive effective carbon pricing policies and reduce emissions. The CPLC aims to drive action through knowledge sharing, targeted technical analysis, and public-private dialogues that guide successful carbon pricing policy adoption and accelerate implementation. One such example is the Banking Sector Task Team, which works to share carbon pricing information, such as this report, with banks and other financial institutions.

References: This Executive Briefing is a synthesis of ideas and literature derived from the key references listed here. Due to limited space, the print version does not include references to specific sources in the text. Such references are included in the digital version available online:

www.carbonpricingleadership.org/resource-library/

Disclaimer: The findings, interpretations, and conclusions expressed in this Executive Briefing do not necessarily reflect the views of the organizations the authors represent. The CPLC does not guarantee the accuracy of the data included in this work.

ENDNOTES

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