INVEST4CLIMATE
KNOWLEDGE SERIES

United Nations Development Programme

THE ECOSYSTEM OF

PRIVATE INVESTMENT IN CLIMATE ACTION

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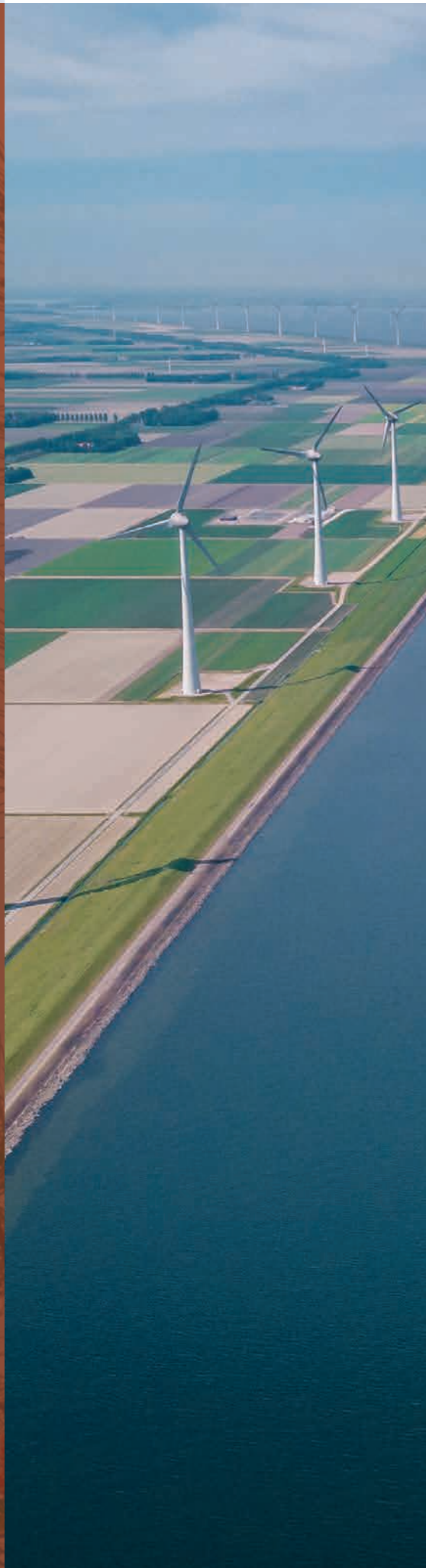

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Objective

This report is part of the Invest4Climate Knowledge Series. The Invest4Climate platform, a World Bank Group–United Nations Development Programme (UNDP) partnership, was designed to mobilize, coordinate, and deliver the financing needed to close the climate financing gap and help countries transition to a low carbon, resilient future that supports jobs and growth. The Invest4Climate Knowledge Series provides targeted reports on expanding private investment in climate action through financial innovation and collaborative partnerships.

Abbreviations

AMC Asset Management Company

AUM Assets Under Management

CCRI Coalition for Climate Resilient Investment

CFLI Climate Finance Leadership Initiative

CIC Climate Innovative Centre

CIG Closing the Investment Gap

DFI Development Finance Institution

DFID Department for International Development (U.K.)

ESG Environmental, Social and Governance

ETF Exchange-Traded Fund

GEF Global Environment Facility

GIC Global Investor Coalition on Climate Change

GP General Partner

GISD Global Investors for Sustainable Development Alliance

HNW/ UHNW High Net Worth/ Ultra-High Net Worth

IDF Insurance Development Forum

IFC International Finance Corporation

IPCC Intergovernmental Panel on Climate Change

IPO Initial Public Offering

LP Limited Partner

MDB Multilateral Development Bank

NDC Nationally Determined Contribution

NGO Non-governmental Organization

OECD Organization for Economic Cooperation and Development

PE Private Equity

PPA Power Purchase Agreement

REIT Real Estate Investment Trust

SDG Sustainable Development Goal

SME Small Medium Enterprise

SWF Sovereign Wealth Fund

TCFD Task Force on Climate-related Financial Disclosures

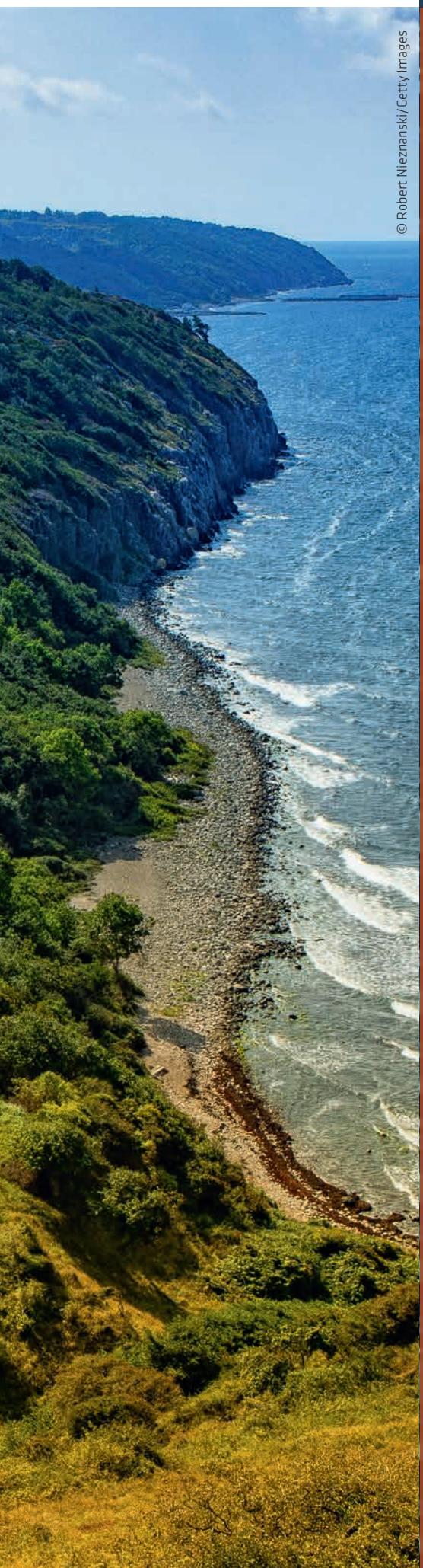
UN United Nations

UNDP United Nations Development Programme

UNEP United Nations Environment Programme

VC Venture Capital

Note: All dollar ($) amounts are U.S. dollars unless otherwise indicated.

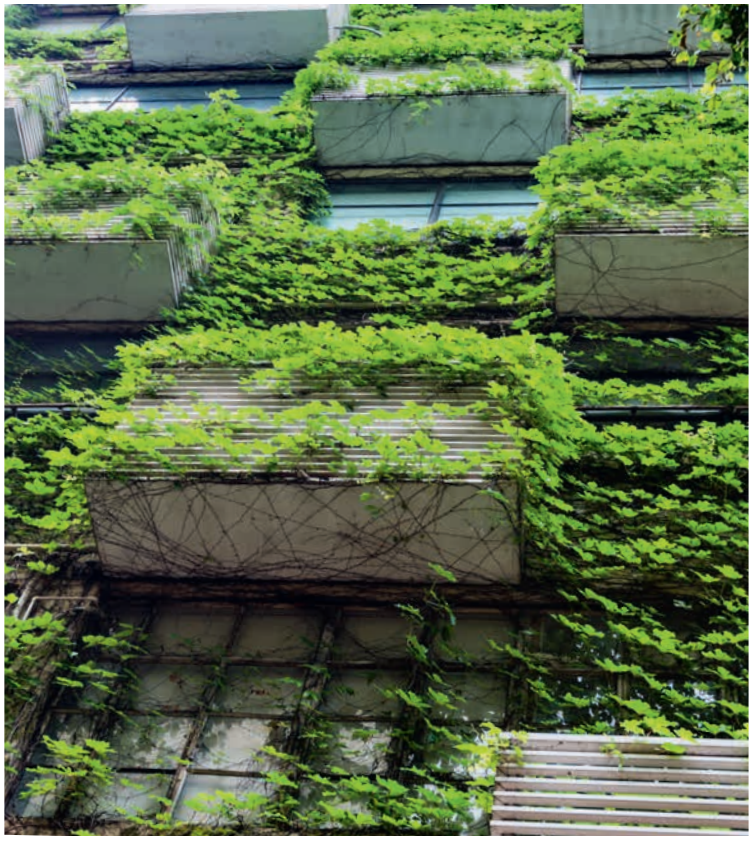


01

INTRODUCTION

01 | Introduction

Achieving the goals of the Paris Agreement requires mobilizing substantial amounts of public and private capital swiftly and at scale. In 2019, the Climate Policy Initiative estimated total climate finance flows during 2017-2018 to be $579 billion annually, which falls well below what is needed to limit global temperature rise to 1.5°C (Buchner et al, 2019). The Intergovernmental Panel on Climate Change (IPCC) report suggests that investments between $1.6 trillion to $3.8 trillion are needed every year from now until 2050 for supply-side energy alone (IPCC 2018) while the handful of Nationally Determined Contributions (NDCs)[1] with financial needs assessments anticipate annual investment requirements between $3.5 trillion and $4.4 trillion in order to meet their emissions reduction targets. By any measure, we are far away from meeting the scale and pace of the investment needed to transition to a low-emission and climate-resilient future.



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In 2017-2018, public climate finance averaged $253 billion annually, a small fraction of what is required to meet global climate finance goals (Buchner et al, 2019). To close the multi-trillion climate investment gap, more private capital is needed. However, as the leading provider of concessional capital, public finance has an important role to play in crowding-in private investment and expertise for climate action, particularly in developing countries where investors face complex risks and less familiarity with local policies and regulations.

Concessional capital can make climate-aligned investments more attractive to private investors who seek commercial returns by filling critical gaps in the capital stack[2] such as absorbing more risk, accepting lower returns and being more patient than commercial capital (Nakhooda 2013). Blending public and private finance into climate-aligned investment opportunities enables finite concessional resources to de-risk and crowd-in commercial capital while offering a pathway to generating long-term, sustainable investment models.

However, the ecosystem of private finance is complex. There are many sources of private capital, each with unique risk and return expectations, that work with and through a variety of intermediaries, resulting in a web of investment modalities and financial instruments through which capital is deployed. Tracking private climate finance flows is also more challenging than tracking public flows; as examples, difficulties may arise when distinguishing

1 NDCs are country-led plans to reduce national greenhouse gas emissions and adapt to the impacts of climate change based on Article 4 of the Paris Agreement (UNFCCC). See https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement/nationally-determined-contributions-ndcs

2 The capital stack represents all types of capital in an investment, with the most-risky positions represented toward the top of a stack that naturally seeks higher returns, than those further down the stack.

the origin of private finance, encountering confidentiality clauses related to private sector data, and facing a lack of data collection systems (UNFCCC 2018). As a result of this complexity, the landscape of private investment, and the ways in which the private sector considers the threats and opportunities presented by climate change, is often less well understood by development experts, policymakers and other stakeholders responsible for financing climate action.

The sources of private capital represent the largest pool of capital that can be engaged and mobilized for climate action. But they are less well represented and understood than sources of public capital in climate finance resources guides. In addition to investment, private financiers can also bring a very diverse range of industry expertise, financial acumen, and new technologies that can reduce costs, improve efficiencies, and drive innovation in the fight against climate change.

This resource guide presents an entry point to be used by development and policy professionals to better understand the broad private investment ecosystem and the market facilitators that impact and enable climate-aligned investment, including how they interact with public actors.

Section 1 considers the macro-level investment criteria of different types of private investors and how this impacts the flow of capital to climate-aligned investments, especially those in developing countries. The section then considers the financial instruments investors use and the trade-offs along risk, return, liquidity, and other investment considerations. Finally, the section outlines the sources of investable capital, covering those who "own" financial assets (asset owners), and also those with fiduciary responsibilities to invest financial assets on behalf of others (asset managers).

Section 2 illustrates how private and public capital can interact through blended finance, a financial structuring approach that leverages catalytic capital to crowd-in multiples of private capital.

Section 3 considers the market facilitators who influence capital flows and consequently the private climate finance and investment ecosystem. It is this wide ecosystem of financial actors, based on their investment objectives and risk appetite, that ultimately determines what gets financed and how much this financing costs.

The report is part of the Invest4Climate Knowledge Series. This Series provides targeted reports on expanding private investment in climate action through financial innovation and collaborative partnerships. The Invest4Climate platform, a World Bank Group–United Nations Development Programme (UNDP) partnership, was designed to mobilize, coordinate, and deliver the financing needed to close the climate financing gap and help countries transition to a low carbon, resilient future that supports jobs and growth.

02

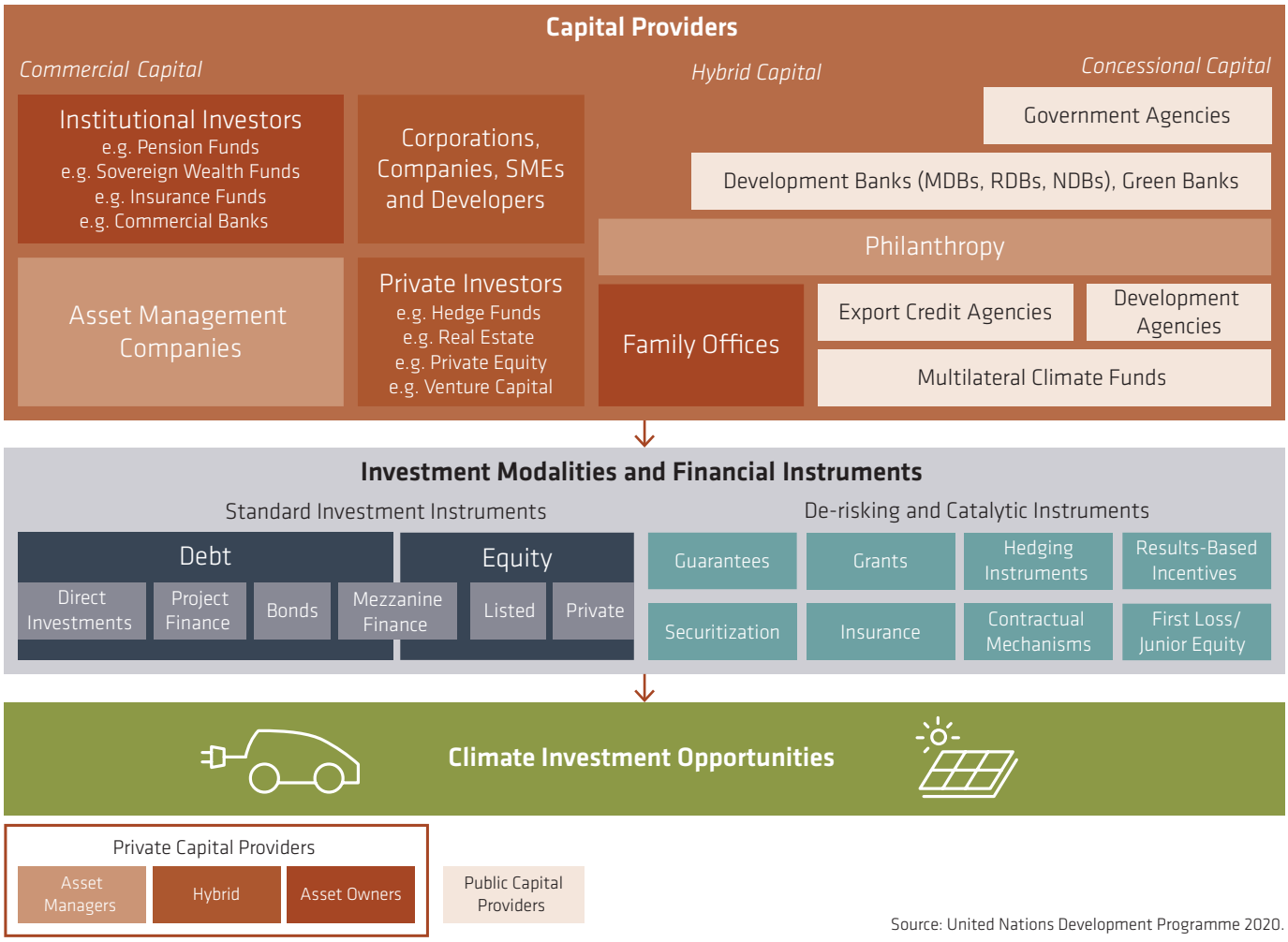
THE ROLE OF PRIVATE INVESTMENT IN CLIMATE ACTION

02 | The Role of Private Investment in Climate Action

The necessity of crowding-in private investment for climate action often is not matched by an understanding of the financial ecosystem through which private capital is deployed. It is critical to note that investors expect all of their investments, including those that are climate-aligned, to be commercial, because investors have a fiduciary responsibility to their shareholders as well as to various local and international regulatory bodies. By building an awareness and understanding of the private investment ecosystem and how it operates, policymakers and other stakeholders responsible for financing climate action can help catalyze the broad stakeholder networks, connections, and conversations that can ultimately scale climate investment.

The figure below outlines the different sources of private capital, whether asset owners or asset managers, as well as the different investment modalities they use. For climate-aligned investments, especially those in developing countries, investors often rely on catalytic instruments to make the transactions sufficiently commercial.

Figure 1 Ecosystem of Investment in Climate Action



Source: United Nations Development Programme 2020.

Scale of Global Capital Markets and Alternate Investments

Capital markets, comprised of publicly traded securities such as stocks (equities) and bonds (debt), make up the majority of the world's investments. In 2018, the global equity market was valued at $74.7 trillion (figure 2) while the global bond market was valued at $102.8 trillion (figure 3). In the global bond market, 15 percent of outstanding issuances came from emerging markets, however only 2.4 percent came from countries outside China. In the global equity markets, 24 percent came from emerging markets, with only 15.3 percent coming from countries outside China.

Outside the capital markets, alternative investment sources include private equity (PE), infrastructure, real estate, and natural resources; however, these sources are much smaller than capital markets. Total value of PE in 2018 was $3.4 trillion (figure 4) and

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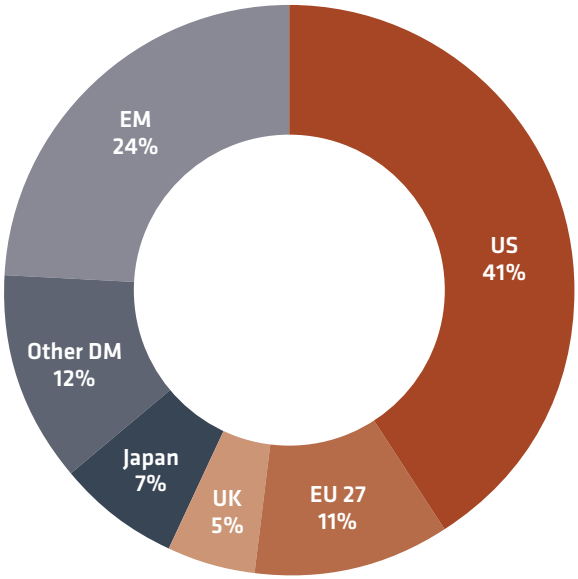
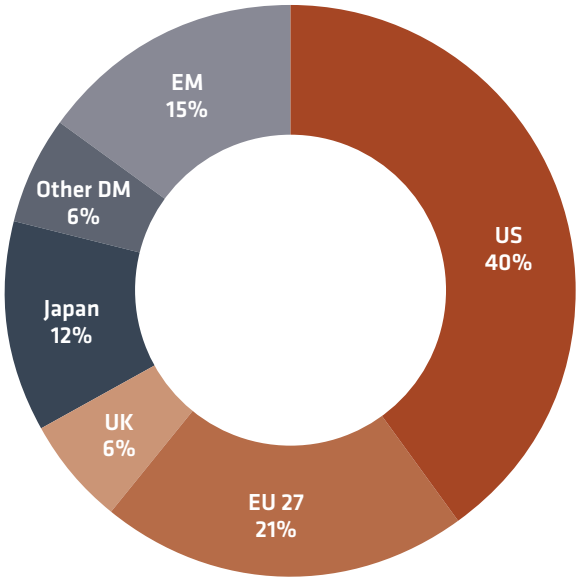
Figure 2 Global Equity Market Capitalization – 2018 $74.7 Trillion



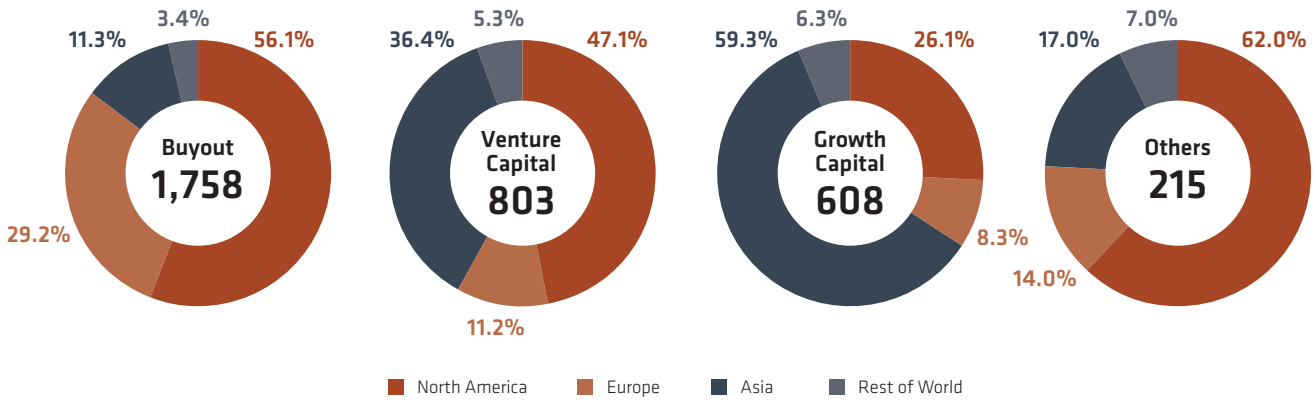
Source: Bank of International Settlements 2019.

Figure 3 Global Bond Market Outstanding – 2018 $102.8 Trillion



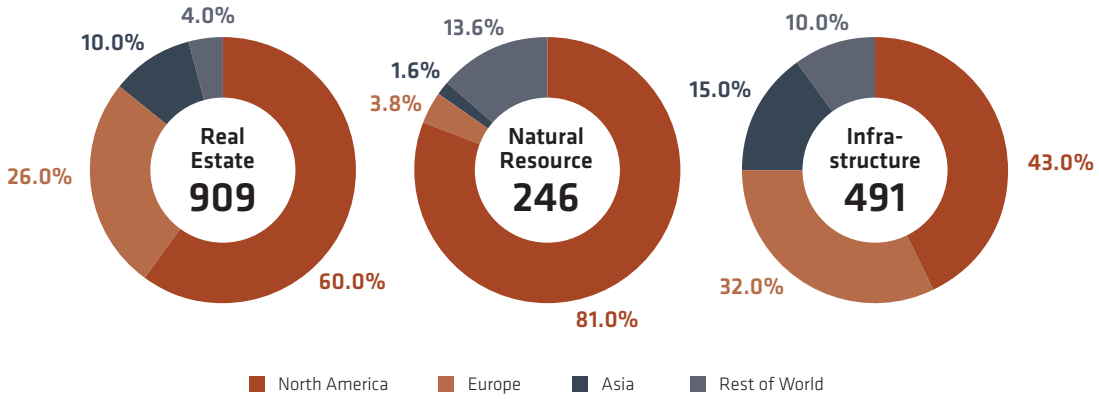
Source: World Federation of Exchanges 2018.

Figure 4 Private Equity – 2018 AUM ($ billion)



Source: Preqin 2018.

Figure 5 Real Estate and Infrastructure – 2018 AUM ($ billion)



Source: Preqin 2018.

the value of real estate, natural resources, and infrastructure investments (figure 5) was $909 billion, $246 billion, and $491 billion respectively.

Climate-aligned Investment Opportunities

Increasingly, climate change represents an opportunity for investors (IFC 2016). Climate-smart technologies, such as renewable energies and electric cars, are becoming cost-competitive with fossil-fuel alternatives and are gaining popularity worldwide (CFLI 2019, ODI 2019).In 2016, the International Finance Corporation (IFC) estimated that in excess of $23 trillion worth of investment opportunities would be available through 2030, largely in energy-efficient buildings, low-carbon transport, and renewable energies in emerging markets (IFC 2016). To date, the majority of climate-aligned private investment has gone toward climate change mitigation, especially renewable energies. In 2017/2018, of the $326 billion in tracked private climate finance, $278 billion went to renewable energies (Buchner et al 2019).

In addition to mitigating emissions, adapting to climate change also presents attractive investment opportunities. The Global Commission on Adaptation Report found that investing $1.8 trillion in early warning systems, climate-resilient infrastructure, improved dryland agriculture crop production, global mangrove protection, and water resource resilience over the next 10 years could generate $7.1 trillion in total net benefits (GCA 2019). Investors can contribute to climate action while benefiting from attractive returns through a variety of different channels.

Capital providers can invest directly in public and private companies that are supporting climate action through corporate bonds, public equity (shares), private debt (project finance or corporate loans), and PE and VC. For investments in multiple companies, investors can put money into mutual funds, hedge funds, PE funds, and exchange-traded funds (ETFs) that incorporate climate and sustainability screening metrics.

Climate-aligned investment strategies are proving to be increasingly profitable. U.S. companies that have embraced clean technologies outperformed the vast majority of the world's leading global equity indexes in 2019, averaging 40 percent in total returns compared with 31 percent for the S&P 500 (Winkler 2020). At the same time, corporations that have integrated renewables into their energy strategies have cut costs, improved efficiency, and developed new revenue streams, all while reducing their carbon emissions (Winston, Favarolo and Healy 2017).

In addition to investments in companies, investors can also support climate action through alternative investments including as low-carbon and climate-

resilient infrastructure and natural capital solutions. Over the next 20 years, the world is expected to invest $84.5 trillion in critical infrastructure, much of which will be in developing countries, and it is imperative that this infrastructure is low-carbon and climate resilient[3]. The majority of infrastructure investments are made through infrastructure funds, project finance, or bonds. Green bonds, often issued by governments and financial institutions, are increasing in popularity with over $250 billion issued in 2019 and over $350 billion expected for 2020; they could become a key instrument for investing in renewable energies, energy efficient buildings, water projects, and low-carbon transport.[4]

Natural capital represents both renewable and non-renewable resources that, through ecosystem services, provide value to individuals, businesses and companies. Biodiversity, for example, is an essential component of natural capital. Nature contributes more than $125 trillion annually to the global economy, and investments in natural capital seek to unlock new revenue streams, lower operational costs, and increase climate resilience (WWF 2018).

Natural capital solutions can generate a variety of revenue streams. For example, investments in forestry can generate sustainably produced commodities including timber, chemicals, and agricultural products (Guarnaschelli, Limketkai, and Vandeputte 2018). Some natural capital investments, such as those made in reforestation and mangrove protection, can also generate revenue via verified carbon credits, which can be bought and sold by individuals and organizations looking to offset their carbon emissions.

Investments made into natural capital can also generate cost savings and enhance resilience by preventing future losses from climate-related risks such as natural disasters. The Blended Finance Taskforce estimates that integrating natural solutions into infrastructure could generate cost savings of $100 billion – based on avoided costs of natural disasters – with $50 billion in savings from insurance losses alone (Blended Finance Taskforce 2019).

Similar to infrastructure investments, investors in natural capital can provide commercial debt and equity financing that is often blended with guarantees and/or insurance as well as concessional debt and equity investments. Results-based incentives, such as performance-based contracts, can entice private investors into this space (EIB 2018).

3 See https://outlook.gihub.org Global Infrastructure Hub figures from 2020 onwards inclusive of the SDGs.

4 See https://www.climatebonds.net

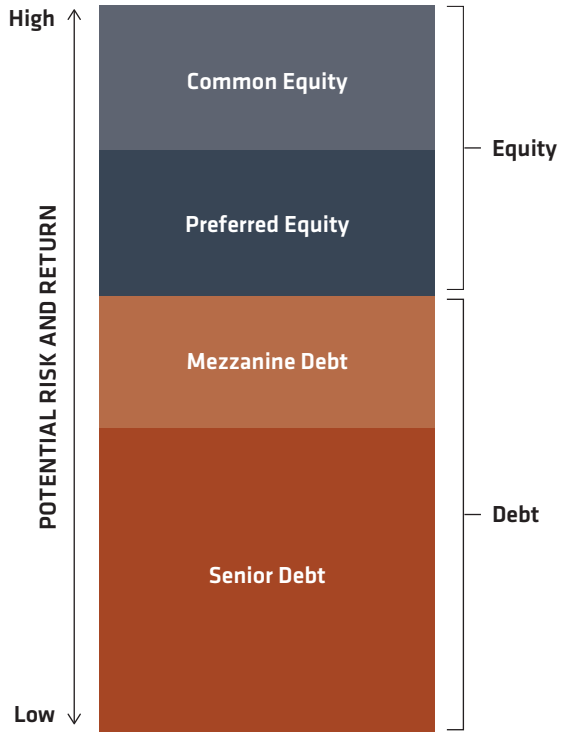
03

FINANCIAL INSTRUMENTS AND COMMON INVESTMENT MODALITIES

03 | Financial Instruments and Common Investment Modalities

Investors deploy capital through a variety of financial instruments that have different risk profiles, return expectations, and time horizons. The two key financial instruments used by mainstream investors are debt and equity. Mezzanine financing, a hybrid form of debt and equity in terms of risk and return, is frequently combined with debt and/or equity into the same deal.

Figure 6 Capital Stack and Risk Return Spectrum



Source: Realty Mogul.

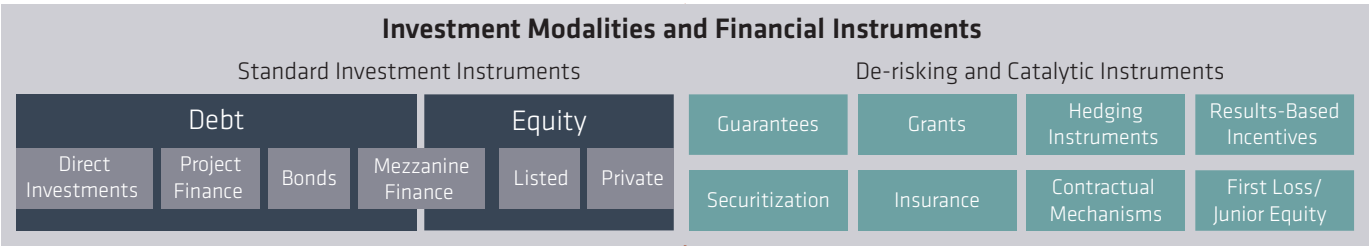
Debt, equity, and mezzanine financing can be combined in any number of different ways depending on the context of a given investment and the risk tolerance of different investors. The capital stack, illustrated in figure six, shows a traditional investment structure with different types of debt and equity, each with varying return expectations commensurate with the level of risk.

In blended finance transactions, which seek to create an acceptable risk-return profile to crowd private investors into a Sustainable Development Goal (SDG)-aligned investment opportunity, other instruments such as insurance, foreign exchange hedging, junior equity, and guarantees are used to de-risk and attract more commercial debt and equity investment, as explored in section six.

Debt

Debt transactions occur when investors lend money with an expected and often fixed rate of return over a given time period. These investments are paid back before equity investments; as a result of their lower risk profile, debt securities incur a lower rate of return. In a typical infrastructure investment, a simple investment structure would involve 65 percent – 90 percent of senior debt with the remaining balance as equity. There is a higher risk for the equity investors who would suffer the "first-loss" in the event of any dip in revenue (Macquarie 2017).

Figure 7 Investment Modalities and Financial Instruments



Source: UNDP 2020.

Debt investments can take the form of bonds, or private debt in the form of direct investments, project finance and corporate loans.

Bonds

Bonds are securitized fixed-income investments that are often tradable on capital markets and thus are more liquid forms of debt. Bond investments can range from one year to more than thirty. They are usually issued by corporations, governments or financial institutions when they want to raise capital but either do not want or cannot issue shares of equity. The coupon, or return, on bonds is determined by the level of risk as identified by the credit rating.

In order to understand the risk of lending to a given government or public company, credit agencies assign ratings to indicate the creditworthiness of these entities. The higher the credit rating, the lower the risk (and, therefore, the lower the return). The lower the credit rating, the

Climate-aligned Bond Offerings

Bonds have been critical tools in mobilizing investment in climate action. Green bonds are specialized instruments that were developed to fund projects that have a positive climate and/or environmental impact. Green bonds are typically used to fund renewable energy technologies, energy efficiency programs, and clean transportation systems. They have, however, also been used for forestry and water projects, and to fund development of resilient infrastructure. The green bond market has expended rapidly over the past 10 years following the first green bond issuance from the World Bank and European Investment Bank in 2007. In 2019, green bond issuances totaled a record $257.5 billion with over $500 billion in green bonds currently outstanding.*

Parametric catastrophe "cat" bonds are designed to cover losses beyond the capacity of insurers and/or governments in the event of a disaster by transferring the risk to the capital markets. These instruments rely on a parametric trigger, which is a clear and quantifiable indicator such as wave height or wind speed that, once met, will activate a payout to those covered under the policy. Resilience bonds are a type of cat bond that enables governments to raise debt for projects, typically in infrastructure and natural capital, that will build climate resilience and protect against financial loss. Investors are attracted to these insurance-linked securities (ILS), because they are uncorrelated to other asset classes in the market. At the end of 2018, the global catastrophe bond market was $30 billion. These instruments are especially relevant for instances of flooding, wildfires or other natural disasters that are increasing in frequency and severity as a result of climate change.

Blue bonds are debt instruments where capital is raised for projects that protect and improve ocean climate resilience. In 2018, the Republic of Seychelles launched the world's first sovereign blue bond, with the help of the World Bank, to support sustainable marine and fisheries projects. The bond is a blended offering that mobilized $15 million from private investors including Calvert Impact Capital, Nuveen, and Prudential Financial, Inc. along with a $5 million guarantee from the World Bank and a $5 million concessional loan from the Global Environment Facility (GEF) to partially cover the interest payments. Other blue bond offerings have included a SKr 2 billion ($210 million) offering from the Nordic Investment Bank for projects in the Baltic related to wastewater treatment, prevention of water pollution and water-related climate change adaptation.

* Reference: https://www.climatebonds.net

higher the risk of payment defaults, and so the higher the expected rate of return. The threshold for an investment-grade bond is BBB-, anything below that is considered a high-yield bond or junk bond. Financial regulations prohibit institutional investors from junk bonds because of their risk profile. Increasingly, climate change is becoming a factor in credit ratings. The utility company Pacific Gas and Electric (PG&E), in the American state of California, is considered the first climate change-related bankruptcy after Moody's and S&P downgraded their credit rating to junk bond status following their role in the California wildfires. Further information on credit rating agencies is contained in section five.

Project Finance

Project finance is the dominant modality for financing large infrastructure projects such as utility-scale renewable energies including solar plants, wind farms and hydroelectric dams. The debt component of project finance relies on the project's cash flows, such as the Power Purchase Agreement (PPA) with a given offtaker for energy sales, for repayment. This structure also allows companies to fund projects off-balance sheet, which is seen as an advantage. Money is borrowed to fund a specific project; the amount of credit made available is linked to the revenue the project is expected to generate over a period of time, as this is the means to pay back the debt. This amount is then adjusted to reflect inherent risks, for example, the production and sale of power. In the case of a problem with loan repayment, rather like a typical mortgage, the bank will establish first "charge" or claim over the assets of a business. The first tranche of debt to get repaid from the project is usually called senior debt.

Corporate Lending

Banks provide finance to companies to support everyday operations. An assessment is made of the company's financial strength and stability, and the loan is priced accordingly. Banks place few restrictions on how a company can use the funds provided that certain general conditions are met.

Direct Investments

These investments allow institutional investors to directly invest in closed infrastructure deals, usually with larger ticket sizes in the tens of millions or more. Direct infrastructure investments can introduce an illiquidity premium in which investors can expect a higher return in exchange for the lack of liquidity. For long-term investors, this can be an attractive trade-off.

Equity

Unlike debt financing where investors receive interest payments on a principal investment, equity investors become co-owners of the project or company. As such, they are entitled to a proportion of the company's or project's earnings once the debt investors have been paid. Using equity, investors can gain ownership in companies or projects.

Public Equity

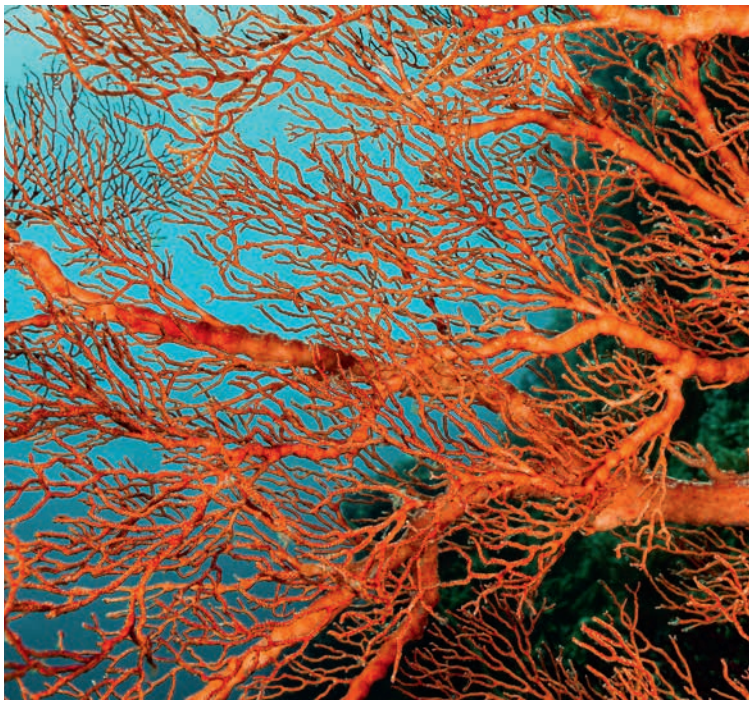
Publicly traded companies are listed on exchanges around the world, such as the New York (NYSE) or London Stock Exchange (LSE). Listed equities are considered highly liquid, meaning investors can quickly buy or exit their positions.

Increasingly, listed companies are expected to disclose their climate risk exposure and carbon emissions along with plans to reduce emissions and manage risks. The Task Force on Climate-related Financial Disclosures (TCFD) was designed to support companies with voluntary and consistent financial risk disclosures on the physical, liability and transition risks associated with climate change for investors, lenders, insurers, and other stakeholders. In 2016, Article 173 of the French Energy Transition Law took effect, which strengthens mandatory carbon disclosure requirements for listed companies as well as introducing carbon reporting for large-scale asset owners and investment managers.

Publicly traded companies, however, have a fiduciary responsibility to deliver value to their

shareholders. This means that shareholders and the company's board of directors must approve all climate-related decisions, such as those to reduce carbon emissions and green supply chains, that have a financial impact and fall beyond the scope of regulatory mandates. While many of these decisions offer long-term cost savings, not all shareholders are long-term investors; consequently, they may not want to incur higher upfront costs and reduced short-term profitability in exchange for lower operating costs in the future, when they may no longer be invested in the company.

While the goal of companies is usually to maximize profit for their shareholders, some companies are increasingly focusing on their "triple bottom line," which takes a more holistic approach to business by inclusively considering people, profit, and planet. These companies can also apply to become a Certified B Corporation which legally mandates the firms to adhere to high environmental, social, and governance (ESG) standards.



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In addition to individual investments, funds and funds-of-funds are investment vehicles that can include mutual funds, ETFs, hedge funds, and others. These investments pool different securities together to diversify risk while ideally maintaining expected returns. Given the high due diligence and transaction costs of individual investments, investors can lower their costs and risks by investing in funds. These funds can engage in climate action in a variety of ways including divesting of investments in fossil fuels, while investing in best-in-class ESG practices and sustainability themes such as green technologies, clean energy and sustainable agriculture, and shareholder action (Global Sustainable Investment Alliance 2018).

Private Equity

In contrast to public equity, PE investments are made into companies or assets that are not available on listed exchanges. PE investments can be made at different stages of a firm's maturity, ranging from very early stage to mature profitable companies. Examples of types of PE investments and their characteristics are included in the following table:

Venture capital (VC) is a form of PE that is done in very early-stage companies that may or may not have demonstrated profitability. VC is critical for proving and scaling innovative technologies and business models across all industries, including those that can mitigate emissions and improve resilience to climate change. However, because VC investments are riskier than investments in more mature firms, the return expectations must also be higher (Glemarec 2011).

In growth equity, investments are usually made into companies that have at least three years of profitability, a strong management team, and solid business and competitive model. The PE firm investing must also identify an exit strategy, such as selling the company to another firm or an Initial Public Offering (IPO), in which the company sells a percentage of ownership on a listed exchange. Investors typically hold their

Table 1 Types of PE Investments

Type		Description
Seed funding		• Typically, individuals investing their own funds ("angel investors") • High risk (usually in start-ups), but also high potential returns
Venture capital		• Typically funds pooling resources from (institutional) investors • Often follows angel investment to help investee companies grow • A few blockbusters compensate for many failed investments
Growth-equity	**Mezzanine financing**	• Debt and equity hybrid, used by established companies in need of growth finance, but without collateral or desire to dilute ownership • Allows lenders to share some upside potential with the company while providing some downside protection to investors
	Minority stakes	• Companies seeking growth finance without giving up control (<50%) • Key issue for investors is protection of minority shareholders' rights
	Controlling interest	• Often executed in combination with debt (leveraged buy-out) • Exits conducted via public offerings or strategic buyer sales
Distressed assets		• Buyout of either whole distressed companies or parts (assets, debt) • Companies that need liquidity or that cannot maximize asset values

Source: Inter-American Development Bank, Comparative Study of Equity Investing in Development Finance Institutions 2017.

positions in a given investment for 5-8 years. To compensate for the risk associated with limited liquidity and longer investment horizons, PE investors expect outsized returns between 20-30 percent annualized return compared to 6-8 percent annualized return in public equities.[5]

In many developing countries, where there are not strong capital markets, PE plays an important role in funding renewable energy projects including hydro, solar, wind, biomass, and geothermal projects. In addition to financing, PE funds can bring significant infrastructure experience, which can help improve project management and cost effectiveness.[6]

PE funds enable investors to invest in multiple private companies and/or infrastructure projects to diversify their risk exposure. These funds, which typically focus on specific sectors, geographies, or investment stages, can also play the critical role of bundling investments in smaller companies or infrastructure projects into an investment opportunity that is substantial enough to attract the interest of institutional investors who manage large portfolios and are only capable of making bigger investments, typically tens of millions to billions of dollars.

PE funds also represent an opportunity for investors to capitalize on the market demands

5 The author interviewed six PE investors in February 2020. The interviews focused on the role of these investors in funding renewable energy projects in developing countries.

6 World Bank Public-Private Partnership Legal Resource Center. See https://ppp.worldbank.org/public-private-partnership/financing/investors-developing-countries

of adapting to a changing climate. The Climate Resilience and Adaptation Finance and Technology Transfer Facility (CRAFT) is an example of a PE fund specially designed to invest in growth-stage companies that offer products (such as drip-irrigation systems) and services (such as advanced weather analytics), related to climate adaptation and resilience in both developed and developing countries. The fund has identified 20 economic sectors representing $130 billion market size for products and services related to climate change resilience, which are growing at a rate of 20-30 percent annually (Kerschberg 2019).

Mezzanine Financing

As the name implies, mezzanine financing refers to financial instruments that either combine or have varying levels (seniority) of debt and equity. A green investment project may seek mezzanine financing if it cannot access a sufficient amount of bank debt: the mezzanine loan may be a less expensive way of replacing some of the additional equity that would be needed in that situation, thus improving the cost of overall finance (and consequently the rate of return for owners) (Glemarec 2011).

The most common types are listed below:[7]

Subordinated Loans

Subordinated loans have a lower repayment priority compared to senior loans. This means that in the event of a default, subordinated debtholders will not be paid until senior debtholders are paid in full. Given the increased risk of these loans, these instruments usually offer higher interest rates than the less-risky senior loans; however, the risk is seen as less than equity ownership.

Convertible Debt

During the initial investment phase, convertible debt functions as a loan with a periodic interest and capital repayment. In the future, these contracts offer investors the option to convert the loan to a certain number of shares at a predefined price.

Preferred Stock

Preferred stock is a shareholding position that has a higher claim on earnings and assets than common stock. Preferred stock typically receives a defined dividend that is paid out before dividends to common shareholders. In some scenarios, preferred stock can be converted to common shared stock.

7 Taken from IADB – Comparative study of Equity investing in Development Finance Institutions, 2017. See https://publications.iadb.org/publications/english/document/Comparative-Study-of-Equity-Investing-in-Development-Finance-Institutions.pdf

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04

PRIVATE CAPITAL PROVIDERS

04 | Private Capital Providers

The majority of private capital is comprised of the savings of individuals and corporations. These savings are managed, pooled, and invested through institutional investors including banks, insurers, and/or pension funds. Corporations and developers may also invest their own capital directly, while high-net-worth (HNW) individuals may invest through family offices that manage their wealth directly or through foundations that oversee philanthropic giving that can be also used to crowd-in commercial capital.

The motivation for private capital is to realize a risk-adjusted return on investment. Asset owners (for example, a corporation, developer, or household) expect returns and therefore seek financial viability for each investment. By contrast an asset manager, as an intermediary, has a fiduciary responsibility to the asset owner to deliver on these return expectations. Whether investing their own money or money on behalf of others, there are significant differences in the levels of risk, the time horizons and the return expectations of investments across various asset classes (UNEP 2014).

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While financial returns are often prioritized, the desire to invest in order to create positive social or environmental impacts alongside returns is growing in popularity. This approach to investment is called "impact investing." Studies show that seeking social and environmental impact does not have to come at the expense of commercial returns. In 2019, it was reported that 66 percent of impact investors were seeking risk-adjusted, market rate returns (Mudaliar and Bass 2017). The growth in impact investing is also being seen across capital providers, including PE funds, institutional investors, and asset managers. In 2019, the global impact investing market – covering sectors such as sustainable agriculture, renewable energy, microfinance, housing, healthcare, and education – was estimated at $502 billion (Mudaliar and Dithrich 2019).

It is important to note that impact investment is not a separate pool of capital but a strategy that can cover a broad spectrum of engagement and how investors prioritize financial returns and impact in different ratios. Figure eight illustrates some of the various impact investing strategies and how they manifest in different asset classes.

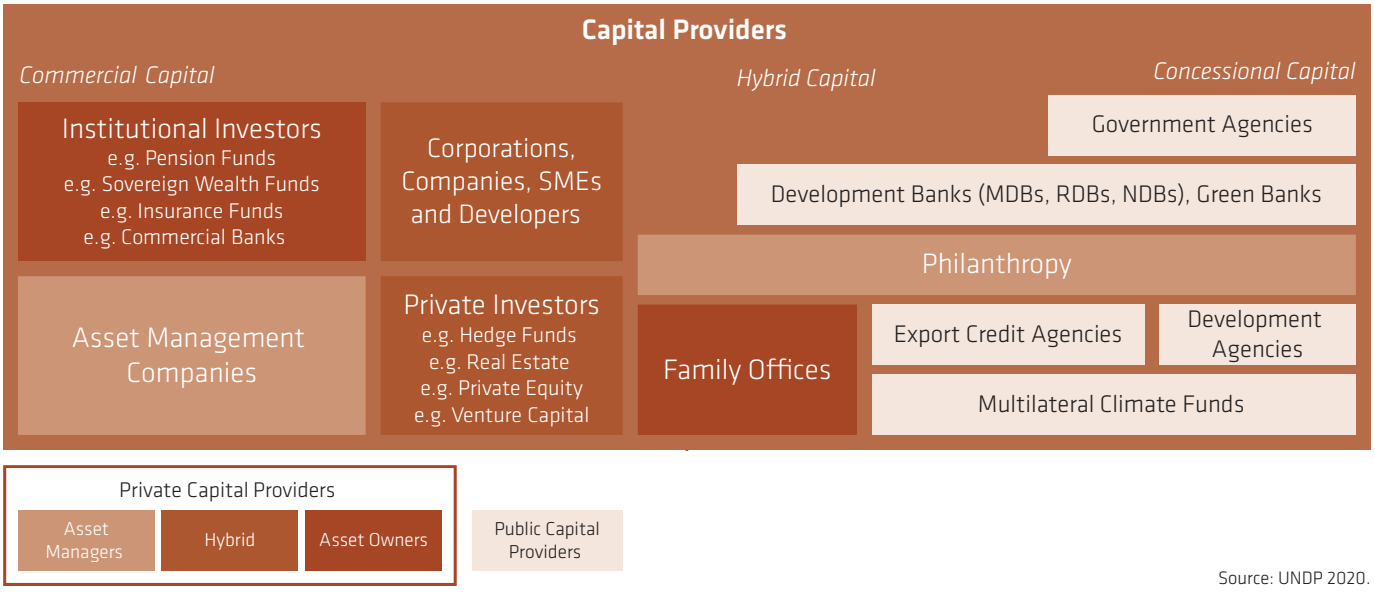
While the ecosystem of private capital providers is too complex to draw a complete picture, the following section provides an overview of the main types of private investors and intermediaries, all of whom will play a critical role in financing climate action. Figure nine illustrates various sources of public and private capital and whether they are asset managers or owners.

Figure 8 Spectrum of Impact Investing

	Financial-only	Responsible	Sustainable	Impact			Impact-only
	Delivering competitive financial returns						
		Mitigating Environmental, Social and Governance (ESG) risks					
			Pursuing Environmental, Social and Governance opportunities				
				Focusing on measurable high-impact solutions			
Focus:	Limited or no regard for environmental, social or governance (ESG) practices	Mitigate risky ESG practices in order to protect value	Adopt progressive ESG practices that may enhance value	Address societal challenges that generate competitive financial returns for investors	Address societal challenges where returns are as yet unproven	Address societal challenges that require a below-market financial return for investors	Address societal challenges that cannot generate a financial return for investors
Examples:		• PE firm integrating ESG risks into investment analysis • Ethically-screened investment fund	• "Best-in-class" SRI fund • Long-only public equity fund using deep integration of ESG to create additional value	• Publicly-listed fund dedicated to renewable energy projects (e.g.a wind farm) • Microfinance structured debt fund (e.g. loans to microfinance banks)	• Social Impact Bonds / Development Impact Bonds	• Fund providing quasi equity or unsecured debt to social enterprises or charities	

Source: Bridges Fund Management Spectrum of Capital 2015.

Figure 9 Capital Providers



Source: UNDP 2020.

Asset Owners

Institutional Investors

An institutional investor refers to an organization that pools and manages the savings of small investors, investing on their behalf (Glemarec 2011). The term, therefore, encompasses pension funds, sovereign wealth funds, insurance companies, and commercial banks. While institutional investors, like other commercial investors, seek to maximize their risk-adjusted returns, they often have long-term investment horizons with higher levels of risk aversion. Institutional investors are also subject to more operational and regulatory constraints than individual or retail investors. These constraints include tighter global financial regulation on the provision of long-term finance following the financial crisis, for example (CISL and UNEP FI 2014). Ultimately, these investors have an interest in protecting their long-term investments from the emerging physical impacts of climate change, as well as avoiding investing in activities that exacerbate climate change, reduce resilience, or hold transition risks – if climate policies arise to limit certain activities that affect asset values and/or revenues (Kaminker and Stewart 2012).

Pension Funds

Pension funds represent substantial investment capital with global assets under management (AUM) of approximately $44.1 trillion (OECD 2019). Pension funds are generally risk averse because they are responsible for meeting the long-term liabilities of the fund and ensuring that retirees receive the benefits promised to them. Pension funds can be both public and private and are funded through a variety of sources including taxation, employee contribution, and commodities.

Typical pension investments include publicly listed equities and bonds in developed financial markets and select emerging markets with relatively strong financial market development and transparency. There are also increasing allocations to alternative investments, such as PE and infrastructure funds (Glemarec 2011). With moderate-to-high levels of risk aversion, pension funds often prefer fixed-income assets and are more focused on meeting their obligations than maximizing profits. The Organization for Economic Cooperation and Development (OECD) notes that restrictions on investments to protect pension fund beneficiaries can have unintended consequences for financing climate action. For example, unlisted or direct investments may be banned, and carbon may be viewed as a commodity that is subject to investment restrictions (Kaminker and Stewart 2012).

Pension funds have begun using their position as one of the world's largest asset owners to engage with climate action. Several major pension funds in the U.S., Denmark, Sweden, and Canada, along with several of the world's largest insurers, joined the Net Zero Asset Owners Alliance, which commits them to rebalancing their portfolios to become carbon neutral by 2050 (Green 2019).

Insurers

With approximately $33 trillion in AUM, insurers rank alongside pension funds as the world's largest long-term investors (Financial Stability Board 2019). Insurers invest the premiums collected through life insurance policies and non-life insurance policies including health, automobile, and property insurance across all asset classes; they are, however, often constrained in their investments by international and national financial regulations.[8] For life insurance policies, insurers must match the long-term liabilities of their policies with the assets they invest in, which usually limits them to investing in the currencies and geographies of their policy holders.

Financing sustainable infrastructure, which delivers predictable and stable cash flows that

8 This includes, for example, Solvency II with intention to harmonize insurance regulation and the amount of capital that EU insurance companies must hold to reduce the risk of insolvency.

match the long-term liabilities of insurers, is a key area in which insurance investors can scale their climate-aligned investments. However, infrastructure investments to date represent less than 2.5 percent of their overall portfolio.[9] Sustainable infrastructure investments in developing countries are an even smaller fraction of insurers' portfolios, largely as a result of international financial regulations that impose higher capital charges for investments outside of Europe[10], as well as limited-quality pipeline, currency risk, and weak local enabling environments. However, investing in sustainable infrastructure can have dual benefits for insurers; these investments can reduce the carbon footprint of economic progress and also lower underwriting risks as countries become more resilient, creating financial incentives for investing in climate change prevention and preparedness. The forthcoming UNDP report on Mobilizing Insurance Investment in Sustainable Infrastructure elaborates on this issue in more depth.

The Insurance Development Forum (IDF), an industry-led group co-chaired by UNDP and the World Bank, seeks to help insurers address some of the regulatory, pipeline, and enabling environment challenges they may face when investing in infrastructure in developing countries. Outside of infrastructure, many of the world's largest insurers

9 Reported infrastructure investment by European investors is EUR 171million (or 2.3 percent of EUR 8.5 billion of investments), assumed this is reflected for the total investments of $29.5 trillion (FSB 2019) bringing total estimates to $679 billion.

10 Solvency 2 qualifying infrastructure is constrained to European Economic Area (EEA) and OECD countries. See https://www.worldbank.org/en/news/feature/2017/12/22/risk-and-capital-requirements-for-infrastructure-investment-in-emerging-market-and-developing-economies

have also committed to the Net Zero Asset Owners Alliance and are reducing their underwriting and investment exposure to fossil fuels (Moody's 2020).

Commercial Banks

Commercial banks are financial institutions that, by and large, accept deposits and lend money, offering financial services to individuals or corporations.[11] Commercial banks seek a return on the money deposited by bank customers in savings accounts, for example. Their scope of investment is both national and international (Weber C. et al, 2017).

Commercial banks provide loans and project finance for climate projects such as renewable energies. Some banks are developing products that encourage investment in climate actions. These have included, for example, green mortgages, green deposits, and green bonds. In addition, commercial banks are increasingly – though slowly – becoming aware of reducing their exposure to high-carbon assets - including companies involved in coal exploration and mining (Institute for Energy Economics and Financial Analysis 2019).

Commercial banks are regulated by the central bank in their country of residence. These issue regulations, such as maintaining a certain level of reserves (a certain level of deposits is required to be held by the bank rather than invested). Recently, there are moves from central banks to require the disclosure of climate risks in financial institutions such as commercial banks (Grippa P., J. Schmittmann, and F. Suntheim 2019). This requires them to include climate-related information in their financial filings and builds on, for example, the recommendations of the TCFD and increasing public awareness (and investor pressure). More information in the role that central banks play in climate investment can be found in section five on market facilitators.

Sovereign Wealth Funds

Sovereign wealth funds (SWFs) are state-owned, but often privately managed, funds or entities that invest money from a country's reserves. SWFs have approximately $8 trillion AUM (Pitchbook 2019). While there are often few regulatory requirements for sovereign wealth funds, there can be restrictions on the geographical locations of investments imposed on a country-by-country basis, considering national priorities and objectives to benefit the country's economy and/or its people.

In addition to a long-term investment horizon, SWFs can also work to fulfill public policy mandates. These are often recognized to affect the viability of their investments as well as intergenerational well-being (Kaminker and Stewart 2012).

Norway's SWF, the world's largest with more than $1 trillion[12], committed in 2015 to divesting from companies that derive more than 30 percent of their business from thermal coal. The SWF is now setting expectations that all of the 9,000 companies within its portfolio - representing 1.4 percent of the world's listed shares (Fouche 2018) - consider the impacts of climate change on their current and future business activities, investment management, risk management, and reporting.[13]

Family Offices

According to UBS Global Family Office Report 2019, currently one-in-three family offices are engaged in sustainable investing. A family office refers to the institution that manages the wealth and directs the investments of HNW and ultra-high-net-worth (UHNW) individuals (UBS 2019). On average, family offices around the world manage $917 million AUM, with some family and multi-family offices managing tens to hundreds of billions.

11 Note that they are increasingly acting as underwriters and blurring a distinction between investment banks and commercial banks.

12 See https://www.swfinstitute.org/fund-rankings/sovereign-wealth-fund

13 See https://www.norges-bank.no/en/news-events/news-publications/Speeches/2019/2019-11-08-matsen/

The attraction of sustainable investing for family offices is clear: "Families can invest with their values and create significant positive change, whilst also simultaneously generating profit, thereby cementing a positive family legacy and supporting long-term wealth preservation" (UBS 2019). On average, 34 percent of family offices have a sustainable investment strategy, and climate change is the top investment theme. Of the family offices that invest sustainably, 62 percent invest in renewable energies and carbon footprint management, while 41 percent invest in water projects that improve fresh water supplies and manage water consumption (UBS 2019).

Family office return expectations for sustainable and impact investments can vary widely; some are targeting market rate returns, while others see sustainable and impact investing as an updated version of philanthropy and thus have lower return thresholds and longer time horizons. Fortunately, for those family offices targeting market returns, 81 percent of impact investments made by family offices in 2018 met or outperformed expectations when compared to traditional investments.

Asset Managers

Asset Management Companies

Asset management companies (AMCs) oversee and invest the funds of asset owners including individuals, companies, and governments. Collectively, AMCs have $91.5 trillion under management. Some of the largest AMCs include the following financial giants: BlackRock ($7.43 trillion); Vanguard ($5.6 trillion); UBS ($3.26 trillion); and State Street ($2.8 trillion).[14]

As major shareholders of many of the world's biggest companies, asset managers have a powerful vote on shareholders' resolutions related to climate change such as emissions reduction strategies and alignment with the Paris Agreement goals (The Economist 2019). In his 2020 annual letter to CEOs, BlackRock CEO Larry Fink made it clear that he would leverage BlackRock's position as the world's largest asset manager to put climate risk at the center of its investment strategy, adding: "Our investment conviction is that sustainability- and climate-integrated portfolios can provide better risk-adjusted returns to investors."[15]

Many asset managers are also signatories of various climate commitments. One example is the investor initiative Climate Action 100+, which pledges to consider the short-, medium- and long-term investment risks of climate change. It encourages the mainstreaming of climate risk into investment decision-making and the disclosure of the carbon emissions and climate risk of their portfolios through processes developed by the TCFD.

Philanthropic

Philanthropic capital comprises charitable contributions given in support of social and/or environmental purposes. Philanthropic capital can be more flexible and catalytic than commercial capital because it generally has no or lower return expectations and is also more "patient" in terms of the time horizons around payback, which makes it a powerful tool in scaling climate investment.

Philanthropic capital can also be used in a variety of ways in blended finance structures (section three), such as funding design-stage grants and investing in first-loss tranches, which can mobilize commercial capital. For example, in 2018 the world's largest asset manager, BlackRock, partnered with the governments of Germany and France and two U.S.-based foundations, the William and Flora Hewlett Foundation and The Grantham Foundation for the Protection of the Environment, to create the Climate Finance

14 Statista 2019.

15 See https://www.blackrock.com/corporate/investor-relations/larry-fink-ceo-letter

Partnership. This was targeted at climate-aligned infrastructure investment in emerging markets. Under the fund structure, $100 million in funding provided by the foundations and governments would act as a first-loss tranche to crowd-in an additional $400 million of institutional investor capital (Jessop and Cruise 2020).

Philanthropic capital can also be used similar to VC as the aptly named venture philanthropy. This is where philanthropic capital aims to invest in early-stage innovative technologies or concepts with a social or environmental objective. Breakthrough Energy Ventures, the VC branch of the billionaire-led Breakthrough Energy Coalition, focuses its investments on innovative technologies with the potential to reduce at least half a gigaton of greenhouses gases annually. Given the complexities and costs of developing clean technologies, the fund offers promising start-ups "patient capital" that allows them a longer time horizon to deliver returns (Rathi 2019).

Foundations and NGOs (non-governmental organizations) have primarily provided concessional capital (72 percent of financial commitments) to blended finance transactions, with grants being the most frequent instruments (36 percent of financial commitments), followed with debt (33 percent) and equity (26 percent). However, over the past five years there has been a slight increase in these organizations offering non-concessional capital to blended finance transactions that support their operational mandates (Convergence 2019).

Twenty-nine of the world's major philanthropic foundations investing in climate action pledged $4 billion to address climate change between 2018 and 2023, including the following: Bloomberg Philanthropies; Children's Investment Fund Foundation; Grantham; Hewlett; John D. and Catherine T. MacArthur Foundation; The David and Lucile Packard Foundation; and the Rockefeller Brothers Fund (Hewlett 2018).

Hybrid Providers

Corporations, Companies, Small Medium Enterprises (SMEs) and Developers

Corporations, companies, SMEs, and project developers can engage in climate action in a variety of ways. Some are climate-aligned at their core such as renewable energy project developers, green technology firms, or sustainable agriculture companies. Others decide to engage in climate action in other ways such as greening their supply chains, offsetting their carbon emissions and/or sourcing or producing their own clean energy. These organizations can be public or private, large or small and manage their own funds as well as shareholder capital.

Corporations and project developers comprise 56 percent of the tracked total of private investment in climate action, with investments totaling $172 billion in 2018 (Buchner et al. 2019). The majority of corporate climate investments in 2017 and 2018 come from their own balance sheets, with a combination of both debt and equity investments. The majority of corporate and developer climate investments went toward renewable energies, low-carbon transport, and energy efficiency.

These organizations are increasingly participating in various climate commitments, such as the United Nations Global Compact Business Ambition for 1.5°C, that urge them to radically reduce their carbon footprint. Some companies, such as tech giant Microsoft, are developing their own climate targets. In 2020, Microsoft pledged to be carbon neutral by 2030 and to remove from the environment all the carbon the company has emitted either directly or by electrical consumption since it was founded in 1975 (Smith 2020).

Private Investors

Private investors include a broad range of actors including hedge funds, PE funds, VC funds, and real estate investors. Each of these funds is usually comprised of general partners (GPs) and limited partners (LPs). The GPs are investing and managing

their own capital as well as the capital invested by LPs. GPs typically have unlimited liability for the debt and obligations of the business, whereas LPs are only liable up the amount invested. To compensate for taking on additional risk, GPs benefit from carried interest, which is a percentage of the profits of the fund regardless of whether they contributed to the initial capitalization of the fund, as well as a management fee, a percentage of the total asset value regardless of profitability. GPs of many hedge funds and PE funds often follow a standard compensation structure in which 2 percent of the fund value covers management fees and the GPs take 20 percent of the fund profits.

Hedge Funds

Hedge funds are investment partnerships that have minimal oversight or regulation and are able to invest in a wide array of financial products; these can include riskier financial strategies such as short-selling and investing in derivative. These funds are generally only accessible to accredited investors who have a certain threshold of income and/or assets. As actively managed funds with higher risk strategies, hedge fund investors expect outsized returns when compared to passive index funds such as the S&P 500. While hedge funds have historically been slow to react to climate change, certain fund managers are using their capital to engage with investee firms on climate action and encourage the adoption and disclosure of climate targets (Robinson and Kumar 2020).

Real Estate Investment Trusts (REITs)

REITs are companies that allow investors to pool their capital to buy income-generating properties such as apartment complexes, infrastructure, office buildings, shopping complexes, and hotels. These are often publicly traded funds and thus considered liquid assets. In the U.S., more than 520,000 properties are owned by REITs, representing more than $3 trillion in assets. Consequently, energy efficiency, greenhouse gas reduction, and water resource management strategies are important to the financial viability and competitiveness of these firms. In order to improve sustainability and reduce costs, several REITs are piloting new climate-smart technologies, such as resource-efficient heating and cooling, across their properties.[16]

PE and VC

Information on PE and VC can be found in the PE section on page 18.

16 See https://www.imt.org/nareits-leader-in-the-light-awards-show-innovative-reits-stepping-up-on-climate-action/

05

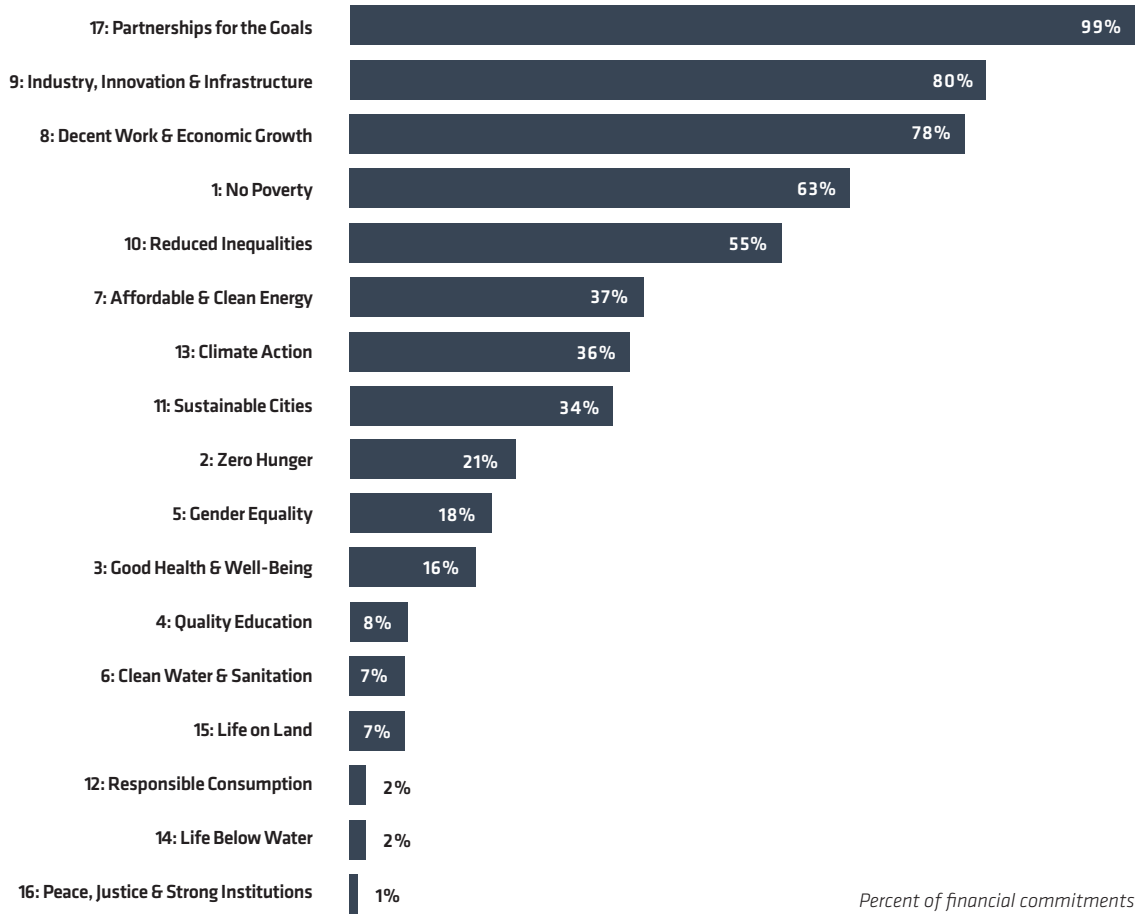
BLENDED FINANCE

05 | Blended Finance

Blended finance is a financial structuring approach that leverages catalytic capital, usually from public and philanthropic sources, to crowd-in private sector investment to achieve the SDGs. By combining commercial and catalytic capital, blended finance structures enable organizations with different financial, social and environmental objectives to invest alongside one another in the same transaction. Among the 17 SDGs, projects within Climate Action, Affordable and Clean Energy, Sustainable Cities and Industry, Innovation and Infrastructure, are well-suited to blended finance structures and represent significant opportunities to close the multi-trillion-dollar climate investment gap.

However, in spite of its potential for de-risking private investment, blended finance is not a panacea for attracting private capital to the SDGs. Rather, transactions are intended to demonstrate sustainable investment models that do not depend as heavily, or at all, on concessional capital in future iterations. According to Calvert Impact Capital, "As markets evolve through the financial supply chain, track records are built, and patterns are established that make the unfamiliar become recognizable. The gap between real and perceived risk shrinks and the amount of catalytic capital needed for certain sectors and regions can be reduced."

Figure 10 Alignment between Blended Finance Transactions and the SDGs (2013-2018)



Percent of financial commitments

Source: Convergence - State of Blended Finance 2019.

Capital Providers

Every blended finance structure has both concessional and commercial capital providers. Impact investors, who can offer a wide spectrum of capital in-between concessional and commercial depending on their mandate, can act as a bridge toward fully commercial capital.

While many organizations specialize in providing either catalytic or commercial capital, sometimes organizations will offer both. The following chart from Convergence illustrates the division between concessional and commercial capital by key types of organizations across five years of blended finance transaction data. While some organization types, such as commercial investors and development agencies, have clear preferences, others, such as development finance institutions (DFIs) and foundations, are more evenly divided between concessional and commercial investments. Within individual organizations, however, preferences for providing commercial or concessional capital can vary widely.

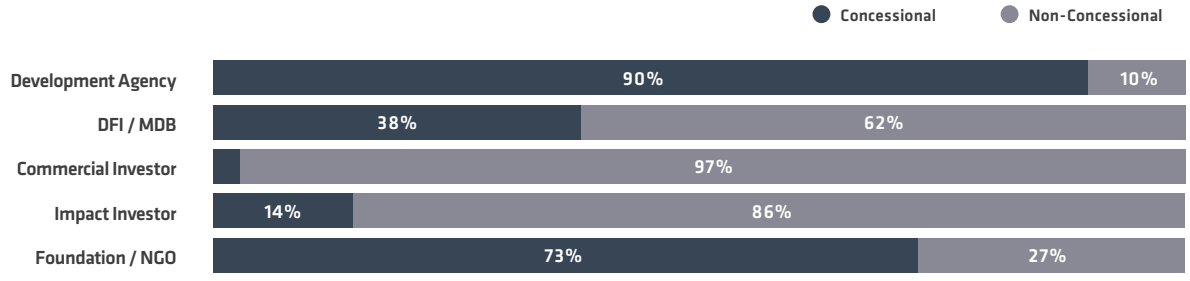
Concessional Providers

Concessional capital in blended finance transactions is often provided by public and philanthropic donors. The role of this type of capital is to create an acceptable risk-return profile to crowd private investors into an SDG-aligned investment opportunity. This is done through either financial de-risking or improving the risk-return profile of a given investment to make it more commercial. At the same time, however, it is important for concessional capital providers to use minimum concessionality to ensure blended transactions do not distort markets but instead offer a realistic pathway to predominantly private investment structures.

Historically, development agencies, including multi-donor funds, are the most frequent providers of concessional capital in blended finance transactions. But in certain cases, these organizations can also provide commercial capital, often for the purposes of bridge gap financing. Over the past five years, some of the most active concessional providers for climate have been USAID, GuarantCo, the Green Climate Fund, and the U.K. Department for International Development (DFID) (Convergence 2019).

Multilateral development banks (MDBs) and DFIs also provide concessional finance, in the form of debt, guarantees, grants, and equity, to crowd-in private capital. The DFI Working Group for Blended Finance Joint Report update shows that in 2018, DFIs financed approximately $6 billion worth of projects, much of which was low-carbon and climate-resilient infrastructure, using $1.1 billion in concessional funds

Figure 11 Concessional and Non-Concessional Commitments to Blended Finance Transactions by Key Organization Types (2013-2018)



Percent of financial commitments

Source: Convergence - State of Blended Finance 2019.

and about $2.4 billion in DFI own-account resources. As a result, these projects mobilized about $1.7 billion in private investment.

Philanthropic foundations and NGOs are also important providers of concessional capital because they often have flexible investment terms, long time-horizons, and a commitment to social and environmental impact. According to Convergence, foundations are key providers of catalytic capital, such as design funding and first-loss tranches, with the goal of mobilizing multiples of private investment, something few capital providers are in a position to offer.

Commercial Providers

Over the past five years, the most active private investors in blended finance have been commercial banks concentrated in the U.S., Europe, and Japan (DFI Working Group for Blended Finance 2019). Over the past decade, the proportion of private investment by number of deals from commercial banks in blended finance transactions has grown steadily from 26 percent of private investment in 2010-2012 to 46 percent in 2016-2018.

Debt is the preferred instrument for these financial institutions and deals have tended to focus on energy and infrastructure. Local commercial banks have been largely absent from blended finance transactions, often because there is a lack of awareness of blended finance and its advantages. There is substantial opportunity to support local financial institutions to better engage in blended finance through targeted outreach and focused attention to unblocking the unique barriers faced by this subset of investors.

In contrast to commercial banks, institutional investors such as insurers and pension funds, as well as asset managers and PE/VC firms, have had limited engagement with blended finance. This could be due to a variety of reasons ranging from ticket size and transaction type to international financial regulations and a recent downturn in emerging market investments.

While MDBs and DFIs provide both concessional commercial capital to blended finance transactions, they are more active as commercial providers of debt and equity as well as guarantees and political risk insurance. Beyond investing, these organizations often act as the lead arranger and manager for deals. According to the DFI Blended Finance Working Group, climate finance was the most significant investment theme for DFIs in 2018 - exceeding the volume of investment in the infrastructure sector - indicating that climate finance encapsulates both infrastructure and other types of projects, such as energy efficiency.

In blended finance transactions, impact investors often act as a bridge between fully commercial and concessional capital. Impact investors can include family offices, investment management firms, venture philanthropists, and impact-oriented financial institutions. These organizations can have longer time horizons for their investments as well as a lower return threshold, which makes them well-suited to providing flexible funding that is neither fully concessional nor commercial.

Blended Finance Instruments

The role of concessional capital is to address real and perceived investment risks, improve the risk-return profile of transactions, and crowd-in multiples of commercial capital. To do this, a variety of financial instruments including guarantees, foreign exchange hedging, subordinated debt or equity, and grants are used by concessional providers depending on whether one or more risks need to be mitigated. Examples of the risks that investors face in developing countries include lack of liquidity, currency volatility, poor regulatory and policy frameworks, and limited capital markets.

Table 2 outlines the different types of financial instruments along with information on the types of risks they help mitigate, as well as organizations that provide these kinds of instruments.

Table 2 Blended Finance Instruments

Instrument	Description	Risk/Barriers Mitigated	Example Providers[17]
1. Guarantee	Provides protection to one party if the other party fails to perform. Guarantees are provided by a third party who "steps into the shoes" of the defaulting party so that the innocent party does not suffer loss. Guarantees are a form of credit enhancement, strengthening the creditworthiness of the investment because of the promise from the guarantor to complete performance in the event of default. As such, guarantees are one of the most catalytic forms of blending. There are many types of guarantees including first loss, partial risk or credit guarantees, and trade finance guarantees.	Access to capital; credit / counterparty risk; off-take risk; construction / completion / technical risk; demand risk	– GuarantCo – US International Development Finance Corportation (DFC)
2. Insurance	Provides protection by promising to compensate for a specified loss or damage in return for payment of a specified premium. There are many types of insurance; one of the most common is political risk insurance to protect against adverse government actions or war, civil strife, and terrorism. Insurance provides a more stable environment for investments into developing countries. Along with guarantees, they are one of the most catalytic forms of blending.	Political risk; construction risk; operation and output risks; upstream resource-related risks; access to capital	– Overseas Private Investment Corporation (OPIC) – Multilateral Guarantee Investment Agency (MIGA)
3. Hedging	Reduces the risk of adverse currency price movements in an asset and its associated earning stream. Currency hedging reduces or eliminates exposure to the movement of foreign currencies – addressing one of the key risks for investing in emerging markets.	Currency / Commodity risk	– TCX Fund (Netherlands)
4. Junior / subordinated capital	Protects senior investors by taking the first losses on the value of the security, i.e., if something goes wrong, the most junior / subordinated tranche will be paid out last. First-loss capital takes a position that will suffer the first economic loss if the assets below it lose value or are foreclosed on (this can also be provided through a grant or guarantee).	Multiple risks including off-take, construction, and reputational risks; access to capital	– FMO (Netherlands) – KfW DEG (Germany)
5. Securitisation	Securitisation refers to the process of transforming a pool of illiquid assets into tradable financial instruments (securities), such as bonds.	Liquidity / time horizon; scale; counterparty / off-take and credit risk	– European Investment Bank
6. Results-based incentives (e.g. pay-for performance schemes)	Instruments that provide incentives and disincentives to achieve desired outcomes or results (tie at least a portion of payments to achievement), including social impact bonds and performance-based contracts. This type of financing is aimed at rewarding innovation and the successful implementation of a project with clear climate benefits.	Operation and output risks	– International Finance Facility for Immunisation (IFFIM) – Bill and Melinda Gates Foundation

17 Note that the organizations represented in this table may offer instruments other than the one for which they are specifically profiled. OPIC, for example, offers a political risk insurance product, but also offers direct subordinate debt into investments.

Table 2 Blended Finance Instruments (continued)

Instrument	Description	Risk/Barriers Mitigated	Example Providers[17]
7. Contractual mechanisms (e.g. feed-in tariffs or off-take agreements)	There are various contractual and project finance arrangements to support the development of bankable infrastructure projects including public and private off-taker agreements, subsidies such as feed-in-tariffs, and tax credits. These mechanisms involve an agreement between producers and buyers of a resource to purchase or sell portions of future production. These agreements are to secure financing for a production facility or buy the equipment needed to extract a resource (e.g., power purchase agreements (PPAs) in the energy sector).	Demand risk; financing risk (demonstrate bankable revenue stream)	– Ofgem (U.K.) – Google (U.S.)
8. Grants (especially for technical assistance)	Capital that is paid in without any expected repayment or compensation over a fixed period of time. It could include money for technical assistance or project preparation to bring a project to bankability. Grants can be critically important for pipeline development, especially in less mature sectors and riskier geographies, creating significant (if often hard to measure) crowding-in of private capital.	Access to capital; high transaction costs; operational risks; lack of bankable pipeline, lack of local intermediaries; lack of capacity	– Rockefeller Foundation – Hewlett Foundation

Source: Blended Finance Task Force, Better Finance Better World 2018.

Transactions

Blended finance transactions are typically bespoke, based on the impact and return expectations of different investors and the unique context of each deal. There are, however, several common structures.

These structures can also occur at different levels, from specific projects to investment funds. Depending on the type of project and the stage of development, different types of catalytic capital are needed to make a deal attractive to commercial investors.

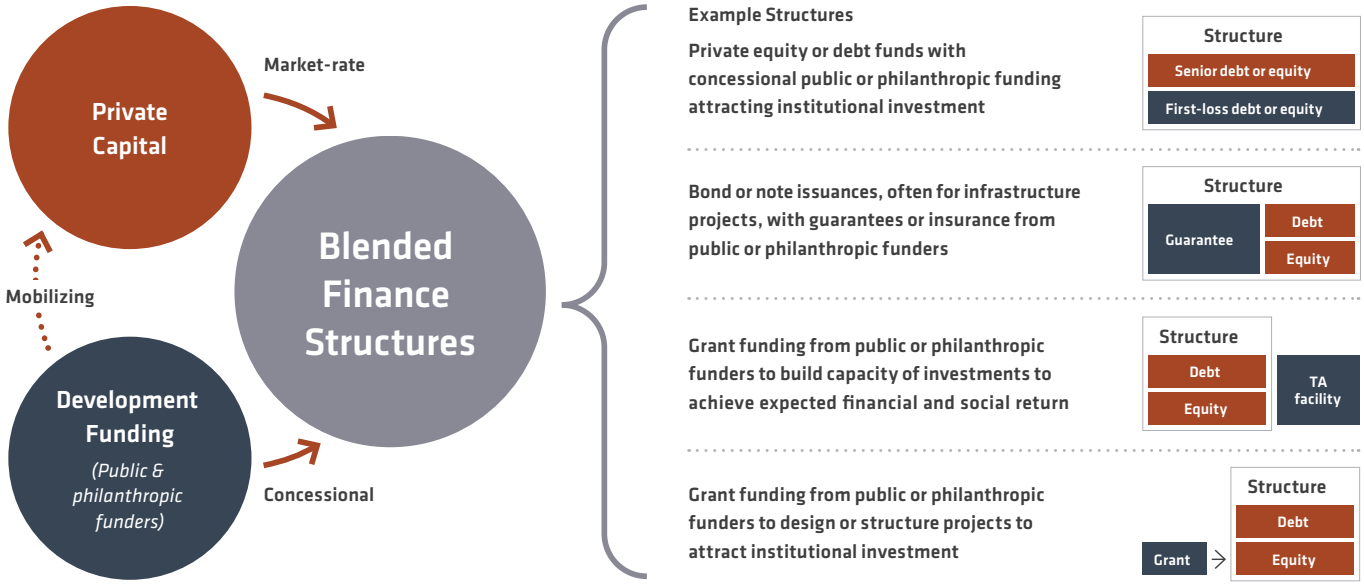
Transaction Structures

There are four common blended finance structures:[18]

1. Concessional debt or equity is provided by public or philanthropic investors to improve the risk-return profile for commercial investors by lowering the cost of capital or providing first-loss.
2. Concessional guarantees or insurance are provided by public or philanthropic investors as credit enhancement mechanisms.
3. Grant-funded technical assistance facilities strengthen the commercial viability and social and environmental impact of transactions either pre- or post- investment.
4. Design-stage grants are designed to support transaction design and preparation. These grants are often used in conjunctions with concessional instruments and technical assistance facilities.

18 Definitions adapted from Convergence, State of Blended Finance 2019.

Figure 12 Common Blended Finance Structures Illustrated



Source: Convergence - State of Blended Finance 2019.

Level of Blending

In addition to using different instruments, blending can also take place at different levels. The level of blending influences how many multiples of private investment are typically mobilized. At the fund or project level, blending can typically mobilize $3 of private investment for every $1 of public capital. Aggregating climate investments into larger fund structures can improve scalability, enhance the credit rating, and increase the investment "ticket" size, which can attract larger institutional investors.

For blended vehicles, the leverage ratio can be as high as such as 5:1 in mature markets in middle-income countries. However, in more nascent markets or LDCs, the leverage ratio is typically closer to 1:1 (Blended Finance Taskforce 2018). Table 3 outlines the different levels of blending with examples.

Funds, including equity, debt, and funds-of-funds, have consistently made up the largest portion of blended finance investments. However, there is an increased interest in blending at the project level for infrastructure as well as facilities and bonds (Convergence 2019). The expected returns for commercial investors on blended finance vehicles and facilities generally fluctuate between 10-20 percent depending on risk allocation (Blended Finance Taskforce 2018). Calvert Impact Capital, an impact investor with experience in blended finance, created a useful framework for navigating blended finance (figure 13). The framework identifies the kind of capital needed at different stages of market development, the types of organizations that provide that kind of capital, and the corresponding investment structures.[19]

Table 3 Blending can Occur at Different Levels

Project level	Public and private capital is blended within a single project or company's financial structure.	**Example:** Elazig Turkey, Lake Turkana Wind Project, &Green, SPCG
Fund level	Public and private investors pool resources to be invested in multiple projects or companies.	**Example:** Climate Investor One (CIO), Danish Climate Investment Fund (KIF), &Green
Fund-of-funds	Funds that in turn invest in other funds.	**Example:** GEEREF I & II. Sarona.
Facility (institutional level)	A long term or permanent institution is set up, or modified, to blend finance, thereby mainstreaming the use of blended finance.	**Example:** IFC Managed Co-Lending Portfolio Program (MCPP), GuarantCo
Market level	Market mechanisms which blend public subsidies to encourage private investment.	**Example:** UK and German FiT schemes, Fannie Mae/Freddie Mac
Project preparation support / intermediaries	Public support for project preparation and intermediaries has also been used as a way to mobilise private investment by addressing specific barriers, especially information gaps.	**Example:** ACEF, Aligned Intermediary, CPI's the Lab

Source: Blended Finance Taskforce, Better Finance Better World, 2018 .

19 Further details on the framework and how to apply it can be found at: https://www.calvertimpactcapital.org/blog/822-blended-finance-what-is-it-what-it-isnt-and-how-to-use-it-for-maximum-impact

Figure 13 Financial Supply Chain Framework[20]

STAGE	Seed		Early	
WHAT: Type of Capital is Needed	Grant , Prize Money, Sweat Equity		Grant, Investment (Equity, Mezzanine Debt, Debt)	
WHAT: Type of Capital is Scarce	Grant, Equity		Grant, Equity* **Equity is most scarce type of capital at this stage*	
WHO: Investor Type	Accelerators, HNW Investors, Foundations, Friends + Family, Crowdfunding Platforms		Foundations, HNW Investors, DFIs, some Private Investors	
HOW: Investment Route	**Direct**	**Indirect**	**Direct**	**Indirect**
WHAT: Investment Structure (What are you investing in?)	Enterprise, Project	Accelerator, Fund (e.g. Seed Fund)	Enterprise, Project	Intermediary (e.g. Venture Fund)
HOW: Examples	Grant to renewable energy business to invest in a geospatial technology to locate off grid households	Investment in a fund that provides equity to women-led start-ups	Equity Investment to an operating business running rural health clinics in India to hire new medical staff	Equity investment in a fund that lends to small scale fisheries in Latin America
IMPACT				
Investor Role	Innovation + testing new business models		Innovation + demonstrating proof of concept for new business models	Innovation + demonstrating opportunity for financial intermediation capacity
Impact Return	Creation of new solutions to a social and/or environmental challenge		Direct business outputs (i.e. jobs created, homes built, customers served)	Leverage, multiplying business outputs
CATALYTIC CAPITAL PROVIDERS (Public + Philanthropic investors) - Strengtheing market infrastructure and advancing sectors by crowding in/providing capital that is scare				
Pipeline (size and volume)	n/a	Small	n/a	Small
Risk of deals	For information on direct deals, see the footnote below[21]	High	For information on direct deals, see the footnote below[21]	High
Capital Stack - % range* of soft or subordinated *(*this is not perscriptive - varies depending on context)*		Roughly 100%		60-100%
Capital Stack - % range* of senior *(*this is not perscriptive - varies depending on context)*		n/a		0-40%
Tools	Grant	Grant	Grant/recoverable grant, guarantee, low interest loan, subordinate capital (junior, mezzanine)	Grant/recoverable grant, guarantee, low interest loan, subordinate capital (junior, mezzanine, first-loss)

Source: Calvert Impact Capital.

20 Please refer to Appendix 2 for the glossary of terms used in this Figure.

21 For direct investments, these considerations are specific to individual deals, making it challenging to generalize; it is possible to provide catalytic capital for direct deals, however the impact is not on market infrastructure and advancing entire sectors, but provides a critical demonstration effect for proving out new business models, which often operate in new sectors.

Figure 13 Financial Supply Chain Framework (continued)[20]

Impact Capital Markets				Traditional Finance	
Mid		Late			
Grant, Investment (Equity, Mezzanine Debt, Debt)		Investment (Equity, Debt)		Investment (Equity, Debt)	
Equity, Subordinated Debt (Junior, Mezzanine)* **Subordinated Debt is most scarce type of capital at this stage*		Equity, Debt at scale* **Debt at scale is most scarce type of capital at this stage*		**not applicable*	
Foundations, HNW Investors, Private and Institutional Investors, DFIs		Foundations, Private and Institutional Investors, DFIs		Retail, Accredited, Institutional Investors	
Direct	**Indirect**	**Direct**	**Indirect**	**Direct**	**Indirect**
Enterprise, Project	Intermediary, (e.g. Structured Fund, SPV)	Enterprise, Project	Intermediary (e.g. Structured Fund, SPV, LP.)	Enterprise, Project	Intermediary (e.g. Banks, Multual Funds Structured Fund, SPV)
Patient debt financing to a solar energy company expand distribution of solar home systems in Tanzania	Junior debt to a loan fund onlending to SMEs across impact sectors in Asia	Growth capital in the form of equity or debt financing to a company for regional expansion (bridge to capital markets)	Senior debt at scale to a structured fund issuing local currency bonds for companies working in financial inclusion, energy and sustainable agriculture in Africa	Scale capital through individual shares in a public company	Scale debt capital to an international bank lending to large enterprises
Supporting growth	Sector growth + building financial intermediation capacity	Supporting scale	Scaling sectors + crowding in private capital through intermediaries	Scale	
Direct business outputs (i.e. jobs created, homes built, customers served)	Leverage, systems change, multiplying business outputs	Direct business outputs (i.e. jobs created, homes built, customers served)	Leverage, systems change, multiplying business outputs	Scale + multiplying business outputs	
				n/a	
n/a	Small/medium	n/a	Medium	Large	
For information on direct deals, see the footnote below[21]	Medium/high	For information on direct deals, see the footnote below[21]	Medium	Low	
	30-60%		0-40%	Capital is stacked, but risk is appropriately priced	
	40-70%		60-100%		
Grant/recoverable grant, low interest loan, subordinate capital (junior, mezzanine)	Grant/recoverable grant, guarantee, low interest loan, subordinate capital (junior, mezzanine, first-loss)	Grant/recoverable grant, guarantee, low interest loan, subordinate capital (junior, mezzanine)	Guarantee, subordinate capital (junior, mezzanine, first-loss)		

Source: Calvert Impact Capital.

Blended Finance Trends for Climate Projects

The majority of climate-related blended finance transactions have traditionally focused on mitigation efforts, especially renewable energy and energy efficiency, at the fund or project level. To date, climate adaptation and resilience activities have struggled to mobilize private investment at the same scale. Less than 20 percent of blended finance deals focus on climate adaptation, and the majority of these deals are concentrated on resilient agriculture including agro-forestry and sustainable fisheries. However, there is increased interest in developing blended finance based on conservation finance or nature-based solutions, such as mangrove and coral reef protection, to address climate change. Investing in nature can address various climate risks including the mitigation of losses from tropical storms and sea-level rise, as well as offering affordable and sustainable cooling solutions to combat urban "heat islands." Blended finance for conservation offers a cost-effective and scalable pathway to mobilize private investment for global climate resilience (Convergence 2019).

06

MARKET FACILITATORS

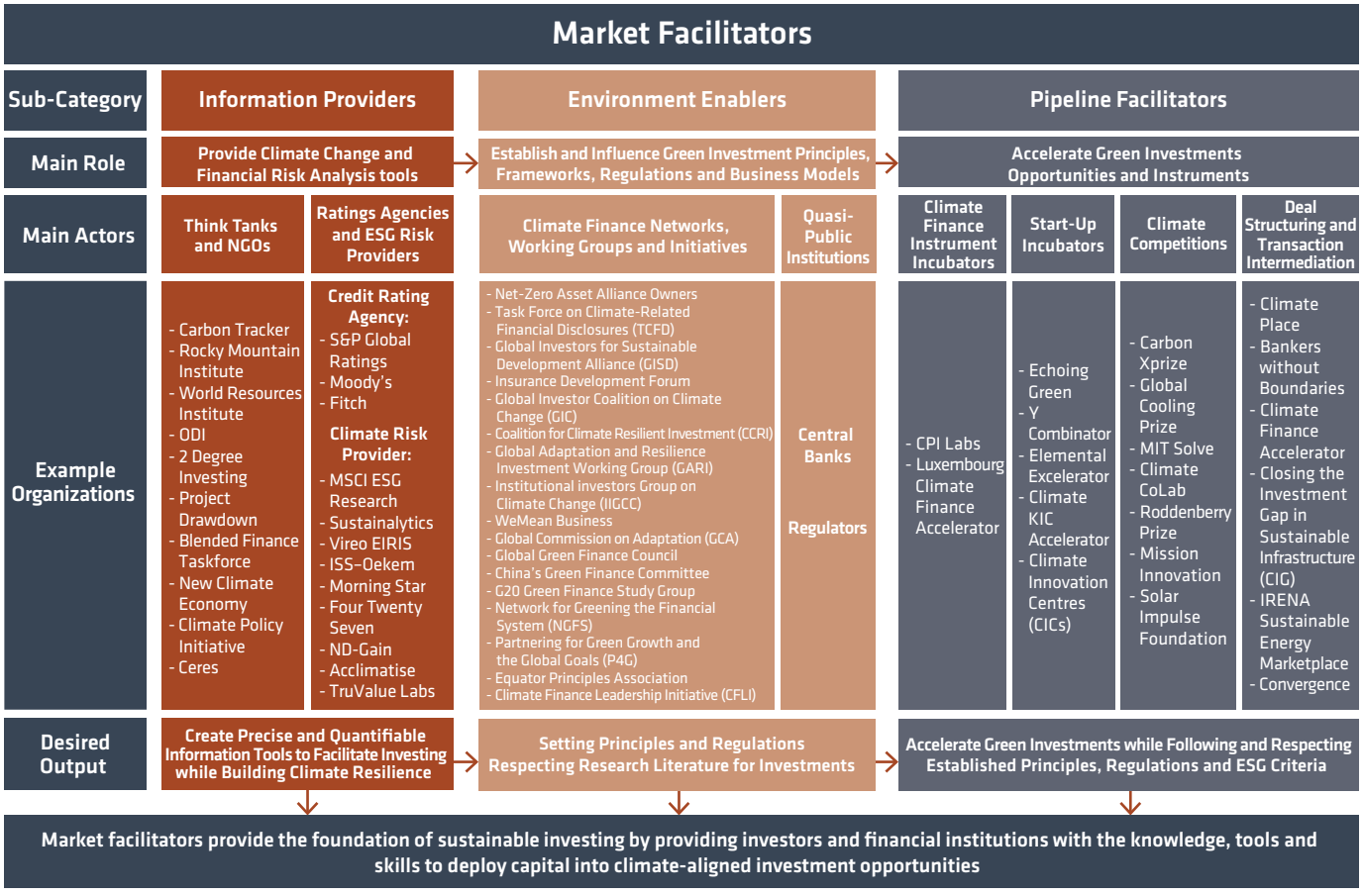
06 | Market Facilitators

This section considers the different actors that will inform, enable, and generate private investment opportunities in climate action while remaining independent and outside of the market itself. These actors contribute to the investment process, influencing what gets financed and what does not, as well as the cost of this financing. These actors still make a profit, and many - if not most - are private actors themselves. But they are motivated by market creation and growth, and they may work to specifically encourage that in climate-related investments. The market facilitators section focuses on how information providers, environment enablers, and pipeline facilitators support the foundation of green investments and how they interact with each other and capital providers.

Information Providers

Information providers generate research, data, and risk analyses for target audiences regarding relevant markets, companies, and instruments. They can increase market transparency, improve capital allocation through risk analysis, and provide ideas, information, and analysis that support climate-aligned investment strategies. The recent growth in climate risk and climate investment research provides a strong foundation for investors and stakeholders to enhance their knowledge of green financing and the risks of climate change, paving the way toward a sustainable economic transition.

Figure 14 Market Facilitators



Source: UNDP 2020.

Think Tanks and NGOs

Research in climate investment is undertaken by groups of experts, institutions or corporations, often brought together to develop ideas on particular subjects. The think tanks and NGOs listed in Table 4 are examples of organizations that provide advice, research, information, and ideas on climate finance and investment.

Credit Ratings Agencies

Rating agencies are market makers in their influence on the behavior and investment decisions of private actors. They evaluate a borrower's ability to repay its debt. As such, capital providers use them to make informed investment decisions. International debt investors, as a result of prudential regulations, can also require minimum investment grade ratings for investments that further make ratings critically

Table 4 Examples of Climate-focused Think Tanks and NGOs

Organization	Relevant activities and focus areas	Relevant tools or publications	Website
Carbon Tracker	Researches and analyzes the risks of fossil fuel-related investments and the financial implications of "stranded assets"	– Carbon Tracker Annual Review 2018-2019 – "The cost of failing to anticipate an inevitable policy response to climate change" – To deflate the carbon bubble and protect investors, oil & gas companies must shrink	https://carbontracker.org
Rocky Mountain Institute (RMI)	Researches, publicizes, consults and lectures on the general field of sustainability with a focus on green banks and a climate-aligned financial sector	– Reinventing Climate Finance Report – Climate Finance Access Network – The Carbon-Free Regions Handbook: Finance – Global Green Bank Design Platform	https://rmi.org/
World Resources Institute (WRI)	Promotes environmental sustainability, economic opportunities and human well-being by working closely with state or private sector leaders to achieve a more sustainable use of natural resources	– Unpacking Green Targets: A Framework for Interpreting Private Sector Banks' Sustainable Finance Commitments – Financial Implications of Parched Power: Insights from an Analysis of Indian Thermal Power Companies – Navigating the Sustainable Investment Landscape	https://www.wri.org
Overseas Development Institute (ODI)	Encourages a sustainable international development regarding the economy, financial markets and climate issues by promoting sustainable investments for the private sector via conferences and research papers	– Finding the Pipeline: Project Preparation for sustainable Infrastructure – Six development finance proposals to expand climate investment – Making finance consistent with climate goals: insights for operationalizing Article 2.1.c of the Paris Agreement.	https://www.odi.org

Table 4 Examples of Climate-focused Think Tanks and NGOs (continued)

Organization	Relevant activities and focus areas	Relevant tools or publications	Website
2 Degree Investing	Works on large climate- related financial markets project by engaging with the private sector on sustainable projects and agreements	– 'Science-Based Targets' for Financial Institutions – PACTA: Taking the Temperature of Financial Assets – To what degree? A climate scenario analysis of U.S. insurer's portfolios	https://2degrees-investing.org
Project Drawdown	Researches and analyses on the most sustainable solutions to climate change by providing compilation of the ''most substantive solutions to global warming'' to the private sector	– Project Drawdown: CO2 Reduction Solutions by Overall Rank	https://www.drawdown.org
Blended Finance Taskforce	Identifies important barriers to an effective use of finance to fight global warming by working with the private sector, public and NGOs to promote private capital mobilization to achieve the sustainable development goals with the help of blended finance	– Better Finance, Better World: Consultation Paper of the Blended Finance Taskforce – Financing Sustainable Land use: Unlocking business opportunities in sustainable land use with blended finance – Who is the Private Sector? Key considerations for mobilizing institutional capital through blended finance	https://www.blendedfinance.earth
New Climate Economy	Researches climate- related risk and how fighting it can produce a sustainable economy by providing reports on how countries and private sector can achieve economic and financial growth while fighting climate change	– Unlocking the Inclusive Growth Story of the 21st Century: Accelerating Climate Action in Urgent Times – The sustainable Infrastructure Imperative: Financing for Better Growth and Development – Seizing the Global Opportunity Partnerships for Better Growth and a Better Climate – Ensuring new Infrastructure is Climate-smart	https://newclimateeconomy.net
Climate Policy Initiative	Uses analysts and advisors' resources to improve energy and land-use strategy in the world with a focus on finance and climate change risk	– Global Landscape of Climate Finance 2019 Report – Measuring the Private Capital Response to Climate Change: a proposed dashboard – Understanding and Increasing Finance for Climate Adaptation in Developing Countries	https://climatepolicyinitiative.org
Ceres	Works with the large and influential investors and companies to address the impact of climate change on the economy	– Climate and Sustainability Shareholder Resolutions Database – Engage the Chain: An Investor Guide to Agricultural Supply Chain Risk – Ceres Accelerator for Sustainable Capital Markets	https://www.ceres.org

influential. The thresholds for investment-grade securities and junk securities as rated by the three largest and most influential rating agencies - S&P Global Ratings, Moody's, and Fitch Ratings Inc. - are outlined in Figure 15.

As climate change is increasingly seen as a material risk to assets and, ultimately, balance sheets, rating agencies have a growing role to play in facilitating the understanding and incorporation of these climate risks into the creditworthiness of public and private entities issuing debt. S&P, Moody's and Fitch are each beginning to incorporate and consider climate risk in assigning credit scores. For example, in 2017 Moody's downgraded the city of Cape Town, South Africa, after a major drought affected water provision for the entire

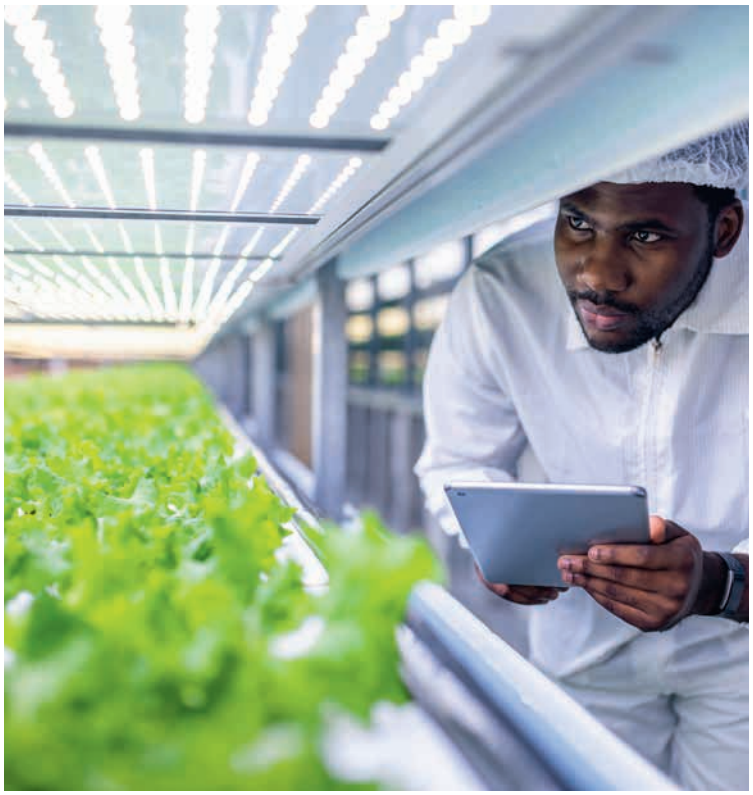
Figure 15 Credit Ratings

	Moody´s	S & P	Fitch	Meaning
Investment Grade	Aaa	AAA	AAA	Prime
	Aa1	AA+	AA+	High Grade
	Aa2	AA	AA	
	Aa3	AA-	AA-	
	A1	A+	A+	Upper Medium Grade
	A2	A	A	
	A3	A-	A-	
	Baa1	BBB+	BBB+	Lower Medium Grade
	Baa2	BBB	BBB	
	Baa3	BBB-	BBB-	
Junk	Ba1	BB+	BB+	Non Investment Grade Speculative
	Ba2	BB	BB	
	Ba3	BB-	BB-	
	B1	B+	B+	Highly Speculative
	B2	B	B	
	B3	B-	B-	
	Caa1	CCC+	CCC+	Substantial Risks
	Caa2	CCC	CCC	Extremely Speculative
	Caa3	CCC-	CCC-	In Default W/ LIttle Prospect for Recovery
	Ca	CC	CC+	
		C	CC	In Default
			CC-	
	D	D	DDD	

Source: LearnBonds.

Table 5 Major Rating Agencies and their Approach to Credit Ratings, and ESG and Climate Risk

Organization	Focus area and climate-related activities	Relevant tools and rating systems	Website
S&P Global Ratings	Provides high-quality market information in the form of credit ratings, research, leadership and climate related risk analysis	– ESG Risk Atlas – Credit Ratings Score	https://www.standardandpoors.com/
Moody's	Supplies credit ratings, research, analysis and climate-risk related tools for the global capital markets	– Climate Risk Heatmap – Climate Change & Sovereign Credit Risk – Credit Ratings Score	https://m.moodys.com
Fitch	Provides credit ratings scores and risk- analysis research based on ESG risk	– Credit Ratings Scores – ESG Risks	https://www.fitchratings.com
Morning Star	Gives independent research, ratings, tools and portfolio carbon risk scores to help people and business invest their money	– Credit Ratings Scores – Carbon Risk Score	https://www.morningstar.com



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city. Similarly, in 2019, Trinity Public Utilities District, in the American state of California, was downgraded due to the risk of wildfires (Tigue 2019). This is important as the credit ratings will determine how much governments and companies are able to borrow and how much it will cost them to do so.

Given that the rating agencies operate at multiple levels – rating, for example, national and municipal governments as well as publicly listed companies – they have a wide-reaching role. They are slowly, but increasingly, factoring climate change into their assessment and decision-making processes, as well as their own balance sheets, though they have been more successful in integrating climate change into some areas over others (for example, bonds).

Climate Risk Analysis and Frameworks

The evaluation of the resilience of the project, program, or portfolio to adverse climate-related shocks through climate risk analytics and frameworks can identify exposure to emission-intensive assets or highly climate-vulnerable assets. In doing so, these

analytics and frameworks can encourage a reduction in high carbon or maladaptive investments and guide the capital shift to minimize and reverse the impact of climate change. In addition to the ESG and climate risk analysis done by credit rating agencies, table six shows additional examples of firms and frameworks designed to understand the financial implications of climate risk.

Table 6 Examples of Climate Risk Analysis and Frameworks

Organization	Focus area and climate-related activities	Relevant tools and scoring systems	Website
MSCI	Supports pensions funds, sovereign wealth funds, insurance companies and other institutional investors' decisions with a framework, tools and climate-related risk scores to assess their portfolio.	– ESG Ratings	https://www.msci.com
Sustainalytics	Provides ESG and corporate governance research and ratings on a global scale to investors for their green investments processes.	– ESG Ratings	https://www.sustainalytics.com
Vireo EIRIS	Computes an ESG score of listed companies in developed and developing countries based on their proprietary classification of companies' sustainability goals.	– Ethibel Sustainability Index – Emerging Market Performers Ranking – Index Rule Book	http://vigeo-eiris.com
ISS - Oekom	Provides investors with information regarding the impact of a company's product and service portfolio toward the SDGs with their Sustainability Solutions Assessment.	– ISS ESG Score	https://www.issgovernance.com
Four Twenty Seven	Gives climate intelligence and on-demand risk analytics for businesses, financial institutions and governments. Moody's recently became a majority investor in 427.[22]		http://427mt.com
Notre Dame Global Adaptation Initiative (ND-GAIN)	Helps private and public sectors to prioritize the climate transition by lowering their risks and enhancing their readiness.	– ND-Gain Index	https://gain.nd.edu
Acclimatise	Provides climate change risk and adaptation services to the private sector, financial institutions, and governments by offering advisory and analytics services.	– Climate Change Risk assessment applications	http://www.acclimatise.uk.com
TruValue Labs	Applies artificial intelligence to expose climate-related opportunities and risks in massive volumes of data, including ESG trends that can have a material and valuable impact on a company's valuation.	– Truvalue Platform	https://www.truvaluelabs.com

22 http://427mt.com/2019/07/24/four-twenty-seven-receives-majority-investment-from-moodys-corporation/

Enabling Environment

There has been increased high-level acknowledgment of the material risk that climate change poses to assets. This, in turn, influences the valuation of assets and the financial stability of projects, programs, and portfolios and has sparked the creation of a wealth of networks and initiatives that address different topics, sectors, or aspects of climate risk for private actors or the financial sector.

How attractive a project or program is to investors will also depend on the policy, legal, and regulatory regime of the country or region in which it is located. These factors result in macroeconomic risks (for example, foreign exchange or interest rate risk) that may require adjustment in project or program design - including its financial structure - that can affect the expected returns for investors. Such factors are dealt with in other publications and are, therefore, not addressed here.[23]

Climate Finance Networks, Initiatives and Working Groups

Networks, initiatives, and working groups are, broadly, expert associations composed of diverse stakeholders across multiple public and private sector organizations who work together to develop synthesized solutions to address climate investment. Some institutions have also launched principles or standards that allow for public commitments to be made. Some deal with specific sectors, topics or actors, while others are wider in their focus. Table 7 offers examples of networks, initiatives, and working groups focused on scaling climate finance and investment.

23 Such as Cambridge Economic Policy Associates (CEPA). 2015. *Mobilising Finance for Infrastructure.* A Study for the Department For International Development (DFID). See https://assets.publishing.service.gov.uk/media/57a0897fe5274a31e00000e8/61319-DfID_1_Synthesis_Report_Final.pdf

Table 7 Examples of Climate Finance Networks, Initiatives and Working Groups

Organization	Focus area and relevant activities	Website
Net-Zero Asset Alliance Owners	Considers climate risk associated with carbon emissions, roots for carbon-free investments, and gathers a powerful group of pension funds, insurers and investors who commit to switch to a carbon-neutral portfolio.	https://www.unepfi.org/net-zero-alliance/task
Task Force on Climate-related Financial Disclosures (TCFD)	Develops frameworks on climate-related financial disclosure for companies and promotes the diffusion of knowledge on financial risks related to global warming.	https://www.fsb-tcfd.org
Global Investors for Sustainable Development Alliance (GISD)	Encourages both public and private sectors to consider the importance of climate change risk and the implementation of the SDGs by using private sector's leader knowledge to remove climate investing obstacles and deploy solutions to mobilize sustainable development investments.	https://www.un.org/development/desa/financing/what-we-do/other/global-investors-for-sustainable-development-alliance/GISD-home
Insurance Development Forum (IDF)	Focuses on insurance solutions for vulnerable populations in developing countries. Investment working group focuses on finding opportunities for insurance investment in sustainable infrastructure.	https://www.insdevforum.org/about
Global Investor Coalition on Climate Change (GIC)	Collaborates with four regional investor organizations focused on increasing investor education and engagement on climate change, climate-related policies and investment practices.	https://globalinvestorcoalition.org
Coalition for Climate Resilient Investment (CCRI)	Integrates the long-term financial impacts of physical climate risks into decision-making for infrastructure investments via a coalition comprised of representatives from the public and private sectors.	https://www.adaptation-undp.org/sites/default/files/uploaded-images/coalition_for_climate_resilient_investment_cas_launch_.pdf
Global Adaptation and Resilience Investment Working Group (GARI)	Considers climate risk to build better development-resilience opportunities by providing meetings and investor guides that helps private investors and stakeholders transition to a more sustainable economy.	https://garigroup.com
Institutional investors Group on Climate Change (IIGCC)	Promotes private capital mobilization into a more sustainable economy to address climate change with providing resilient policy programs and events with a group of over 200 investors with $32 trillion in assets. Encourages policy makers to promote sustainable investments and to accelerate a low-carbon transition.	https://www.iigcc.org

Table 7 Examples of Climate Finance Networks, Initiatives and Working Groups (continued)

Organization	Focus area and relevant activities	Website
WeMean Business	Leverages climate risk to drive innovation, competition, risk management and growth to a network of around 1,200 companies with a market cap of $25 trillion.	https://www.wemeanbusinesscoalition.org
Global Commission on Adaption (GCA)	Encourages the development of measures to manage the effects of climate change through technology, planning, and investment. The commission was launched with the support of 17 convening countries including China, Canada and the U.K. and low-lying countries vulnerable to climate change including Bangladesh and the Marshall Islands.	https://gca.org/global-commission-on-adaptation/home
Global Green Finance Council	Considers the risks of global warming and aims to provide a green transition by using sustainable financial securities by referencing a guide for a joined force between key investors, global and regional associations and other stakeholders to coordinate their efforts in order to promote green finance.	https://www.icmagroup.org/green-social-and-sustainability-bonds/global-green-finance-council-ggfc/
China's Green Finance Committee	Promotes green transition by using financial markets to limit climate change risk by emitting several green bonds valuated at around $12 billion, encourages provinces and cities to establish green development funds and funds green investments with public-private partnerships.	https://unepinquiry.org/country-partner/gfc/
G20 Green Finance Study Group	Supports G20's strategic goal of a stronger and more sustainable economy to mitigate global warming risks by providing a guide for international investors and public institutions to accelerate the green transition by promoting and producing a greener banking system, green bonds, and more sustainable investments.	http://unepinquiry.org/wp-content/uploads/2016/09/Synthesis_Report_Full_EN.pdf
Network for Greening the Financial System (NGFS)	Considers the work needed to fight climate change risks and helps to strengthen the global response to mitigate it by gathering and sharing useful information regarding sustainable and responsible investment coming from a network of central banks and supervisors to help mobilize capital for green and low-carbon investments in the private sector.	https://www.ngfs.net
The Sustainable Banking Network	Advocates for sustainable finance as a priority in order to minimize climate change risk by providing a network of 38 countries representing $43 trillion that commits to manage environmental, social, and governance risks while increasing the level of private investments and climate-resilient lending opportunities, setting an example for banks and regulators to follow.	www.ifc.org/sbn
Partnering for Green Growth and the Global Goals (P4G)	Uses climate risk opportunities to develop breakthrough solutions for green economic growth by holding summits and creating public-private partnership that promotes innovation and climate resilience while accelerating green investment in the public or private sector	https://p4gpartnerships.org

Table 7 Examples of Climate Finance Networks, Initiatives and Working Groups (continued)

Organization	Focus area and relevant activities	Website
Equator Principles Association	Promotes a risk-management framework embraced by financial institutions in order to determine and assess environmental and social risk in climate-related finance projects.	https://equator-principles.com
Climate Finance Leadership Initiative (CFLI)	Convenes leading companies to mobilize and scale private capital for climate solutions.	https://www.bloomberg.com/cfli/

Quasi-Public Institutions

Financial system governance bodies are important in shaping private climate investment. They include policy makers, and oversight and supervisory authorities . These governance bodies can help to redress both the lack of transparency and the underpricing on climate risks. They can achieve this through gathering data on these climate risks, mandating climate-related risk disclosures, building taxonomies, supporting stress testing and applying other macroprudential tools.[24] Central banks and financial regulators are increasingly recognized for their role in setting market rules that shift investments - often driven by short-term yields - to long-term, sustainable solutions (Bolton, P. et al 2020).

Central Banks

Central banks are institutions that oversee the commercial banking system and are responsible for managing the currency, interest rates, and money supply for a given state or monetary union. In many countries, central banks remain independent from political interference. Central banks around the world are starting to consider the impacts and risks of climate change, and the majority of them are wondering what could be done in order to minimize those risks and obtain a carbon-neutral economy. As of 2020, 50 central banks have joined the Central Banks and Supervisors Network for Greening the Financial System. In an effort to better understand and mitigate the financial risks posed by climate change, the Bank of England is planning to stress-test insurers and banks for their ability to cope with climate change, and the Bank of Canada is beginning a multi-year research program (Dmitrieva 2020).

In 2020, the Bank of International Settlements, known as the central bank of central banks, released a book examining the role of central banks in mitigating the risk of "green swans," events that have the potential to be extremely disruptive financially and could lead to the next systemic financial crisis, by improving banks' understanding of climate-related risks and developing forward-looking scenario analyses (Bolton, P. et al 2020).

24 A variety of instruments can be applied by financial regulators including enhanced supervisory review and market discipline (including risk disclosure, risk assessments, and stress testing), as well as enhanced capital and liquidity requirements (including liquidity and lending limits and differentiated reserve requirements), and green finance principles more broadly that open the discussion around alignment of prudential and climate change objectives in the national finance architecture. See: D'Orazio and Popoyan, L. Fostering green investments and tackling climate-related financial risks: Which role for macroprudential policies? Ecological Economics, Volume 160, June 2019, Pages 25-37, link.

Regulators

Finance regulators are tasked with creating a safe and stable financial environment and can be overseen by governmental or non-governmental organizations. As with central banks, regulators function best when they remain independent.[25] Most countries have local regulatory bodies that oversee domestic financial activities. However, there are also independent international regulatory institutions that oversee various aspects of the financial world in order to maximize confidence, transparency, and financial safety while minimizing risk. Important regulators and regulatory influencers include the Financial Stability Board (FSB), International Council of Securities Association (ICSA), International Association of Insurance Supervisors (IAIS) and International Capital Markets Association. Some of these regulators have been quick to engage with climate change and understand the underlying threat it poses to financial markets. For example, the FSB created the TCFD, which developed voluntary climate-related financial disclosures for companies to provide information to investors, lenders, insurers, and other stakeholders. The disclosures consider the physical, liability, and transition risks associated with climate change (TCFD 2017).

Investment and Pipeline Facilitators

The speed of the transition to low-emission, climate-resilient development pathways that is needed requires innovation in financial instruments, technology, and investment vehicles. Responding to this need, a number of organizations are working to identify early-stage clean technology firms and innovative investment funds and financial instruments that need to be supported and stress-tested before they can be scaled. Additionally, as many climate investments take place in developing countries, use nascent technologies and require innovative funding structures, deal structuring and transaction intermediation support can help projects, companies, and concepts attract private investment. The section outlines the investment and pipeline facilitators that serve to enable and encourage commercial readiness of new climate solutions, including climate finance instrument incubators, start-up incubators, competitions, and deal structuring and transaction intermediation support.

Climate Finance Instrument Incubators

Climate finance instrument incubators support early-stage financial instruments, investment funds or innovative business models through grant and technical support. Table 8 offers examples of climate finance instrument incubators.

Start-up Incubators

Incubator firms support companies in their early-stage development phase, enabling their growth and success. Such incubator firms can be for-profit as well as not-for-profit organizations. They help early-stage companies by providing them with support ranging from office space to investor relations. Climate-focused incubators seek out firms with proprietary technologies or innovative business models that can accelerate climate-smart solutions, ranging from meat substitutes to clean energy. Table 9 offers examples of start-up incubators that have targeted companies looking to address climate change.

25 https://www.oecd.org/gov/regulatory-policy/independence-of-regulators.htm

Table 8 Examples of Climate Finance Instrument Incubators

Organization	Focus Area and climate-related activities	Examples of Companies or Financial Instruments Supported	Website and relevant links
CPI Labs	Supports innovative sustainable investment ideas addressing climate risks by selecting projects from the public or private sector that will benefit from the research, analysis, stress-testing and guidance of CPI Lab's experts and investors.	– Blockchain Climate Risk Crop Insurance – Restoration Insurance Service Company – The Breathe Better Bond Initiative	https://www.climatefinancelab.org
International Climate Finance Accelerator Luxembourg	Targets ideas or projects that limit carbon emissions and deforestation while having a sustainable plan that respects ESG criteria by providing training workshops, seed capital, working capital loans, coaching, and a working desk for selected fund managers in the private sector.	– GreenDev – New Impact Africa – Archipelago Eco Investors	https://www.icfa.lu/eligibility-selection-criteria/

Table 9 Examples of Start-up Incubators with an Emphasis on Climate Change

Organization	Focus areas and relevant climate-related activities	Example Companies	Website and relevant links
Echoing Green	Provides seed financing and support for climate entrepreneurs through their network of entrepreneurs, non-profit advisors, business strategists, data scientists, trained facilitators, and digital connectors. Has invested $8.1 million across 41 countries for renewable energy, forest regeneration, and ocean conservation projects that are essential for climate mitigation and adaptation.	– BlocPower – ClearFlame Engines – Climatenza	https://echoinggreen.org
Y Combinator	Provides seed capital funding for startups and helps founders attract VC funding. Made several appeals for applications fighting climate change including requests for startups working on, carbon removal technologies, clean meat and cellular agriculture, cleaner commodities and sustainable energy.	– Node – Wren – Green Energy Exchange	https://www.ycombinator.com

Table 9 Examples of Start-up Incubators with an Emphasis on Climate Change (continued)

Organization	Focus areas and relevant climate-related activities	Example Companies	Website and relevant links
Elemental Excelerator	Accelerates solution ideas related to climate risk in communities that need them by providing funding to 15 to 20 companies from the private sector with up to $1 million to create a more sustainable economy.	– Jupiter – Carbon Cure – Propagate Ventures	https://elementalexcelerator.com
Climate KIC Accelerator	Focuses entirely on climate change impact through clean-tech commercialization by providing private sector entrepreneurs knowledge, resources, tools and coaching to scale up and commercialize companies on a three-stages program.	– GreenCity Solutions – ClimeWorks – Heliac	https://www.climate-kic.org/programmes/entrepreneurship/accelerator/
Climate Innovation Centres (CICs)	Offers seed financing, policy interventions, network linkages, and technical and business training to new enterprises in the climate change space in Ghana, Morocco, Vietnam, Ethiopia, the Caribbean, Kenya, and South Africa, supported by the World Bank.		https://www.worldbank.org/en/news/feature/2016/05/12/innovation-centers-help-developing-countries-capture-climate-change-opportunities

Competitions

Competitions in the field of climate finance are frequently announced by different organizations. The competitions largely seek innovative climate-finance solutions. These can be completely new instruments and financial structures or can be the reorientation of existing instruments and financial structures toward climate projects and programs. These competitions give new ideas public exposure, but they also attract capital to develop and test ideas further. It is also reported that contests with specific topics and deadlines can bring people together and encourage collaborative action.[26] Table 10 offers examples of climate-focused competitions.

Deal Structuring and Transaction Intermediation

Public and private providers of capital identify a lack of investment-ready, "bankable" projects as a constraint to increased flows of climate investment. A number of downstream activities that involve financial structuring and the provision of transaction support to reach financial closure support the development of these projects.

These activities often sit between investors and project developers and includes structuring projects, assessing financing options, designing legal entities, and developing technical and engineering designs. They also include transaction support, for example drafting contracts and negotiating financial

26 https://www.theguardian.com/sustainable-business/technology-innovation-climate-contests-xprize

and legal terms.[27] There are also transaction intermediaries who seek to matchmake between investors and project developers, increasing the volume of climate-positive transactions. Table 11 offers examples of deal structuring and transaction intermediation platforms.

Table 10 Examples of Competitions Designed to Generate Market-driven Climate Solutions

Organization	Focus Area and climate-related activities	Website
Carbon Xprize	A global competition to develop innovative technologies that convert CO2 emissions from a power plant and industrial complex into valuable products like materials, fuels, or other usable items. The prize is $20 million.	https://carbon.xprize.org/prizes/carbon
Global Cooling Prize	A competition to develop a climate-friendly residential cooling solution that doesn't produce any CO2 emissions or waste. The prize is up to $3 million.	https://globalcoolingprize.org
MIT Solve	An initiative to encourage long-lasting and sustainable solutions to the world's most pressing climate-change problems.	https://innovation.mit.edu/resource/mit-solve/
Climate CoLab	An opportunity to work with people around the globe to create and propose climate-change solutions that facilitate the green transition.	https://www.climatecolab.org
Roddenberry Prize	A competition that focuses on overlooked subjects related to climate change including education, science, environment, and humanity. Organizations, not individuals, are eligible for the $1 million prize.	https://roddenberryfoundation.org/prize-2020-splash/
Mission Innovation	A global initiative that works to accelerate clean energy innovation promoted by public investment and business leadership.	http://mission-innovation.net
Solar Impulse Foundation	An initiative to identify and certify 1,000 profitable clean-tech solutions across the sectors of clean aviation, smart cities, sustainable agriculture, green buildings, and more to demonstrate the financial profitability of clean technologies.	https://solarimpulse.com

Table 11 Examples of Deal Structuring and Transaction Intermediation Platforms

Organization	Focus Area and Climate-related Activities	Website
Climate Place	Provides blended finance instruments and deal structuring for projects and technologies that promote low-carbon and climate-resilient development strategies.	https://climateplace.ch

27 ODI, *Finding the pipeline: Project preparation for sustainable infrastructure*, ODI, 2016, link.

Table 11 Examples of Deal Structuring and Transaction Intermediation Platforms (continued)

Organization	Focus Area and Climate-related Activities	Website
Bankers without Boundaries	Offers the financial structuring expertise of current and former investment bankers for projects that deliver social and environment benefit.	https://www.bwbuk.org https://learning.climate-kic.org/en/programmes-and-courses/sustainable-infrastructure-finance
Climate Finance Accelerator	Gives a unique approach to develop public-private finance solutions for the green finance transition and climate risk mitigation projects.	https://ee.ricardo.com/climate-finance-accelerator
Convergence	Provides a considerable amount of blended finance data, intelligence, and deal flow in order to increase private sector investment in developing countries to minimize global warming risks. Connects investors with SDG-aligned deals that are currently fundraising.	https://www.convergence.finance
Closing the Investment Gap (CIG)	Works to develop a country-led, facilitated approach to close the climate investment gap. The CIG approach involves connecting the governments of developing countries to investors and financial sector representatives to prepare key projects so that they are well-aligned with the criteria of private capital. In addition to the goal of attracting private investment for project development and construction, CIG aims to help countries structure projects that can fit into portfolios of institutional investors.	https://cgs.umd.edu/research-impact/projects/initiative-closing-investment-gap-sustainable-infrastructure
IRENA Sustainable Energy Marketplace	Connects project owners, financiers/investors, host governments, service providers and technology suppliers to bring projects to fruition. Investment opportunities are made visible and easily identifiable for investors, and project developers can access relevant funding sources and expertise to advance their projects.	https://www.irena.org/marketplace

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Appendix 1: Invest4Climate

To address the climate investment gap, the World Bank Group and the United Nations Development Programme co-launched the Invest4Climate platform in September 2017. Invest4Climate aims to mobilize, coordinate, and deliver finance to close the climate financing gap and help countries transition to a resilient low-carbon future that supports jobs and growth.

Invest4Climate **acts as a convener, facilitator and knowledge provider to leverage finance and facilitate scaled-up approaches to tackle climate's biggest challenges**

	Convener	Deal Facilitator	Knowledge Provider
– Mobilizing existing teams and relationships in developing countries – Drawing on WBG unique suite of financial tools, resources and knowhow – Incorporating blended finance and maximizing finance for development approaches – Amplifying success stories at global scale to influence the regulatory and policy environments	– Convening potential providers of finance at senior decision-making level around common challenges and specific climate mitigation and resilience investment opportunities – Convening governments, financial institutions, investors, philanthropists, and multilateral banks to support policy reform and crowd in private investment	– Bringing respective UN & WBG experience in pipeline identification – Assisting potential climate focused transactions to prepare for and come to market for finance – Facilitating the identification and allocation of risks to providers of finance that can best manage them. – Leveraging investment and de-risking instruments though targeted policy and regulatory support; technical assistance and advocacy; financial engineering (loans, grants, guarantees, policy lending, results based finance	– Driving knowledge sharing and capacity building on climate action and finance – Piloting and demonstrating viable deals, standardization and new models for de-risking and scaling climate investment

Appendix 2: Glossary of Terms Used in Figure 13

This list is not an attempt to redefine terms, but to enable a common understanding when using the framework

Seed: The first stage of financing. Seed stage financings are often comparatively modest amounts of capital provided to entrepreneurs and projects to finance the early development of a new product or service. Primarily grant and equity funded.

Early: This type of financing is usually provided to entrepreneurs, projects, intermediaries that have a limited track record. For example, most early-stage companies have been in business less than three years, are not yet profitable, and have a product or service in testing or pilot stage. From a sector financing perspective, minimal financial intermediation is happening in this stage due to limited pipeline of deals and lack of track record of enterprises. Typically, philantropic and development finance capital are most prominent, active capital providers. Private capital is not typically being crowded-in in meaningful amounts at this stage unless the business model has potential for significant growth and a relatively near term exit.

Mid: This type of financing is usually provided to entrepreneurs, projects, intermediaries that have been in business for 3-5 years, have demonstrated proof of concept and sold their product/services at some volume in the marketplace. At this stage, the enterprise has either generated some profit or has a clear path to generating profit (reaching "breakeven"). This is often when the enterprise secures its first private debt investors. In this stage, intermediaries start blending philanthropic and/or public money to attract private capital (blended finance vehicles).

Late: This type of financing is usually provided to entrepreneurs, projects, intermediaries that have demonstrated market viability and are on track for commercial viability (e.g. demonstrates significant revenue growth). Enterprises at this stage have typically been in business for more than 5 years and capital is provided mainly for growth (geographic or business line growth) and scale (e.g expansion, including physical plant expansion, product improvement and marketing). From a sector growth perspective, intermediation of capital through structures likes loan funds and structured funds, is needed. Blended finance strategies are more focused on ultilizing higher volumes of private capital as the gap between investor's perceived vs. real risk has shrunk due to track record established in earlier stages.

Traditional Finance: Financing provided under commercial terms following strict requirements, regulations and patterns accepted by the banking industry and capital markets.

HNW Investor: High net worth individual (HNW) is a classification used by the financial services industry to denote an individual (or a family) with high net worth, most typically defined as individuals holding finanical assets with a value exceednig $1million, excluding their primary residence.

Blended Finance: The strategic use of development finance and philanthropic capital to leverage private capital into a deal. Blended finance investments are made to drive social, envrionmental and economic progress and provide financial returns to private investors in line with market expectations. These structures exist to align/stack different sources of capital to get to the leverage and risk/return profile needed.

DFIs: National and international development finance institutions are specialized development banks or subsidiaries set up to support private sector development in developing countries. They are usually majority-owned by national governments and source their capital from national or international development funds or benefit from government

guarantees. This ensures their creditworthiness, which enables them to raise large amounts of money on international capital markets and provide financing on very competitive terms.

Intermediary: A financial intermediary is an entity that facilitates the channeling of capital between investors and investees/borrowers by aggregating and deploying the capital in an efficient manner and in accordance with a certain investment strategy. Typical intermediaries in impact investing include community banks, loan or equity funds, structured funds, etc.

Strucutured Fund: A type of intermediary that combines both equity and fixed-income products to provide investors with a degree of both capital protection and capital appreciation.

SPV: A Special Purpose Vehicle (SPV) is a legal entity created for a specific purpose. In the context of raising capital, a SPV (usually structured as LLC) can be used as a funding structure, by which all investors are pooled together into a single entity.

LP: Limited Partnership (LP) Funds are created to raise investments in pari passu terms from Limited Partners and invest that capital primarily in equity or equity-like instrunments. However, this model has also been used for debt financing in later stage sectors/companies where investors are comfortable with pooling and sharing the risk equally.

Catalytic Capital Providers: are focused on crowding in additional capital to help advance a market/sector/business model, particularly the type of capital that is most scarce to the respective stage. This is not a role that all investors can play; catalytic capital providers are typically philanthropic investors or public capital providers as they have proper risk appetite and motivation (often non-financial). Catalytic capital providers can help strenthen intermediation capacity and infrastructure in new/unproven markets; they can provide an important demonstration effect of markets/sectors/ business models; and can help mutiply impact outcomes by leveraging greater volumes of capital than would otherwise be availlable.

Soft/Subordinated Capital: is the form of capital that catalytic capital providers offer; it is willing to take a junior position, to assume greater risk for the purpose of crowding in additional investment capital. Common types of soft capital include grant, equity, subordinated debt (junior, mezzanine), guarantees, etc. Properly applied soft capital can help "de-risk" investments and meet appropriate risk/return required to crowd in additional, more senior capital.

The amount of soft/suborinated capital required differs by stage, and is dependent on a variety of factors, including, but not limited to the pipeline available (the size and the volume of deals) and the risk of those deals. In general, the percentage of soft/subordinate capital in an investment structure declines in later stages of the supply chain.

This section is intended to help catalytic capital providers determine where their capital can be used most effectively to acheive their goals. If an investors goal is to catalyze **traditional capital**, then providing soft capital in the **late stage** of the supply chain is most appropriate. It's important to note that simply providing more soft capital at an early stage **does not** crowd in traditional capital, which requires scale and track record that late stage investments demonstrate.

Source: Calvert Impact Capital.