

Private Equity and Venture Capital's Role in Catalyzing Sustainable Investment

Input Paper for the G-20 Sustainable Finance Study Group

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Input Paper for the G-20 Sustainable Finance Study Group

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Background

A defining characteristic of the private equity and venture capital (PE/VC) investment style is the injection of expertise (including technical knowledge, industry relationships, management skills, and so on) in conjunction with risk capital into enterprises to help them grow, improve their performance, and achieve strong financial returns. Harnessing this investment style in the pursuit of sustainable growth and investment is central to achieving the innovation needed for sustainable development.¹ Sustainability-driven innovation offers an opportunity to boost economic growth, improve living standards, and generate a variety of employment options. Such innovation is constantly generated by businesses at all stages of development as they create, apply, and adapt breakthrough technologies and innovative business models.

While companies that have a positive environmental or social impact are critical to driving sustainable growth, many of these companies, and particularly the smaller ones, face difficulties in accessing and attracting funding. Where more common financing channels (such as bank loans and bonds issued by large corporations with steady cashflows and deep balance sheets) may not be available, PE/VC could provide at-risk capital for many of these young, often innovative companies.

Furthermore, private equity (PE) funds increasingly align with value creation linked to social and environmental considerations. PE firms are recognizing the material value brought by sustainable businesses and social enterprises, which has resulted in a greater availability of sustainable PE capital that follows, to varying degrees, one or more of the disparate standards being developed or already in the market. However, the private capital marketplace, including sustainable PE/VC, has developed unevenly globally and is least established in emerging economies. For example, nearly US\$300 billion of private capital has been invested annually over the last five years in the United States, with an additional US\$150 billion a year invested in Western Europe. By contrast, less than US\$50 billion a year has been invested in emerging markets even though these areas account for nearly 60 percent of the world's GDP.²

This paper focuses on key aspects of sustainable PE/VC market development and deployment.³ It discusses (1) why sustainable PE/VC is a useful tool to catalyze other types of capital to achieve sustainability objectives, (2) best practices and lessons learned from the experiences of knowledge partners, (3) the main barriers to further developing the sustainable PE/VC market, and (4) options for countries to voluntarily consider or adopt to overcome these barriers.

Section 1

Why Sustainable Private Equity/ Venture Capital?

To meet the Sustainable Development Goals (SDGs), up to an estimated US\$7 trillion annually⁴ will be required between now and 2030 to bridge the transformation to a sustainable global economy, with the bulk of the money coming from the private sector. While incremental changes to business-as-usual practices will have to be part of the transformation, “radically new or significantly improved products (goods or services), processes, or practices [will] contribute to economic and social goals of sustainable development.”⁵ This innovation will need to occur globally, including into emerging markets where much of the of the world’s economic and population growth is forecasted to take place, driven by several clear trends discussed below. However, this rapid growth will also present significant challenges for countries’ social services, urban areas, core infrastructure, limited natural resources, and fragile ecosystems. Sustainability-driven innovation, including the creation and adoption of transformative business models, can help develop technologies, expand their access, and provide for implementation in many different countries along the entire continuum of development.

Technological innovation. By 2050, the world is expected to hold 9 billion people, 3 billion of whom will be new middle-class consumers. This translates into various challenges, including how to expand supply to meet unprecedented demand. For example, by 2030, water demand is anticipated to exceed supply by 40 percent, with water demand increasing by about 300 percent in Sub-Saharan Africa alone.⁶ Technology will play a critical role in solving these challenges, including, in the example above, more effective application of scarce resources in agriculture and more efficient water and waste treatment. Furthermore, no single technology will address the world’s sustainability challenges; instead, country-level or regional nuances are expected to evolve as solutions are developed or adapted for each country’s unique circumstances and market context.

Business model innovation. Prioritizing sustainability within established businesses and developing innovative new companies with creative—and sustainable—solutions will be crucial in transforming the global economy toward sustainable and inclusive growth. According to some scholars, innovative business models have become a

key “component of corporate sustainability [that have] only recently moved into the focus of sustainability management research.”⁷ Furthermore, “evolving business models that alter not just how we produce, but how we consume have the potential for major disruption.”⁸ These sustainable business models may include hiring or leasing of products and services, sharing products, incentivizing the return of used products, as well as creating innovative new models for how we work, some of which are described in Table 1.⁹

Growth. Innovative sustainable technologies and sustainability-driven business models offer great potential for not only improving social conditions and alleviating environmental pressures but also boosting economic growth and providing a wide variety of employment opportunities. Multiple reports and assessments suggest that marginal improvements to business-as-usual developments will not adequately or sustainably meet the needs and aspirations of the growing world population.¹⁰ While incumbent, large corporations will have an enormous role to play in transitioning to a sustainable and inclusive economy, incremental

Table 1: Examples of Sustainable Private Equity and Venture Capital Investment Targets

Company (country)	Goal and targeted SDGs	Solution	Latest financing round (\$US)
Algramo (Chile)	Sustainability in retail. SDGs 1, 2, 8, 9, 10, 11, 12, 13.	Establish a wholesale relationship with consumer goods manufacturers, to buy the products in bulk, saving costs in an environmentally friendly way without lowering their quality.	40K VC (seed)
AltSchool (USA)	Children's education. SDGs 4, 5, 8, 10.	A comprehensive solution for personalized learning, flexibly designed to meet diverse needs. Educators use one system to create and customize content.	173M VC Last: Series C
Apeel Sciences (USA)	Minimize waste and help family farms. SDGs 2, 11, 12, 14, 15.	Creates products using plant-derived materials that help fresh food suppliers and retailers increase product quality and fight food waste.	110M VC Last: Series C
Avante (Brazil)	Financial solutions to microentrepreneurs. SDGs 1, 5, 8, 10, 17.	Empowers the massive, underserved, micro-entrepreneurs by leveraging technology and providing them FinTech services.	18.8M VC Last: Series C
Cotopaxi (USA)	Eradicate poverty. SDGs 1, 2, 3, 4, 5.	Direct-to-consumer gear and apparel B Corp financing health, education, and improving livelihoods in developing countries.	22M VC Last: Series B
Easybike (France)	Ecomobility solutions. SDGs 3, 11, 13.	Designs and manufactures a range of bikes that run on electricity.	22.3M VC
E-Car Club (UK)	Ecomobility solutions. SDGs 3, 8, 11, 12, 13.	UK's leading low-emission-car club, offering electric and hybrid vehicles on demand.	M&A by Europcar
Ecolibrium (India)	Energy efficiency. SDGs 7, 9, 11, 12, 13.	Smart grid and energy management technologies to control energy usage (almost real-time data). It has an energy analytics platform based on IoT/ML.	4.2M VC
EcoScraps (USA)	Mainstream sustainability. SDGs 3, 11, 12, 13 15.	Leading manufacturer and distributor of natural garden products that turn food waste into high-quality compost.	5.8M VC Last: Series B
Efishery (Indonesia)	Fight world hunger. SDGs 2, 8, 14.	Applying IoT to fishery through an "auto-feeder" device that allows farmers to schedule feeding times using an app.	1.2M VC
General Fusion (Canada)	Transform energy supply with fusion. SDGs 7, 9, 11, 13.	Developing utility-scale fusion power, using a new magnetized target fusion (MTF), to commercialize it.	89M VC

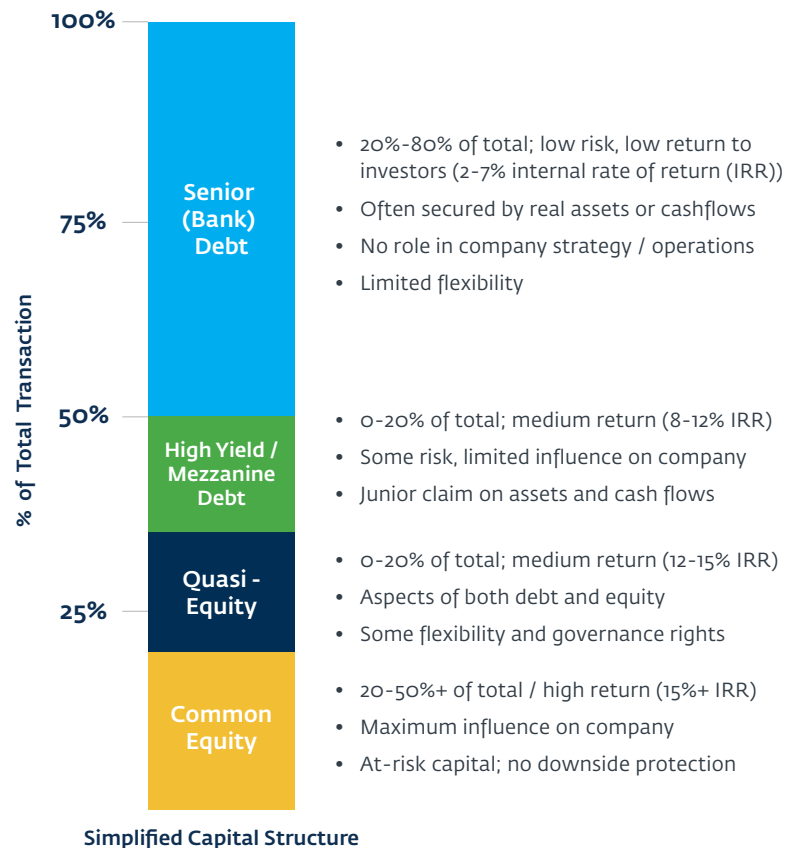
Table 1: *Continued*

Company (country)	Goal and targeted SDGs	Solution	Latest financing round (\$US)
Ideol (France)	Wind energy. SDGs 7, 9, 11, 12	Designs and sets innovative foundations for the offshore wind industry.	41M VC
InspiraFarms (UK)	Health and nutritious food. SDGs 2, 3, 11 and 13.	Provides refrigerated storage solutions, technical support, and affordable leases to agribusinesses for energy-efficient technology to cut energy costs and grow sustainably.	4.9M VC Last: Series A
MineSense (Canada)	Sustainable mining. SDGs 8, 9, 12.	Dedicated to improving the profitability and sustainability of mining through first-of-its-kind technology.	60M VC
PayGo Energy (Kenya)	Finance energy purchases. SDGs 1, 2, 3, 10.	A distribution service that allows customers to purchase gas on a pay-as-you-go basis, promoting clean cooking.	1.4M VC
PowerVault (UK)	Energy efficiency. SDGs 7, 11, 12, 13.	Designs and manufactures smart energy storage systems (for solar and grid electricity).	5.4M Equity Crowdfunding
SeemlessDocs (USA)	Paperless government. SDGs 11,12,13.	E-signature and automation platform that increases governments' efficiency converting PDFs into fillable cloud documents.	16M VC Last: Series B
Sunculture (Kenya)	Efficient agriculture. SDGs 1, 2, 3, 8, 11, 13.	SunCulture is transforming agriculture with the #AgroSolar irrigation kit for farmers in Kenya.	700K VC
TemperPack (USA)	Sustainable packaging. SDGs 9, 11, 12, 13, 14, 15.	Specializes in custom solutions of sustainable packaging technology for perishable goods.	14.5M VC Last: Series B
Voltaiq (USA)	Energy efficiency. SDGs 9, 11,12,13	Develops a software solution that predicts the performance of batteries and battery-powered systems.	8.6M VC Last: Series A
Zola / Offgrid Electric (Tanzania)	Clean, and affordable energy. SDGs 7, 13, 11 and 12.	Designs renewable energy solutions with the latest electronics technology, and its systems can be bought using PAYGo microfinance leasing and mobile money payments.	206M VC

improvements to existing solutions will be only part of the solution. Another part of this transformation to sustainability will be driven by step changes and radical innovations that “disproportionately often originate(s) in smaller and entrepreneurial new firms.” In fact, findings from research imply “a stronger impact of start-ups in the transition toward a sustainable or green economy.”¹¹ Thus, fast-growing start-ups and small and medium enterprises (SMEs) will likely be engines not only for sustainable innovation but also job creation and rapid economic growth that accompanies innovation. This dynamic will be particularly true in developing countries, especially considering that in emerging markets, SMEs presently create four out of five new (formal) jobs and contribute as much as 60 percent of total employment and up to 40 percent of GDP. These numbers are significantly higher when informal SMEs are included. Given the World Bank’s estimate that 600 million jobs will be needed, mainly in Asia and Sub-Saharan Africa, over the next 15 years to absorb the growing global workforce, innovative SMEs will be essential for the developing world’s growth and employment as well as for creating and accelerating the transition to sustainable economies.¹²

Financing alternatives. A variety of green and social financial products (for example, green bonds, social bonds, mutual funds that screen investment opportunities to eliminate non-green companies, and so on) have grown significantly in recent years as a means to channel capital towards efforts with a sustainable focus. Despite being accessible to larger or more established companies, these products do not necessarily direct funding toward innovation and are harder to access for SMEs and start-up companies that lack an operating history and a significant balance sheet. Furthermore, these forms of sustainable capital fall into specific asset classes and are not easily fungible between these classes. For example, equity is very different from debt, which comes with

Figure 1: Summary Characteristics by Financial Product



a much lower risk appetite and lower expected fixed returns.

However, not all companies, especially start-ups and growing SMEs, whether sustainability focused or not, can access suitable funding or have the necessary expertise to continue their rapid growth. Furthermore, several studies have shown that sustainability-focused start-ups may face additional challenges in accessing funding given that their business activities may focus on areas served by less developed markets.¹³ In this context, addressing the challenges of financing innovation becomes essential. Providing risk capital to sustainable companies is crucial to enabling these potentially dynamic enterprises to grow and create sustainable products, services, and solutions as well as contribute additional benefits to the overall economy (for example, a range of employment options [long/short term, high/low skill, and others], increased

Figure 2: Illustrative Stages of Sustainable Technology Financing



tax revenues, improved regulation, developed capital markets, and so on).

PE/VC funds, with their unique combination of risk capital and expertise, are particularly well suited to identifying and using equity and quasi-equity to scale the best innovative business models and sustainable businesses in both emerging markets and advanced economies. As seen in Figure 2,¹⁴ these funds deploy their capital at different stages of a company’s development, starting with high-risk seed capital in the tens or hundreds of thousands of U.S. dollars and moving through growth-focused Series A and B capital all the way to multibillion-U.S.-dollar investments for companies that have not gone through an initial public offering (IPO) but have been profitable for years and have thousands of employees. Some real-world sustainable PE/VC examples are also described in Table 1.

PRIVATE EQUITY/VENTURE CAPITAL AND SUSTAINABLE INVESTING

In keeping with the characteristics of broader sustainable investment practices, sustainable PE/VC is an investment discipline that injects capital into promising privately held companies and considers environmental, social, and governance (ESG) criteria to generate long-term competitive financial returns and positive social impact.^{15,16} As seen in the examples throughout this paper, this type of capital can foster innovative technologies and business models. Consequently, the development of sustainability-focused PE/VC funds should help create sustainable long-term jobs and make countries’ economies more resilient while helping to address domestic and global social and environmental challenges.

Trends in sustainable investing. While there are many different interpretations and means of implementing of sustainable investing, the trends are clear. Taking impact investment as a proxy for the broader sustainable finance sphere, in the last five years, an analysis by the Global Impact Investment Network (GIIN) indicates that assets under management allocations to impact-focused PE have increased by 19 percent annually. According to Bloomberg, sustainable technology PE/VC investors in the United States have invested US\$49 billion over the past 12 years, in comparison to Europe’s US\$20 billion and Asia’s US\$12 billion.¹⁷ Furthermore, in the public equities market, capital focused on sustainable, responsible, and impact (SRI) investing in the United States reached US\$8.7 trillion in 2016 (up from US\$6.6 trillion in 2014). Globally, SRI investing hit US\$23 trillion in 2016 (up from US\$18 trillion in 2014), indicating that more than 25 percent of worldwide assets under professional management were incorporating ESG principles in investment decisions.^{18,19}

Sustainable investing standards. Within the broad universe of investment activity, many investors have their own approach to sustainable investing. These include exclusion lists/negative screening, positive screening/focusing on best performers and specific sectors, ESG integration (that is, systematic integration of ESG risk management and performance improvement strategies across all parts of the investment), thematic investment (such as renewable energy, gender equality and others), and impact investing (that is, the selection of projects and companies made on the basis of demonstrable, positive impacts of the investments on stakeholders and the environment).²⁰ No single approach is uniquely superior to the others, nor are they mutually exclusive. Sustainable investments generally adhere to a set of environmental and social

What is Private Equity & Venture Capital?

PE/VC, a subset of equity (that is, ownership interest or risk capital) investments, is the term used for a set of financing instruments that enable investors to take a stake in multiple high-potential companies that are privately held (that is, owned by a small number of shareholders and not listed on a stock exchange). This equity stake sits at the bottom of an investee company's capital structure, making it a riskier but potentially higher-returning investment instrument, which also enables less risky forms of capital (such as debt) to participate higher up the capital structure.

PE/VC funds invest in these high-potential companies and help them grow by working to improve performance, operations, governance, and strategic direction. The funds are long-term investors, typically holding investments for 3–7 years (over the fund's life of 8–12 years), with a commitment to building lasting and sustainable value. PE/VC funds realize returns for their investors by exiting investee companies at a value higher than that at which they entered, reflecting the value the fund manager has added. PE/VC fund managers are remunerated upon exit with a minority share of the increase in value they have helped create and are thus incentivized to help their portfolio companies grow and increase profits. Typically, private equity funds will exit their stake in a company by listing on the public markets, selling to a financial or strategic buyer (a trade sale), or, in some cases, back to the company or its management.

(E&S) standards, ideally using a standardized mainstream methodology to ensure compliance. Furthermore, the monitoring and measurement of the impacts associated with these sustainable investments over the life of the investment are becoming more sophisticated. One ESG framework widely used in emerging markets is the Environmental and Social Performance Standards of the International Finance Corporation (IFC).²¹ The Performance Standards are outlined in more detail below and are complimented by the recently developed Anticipated Impact Measurement and Monitoring²² framework, which provides a robust, ex-ante quantitative methodology for evaluating, measuring, and reporting on impact with respect to financial and nonfinancial risk. There is also the work of the Sustainable Accounting Standards Board (SASB), a nonprofit, independent standards-setting organization that provides sustainability accounting standards and disclosure requirements for public companies, assisting investors in assessing how sustainable a company is and how it measures impact. Other recognized standards include GIIN's IRIS catalog, which tracks performance, and the Global Impact Investing Rating System (GIIRS), an impact fund rating developed by B-Analytics. Another collaborative project led by IFC in partnership with asset managers, asset owners, asset allocators, development banks, and other financial institutions will identify key operating principles for impact management. These principles will be drawn from best practices across a range of public and private institutions that seek to enhance discipline around impact investing, mobilize more funds for impact investments, and increase the potential impact that such funds could achieve. Lastly, the SDGs are increasingly used by investors as a framework for reporting and investment verticals and themes identification, including suggesting quantitative metrics for each goal. These and other frameworks, metrics, and standards are currently being developed, explored, and actively used by many institutional investors that participate in both public and private investments with a view to understanding and adding to the sustainability of their portfolio holdings.

Sustainable investing performance. To help illustrate the commercial case for sustainable investing, research on the

performance of this investment theme has been growing over the past decade. Studies have increasingly shown that there is no economic penalty from considering ESG factors in portfolio construction and management; rather, they generate opportunities to increase revenues.^{23,24} During periods of economic slowdown, companies committed to sustainability appear to outperform their industry peers in financial markets.²⁵ In 2017, Cambridge Associates and the GIIN found that market rates of return are attainable through impact investing strategies in real assets, but for this to happen, it is paramount to select the right investment manager.²⁶ Research also found that the performance of hedged green bond indices has been similar to that of global bond indices with a comparable credit rating.²⁷ While this and other evidence suggests sustainable assets' capacity to achieve or exceed market rates of returns, further research in the performance of specific sustainable asset classes is needed, including analysis about sustainable PE/VC. Indeed, GIIN's Annual Impact Investor Survey from 2018 highlights investment performance and impact performance as the two most important topics for further research.

This GIIN survey, which comprises public and private debt and equity, real assets, equity-like debt, and social impact bonds, among other asset classes representing 229 investors with US\$228 billion of impact investment assets, also flagged that investors' performance targets and appetites varied widely.²⁸ Sustainable investors targeted market-rate returns were the largest group, at 64 percent, 20 percent targeted close-to-market-rate returns, and 16 percent sought capital preservation. The majority of respondents from the 2017 GIIN survey reported that their sustainable investments had met expectations for both impact (79 percent) and financial performance (76 percent), with another 20 percent and 15 percent, respectively, reporting outperformance across these two dimensions. Only 2 percent of respondents said that their sustainable PE/VC investments had underperformed their impact expectations and 9 percent, their financial expectations. The survey attributed this underperformance to a high degree of variance at the deal level and challenges in setting impact and financial targets, particularly in less developed markets where there is unclear regulation, underdeveloped infrastructure, or currency fluctuations.

UNIQUENESS OF PRIVATE EQUITY/VENTURE CAPITAL TO SUSTAINABLE INNOVATION

PE/VC funds have several characteristics that make them suitable for boosting investments that support sustainable innovation:

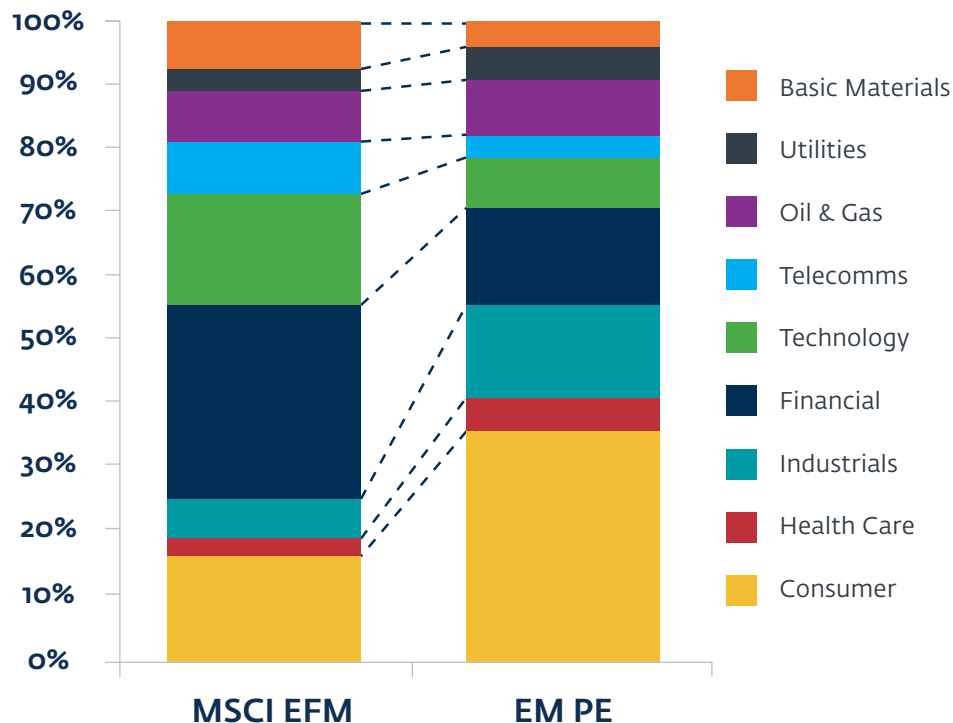
- A. ***Provide equity capital.*** PE/VC equity financing is particularly catalytic as the cornerstone of the capital structure and is better suited to withstanding economic shocks than many other bank-dominated financial products. Many start-ups and SMEs, including those with disruptive sustainable business models and technologies, are unable to secure financing from banks or bond markets and are therefore reliant on PE/VC funds for financing as well as other needs such as strategic, managerial, human resources, and marketing value added.
- B. ***Tolerate and intelligently manage risk.*** PE/VC investors are willing and able to identify, develop, and scale promising nascent technologies and companies with disruptive/transformational business models that address large challenges. Such funds accept high investment risks provided that they have the potential of realizing high returns; the funds are also adept at identifying risks and either mitigating them or sharing them with third parties better suited to taking them on.
- C. ***Contribute managerial and technical expertise and key customer/supplier relationships.*** PE/VC fund managers bring specialized experience on how to address the unique challenges faced by start-up companies and how to grow the most successful opportunities into efficient, profitable companies, especially in less sophisticated markets where management expertise can be a relatively scarce commodity. As equity shareholders with significant influence or outright control, active PE/VC investors are well positioned to bring their expertise to bear, thereby sharing insights, new technologies, and best practices with investee companies.

D. **Maintain alignment of interests.** The standard design and structure of PE/VC funds is well suited to the relatively long time frames and significant levels of involvement associated with growing young companies to a point of financial sustainability. The compensation that PE/VC fund managers receive is integrally tied to the success of their portfolio companies, the success of which, in turn, provide the most capacity to transform the economy.

E. **Origination capacity.** Local PE/VC funds are well placed to identify SMEs and support them through their growth phase. Often seen as an engine for jobs and innovation,²⁹ SMEs, including start-ups, are difficult to reach and scale through traditional sources of equity finance, listed markets, or dedicated green bonds or lending programs.

F. **Provide greater access into the economies of host countries.** PE accesses more sectors in many countries' economies than listed markets, facilitating economic growth in specific industries, as seen Figure 3, which compares the MSCI Emerging + Frontier Markets Index (MSCI EFM) to IFC's emerging markets private equity (EM PE) portfolio. By providing scarce capital to underserved segments of the economy, PE/VC funds should be able to achieve attractive returns as well as stimulate growth in companies that can provide much-needed jobs and market-based solutions to society's challenges. PE/VC funds also stimulate the development of capital markets by listing companies on stock exchanges or selling to industry buyers as a way of exiting their investments.

Figure 3: Emerging Markets Private Equity has More Consumer Exposure than Listed Equities in Emerging Markets



Source: MSCI for MSCI EFM data and IFC's PE Fund portfolio 2000-2013 for EM PE data

As outlined above, PE/VC fund investments have clear benefits to host countries' underlying economies that further compound when the investments support sustainability. Not only are sustainable criteria important to the long-term financial viability of an investment, but by developing new, sustainable PE/VC funds and aligning existing PE/VC fund operations with sustainable standards, additional second-order benefits of PE/VC investing can be realized in host markets, including

A. **Environmental and social benefits.** By integrating ESG criteria, PE/VC funds' portfolio companies have a positive impact on the environment and communities that can benefit from this additional level of risk mitigation, for example by minimizing exposure to polluting companies. With the added value and inherent risk mitigation that comes from good ESG performance, these portfolios should be more valuable at exit.

- B. Identification and development of profitable opportunities.** In nascent, fast-growing sectors, for example fintech, cleantech, and technology-enabled healthcare, PE/VC funds invest heavily in finding companies in need of their capital and assistance. Fund managers then work with the most promising of these companies to refine their strategies, business plans and management teams to turn diamonds in the rough into true gems. PE/VC is almost unique in this regard. Banks and stock exchanges tend to be more passive, waiting for firms in need of capital to come to them and expecting the companies to develop sound plans on their own to become eligible for investments from banks and stock exchanges. Many times, in sectors where the market capacity is limited and value chains are incomplete, PE/VC funds discover companies and entrepreneurs who have part of what they need to be successful but not the complete package. The fund will work with the company to figure out how to turn its idea into an investable business proposition and reduce the risk of failure by providing expertise as well as business and financing relationships.
- C. Accelerated availability of sustainable solutions.** A key aspect of PE/VC investment activity is to identify, establish, and provide growth capital to innovative, disruptive solutions, applications, technologies, and business models. Shifting PE/VC fund managers' direction toward making long-term sustainable investments accelerates the host country's trajectory of transforming its economy into a sustainable one by implementing new technologies, business models, and innovative solutions earlier and growing them more rapidly. The ability of PE-backed companies to accelerate growth and employment at a rate that outperforms non-PE-backed companies has been documented in a number of studies, including one conducted by McKinsey on funds in India. In this 2015 study, two years after a PE investment, the revenue and earnings for the PE-backed companies was, respectively, 28 percent and 39 percent higher. Similarly, five-year direct employment for PE-backed companies in this study grew at 8.7 percent versus 2.9 percent for non-PE-backed companies.³⁰
- D. Bridge to other forms of sustainable capital.** PE/VC funds provide equity finance to earlier-stage companies that cannot access debt financing (cashflows too risky or too few tangible assets) and are too small to access securities markets but too large to rely on friends and family. However, once anchored by a fund, portfolio companies can rely on the strong connections that most PE/VC funds have with other financiers to facilitate information flow and trust. PE/VC funds strengthen businesses, which improves access to capital. By making businesses better at what they do, such as by strengthening the senior management team and making sure management information and accounting systems are in place, PE/VC firms make their portfolio companies more attractive to other investors. Once PE/VC funds exit their investments, typically after a 3–7 year holding period, these better-established companies can grow their sustainable businesses by using other existing types of financial services products (more established green bond markets, debt from banks or multilateral organizations, etc.) that can be accessed at scale by PE/VC fund portfolio company graduates.
- E. Fundraising advantages.** With some audiences, PE/VC funds that market themselves as having a sustainable investing focus may have an edge in fundraising, as investors are increasingly open to, and many are actively engaged in, the impact and sustainability theme.

Section 2

Market Experience and Lessons Learned

To better understand the role of sustainable investing through PE/VC funds, the G-20 Sustainable Finance Study Group (SFSG) asked IFC to organize this paper. IFC is the largest global development institution focused on sustainable private sector development in emerging markets. As lead knowledge partner, IFC is well positioned to share lessons learned from experience in emerging markets. IFC's work on this paper was developed with the contributions from the following partners: Greentech Capital Advisors (Greentech), Shenzhen Green Finance Committee (SZ GFC), Principles for Responsible Investment (PRI), and Bridges Fund Management.

Drawing on these organizations' and their members' decades of combined experience in the field, together with inputs solicited via discussions and a focus group with asset managers, investment practitioners, sustainability-focused consultants, and officials, this section describes current practice and lessons learned about sustainable PE/VC investing across a variety of geographies, strategies, and sectors. As the crux of this working group and paper is sustainable finance, more time will be given to barriers specific to increasing sustainable PE/VC in both emerging and advanced economies than to generic PE/VC barriers.

2.1 SUSTAINABLE PRIVATE EQUITY/VENTURE CAPITAL IN EMERGING MARKETS

IFC was established in 1956 as the private sector arm of the World Bank Group, and its mission is to advance economic development by investing in for-profit and commercial projects and companies that promote development and help reduce poverty. As such, IFC has been making debt and equity investments in emerging markets for over 60 years and investments through PE/VC funds for more than 30 years. In addition, the World Bank provides a complementary role in understanding and assessing the host government's role in facilitating PE/VC investment into these developing markets. IFC and the World Bank seek to mobilize private sector

capital and assist governments and regulators in emerging markets to create stable business environments for sustainable investment. Together, they have a diverse set of experiences on the sustainable investment side³¹ as well as through advisory services, capacity building, and knowledge management.³² In fiscal year 2017, IFC's equity investments, including through PE/VC funds, accounted for about US\$1.6 billion of commitments made for its own account.

Background: Emerging economies. Emerging markets are set to host much of the world's economic and population growth for the foreseeable future. Among the trends propelling this are: ongoing political and economic reforms, favorable demographics, consumption patterns of a rapidly growing middle class, and increasing urbanization.³³ These factors and others drive economic growth and provide investment opportunities across a diverse landscape of emerging markets. As such, they present potential for investors with the resources, skills, and experience to navigate these complex markets. However, as seen firsthand throughout many emerging economies, this rapid growth will also present significant challenges for a country's social services, urban areas, core infrastructure, limited natural resources, and fragile ecosystems. These countries also face an urgent need to provide improved social services to a growing middle class and create sustainable companies that provide long-term jobs at fair wages while addressing workplace inequalities and risks. Many of these growth-related

challenges can, in part, be addressed by ensuring that sustainability is taken into consideration when capital is mobilized to finance this growth rather than using only commercial filters.

Various groups within IFC invest sustainable capital from its balance sheet across a wide range of asset classes, including through PE/VC funds. The PE practice area is led by IFC's Funds Group, which focuses on making commitments to growth equity funds in emerging markets, most of which have a generalist strategy and provide expansion capital to SMEs and established mid-market companies across many sectors. IFC's Venture Capital Group invests not only in early-stage venture capital (VC) funds but also directly into companies that offer innovative technologies or business models geared to developmental impact in emerging markets. In 2009, IFC set up the IFC Asset Management Company (AMC) as a dedicated, sustainable PE/VC fund manager that raises and invests institutional capital alongside IFC's own investments from its balance sheet. Today AMC is one of the largest PE/VC fund managers focused on emerging markets, with 13 equity and quasi-equity focused funds, totaling US\$10 billion under management, investing growth equity across sectors in emerging market countries worldwide. Two of these funds, with US\$1.2 billion of assets under management in aggregate, invest in a portfolio of sustainable PE/VC funds alongside IFC's own balance sheet investment activity. Lastly, additional groups within IFC have contributed significantly to the development of sustainable investing by establishing market standards to help ensure third-party PE/VC funds sustainably approach their investments (for example, IFC's Performance Standards,³⁴ green-building-focused EDGE framework,³⁵ and Corporate Governance Framework³⁶), while other IFC teams have helped make the connection between sustainable investing and increased financial returns.

Lessons learned: The IFC Funds Group has a long history of backing impact-focused PE/VC funds. From 2000 to 2013, IFC committed US\$2.9 billion to 159 PE/VC funds across more than 1,000 portfolio companies around the world. While the track record of these PE/VC



Single-axis solar PV tracking system in Central America (Photo credit: Laird Reed)

funds is in the top quartile against Cambridge's global emerging market benchmark, IFC's Funds Group has also been an early mover in helping to establish nascent sustainable investment subthemes, including climate change investing. To date, IFC has backed 16 climate-focused funds across multiple regions, and, while still relatively young, the performance of these climate funds as a group is lower than IFC's generalist PE and VC funds' returns. IFC's internal VC team is also an active investor in sustainable companies, using IFC's balance sheet to finance start-ups seeking VC to develop software-based solutions and asset-light business models to sustainably address opportunities in emerging markets. Since 2000, IFC has invested approximately US\$175 million in early-stage cleantech companies. This portfolio of companies spans the cleantech space, including energy storage, solar technology, distributed generation models, and energy-efficiency technologies. The IFC Venture Capital Group's additional focus verticals include healthcare, edu-tech, internet (including e-commerce), advanced mobility, and e-logistics. IFC's key lessons learned from its sustainable PE/VC investing experience include

A. ***Limited investment scope.*** Thematic funds, such as those focused exclusively on sectors such as climate or water, suffer from the same general issues as other single-sector funds, which include limited deal flow in a niche market, low investee company diversification, and limited exit routes.

Example IFC Group Private Equity and Venture Capital Transactions

Full Truck Alliance. An online logistics platform based in China that provides a variety of services to the world's largest, but very inefficient, long-haul trucking market, including i) an online marketplace or "loadboard" that matches shippers and trucks, ii) sales and top-ups of highway toll cards, iii) sales of insurance products, microloans, fuel cards, truck parts, and new and used trucks.

Organica Water. Global provider of innovative solutions for localized treatment and recycling of wastewater. Organica's management is based in the United States, and the engineering and R&D hub is located in Budapest, Hungary. The company also has satellite offices in India and Indonesia.

Microvast. Founded in 2006, Microvast is a fast-growing market leader in design, development, and manufacturing of ultra-fast charging, long-life battery power systems with superior safety for electric vehicles. In March 2011, the very first Ultra-Fast Charging full electric bus fleet in China started commercial operation in Chongqing.

B. **Asset light business models.** In IFC's experience, asset development (infrastructure) funds are less attractive than growth equity and venture funds focused on less capital-intensive business models and technologies. Similarly, IFC's venture group has had limited success investing in hardware (for example, new wind turbines or other equipment) as they generally reach scale slowly and only if they can attract significant capital. IFC has been generally more successful investing in early stage companies with software-driven "asset-light" business models, which can be developed and scaled without significant capital investment.

C. **Commercial by design.** To mobilize capital, successful PE/VC investment vehicles need to be structured on a commercial basis, run by a trustworthy manager with strong team members that have a great deal of relevant experience, reach a minimum commercial size (typically more than US\$100 million of committed capital), and have a commercially attractive market and a strategy designed to provide attractive returns in that market.

Working closely with IFC's Funds Group since 2010, IFC AMC has sought to catalyze additional third-party capital into climate-focused PE/VC funds. After canvassing a number of institutional investors, impact investors, and PE/VC fund managers, AMC developed and implemented a 12-year resource-efficiency-focused PE fund of funds, aptly named the IFC Catalyst Fund. The team raised US\$418 million from eight investors and has committed more than 90 percent of its capital to 13 funds and platforms and one co-investment (representing over 100 underlying portfolio companies and projects). Additional findings from IFC Catalyst's experience include

D. **Provides diversification.** As compared with a direct investment into a PE/VC fund, a fund of funds is inherently highly diversified, resulting in a lower likelihood of capital loss. The structure allows investors to efficiently deploy sizeable amounts of capital through one vehicle and helps them gain exposure to, and learn about, unfamiliar sectors and geographies.

E. **Mobilize commercial capital.** Equity enables the formation of the rest of the capital structure in climate projects and investments, and accessing these investments through a fund mobilizes additional equity alongside the fund's own capital. Investing through a fund of funds enables one more turn of mobilization by catalyzing additional equity into climate-focused funds themselves.

F. **Broad mandate.** IFC and Catalyst's working definition of climate-friendly investments includes infrastructure, growth equity, and VC-type opportunities focused on resource efficiency, allowing for greater selectivity

and more diversification within the climate theme. Catalyst invests not only in funds but also in fund-like platform companies and direct co-investments as well.

In addition to actively investing its capital in sustainable projects and companies throughout emerging markets, IFC and AMC require all investee companies and funds to adhere to IFC's Environmental and Social Performance Standards (see insert). Since the predecessor policies' original introductions in the early 1990s, IFC strengthened and mainstreamed these standards for direct investments, investments in financial intermediaries, advisory projects, and others, including requiring investee PE/VC funds to build capacity and train their employees to implement the Performance Standards themselves, which increased the use of this standardized approach to ensure sustainable investment. Over the past decade, an estimated US\$4.5 trillion in investments across emerging markets have adhered to IFC's standards or principles inspired by them.³⁷ For investing as a Limited Partner in Funds, IFC divides investee funds into categories (low, medium, high) based on the risks of the portfolio companies' activities. Once categorized, IFC works with fund managers to implement tools that help assess and manage risks related to their investment. A key lesson from this experience is:

G. Ongoing engagement. This factor is critical for successful E&S risk management efforts, and IFC's E&S specialists conduct regular supervision visits of a sample of fund portfolio companies to assess E&S risks and provide support to fund managers.

2.2 SUSTAINABLE PRIVATE EQUITY/VENTURE CAPITAL IN THE UNITED STATES

Given the early-mover advantage of the United States in sustainable PE/VC investing, it was critical to get a U.S.-focused knowledge partner to help draw conclusions from these early investments. Greentech Capital Advisors (Greentech) was created 9 years ago as a dedicated expert advisory and asset management firm with a focus on mitigating climate change and resource efficiency. Its work is directed at accelerating the transformation of core

IFC Performance Standards

As part of making the business case for mainstreaming ESG factors when making investment decisions, IFC's research group has identified a positive correlation between investments with high E&S performance and strong financial performance based on IFC's portfolio. This analysis better informs IFC about their clients' E&S activities to help IFC assess and discover valuable investment opportunities. IFC clients (including PE/VC funds) use the Performance Standards as a framework to track impact, identify and address risks, and focus their sustainable business activity. The Performance Standards include

1. Assessment and Management of E&S Risks and Impacts
2. Labor and Working Conditions
3. Resource Efficiency and Pollution Prevention
4. Community Health, Safety, and Security
5. Land Acquisition and Involuntary Resettlement
6. Biodiversity Conservation/ Sustainable Management of Living Natural Resources
7. Indigenous Peoples
8. Cultural Heritage

infrastructure systems (namely, energy, transportation, food, water, and waste) to lower carbon emissions and be less wasteful and more intelligent by using 21st century technologies. Greentech's investment banking business executes merger, divestiture, and acquisition transactions; raises capital through private placements; and provides strategic advisory services for sustainable infrastructure companies and projects. The asset management business, predicated on the indelible link between sustainability

and alpha generation, has two public equity strategies for institutional investors seeking global exposure to companies with robust ESG standards profiting from sustainability—the GCA Sustainable Growth strategy, which focuses on companies in developed markets, and the GCA Emerging Markets Sustainable Growth strategy, which focuses on emerging and frontier market opportunities. With a 55-person advisory team and 12 investment professionals, Greentech has deep experience working with companies focusing on sustainable technology and infrastructure investments as well as an extensive network of PE/VC investors and strategic relationships that helps provide insights from the U.S. market.

Background: The United States. The United States is the birthplace of the PE/VC industry and home to Silicon Valley, the world’s oldest, most successful, and largest entrepreneurial ecosystem. Overall, U.S.-based investors are the largest source of capital for PE/VC funds globally. Between 2013 and 2017, the five-year average penetration of private capital investments³⁸ (PE/VC funds included) was 1.55 percent of U.S. GDP, compared to 0.28 percent in India, 0.12 percent in China, and 0.12 percent in Brazil. While the roots of sustainable investing in the United States go back to 1758,³⁹ investing focused mainly on the environment and sustainable development started in earnest in the 1990s.⁴⁰ Additionally, as part of a broader trend among U.S.-domiciled asset managers (including PE/VC managers), the United States has also seen a 14-fold increase⁴¹ in investment strategies that consider ESG criteria to generate long-term competitive financial returns and positive social impact. This was reflected in a recent letter Larry Fink, Chairman and CEO of Blackrock, the world’s largest asset manager, wrote to CEOs in the first quarter of 2018:

“To prosper over time, every company must not only deliver financial performance, but also show how it makes a positive contribution to society. Companies must benefit all of their stakeholders, including shareholders, employees, customers, and the communities in which they operate.”⁴²

However, the development of the sustainable PE/VC theme in the United States did not happen quickly: the PE/VC industry has been investing in advanced energy technology companies since the 1970s. An early part of the shift toward sustainable investing in the United States was a cleantech investment wave that began in 2006 with a spike in oil and gas prices. At this point, many established Silicon Valley VCs launched green-only VC funds in an effort to capitalize on a potentially exciting new industry. In 2008, the United States experienced a record deployment of US\$6.5 billion of sustainable VC. However, disappointed by initial returns and relatively shallow capital markets for this sector, by 2012, many Silicon Valley VCs, such as Kleiner Perkins, New Enterprise Associates, Kholsa Ventures, DFJ, and Sequoia, had largely left the field. While these early PE/VC investors were hurt by external factors, many of the causes for the poor returns were structural. Some lessons learned from this period in the United States include

- A. ***Death by pilot.*** As with other nascent technologies still in the development phase, the majority of start-ups needed extra time to field test and prove their commercial viability. Incorporating new technologies into the electric grid and building energy management systems or municipal waste or water systems must be extensively tested and proven reliable. All of this takes time and relies on the approval, participation, and adoption of incumbents, which was much slower than expected.
- B. ***Missing value chain.*** Many of the technologies lacked a supportive value chain and were very expensive to scale. Without certainty around end-market demand, equipment manufacturers were unwilling to scale up capacity and enable lower costs.
- C. ***Commodity exposure.*** Many early stage start-ups were exposed to commodity markets. Low natural gas and electricity prices significantly reduced the demand for potential disruptive technologies. As a result, start-ups had limited room for error.

However, since 2012, remaining PE/VC investors interested in the sustainability theme pivoted away from the hardware and physical science subsectors

and toward software and asset-light business models. Additionally, corporate strategics, including global multinationals such as ABB Group, General Electric, E.ON, ENGIE, Enel, Ørsted, Shell, and Saudi Aramco, began making sustainable PE/VC investments. Some of the characteristics of the second phase in the sustainable PE/VC market in the United States include

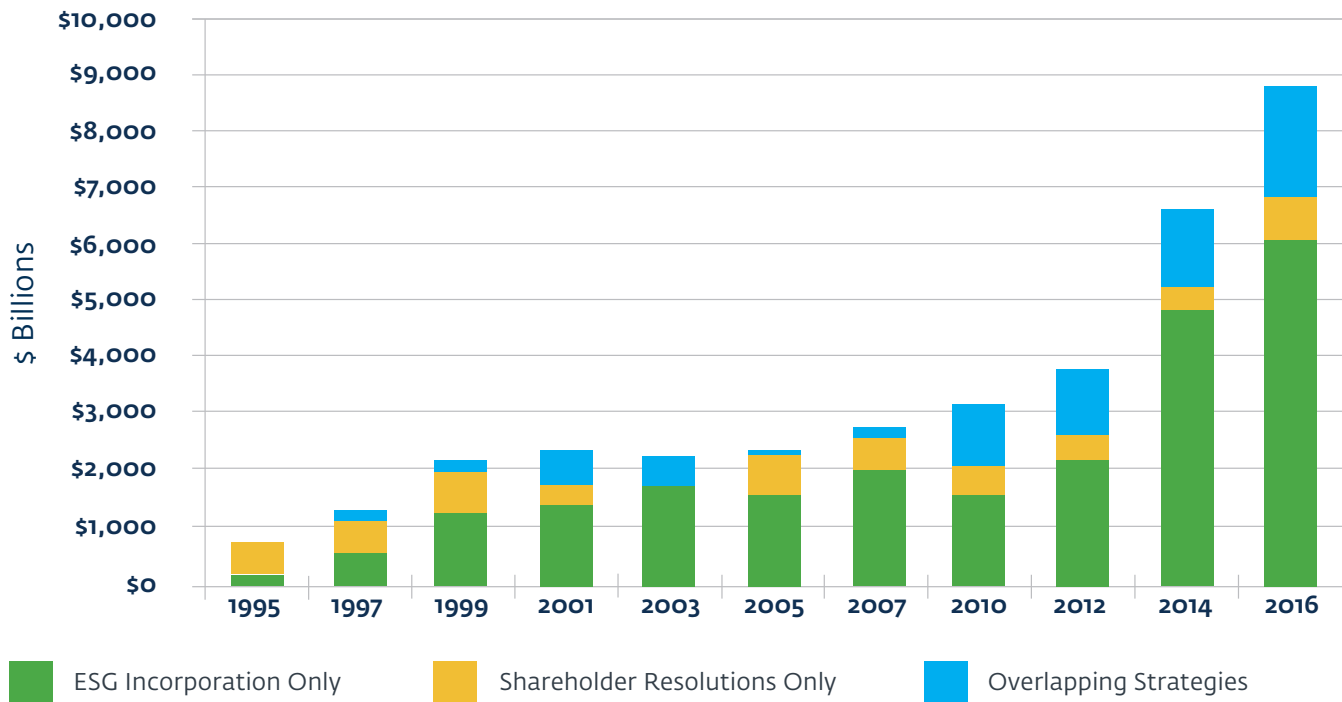
- A. **Additional time.** Sustainable fund managers need to allow for additional time and resources for portfolio companies to be adopted and scaled, as well as understand the need to build out supporting infrastructure and regulatory frameworks for new sectors and business models.
- B. **Asset light.** Many sustainable PE/VC funds have pivoted away from the hardware and physical science subsectors, toward software and away from businesses that are dependent on manufacturing scale-up in advance of proof of cost competitiveness or customer demand. Companies in these target areas generally have a shorter time horizon to scale deployment, are less capital intensive, and have the potential to disrupt large global markets. Examples include energy storage, energy efficiency, and advanced transportation (fleet tracking, autonomous vehicles, and ridesharing).
- C. **Exits.** Corporate strategic investors; large energy, food, water, and waste incumbent companies; and forward-looking utilities have committed to sustainability and to bringing their knowledge, commercial relationships, and lower cost access to customers to help start-ups succeed and create confidence in the PE/VC investment and exit environment.
- D. **Consumer pull.** Nearly half of Fortune 500 companies have renewable energy or carbon reduction targets, along with many U.S. states and major cities (including Los Angeles, Atlanta, and Salt Lake City). This reinforces the belief that many of these sustainable PE/VC backed technologies will find robust end-markets.
- E. **Government support.** In targeted sectors, government-sponsored programs and accelerators can provide shared centralized facilities with extensive equipment portfolios which shorten ramp-up / development

periods, thus allowing start-ups to reduce capital costs and avoid costly mistakes while accelerating the development cycles of high-impact technologies that are too early for private sector investment. Some examples focused on sustainable energy include Los Angeles Cleantech Incubator, human resources focused ACRE, Elemental Excelerator, Argonne National Laboratory, U.S. Department of Energy's Advanced Research Project Agency-Energy initiative, the Tata Center, MIT's Energy Initiative, MIT's The Engine, Prime Coalition, New York State Energy Research and Development Authority, and Chicago's Clean Energy Trust.

Furthermore, Greentech has observed increasing "sustainable activist investor" interest from many investors seeking sustainability themes in their equity portfolios. In recent years, many large institutional investors have started to advocate for long-term value creation as well as social and environmental contributions, with some estimates suggesting that more than 20 percent of the funds under professional management in the United States include socially responsible investment criteria.⁴³ Some of these investors, including large institutional asset managers like BlackRock, Amundi, and Fidelity, are looking at the utility sector, food and agriculture value chains, advanced mobility solutions, and companies providing goods and services to support the transition to a more efficient, sustainable, and circular economy. This increasing interest is captured in the US Forum for Sustainable and Responsible Investment chart (Figure 4), which covers US public and private sustainable investing trends.

Lessons learned: Greentech believes that investors who put capital to work behind themes that will improve our electricity, transportation, food, water, and waste infrastructure systems will generate above-market returns and help accelerate change toward a sustainable economy. Investors who allocate capital to investment managers with rigorous assessments of environmental sustainability and are actively engaged with their portfolio company's management teams have an ability to influence companies to accelerate their sustainability efforts.

Figure 4: Sustainable, Responsible, and Impact Investing in the United States (1995–2016)



Source: US SIF Foundation

- A. **Corporate venture capital (CVC).** CVCs play an increasingly important role in the growth of sustainable technologies. Global multinational companies are able to bring their knowledge, commercial relationships, and lower cost access to customers as well as an ability to test technologies at a large scale to help start-ups succeed and create confidence in the VC investment environment.
- B. **Corporate strategies.** Large corporations are also increasingly making direct investments into renewable energy assets (mainly solar and wind) through long-term power purchase agreements, diversifying their risks, and responding to investor and community demands.
- C. **Investor interest.** There is an increased interest in sustainability investing by institutional investors and pension funds and endowments, taking direct stakes in renewable wind and solar projects with a goal to meet sustainable investing requirements.

D. **Increased Disclosure.** In the public equity markets, investors are also increasingly focused on corporations executing on sustainability strategies and demanding compliance with ESG principles and disclosure requirements, forcing management teams to become more accountable and transparent. In the absence of regulation, standardized metrics, and impact measurements, corporate decision makers are increasingly looking for advice in relation to their sustainability strategies. This is also relevant in the context of PE/VC funds exiting their investments via public listings.

2.3 SUSTAINABLE PRIVATE EQUITY/VENTURE CAPITAL IN CHINA

As part of the drive toward growing China’s sustainable PE/VC market, knowledge partner Shenzhen Green Finance Committee (SZ GFC), a non-profit organization under the Financial Society of Shenzhen Special Economic

Zone, was formed in 2017. Its secretariat is run by China Emissions Exchange Shenzhen (CEEX). SZ GFC's board of directors includes Deputy Director General-level officials from 12 different governmental bodies and local financial regulators as well as support from the Shenzhen Municipal Government, China Green Finance Committee, and People's Bank of China's Shenzhen Central Sub-Branch. SZ GFC was established as a cross-government platform to engage in green finance research, promote the innovation of green investment and financial products, and coordinate and advance green finance cooperation in Shenzhen, Hong Kong, and beyond.

Background: China. As China's large population powers a fast-growing and rapidly evolving economy, it also faces significant challenges including pollution, food safety, overcrowded urban areas, and stressed infrastructure. China's government and private sector have recognized the need for sustainable business models as a key component of the country's growth strategy. Accordingly, they have both encouraged (including through regulation) the business community to address sustainability through innovative practices and forward-looking policies. Innovative companies, many backed by domestic PE/VC funds, have driven China to the forefront of many sustainable industries, including electric vehicles, shared-asset business models, and information marketplaces to more efficiently use resources, reverse the country's crippling levels of pollution, and meaningfully reduce carbon emissions (see example in insert).

A combination of top-down and bottom-up approaches addressing entrepreneurship, innovation and green finance have combined to support the growth of the sustainable PE/VC market in China. In 2015, China launched its Green Finance Strategy, which enabled preferential industrial policies to encourage the development of green business sectors and help create a pipeline and market for sustainable PE/VC funds. With the government's Mass Entrepreneurship and Innovation Campaign, also launched in 2015 and recently upgraded to boost employment, promote technological innovation, and stimulate industrial growth, millions of new businesses have been registered in 2018 alone.⁴⁴ Many of these start-

The emergence of bike-sharing programs in China

One notable example of the impact of the emergence of sustainable PE/VC funds in China is the creation and rapid expansion of bike-sharing programs, which has largely been driven and funded by PE/VC capital and expertise. The business models of these companies have a number of distinct characteristics, including low threshold of entry, large scale of demand, and ease of expansion, which combine to make the sector particularly attractive to PE/VC investors. By the end of 2017, more than US\$4 billion in aggregate has been invested in various dockless bike-sharing companies, enabling the dizzying growth seen across these companies in China (and elsewhere). In terms of the E&S benefits, in 2017 alone, bike-sharing companies have brought about environmental benefits estimated at US\$220 million, reduced CO₂ emissions by 4.2 million tons, and reduced air pollution (PM_{2.5}) by 3.2 million tons. In addition, China's bike-sharing companies have created an estimated 100,000 direct jobs and 290,000 indirect jobs.



Biking sharing in Southeast Asia (Photo credit: Shutterstock)

ups were developed through incubators, industrial parks, tech pilots, and innovation centers. These innovative new companies created a nationwide pipeline of investible projects that bring significant demand for investment capital and start-up company expertise. In addressing this financing gap, PE/VC funds were second only to industrial companies as the source of finance for start-ups in China.

In the early stages of developing the PE/VC market in China, US\$-denominated funds with capital from international investors played a significant role. Although these funds, managed by foreign expatriates, were mainstream in 1990s and early 2000s, they helped create/spin-off a new generation of Chinese PE/VC managers. While RMB-denominated PE/VC funds dominate the investment landscape in China now, US\$-denominated PE/VC funds still pioneer investments in certain sectors and play an important educational role in China, especially concerning best practices in governance, ESG, corporate social responsibility (CSR), and sustainable investing. One example is IFC, which has played an important and constructive role in propagating its best practice sustainable investment standards/principles, including spreading the IFC Performance Standards, across many China-based PE/VC funds. In this context, China has been learning by doing; motivated by China's Green Finance Strategy and industrial policy support, many entities have set up sustainable PE/VC funds, including local governments, stated-owned enterprises, listed companies, private companies, and established managers from overseas. In late 2017, there were 740 sustainable-focused funds in China with approximately US\$20 billion under management, registered with the Asset Management Association of China. These funds, along with other investment vehicles, have gone on to incubate and grow thousands of companies with innovative business models and sustainable themes throughout the country by providing not only financing but also strategic, managerial, resource, and marketing value added.

Lessons learned: It is important to see the development of the sustainable PE/VC market in China as an ongoing process that continues to advance financial, regulatory,

and policy-related frameworks to allow sustainable PE/VC funds to thrive. Despite advances in the areas of environmental information disclosure, green fund standards, and environmental risk stress testing, there are certain aspects of the Chinese sustainable PE/VC market that require further work. For example, when compared with the TMT investment sector in China, companies operating in green sectors in China are often perceived as having less mature business models that require additional time to grow a company in this sector to a scale relevant for an exit.

- A. ***Standards.*** Many PE/VC fund managers are not clear about which sectors are truly green sectors. The environmental benefits generated by sustainable investment are difficult to quantify given the lack of uniform and authoritative quantification methodologies, let alone to monetize the environmental benefits to improve the financial performance of green companies.
- B. ***Monitoring.*** It is encouraging when governments set up guiding funds to support the development green sectors. However, such initiatives need to look for efficiency in operations to avoid underutilizing valuable capital provided by governments. To improve the operational efficiency of government funds, subnational governments in China are establishing the investment performance evaluation program to monitor and supervise the operation of those funds.
- C. ***Consistent policies.*** Preferential industrial policies, applied consistently over extended periods of time, can accelerate the development of the value chain in sustainable sectors, providing better and more attractive commercial prospects for the pipeline of sustainable PE/VC funds.
- D. ***Alignment with private sector.*** Government-guided incubators, funds, and industrial funds with a sustainable mandate are more impactful when they work with private sector PE/VC funds. This encourages the development of sustainable PE/VC funds by sharing the financial burden of their setup and deploying capital into sustainable investment opportunities.

2.4 SUSTAINABLE PRIVATE EQUITY/VENTURE CAPITAL IN ARGENTINA

Many of Argentina's underlying characteristics make the country ideal for technology disruption and sustainable innovation. One of its most distinguishing features has always been the creativity, flexibility, and resilience of its entrepreneurs, as the Global Entrepreneurship Monitor index shows. Nevertheless, Argentina's economic challenges and its relatively shallow capital markets have curtailed the natural growth of the country's entrepreneurial activity.⁴⁵ Argentina's policy approach to address these challenges may provide lessons learned and tools for other countries facing similar complexities.

Background: Argentina. Recently, Argentina sought to promote its entrepreneurship capacity. Entrepreneurship is seen as an increasingly relevant form of employment for both high-income industries as well as sectors with economic vulnerability. Within the country's entrepreneurial community, there has been an increasing recognition and growth of social enterprises and B Corporations,⁴⁶ with sustainable and impact investing themes being discussed more frequently. For example, the number of B Corporations in Argentina almost doubled between 2014 and 2016, and the majority are either start-ups or SMEs. Recognizing the economic benefits from entrepreneurial start-ups, in 2017 the government passed Argentina's Entrepreneurship and Venture Capital Law (N°27.349). It was created after reviewing lessons learned from Israel's Yozma Fund (described below), Chile's successful CORFO program, and various other innovation hubs and PE/VC initiatives and programs in the United States and United Kingdom. The law created the Fiduciary Fund for the Development of Venture Capital (FONDCE), which allocates public finance to qualifying investments via loans, direct equity investments, and investments in funds, among other instruments. To implement FONDCE, three state-sponsored funds have been established to participate in different parts of Argentina's capital markets that need to be developed or scaled.

FONDCE's Expansion Fund (EF) is a fund of funds aiming at attracting local and international VC managers to invest and build capacity within the professional fund managers in Argentina. Initially open to three experienced VC funds, the EF provides up to US\$12 million of public capital to experienced funds that can match this commitment with at least US\$18 million of additional private capital. The strategy of interested VC funds needs to include early growth capital to innovative, high-impact, technology-driven companies based in Argentina with global market potential. As part of the selection process, candidate funds need to present their plan for addressing ESG issues and detail their responsible investment principles. As the EF also seeks to boost the development of Argentina's VC market, funds that apply must be registered in Argentina, though their team does not need proof of Argentinian citizenship. This seeks to attract international talent, spread best practices, and drive market capacity building in Argentina.

The other two FONDCE funds were designed to boost the availability of investible projects. The Seed Fund (SF) was launched in mid-2016 to develop and strengthen SMEs that stand out as being especially innovative. The SF provides technical assistance through incubators and has an investment strategy that includes an impact focus with a selection criteria that favors innovation, employment, local economic impact, and verifiable high social impact. For example, projects that promote health, social-inclusion, education, gender-equality, and environmentally friendly business models have increased chances of being selected. Lastly, FONDCE's Acceleration Fund (AF) is directed at supporting the creation and strengthening of incubators and accelerators that are focused on companies in the technology, social innovation, or science sectors. The underlying premise of this fund is that by supporting a good accelerator, the impact of public contributions is amplified (for example, with the same amount of public money more resources reach more entrepreneurs in different regions of the country to help validate, mentor, and scale a larger number of promising projects).

Lessons learned: The process of creating and implementing FONDCE involved evaluating many different models from different parts of the world, engaging with a vast array of local and international stakeholders, including from public, private, and public–private partnerships, and analyzing the different needs, opportunities, and trends in Argentina and beyond. Organizations such as the Argentine Association of Private, Venture and Seed Capital and Association of Entrepreneurs of Argentina were instrumental in sharing insights from relevant stakeholders and moving FONDCE forward. This open and inclusive process sought to achieve positive environmental and social outcomes as well as economic and financial markets benefits. Among the lessons from this process are the following:

- A. ***Communication matters.*** VC in Spanish is translated as “risk capital,” which generated negative connotations for many people in the country and some prospective investors. To overcome this perception issue, local policy makers started to refer to it as “entrepreneurship capital” to appeal to the ultimate goal of the VC market (which is to support all kinds of entrepreneurs in their productive and innovative endeavors).
- B. ***Reducing the costs of failing is paramount.*** Simplifying processes, lowering set-up costs for a company, and providing flexibility encourages entrepreneurs to form innovative companies. As some sustainable business models and technologies may have more complex or less developed markets, this becomes essential to increasing the rate of sustainable start-ups being launched. Argentina’s Entrepreneurship and Venture Capital Law set up the Simplified Stock Companies, a business organization type that offers greater flexibility and makes it simpler and quicker to register a company.
- C. ***Target multiple goals simultaneously.*** In the case of FONDCE, frequent and thorough stakeholder engagement when developing the law and the sustainable PE/VC market was fundamental to addressing not only the generic market challenges but also bringing awareness and tools to overcome sustainability-related challenges.

2.5 STATE-SPONSORED WATERFALL STRUCTURE: THE CASE OF THE YOZMA GROUP

The Yozma Group originated from an Israeli government program aimed at promoting VC investments in high-growth companies in strategic sectors (namely, communications, information technologies, and life sciences) where the country had demonstrated world leadership.

Background: Israel. Today, Israel is considered one of the biggest VC centers in the world (with Tel Aviv considered the fifth-best city for entrepreneurs, after Silicon Valley, New York, Los Angeles, and Boston).⁴⁷ The country’s success dates back to 1993 when the Yozma Group formed Yozma I,⁴⁸ which introduced a limited amount of concessional finance through the state-sponsored fund of fund’s “waterfall” structure. In the waterfall of typical fund structures, all investors participate *pari passu*, equally sharing in profits and losses. However, to accelerate investment into target areas, PE/VC funds can offer a modified waterfall structure that subordinates some (public) investors’ returns to the returns of other (private) investors in certain circumstances. For example, a fund’s waterfall can be designed to attract investors by dampening their losses if the fund does badly, or, as in Yozma’s case, accelerating upside if the fund succeeds.

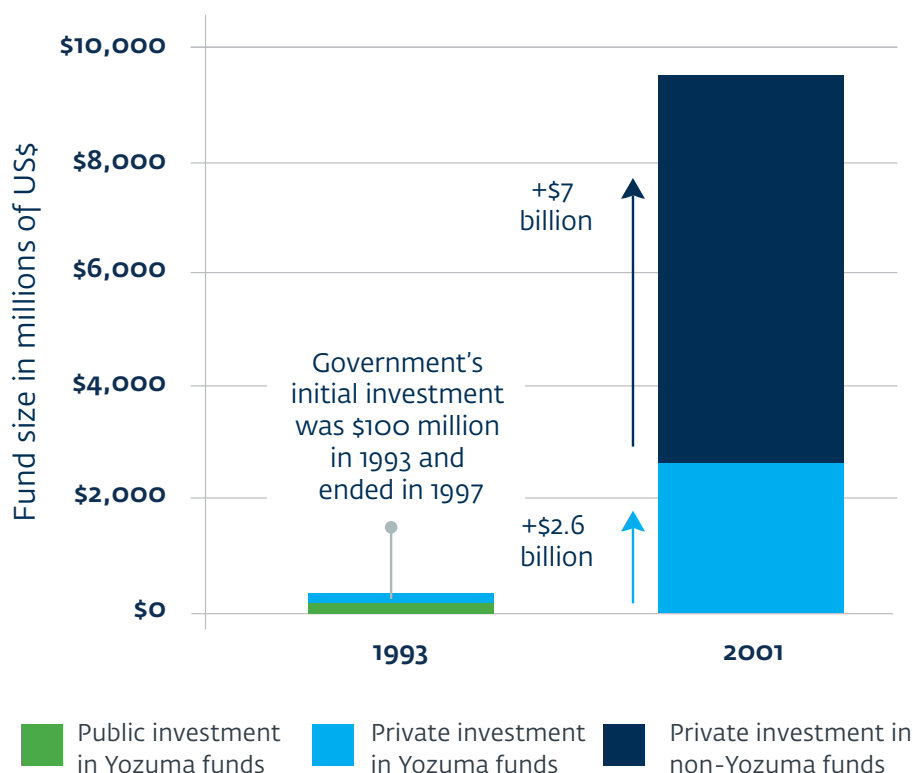
Yozma I was established with US\$100 million of capital by the Israeli government to anchor up to 40 percent (or US\$8 million) of qualifying VC funds’ total commitments alongside additional private capital totaling at least another US\$12 million. The government provided this capital as equity; however, in the Yozma structure, the other investors in these funds had the option to buy out the government’s original investment after a few years. Buying out the government would be attractive only if the fund was successful; however, private investors would pay the government only a nominal interest rate on its money, thus providing upside leverage to private investors. This feature was very attractive to investors since it left them the majority of the economic benefits,

after the government had borne the phase of greatest risk.⁴⁹

A number of additional features of Yozma’s design also contributed to the program’s success. First, the requirement to include foreign capital in the qualifying funds resulted in the participation of significant pools of overseas capital (mostly from the United States, Japan, and Germany). Second, these foreign investors had to have investment expertise, which was key to ensure capacity building in the Israeli market. Lastly, “the project adopted a legal structure for the venture funds that foreign investors would be comfortable with. Included were features such as a ten-year fund life, limited partnerships modeled on those that are standard in the United States.”⁵⁰

Yozma co-invested with 10 funds from outside Israel. Many of these funds met with success, and the Israeli government was bought out of eight of these funds by their private sector investors. Thereafter, these fund teams no longer needed government support, as they were able to raise capital from international investors for subsequent funding rounds. As summarized in Figure 5, the returns achieved by the first wave of Yozma-backed funds attracted other fund managers to the market, including domestic “spinout” fund teams, many of which had worked at one of the original 10 Yozma funds but could now raise their own funds given their experience and track record. Within five years of the initial launch of Yozma, 60 VC funds were active in Israel managing over US\$10 billion. By 1998, Israel had attracted over US\$3 billion in VC investment—a 30-fold increase in less than three years, most of which was from foreign sources—and had over 3,000 startup companies, or one for every 2,000 inhabitants.

Figure 5: Israel’s Yozma Fund Mobilization



Lessons learned: Although it is widely recognized that this supply-side measure jumpstarted the VC industry in Israel, it is worth noting that the government also worked to stimulate the demand side for VC through several initiatives. Prior to Yozma, the Israeli government created a technological incubator program in 1991 that provided selected entrepreneurs with tools, professional guidance, and seed capital. In return, the government incubator could take up to 20 percent of the start-up and would receive royalties of 3 percent of the company’s eventual sales. If the start-up never made it off the ground, the entrepreneur was not required to pay back the grant. Thus, by sharing the risks in the pursuit of research and development, the government enabled start-ups to flourish and created pipeline and a market for domestic PE/VC funds. Some lessons from the Yozma experience follow:

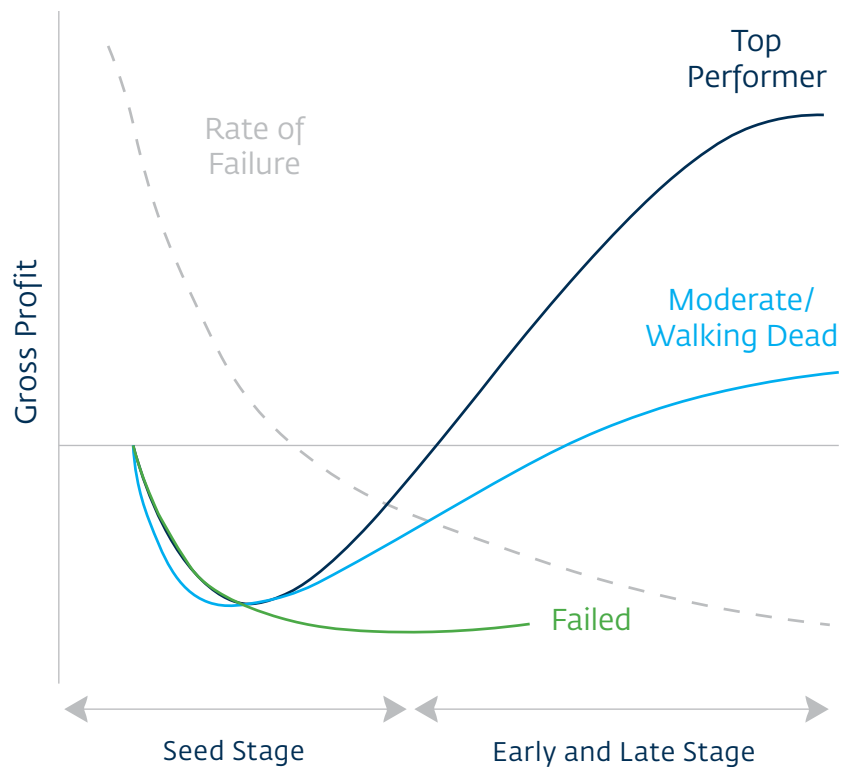
A. Seed fertile ground. The Yozma fund was extremely effective at capitalizing the Israeli PE/VC industry during the 1990s largely because it was launched

in a project-rich environment. Israel has a long history of developing new civilian and military technologies,⁵¹ in part because of the high-percentage of entrepreneurs in the population⁵² and the country's high level of investment in research and development (Israel spends more on than any other country in the world: 4.25 percent as a proportion of its GDP).⁵³

B. **Golden mean.** The total public sector contribution should be neither too small nor too large. As PE/VC funds need to be large enough to cover the minimum costs of running properly, this puts a floor on how small a single publicly supported PE/VC fund can be. Thereafter, a minor contribution by a public sector investor can be too small to have a meaningful effect on the other investors' risk-return profile, and thus have too little an effect in mobilizing capital. At the same time, there is a risk in being too large; if there is far more money in the funds than could be usefully invested, the fund's returns may be poor, defeating the principle behind the public sector's involvement.

C. **Commercial mandate.** Sustainable PE/VC funds, even those with public capital, should have a commercial investment focus to enable successful follow-on capital catalyzation from the private sector. If institutional investors in the fund do not have a commercial rationale for investing, or if the fund is run on noncommercial grounds, the capital that could potentially be mobilized by a successful demonstration of performance will be muted. For example, the German fund Deutsche Wagnisfinanzierungsgesellschaft (WFG), was created in the 1970s to invest directly in new companies to help catalyze the German market for technology-focused VC. Some stakeholders saw this as an exercise in corporate social responsibility by the German government and thus pressured the fund's managers to dampen the fund's returns by only making socially conscious investments. With

Figure 6: Early Stage Venture Capital Risk Return Profile



less focus on financial performance, the WFG could not effectively catalyze Germany's PE/VC industry.

2.6 ACCELERATORS: THE CASE OF NXTP LABS

Complementary to incubators, accelerators are a relatively new addition to the start-up ecosystem, and different players (that is, governments, corporations, nonprofits, investors) are increasingly joining forces to create accelerators targeting sustainable innovation. One of the primary goals of accelerators is to drive funds into promising early-stage ventures so they can stabilize and then scale their operations. This might mean earning more revenue or raising more outside equity investment, debt financing, or philanthropic support. Numerous studies suggest that start-ups working with accelerators have improved performance, including one study that showed small and growing businesses that work with "...time-bound incubators and accelerators demonstrate an average revenue growth over two times

and job growth over one-and-a-half times that of other <small and growing businesses>.”⁵⁴ Additional research by the Global Accelerator Learning Initiative (GALI) reinforces these findings (see insert).⁵⁵

Background: Accelerating sustainable start-ups in Latin America. NXTP Labs is a fund manager that provides early-stage equity financing to companies that seek to apply new sustainable business models and technologies in the Latin American market. The NXTP team seeks to fill a financing gap for “entrepreneur-driven digital ventures with an international footprint ...” and a focus on sectors “beyond the Internet ... like biotechnology, digital medicine, renewable energy, software security, space tech, fintech and agtech.”⁵⁶

NXTP’s first accelerator fund focused on the seed stage of investments, typically investing US\$25,000 in each company that qualified for its program in return for a minority equity stake. The fund could then make subsequent investments in the best-performing companies and contribute additional coaching, support, business development and facilitate discussions with potential follow-on investors. NXTP Labs has made over 190 investments with about one-third of these companies receiving follow-on financing. The manager’s second fund is the NXTP Opportunity Fund, which will seek to make later-stage follow-on venture investments in high-growth technology companies (including those accelerated by NXTP) across Latin America in verticals such as fintech, agritech, edu-tech, cleantech, marketplaces, SaaS for SMEs, and in other disruptive business models and technologies.

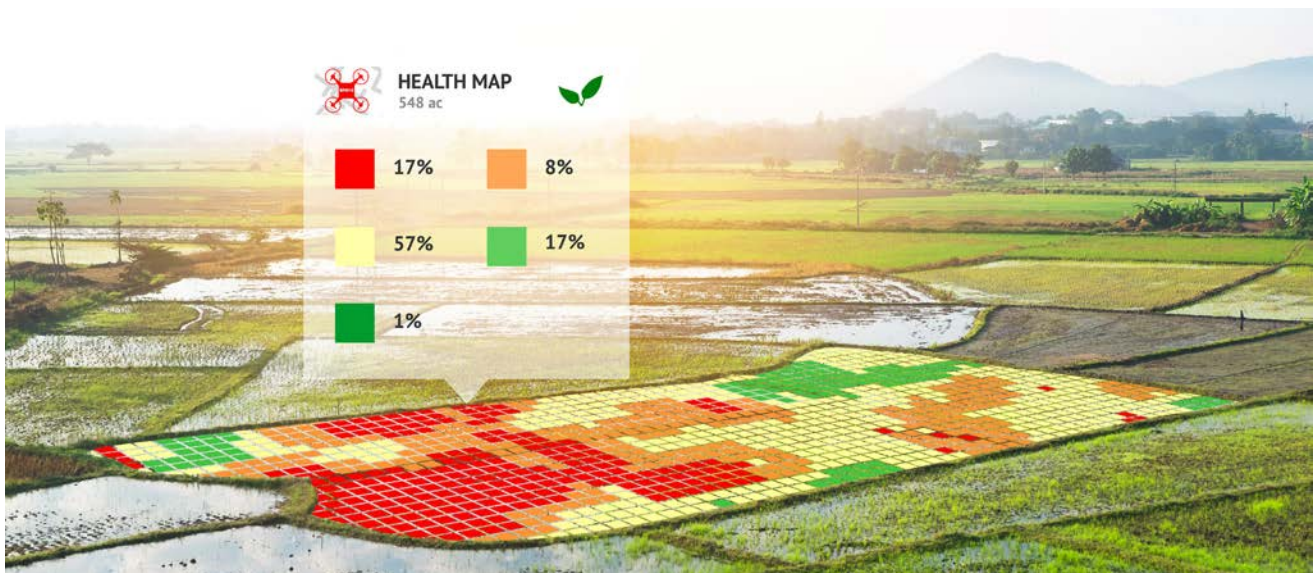
As the topic of sustainability has become increasingly discussed in the entrepreneurship ecosystem in Argentina, NXTP Labs has incorporated additional criteria to assess the sustainability of the business models and companies that it chooses to add to its accelerator program and portfolio of investments. NXTP’s mission now includes supporting and accelerating economic, social and environmental impacts by factoring ESG into their investment analysis to reduce the risks of their investments and generate higher performance and

Accelerating Sustainable Private Equity/Venture Capital

Recent data from GALI suggest that the number of accelerator programs continues to increase globally, reaching more than 500 in 2017, with most launching since 2014 and roughly half focused explicitly on ventures with social or environmental objectives. One of the primary goals of accelerators is to drive capital, ranging from revenue to new equity investments, debt financing, or philanthropic support into promising early-stage ventures to stabilize and scale their operations. GALI reports consistently find that start-ups participating in accelerator programs “...report higher revenue and employee growth, as well as higher equity and debt investment ...” A 2018 report also addresses the efficacy of accelerator capital, suggesting that in most cases, “\$1 spent on an accelerator program translates into more than \$1 of additional funds for participating entrepreneurs.” Drivers of performance within accelerators include access to other entrepreneurs, providing a guaranteed investment, and focusing on diversity in applicants.

impact. NXTP also measures and reports on its ESG impact to its investors and other stakeholders and holds its investee companies to the same high standards it maintains internally for labor, investors, the environment, and women’s advancement in the tech sector.

Lessons learned: While much of the dialogue around sustainable investing has focused on climate change, some of NXTP’s existing sustainable investments illustrate that a much broader interpretation is possible and indeed,



Drone enabled precision agriculture (Photo credit: Shutterstock)

needed. The NXTP team has already identified and backed new sustainable, innovative business models that include

- A. **Circular supplies.** The circular supplies business model is particularly relevant for companies dealing with scarce commodities, in which these are replaced with fully renewable, recyclable, or biodegradable resource inputs. NXTP company Gone enables the sale or recycling of possessions by providing a secondary market and online tools to manage inventory, pricing, listing, reselling, and distributing items.
- B. **Resource efficiency.** Resource efficiency leverages technological innovations and capabilities to recover and more efficiently use resources that eliminate material leakage and maximize economic value. NXTP company Kilimo provides a decision support tool for irrigation that uses satellite, historical, and on-site weather data to make irrigation prescriptions for each crop, improving yields up to 20 percent and water efficiency up to 70 percent.
- C. **Product life extension.** Product life extension helps companies extend the life cycle of their products and core assets to ensure they remain economically useful. Materials and systems that would otherwise be discarded are maintained or even improved, such as through remanufacturing, repairing, upgrading, or re-marketing. By extending products' lifespans for as long as possible, companies keep material out of landfills, defer or avoid capital expenditure, and discover new sources of revenue. NXTP company Trocafone has built an e-commerce platform that buys and sells (and guarantees) reconditioned mobile devices.
- D. **Sharing platforms.** This model enables sharing products and assets that have a low ownership or use rate. Companies that leverage sharing platforms maximize the use of the products they own or sell to enhance per-unit productivity. NXTP portfolio company Zolvers is an online/mobile marketplace that allows users to outsource errands such as cleaning, delivery, and maintenance. Another NXTP investment, CargoX, is an "Uber for Trucks" that connects businesses shipping partial loads with drivers that have excess capacity in their trucks.
- E. **Product as a service.** In this model, customers use products through a lease or pay-for-use arrangement versus the conventional buy-to-own approach. This model is attractive for companies with high operational or maintenance costs to provide a service. NXTP portfolio company Satellogic is a "space as a service" satellite company that provides affordable, high-resolution imaging in a microsatellite platform, with the ability to capture photo data of the Earth at one-meter resolution.

2.7 STATE-SPONSORED FUNDS: THE CASE OF ECOTECHNOLOGIES FUND

France's Ecotechnologies Fund is a public PE/VC fund structured as a *fond professionnel de capital investissement* (equivalent to a limited liability partnership in the United Kingdom) and managed by BPI France Investissement, the asset management arm of the French public banking institution BPI France.

Background: France. In 2010, France's Environment & Energy Management Agency launched a program, Investments for the Future, with the aim of accompanying structural reforms and meeting France's four major challenges: carbon neutrality, access to employment, competitiveness through innovation, and the digital state/e-government. In 2012, the Ecotechnologies Fund was created within the framework of the actions of PIA 1 (2010–2014)⁵⁷ to support sustainable innovation in SMEs.

The fund is focused on early- and growth-stage investments in innovative private SMEs dedicated to green and sustainable technologies, mainly those based in France. Eligible SMEs must have a workforce of less than 250 employees and a turnover of less than €50 million. Ecotechnologies Fund Investments range from €1 million to €10 million, and, as with Yozma, significant *pari passu* co-investment from private sector investors is expected alongside Ecotechnologies Fund's minority stakes. Return targets sought by the team of six seasoned investment professionals are expected to meet commercial expectations. Each investment opportunity is evaluated and assessed by the dedicated team before being presented to two different committees. The first committee is composed of representatives from the Fund's LPs (Agence de l'Environnement et de la Maîtrise de l'Energie (ADEME), Secrétariat Général pour l'Investissement, Caisse des Dépôts et des Consignations, and Trésor Public), whereas the second committee represents BPI France Investment. This dual investment committee ensures that the fund's investments are likely to deliver both financial performance and targeted social, environmental,

and economic impact. After an investment has been approved, the fund team establishes a close working relationship with the management of their portfolio companies and actively seeks to add value on areas of particular need within each company as necessary (for example, recruitment, business development, international expertise, communication, financial expertise, and others).

Lessons learned:

- A. ***Flexibility in investing the fund.*** The pace of the investments by the Ecotechnologies Fund has been slower than originally expected. To overcome this, the fund extended the investment period by two years, allowing it to complete the number of investments initially targeted.
- B. ***Complementary support.*** To support the development of sustainable technologies and innovation, ADEME, a Limited Partner in the fund, also provides policy actions and state aid to some of the fund's early-stage investments (subject to European competition regulations). This is organized through regular, public requests for proposals and consists of either state aid with profit sharing, known as "repayable advances," or grants, which are primarily reserved for research bodies. These complimentary initiatives support very-early-stage companies through proof of concept to a point where additional equity investment is possible.
- C. ***Thematic focus, sectoral diversification, focus on exits.*** Ecotechnologies Fund focuses on the following themes: decarbonized renewable energy, green chemistry and industrial biotechnology, circular economy (waste recovery, industrial ecology, and others), smart electricity grids, and advanced mobility and vehicles of the future. The main exit possibilities for portfolio companies in these sectors will likely be industrial trade sales or perhaps an IPO.

2.8 MARKET BUILDING: THE IMPACT MANAGEMENT PROJECT

The U.K.-based Impact Management Project (IMP) is a global initiative with over 1,000 organizations that seeks to establish shared fundamentals across countries, sectors and asset classes for assessing and classifying impact goals and performance. The resulting consensus on a set of definitions forms the basis for a shared reporting language for social and environmental impact, which can lead to greater flows of public and private capital flows to finance sustainable growth as investors are able to make and manage investments in line with their impact and financial goals. As the IMP continues its work with leading sustainable and impact organizations such as the Global Impact Investing Network, the Global Reporting Initiative, the World Economic Forum, the PRI, and the OECD, it looks to engage with governments to broaden the dialogue and eventually empower financial regulatory authorities in countries to also support impact reporting standards.

Background: Global impact assessment standards.

Convergence of international accounting standards began relatively recently, with the establishment in 1973 of the first international standards-setting body, the International Accounting Standards Committee. Today, the Generally Accepted Accounting Principles and the International Financial Reporting Standards, among other global standards, have led to a harmonization of measuring and managing financial performance. This harmonization of accounting standards and performance fundamentals (such as financial return, volatility, liquidity and asset classes, which enable investors to group investments with similar performance characteristics) the remarkable growth in the global capital markets and the financial system over the last half century.

The IMP starts with the recognition that all companies have impacts, both positive and negative, intended and unintended. To make an informed investment decision, an investor needs transparent, consistent, and comprehensive

reporting of a company's effects on its stakeholders. For example, a business that discloses the health benefits of its product but does not disclose a high employee injury rate is akin to the company choosing to report only on certain financial assets without disclosing liabilities. The IMP has developed an impact reporting framework that enables any company to present a fair and complete picture of its impact performance as well as goals to improve that performance over time. The framework deliberately allows for use of existing asset class and sector-specific standards and organizes this information into three categories: i) avoiding harm, ii) benefitting its stakeholders, and iii) contributing to solutions. By understanding the total impact of a company, the IMP segments the rather complex universe of responsible, sustainable, and impact investment choices available to investors and connects them with investment products that are appropriate for their intentions and constraints. As part of the project, both UBS, the global bank, and PGGM, the large Dutch asset manager, have used the IMP's Investor Impact Matrix toolkit to map their portfolios in ways that allow their investors to understand whether the funds are meeting both their financial and impact goals.

Lessons learned:

- A. ***Common principles on impact are needed.*** There are many useful frameworks, standards, and measurement approaches under development and in active use by a wide variety of industries, organizations, and disciplines. However, general agreement about basic principles or procedures for sharing impact expectations in the financial system has not been addressed.
- B. ***A single solution for impact metrics is helpful.*** It is easier for global, diverse enterprises to understand and manage their impact if they just have one dashboard of data and shared lexicon that summarizes all material positive and negative financial, social, and environmental effects of their business activity.
- C. ***Indirect effects matter.*** Material effects, both positive and negative, can be generated indirectly for example

by a company's products, services, distribution network, operations, or supply chain. Nevertheless, there is more awareness on effects generated directly.

2.9 MARKET BUILDING: THE PRINCIPLES FOR RESPONSIBLE INVESTMENT

Coming out of a workgroup sponsored by the United Nations (UN), the Principles for Responsible Investment (PRI) is a global network of asset owners, investment managers, and service providers. The Principles were launched in 2006 at the New York Stock Exchange. Since then, the number of signatories has grown from 100 to 2,000 from over 50 countries, representing over US\$80 trillion in assets under management. The PRI's goals are to understand the investment implications of ESG issues and support its signatories in integrating these issues into investment and ownership decisions. The Principles were developed by investors and commits signatories to

1. Incorporate ESG issues into investment analysis and decision-making processes;
2. Be active owners and incorporate ESG issues into their ownership policies and practices;
3. Seek appropriate disclosure on ESG issues by the entities in which they invest;
4. Promote acceptance and implementation of the Principles within the investment industry;
5. Work together to enhance their effectiveness in implementing the Principles; and
6. Report on their activities and progress toward implementing the Principles.

Currently, as part of its work to strengthen the link between the work of responsible investors and real-world impact, the PRI is exploring how its signatories can contribute to the achievement of the UN's Sustainable Development Goals.

Background: Moving from awareness to impact. The PRI understands responsible investment to be an approach to investing that aims to incorporate ESG factors into investment strategies, investment decisions, and active ownership, to better manage risk, create investment opportunities, and generate sustainable, long-term returns. While investment approaches such as impact investing, ethical investment, and green investment fall under the umbrella of responsible investment, responsible investment is a holistic approach that aims to include any information that could be material to investment performance. This means that responsible investment can be pursued even by investors whose sole purpose is financial return, on the basis that to ignore ESG factors is to ignore risks and opportunities that have a material effect on the returns that a fiduciary must strive to deliver to clients and beneficiaries.

Responsible investment does not necessitate the use of specialized products. It is primarily about bringing additional data and analysis into existing approaches. Tailored products whose remit overlaps with areas responsible investment do exist, such as environmentally or socially themed funds, green bonds, or social impact bonds, and these can form part of a portfolio of responsible investments.

Since 2006, the PRI has established itself as a global voice of the responsible investment movement, building awareness of the benefits of ESG integration in investment decisions. Over the next decade, the PRI will build on this awareness to understand and support the role of ESG integration in real world impact. It will continue its focus on empowering asset owners to implement and realize their responsible investment strategies, through ESG incorporation tools and through engagement with managers, investment consultants, companies, governments, policy makers, and other stakeholders. The PRI will also continue to showcase leadership and transparency from investment managers and provide a platform to evaluate investment opportunities linked to sustainability, climate change, and innovation.

Lessons learned:

- A. **Asset owners move markets.** The theory of the PRI is that asset owners set the direction of markets, and that their implementing responsible investment at scale and depth can accelerate its uptake through the investment chain and ultimately affect company behavior by pricing in risks and opportunities that derive from responsible and irresponsible company behavior.
- B. **Lack of standardization in reporting.** The lack of standardized reporting and the disparity of Limited Partners' requests for information have resulted in an acute reporting burden for General Partners and underlying portfolio companies. The PRI understands its role to be one of streamlining ESG reporting wherever possible and has made this the focus of its PE program. In doing so, the PRI has found working with its signatories and the established PE associations to be invaluable both in terms of developing market-appropriate resources but also for achieving industry buy-in.
- C. **Reporting = accountability + transparency.** The PRI's method of ensuring accountability to its Principles is an annual reporting obligation. The PRI's reporting is the largest global reporting project on responsible investment, developed in close collaboration with investors. Besides ensuring accountability of the PRI and its signatories, the process offers a standardized transparency tool for signatories' reporting and an assessment process that allows signatories to benchmark, learn, and develop. Limited Partners can use the PRI reporting to evaluate manager approaches to responsible investment. The PRI has recently established accountability criteria for signatory status, based on the key components of its annual reporting. A failure to meet these criteria will ultimately result in the signatory being delisted from the PRI.
- D. **Convictions need evidence.** The PRI signatories believe that ESG issues can affect the performance of investment portfolios. As fiduciaries, this belief must be supported by well-supported analysis and

research. Although perceptions of materiality differ, the evidence from academic and practitioner literature on ESG performance is viewed as being robust enough to argue that, at a minimum, fiduciaries should consider these issues as part of their investment process. On the topic of this paper, more research must be done on the potential return profiles of emerging sustainable technologies.

- E. **The role of patient capital.** Breakthroughs in hardware, as opposed to digital technologies, require more upfront capital and can take significant time from first investment to exit. This long time frame means that the early equity investment rounds are unsuitable for closed-end funds. As a result, there can be a role for more patient capital, provided by public institutions in partnership with the private sector, to increase the availability of capital to innovative, sustainability-related companies with long-gestation business models.

2.10 SUSTAINABLE CORPORATE VENTURE CAPITAL

The role of CVC has become increasingly evident in the past decade. In 2017, US\$31.2 billion was invested by CVCs, and, according to the report "Investing in Breakthrough Corporate Venture Capital," CVC groups are also often more closely aligned with the sustainable and impact investing theme, including SDGs, than many purely financial investors. This is because many modern corporations have already made impact and CSR commitments (often public) to their customers and suppliers and are more culturally familiar with evaluating both financial return and the long-term strategic impact of their activities. The UN Global Compact's (UNGC) 2017 Progress Report notes that 75 percent of UNGC participants have actions in place to address the SDGs, and 70 percent report publicly.⁵⁸ Thus the addition of societal and environmental performance metrics in CVC investment decisions could be easier to manage than for other purely financial VC managers. As with VC funds, CVC teams deploy a similar skill set and make equity investments into innovative external businesses

(most CVCs invest using cash from balance sheets and some also invest in third-party funds). However, as there generally needs to be clear alignment between investments and the strategy of the parent company and/or its business units, this expertise and an established value chain can bring tangible benefits to their portfolio companies.⁵⁹ Corporations cannot bring only market intelligence, as they also mobilize product, technology, and distribution capabilities to drive the growth of portfolio companies. Additionally, as CVC groups are not bound by closed end, roughly 10-year fund lives like most standard VC funds, CVCs can bring patient capital to allow breakthrough companies to develop at their own pace rather than pushing through changes and racing to an exit. In short, the objectives of impact and sustainability can be directly aligned and consistent with CVC goals.

Background: Sustainable CVC. The upward trend in CVC showed an increase from US\$9.9 billion in 2013 to US\$31.2 billion in 2017 globally, going from 989 to 1,791 deals, respectively. The proportion of CVC activity as a percentage of overall VC activity grew from 16 percent to 20 percent in this same period. Furthermore, based on CB Insights Global CVC Report, over 180 new corporate VC firms were active in 2017, representing 66 percent growth over the level of activity in 2016.⁶⁰ While the number of CVC investors active at the seed capital stage grew by 45 percent over this period, at the other end of spectrum, the largest CVC-backed deal was a US\$1 billion Series H investment in Lyft by CapitalG (Google Capital). On average, CVC deal sizes tend to be bigger than noncorporate VC investments.^{61,62} While research on impact VC and CVC are still limited, one study estimates corporate impact investing to account for US\$2.4 billion annually in the CVC sector.⁶³

Different models have emerged for how large corporations can use their experience, in-house expertise, R&D investment, and operational footprint to work with early-stage companies to stay competitive and abreast of fast-moving, disruptive developments in their sector. While some corporations make direct venture investments from their balance sheet, a second model

involves creating an internal dedicated VC fund where the parent corporate is an Limited Partner, and a third approach involves investing in third-party funds. An example of this second option is Sapphire Ventures, which is backed by the German software company SAP and has US\$2.5 billion under management (as of 2016).⁶⁴ Formerly known as SAP Ventures, the unit was started in 1996 and spun out of SAP in 2011, becoming an independent manager named Sapphire Ventures. The fund has invested in companies such as 23andMe and TransferWise. Another example is Orange Digital Ventures, a €150 million early-stage opportunity launched by the French telecommunications company Orange. It targets entrepreneurs from across the globe developing businesses related to services and technologies that are in line with Orange's fields of expertise. One example of a qualifying portfolio company is PayJoy, a mobile phone financing solution, and Fenix International, a pay-as-you-go solar system manufacturer that has connected 180,000 African households to clean energy.^{65,66} Orange Digital Ventures Africa was launched with €50 million (US\$61.6 million) in capital commitments and offers early stage investments of up to €3 million to startups in Africa and Middle East, where demographics, economic growth, and digital innovation can create



Wireless broadband infrastructure (Photo credit: Shutterstock)

opportunities that will benefit from Orange's client base of 120 million users in 21 countries. Orange is also exploring the impact investment theme, as many of the SDGs relate to Orange's core business including Industry, Innovation, and Infrastructure; Sustainable Cities and Communities; Affordable and Clean Energy; Good Health and Well-Being; as well as Gender Equality.⁶⁷ Other examples of in-house CVC funds include Unilever Ventures and Hydra Ventures (Adidas' CVC arm focused on the footwear and apparel sectors). Hydra Ventures was launched in 2011 with the goal of investing in early- and growth-stage companies to explore strategic and viable innovations that would contribute to the Adidas Group's path toward improving its sustainability. Unilever Ventures is interesting in that it does both direct and fund investments to identify companies that could become strategically relevant to Unilever and can benefit from access to Unilever's assets and capabilities.

A third way corporations have found to engage in VC investing is through participating in third-party managed external funds alongside other like-minded Limited Partners. One example of this model is Closed Loop Fund, which invests in recycling infrastructure and the development of the circular economy in North America. Investors in this fund include many of the world's largest consumer goods companies, reflecting the importance of and attractive opportunities in innovation-driven sustainability venture investments. After a successful experience with different investment approaches in the United States, Circulate Capital was launched to make early-stage investments in catalytic technologies and disruptive business models built around a circular economy in emerging economies. Sample pipeline investments include waste management and recycling companies in South and Southeast Asia to help reduce the flow of plastics into the oceans as well as improve economic development and public health in these developing countries.

Lessons learned:

A. ***Successful co-investment with corporations requires alignment of strategies.*** Sustainable PE/VC investors

can leverage growing interest in and engagement of corporations in the sustainability theme, but it is important to align expectations on financial, business, and impact priorities among investors, CVCs, and investee companies.

B. ***Increased value-add.*** Corporations have agency to drive strategic value, and by extension, impact. Resources brought to bear by corporations can drive significant value to a portfolio company.

2.11 SUMMARY TAKEAWAYS

The following high-level observations, focused on various aspects of establishing and fostering sustainable PE/VC funds and companies, may be drawn based on the varied and extensive experience of the knowledge partners and the market practices outlined above.

A. ***Commercial PE/VC propositions are needed to mobilize private sector capital.*** Successful PE/VC investment vehicles need to

- Be structured on a commercial basis;
- Be run by a trustworthy manager with a strong team, bringing robust relevant experience;
- Reach a minimum commercial size (typically more than US\$100 million equivalent of committed capital); and
- Have a commercially attractive market and a strategy designed to provide attractive returns.

Fund terms, vehicles, and incentives should be as "market standard" as possible so as to be familiar to commercial investors. Anchor investments into an investee fund can mobilize significant capital since the underlying portfolio companies will also raise equity and debt capital from third parties to fund their growth (by some estimates about 10x mobilization). Similarly, investing through a fund of PE/VC funds enables one more turn of mobilization by catalyzing additional equity in a cascade at three

levels (fund of funds level, investee fund level, and underlying portfolio company level).

B. *Established (and ideally best practice) legal, regulatory, taxation frameworks are needed to give investors comfort investing in PE/VC funds investing in a given country.* PE/VC investments are subject to a country's legal, regulatory, and taxation drivers and impediments. The World Bank's Finance, Competitiveness & Innovation Global Practice seeks to educate governments on the PE/VC industry by formulating and sequencing reform recommendations that can ensure a well-calibrated design and implementation of the critical legal, regulatory, and taxation framework. For example, the administrative and approval process of sustainable companies, such as registration and IPOs, should minimize unnecessary complexity to encourage PE/VC funds to deploy capital in those companies. Additionally, laws and regulations should encourage foreign investment into sustainable PE/VC funds, as institutional investors often propagate best practices in ESG. When PE/VCs have international and regional development banks and big multinational companies as Limited Partners, those investors not only focus on economic returns but also often on environmental benefits and impact on sustainable development. Argentina's new entrepreneurship law is a clear example of the role of regulation in promoting entrepreneurship.

C. *Integration of ESG factors into PE/VC decision making can contribute to outperformance.* In addition to the aforementioned evidence supporting the financial performance of sustainable assets, IFC is finalizing an internal study (covering 2010 to 2015)⁶⁸ that has found that companies in the top quartile of E&S performers outperformed the bottom quartile of E&S performers on all financial indicators: by 210 basis points (bps) for Return on equity (ROE), 110 bps for Return on Assets (ROA), and 1,370 bps for Internal Rate of Return (IRR). Similarly, changes in E&S performance and financial returns tend to move in the same direction. For example, for the subset of the IFC portfolio that experienced a drop

in E&S rating, the performance was less than for the subset of the portfolio that maintained its rating. Preliminary analysis indicates that a drop in the E&S rating by one category (out of a total of four), is associated with an ROE decrease of 8.1 percent and an ROA decrease of 3.1 percent. Conversely, an increase in E&S performance by one rating category is associated with an ROE increase of 3.6 percent and an ROA increase of 1.9 percent. Naturally, the correlation identified in this data does not necessarily illustrate causation, but is consistent with the thesis that better, more focused management is better both at managing company's operations and at implementing a proper ESG framework.

D. *Government/university-sponsored incubators can help create an innovation ecosystem and pipeline for early stage venture investors.* The United States Department of Energy and several state governments set up funds to foster advanced early-stage research and start-up funding. New funding sources, such as the Department of Energy's Advanced Research Project Agency-Energy, have helped advance high-potential, high-impact energy technologies that are too early for private sector investment. Other important initiatives include the Tata Center, MIT's Energy Initiative, MIT's The Engine, Prime Coalition, New York State Energy Research and Development Authority, and Chicago's Clean Energy Trust, all of which support the initial stages of technology development and early commercialization. In the United States, the number of energy accelerators has increased from 5 to 19 since 2010, with new entrants such as Greentown Labs, Los Angeles Cleantech Incubator, Human resource focused ACRE, Elemental Accelerator, and Argonne National Laboratory. In China, through cooperation with government funds and green industrial funds, some PE/VC funds get access to project and technology resources, subsidized rent, and other concessions as well as investment opportunities (pipeline). These types of labs provide shared centralized facilities with extensive equipment portfolios that shorten ramp-up development periods, thus allowing for reduced capital costs. In Saudi

Arabia, the King Abdullah University of Science and Technology has the Innovation Fund, which becomes a strategic partner and makes sustainable VC investments (seed to early-stage growth equity with investments ranging from US\$200 thousand to US\$2 million) in high-tech start-ups.⁶⁹ These collaboration opportunities help start-ups avoid costly mistakes and accelerate their development cycles.

E. *Governments should establish and maintain a consistent set of regulations and incentives over the long term.*

Political shifts in 2010 created some uncertainty with the U.S. sustainable infrastructure marketplace. As a result, many incumbent companies did not feel the need to invest or acquire risky start-ups or new technologies, leading to a limited number of exit opportunities for PE/VC investors in funds nearing the end of their 10-year life. Accordingly, many VC funds were unable to monetize their investments and had to shut down after suffering significant losses. Similarly, renewable energy-related companies and project developers in the United States watched as the Production Tax Credit and Investment Tax Credit, which lowered the cost of renewable energy by providing project owners with a tax credit based on production or eligible capital costs, were extended, often at the last minute, only for short periods, bringing increased uncertainty and disincentivizing long-term investments. Likewise, the Spanish government's abrupt changes to its generous feed-in tariff program has left many commercial investors deeply suspicious about the longevity of any government incentive program.

F. *Fund structure that allows additional time for growth can be beneficial.*

Learning from experience, many U.S.-based sustainable fund managers have, in their next generation sustainable PE/VC funds, allowed for additional time and resources for portfolio companies to gestate, be adopted, and scale. Having learned from the first generation of U.S.-based sustainable funds (outlined above) managers now understand the need to build out supporting infrastructure, value chains, and regulatory frameworks for nascent sectors and business models. Without certainty around end-market demand, equipment manufacturers can be

unwilling to scale up capacity and enable lower costs. For some early-stage (seed) investments, this challenge has been addressed through an accelerator plus follow-on fund model (examples include U.S.-based Y-Combinator, 500 Startups, TechStars, and Argentina-based NXTP (discussed above). This model has a number of benefits, including a lower risk of failure by investing significant capital into companies only once they have a proven concept, operating model, and revenue. This is especially true when the follow-on fund backs promising companies from the in-house accelerator, as the team will have known the companies since inception. The benefit works upstream as well, as the manager can use some of its management fees to continue the accelerator's work.

G. *Diversified options for exiting are critical.* Corporate strategic investors, large energy-, food-, water-, and waste-incumbent companies and forward-looking utilities have committed to sustainability. They bring their knowledge, commercial relationships, and lower cost access to customers to help start-ups succeed and create confidence in the PE/VC investment and exit environment. In the United States, nearly half of Fortune 500 companies have renewable energy or carbon reduction targets, along with many U.S. states and major cities (including Los Angeles, Atlanta, and Salt Lake City). This consumer-driven interest reinforces the belief that many of these sustainable PE/VC backed technologies will find robust end-markets.

Section 3

Challenges to Developing and Scaling Sustainable Private Equity/Venture Capital Markets

A wide range of barriers can contribute to the lack of sustainable PE/VC investment activity. As mentioned above, in some less advanced markets, these barriers apply not only to sustainable PE/VC funds but also to generalist, traditional PE/VC investment activity. These generic barriers are key barriers to the majority of the world's countries that have only a fledgling PE/VC market. This section will break down the barriers into those that are generic to all PE/VC funds and those that are specific to sustainability-focused PE/VC funds.

3.1 GENERIC BARRIERS TO PRIVATE EQUITY/VENTURE CAPITAL DEVELOPMENT

- A. ***The lack of exit mechanisms.*** Key to building any PE/VC ecosystem is providing the possibility of exits, such as a liquid stock market, an active mergers and acquisitions market, and, equally importantly, the regulations to allow domestic and international capital to flow into and out of companies. Financial markets that offer diverse capital sources the ability to participate in these exit opportunities, provide stable macroeconomic and political conditions, and compliance with international business standards will allow local or regional PE/VC managers to commit capital, create value alongside a deepening pool of local skilled labor, and exit their investments. A great share of respondents to the GIIN's Annual Impact Investor Survey 2018, highlighted "suitable exit options" as a challenge in the impact investment industry (along with "appropriate capital across the risk/return spectrum" and "common understanding of definition and segmentation of impact investing market").⁷⁰ Countries that can provide this important competitive advantage in the global competition for private capital should see investors gravitate toward their markets.
- B. ***Few national markets have the required sophistication, scale, and access.*** Few markets, especially in developing countries, have the sophistication and scale to support native PE/VC markets that offer the depth and deal selectivity necessary for a PE/VC fund ecosystem to evolve. PE/VC investing works best in an ecosystem with universities, incubators and tech companies growing winners, as well as active M&A markets. In addition to market scale, local PE/VC capital, and the ancillary services, including accounting, banking, and regulatory capacity are needed to identify and grow the market. Without scale, PE/VC funds often have to take a fly-in or regional approach to investing, which can distance them from the opportunities and make raising capital more difficult for entrepreneurs.
- C. ***Legal and regulatory hurdles can make PE/VC investing and exiting more difficult.*** Even if there is a PE/VC market, unintended legal and regulatory barriers could impede the deployment of capital from these funds. Legal and regulatory impediments can take various forms, including lack of relevant legislation, opacity, or discretionary nature of existing rules, and over-regulation. For example, a lengthy and complex competition approval process can prove both expensive and time-consuming for small PE/VC funds. The approval process can be particularly burdensome if countries are under a regional market

and multiple regulatory bodies have the responsibility for competition policy. Similarly, PE/VC investments, particularly for offshore funds, can be made more complicated, time-consuming, and costly if the government has put steps in place for the acceptance of foreign direct investment. Countries that intend to facilitate PE/VC investments should benchmark their legal framework against the best practices of established financial centers.

D. *Regulatory restrictions slow domestic investors' allocations into PE/VC.* Especially in some developing countries, local governments may restrict the ability of long-term domestic investors, such as local pension funds, to invest in PE/VC funds, including sustainable ones. This cuts such funds off from a natural source of long-term local capital and limits the range of assets the pension fund beneficiaries can access. In addition, in some developing countries, the regulatory framework and investment guidelines for domestic pension funds or insurance companies are biased toward investments in the country, and specifically in government securities or listed markets, making it particularly difficult for PE/VC funds, most of which are established offshore, to attract domestic capital even if the investment mandate itself focuses exclusively in the country.

3.2 BARRIERS SPECIFIC TO SUSTAINABLE PRIVATE EQUITY/VENTURE CAPITAL DEVELOPMENT

A. *Commercial investors' interpretation of fiduciary duty has limited their preference for sustainable investing.* Some categories of investors, notably pension funds, maintain a conservative interpretation of their fiduciary duty. This might mean that, in considering a prospective investment, the pension fund manager cannot take on more risk, or accept higher costs or any prospect of potentially lower returns, if the market offers equally attractive alternatives without these attributes. A broader interpretation of fiduciary duty might take into account the reality that 30 or 40

years hence, the pensioners' lives would be adversely affected by environmental degradation, meaning that investing to mitigate such damage should be a factor in today's investment decisions.

- B. *Perceptions of a less attractive risk/return profile.*** Most commercial investors look to invest with fund managers that have long track records, including multiple fund generations. However, funds with a sustainable theme have a relatively brief track record, and examples of undersized, understaffed, and poorly managed sustainable impact funds have tainted some commercial investors' perceptions of sustainable investing. In addition, commercial investors perceive that sustainable PE/VC funds' long holding periods, illiquidity, additional investment restrictions, and limited exit prospects may translate into a less commercially attractive propositions. Furthermore, they may believe that specialized capabilities, with the associated additional costs, are needed to screen for, monitor, and measure an investment's sustainability, again reducing the prospect for commercial returns. A majority of the GIIN's 2018 Survey respondents commented on the need for more research on impact investment performance, both regarding financial performance as well as impact performance.⁷¹
- C. *Inadequate instruments or incentives to price and internalize environmental externalities.*** Globally and in most jurisdictions, pricing of environmental externalities associated with conventional investments is difficult, and such externalities are often not internalized. This is partly due to the lack of a carbon market and inadequate laws and regulations penalizing pollution and emissions. Without internalization of these externalities, it reduces the financial returns of sustainable projects that deliver environmental and social benefits.
- D. *Lack of sustainability standards and data (information) for screening sustainable projects/assets.*** Despite rapidly growing interest in sustainable and impact investments, the capital markets currently lack standards, let alone harmonized standards, across geographies, sectors, and asset classes for both assessing

and classifying any investment's effects on society and the environment. This lack of standards has inhibited investors from quantifying the environmental footprints and managing associated risks. Resolving this challenge could lead to greater flows of public and private capital flows to finance sustainable growth. Nevertheless, some relatively new standards have sought to address this gap. One such effort is the U.K.-based Impact Management Project, a global initiative, akin to GAAP for financial reporting, that seeks to establish shared fundamentals for assessing and classifying impact goals and performance. Adopted by PGGM, UBS, and others, consensus-driven initiatives like Impact Management Project could form the basis for a shared language for social and environmental impact reporting, leading to additional sustainable finance mobilization.

- E. ***Maturity mismatch with traditional PE/VC fund structures.*** Some sustainable sectors, particularly those that involve selling hardware solutions and have utilities and other heavily regulated incumbents as customers have shallow capital markets and long business or sales cycles, and the development pathways are characterized by slow but steady growth. Sectors such as these (for example, forestry, core infrastructure) are generally not suitable for traditional 10-year PE/VC funds. Additionally, some small business and VC managers that focus on building companies to succeed over the longer term, rather than targeting a short-term exit, are also pioneering investment vehicles with longer lives to give their portfolio companies additional time to gestate.
- F. ***Lack of knowledge regarding norms of sustainable investing, including ESG risk management standards and practices.*** A lack of standardized verification for what constitutes a sustainable way of investing and consistent ESG risk management standards and practices are barriers for investors in the space, including PE/VC funds. This contributes to an information asymmetry between investors and specialized fund managers focused on the relatively immature theme.

G. ***Risks associated with new technologies/business models.*** Very often, disruptive sustainable investments may be in nascent industries with technologies still in the development phase, in which most start-ups need more time to field test and prove their commercial viability. For instance, incorporating new technologies into electric grids, building energy management systems, or municipal water systems, must be extensively tested and proven reliable—all of which takes time. The adoption rate of existing energy, water, and waste incumbents can be slower than expected. Many new technologies lack a supportive value chain and are very expensive to scale. Without certainty around end-market demand, equipment manufacturers may be unwilling to scale up capacity and enable lower costs. Similarly, investments reliant on preferential industrial policies can suffer from any hint of variation in the duration, stability, and consistency of these policies, adding to the uncertainty of exit and making sustainable PE/VC funds less willing to participate.

Section 4

Options for Overcoming the Barriers

Earlier sections of this paper have described the importance of sustainable PE/VC investments and some of the main challenges in increasing penetration for such investments within the broader investment universe, drawing on the experience of the knowledge partners. In this section, we summarize the options for overcoming these barriers for consideration by G-20 members.

As for overcoming generic barriers to PE/VC development, this paper provides only a very brief list of options, as most of these are already well studied in literature: legal frameworks that enforce contracts and protect investors; efficient financial markets that offer diverse capital sources and exit opportunities (including IPOs and M&A market); compliance with international business standards and practices for attracting global capital; a transparent and properly enforced legal and regulatory framework supporting the PE/VC industry and intellectual property rights; the capacity for innovation, including universities and a significant pool of human resources devoted to technology development. While these and other key success factors remain challenges for some developing countries, the remainder of this section discusses options that stakeholders can consider when seeking to increase sustainable PE/VC investment activity:

A. **Stakeholders, working with existing efforts, should seek to progress the interpretation of fiduciary duty obligation on sustainable investing.** Currently, there are broad differences in understanding what fiduciary duty entails across various countries and sectors. While there is a general understanding that investment decisions should take into account environment and social risks, much beyond that remains unsettled. Resolving this requires leadership from governments, regulators, and the pension funds themselves. Stakeholders should engage in working groups that bring trustees with different interpretations together. There, they could discuss their differences and organize studies and

papers to highlight why trustees should take account of broader societal sustainability concerns when evaluating the interpretation of fiduciary duty. The groups could explore options to add environmental, social, and other sustainability issues into investment processes and decision making as well as encourage high standards of ESG performance in the PE/VC funds, companies, or other entities in which they are invested—and thereby support the stability and resilience of the financial system. The PRI has an effort underway that seeks to address the gaps between countries with customized recommendations for all stakeholders, from industry practitioners, service providers, and their market exchanges to financial regulators and policy makers.

B. **Demonstration effect in pioneering projects via public-private partnerships.** An effective way of stimulating greater development of sustainable PE/VC investing is the market signal of demonstrated profitability via sustainable projects sponsored or cosponsored by the public sector or developmental finance institutions (DFIs). Various approaches may be employed to accelerate the achievement of such signaling. An example is the development and implementation of the IFC Catalyst Fund managed by AMC. The Catalyst Fund is a commercially structured fund of funds that mobilized commercial capital with the help of governments, with a view to explicitly seeking to demonstrate that investing in the climate space in emerging markets can be profitable. Involving investors in the design phase of Catalyst Fund helped stimulate their interest and secure anchor investments

from supportive governments, which helped to get the fund to a critical size at its first closing. Some commercial investors who had been involved in the design process were sufficiently comfortable to invest at first closing, and this mobilized other investors also to come in. Other challenges, such as pipeline development, can be addressed via city-sponsored incubators, governments, DFIs, or donor organizations that can also give grants to cover some of the excess costs associated with bringing capacity in the target sectors and other market-building steps necessary in a young sector.

C. Stakeholders to consolidate sustainable standards.

Recognizing that there are a growing number of initiatives that seek to develop, harmonize, and mainstream standards for sustainable investing, stakeholders—including governments, industry, and civil society—can work together to consolidate these disparate standards into a set consistent ESG standards, with reference to international good practices such as the SDGs, IFC Performance Standards and Impact Principles,⁷² IMP, and the PRI. As part of this, stakeholders could play a significant role in acknowledging the importance of and working with businesses to integrate ESG into decision making and share information on E&S factors, with a view to identifying sustainability risks and increasing investors' understanding and trust in investee companies. To enhance the consistency and comparability across sectors and markets, regulators or industry bodies could also consider mandatory disclosure of nonfinancial information by companies of certain size. Such disclosure should include information on a standard set of key performance indicators covering issues such as significant impacts on the environment, society, community, or employees. They should also include a description of company's policies, information on the due diligence process used by the company, and, where relevant, its supply and subcontracting chains to identify, prevent, and mitigate existing and potential adverse impacts. The industry bodies and market-supporting institutions could provide capacity building for PE/VCs and their investee companies to implement these ESG standards.

D. Practitioners need to develop a wide range of PE/VC products that will be suitable for an increasingly broad range of investors.

A number of specialized financial vehicles can help address some of the barriers to investing in sustainable PE/VC funds. Vehicles like funds of funds and managed accounts can be used to, relatively safely, learn about the sector, add diversification, and access smaller specialist funds, particularly for those institutional investors that have a very large minimum investment size. Currently, in many sustainable investing sectors, specialization provides unique technology and investment insights and deep sector-specific relationships and is commercially warranted for a fund's strategy as long as the underlying market is large enough. However, vehicles that invest across a number of PE/VC funds can mitigate the concentration risk inherent in many of the sustainable PE/VC markets by adding diversification across sector, strategy, manager, geography, and other factors. Alternatively, if a PE/VC fund manager has enough scale and in-house resources, a larger PE/VC fund team can attempt to invest across a broader range of the overall sustainability landscape, bringing sectoral diversification to experienced institutional investors that are willing to commit to individual fund managers. These specialized fund and fund of funds managers can work with other stakeholders (including the task force suggested above) to establish standards and demonstrate the business case in nascent markets and sectors. Having sustainable investing standards, measurement tools, and reporting templates in place will allow sophisticated institutional investors to invest directly into sustainable funds or companies and match their financial and impact risk/return goals with the sustainable assets in the market. While PE/VC funds are suitable for certain types of underlying investments (normally in asset-light businesses), practitioners should strive for the development of other innovative structures, such as an extended life of a sustainable VC fund that can address challenges like the maturity mismatch that many renewable energy assets and hardware solutions have found. Other structures, such as open-ended platform companies, are better suited to more capital-intensive, longer-

term asset investments, such as large-scale power infrastructure.

E. ***Governments can provide clear policy signals to foster the incubation of sustainable PE/VCs.*** As seen in some of the examples outlined above, governments at the city, regional, or national level, can play a key role in developing sustainable PE/VC by providing regulatory support, transparent processes, and economic, regulatory, political, and legal environments that are as stable and certain as possible to cultivate investment. Clear, comprehensive policies to promote sustainable investment in target sectors should be formed, communicated, and steadfastly backed. These efforts should create an enabling business environment to promote innovation and start-up investments in sustainable businesses in targeted strategic sectors by promoting research and knowledge sharing, developing incentives, and supporting core research and innovation. To the extent that cultural barriers and a lack of appreciation of sustainable investing are impediments, stakeholders should seek to disseminate knowledge that could increase awareness of best practices and the potential benefits from sustainable investing. Regulators can play a significant role in acknowledging the importance of shared information and mandating businesses to share on sustainability issues such as environmental and social factors with a view to identifying risks and increasing investors' understanding and trust in investee companies. To enhance the consistency and comparability across sectors and markets, regulators could also consider mandatory disclosure of nonfinancial information by companies of certain size. Such disclosures should include information on a standard set of key performance indicators covering such issues as significant impacts on the environment, society, community, or employees. They should also include a description of company's policies, information of due diligence process used by the company, also regarding, where relevant its supply and subcontracting chains, in order to identify, prevent, and mitigate existing and potential adverse impacts. These standards should be part of a clear and widely accepted framework

for sustainable investing and impact measurement, and the sustainable PE/VC industry needs to be a driver in establishing and implementing them (as it has in accounting and financial reporting standards, auditing standards, governance practices, and, in some cases, environmental and social standards and practices).

- F. ***Governments could consider developing incubators or encourage privately owned incubators for sustainable technologies and nontechnological innovations.*** Incubators can help develop and prove new technologies that can then be turned into successful companies and grown by the PE/VC community into successful companies of significant scale and impact. Participants can include local governments that can establish city-based or regional sustainable technology incubators focused on the specific goals and capabilities of the region and the particular needs of early-stage sustainability-focused companies. When paired with local grants, subsidies, or tax breaks, incubators enable cities to attract young entrepreneurs and connect start-ups with incumbents active in those markets. Benefits of incubators include reducing the transaction and operation costs of new companies, enhancing their capacities, accelerating the development of their markets, and providing deal flow and human capital to the broader sustainable PE/VC ecosystem.
- G. ***Active dialogue among governments, limited partners, and PE/VC practitioners can accelerate the global development of sustainable investing; scale can be addressed through a regional versus single-country strategy.*** As seen in the United States and China examples, citizens and their governments making a significant, long-term commitment to sustainability can help raise awareness to pull capital toward sustainable investment by creating consumer demand and exit-friendly environments. Other participants can include industry associations to help define and establish the sustainable PE/VE asset class, setting up databases and conferences to disseminate data and knowledge.

H. *For small economies, consider developing a regional market strategy.* In some cases where scale is not available within a single country or market, trading partners could collaborate to create a regional market strategy to implement some of the above recommendations. Certain sectors such as internet-based software-as-a-service (SaaS) business models and other technology-based platforms have characteristics that make cross-border implementation more viable. Incubating or supporting pan-regional technology-focused PE/VC funds with a number of local offices in participating countries that help originate sustainable technology-focused transactions across the larger, aggregated market could help accelerate the development and adoption of innovative business models in subscale countries.

Endnotes

- 1 The concept of sustainable development was introduced for the first time by the 1987 Brundtland Report that described it as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.” It has more recently been codified in the UN’s 2030 Agenda for Sustainable Development, along with a set of 17 SDGs.
- 2 Source EMPEA, “Year-end 2017 Industry Statistics”; note: private capital includes private equity, private credit, and private infrastructure and real assets; IMF: www.imf.org/external/datamapper/PPPSH@WEO/OEMDC/ADVEC/WEOWORLD
- 3 As used in this paper, PE/VC funds are defined as growth equity funds (including VC), and excluding funds focused on infrastructure, forestry, debt, and listed equities (even when these funds have strategies that include a sustainability aspect).
- 4 <https://www.weforum.org/agenda/2017/09/the-money-is-there-to-fight-climate-change/>
- 5 Bergset, Linda & Fichter, Klaus. (2015). Green start-ups – a new typology for sustainable entrepreneurship and innovation research. Journal of Innovation Management. 3. 118-144.
- 6 McKinsey Global Institute analysis; DHL Globalization Index
- 7 Stefan Schaltegger, Erik G. Hansen, and Florian Lüdeke-Freund, “Business Models for Sustainability: Origins, Present Research, and Future Avenues,” SAGE Publications, 2015.
- 8 World Economic Forum. “Can technology save the environment?” <https://www.weforum.org/agenda/2014/09/circular-economy-sustainable-planet/>
- 9 Data is based on the official websites from the companies and from <https://imsva91-ctp.trendmicro.com:443/wis/clicktime/v1/query?url=www.crunchbase.com%2c%20a&umid=DCB158AC-7809-1105-867A-1D5D55B9F704&auth=d8b56f5c97e5a7a4e09c3752a13cc25d9c36f88-7a2fbf7fa99b7ddfb47af729b1e266d52fc8bb97> platform of business information about private and public companies.
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- 14 Source: Ceres, CleanTech 3.0.
- 15 Definition from: <https://www.ussif.org/sribasics>.
- 16 ESG criteria cover a broad set of themes along all three dimensions of the “ESG” definition, including: (i) environment: climate change, clean technology, water use, sustainable agriculture; (ii) social: workplace safety, labor relations, diversity, community development, and human rights; and (iii) governance: executive compensation, board diversity, and anti-corruption policies.
- 17 www.bnef.com Clean Energy Investment database; extracted January 11, 2018
- 18 US SIF Foundation, US Sustainable, Responsible and Impact Investing Trends 2016
- 19 Morgan Stanley Institute for Sustainable Investing and Morgan Stanley Investment Management, 2018. Sustainable Signals: Asset Owners Embrace Sustainability
- 20 These are increasingly aligned to the UN’s Sustainable Development Goals (SDGs).
- 21 IFC’s Sustainability Framework: http://www.ifc.org/wps/wcm/connect/Topics_Ext_Content/IFC_External_Corporate_Site/Sustainability-At-IFC, Environmental and Social Performance Standards: http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES, Environmental, Health, and Safety Guidelines: http://www.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/sustainability-at-ifc/policies-standards/ehs-guidelines, Corporate Governance Framework: <http://www.ifc.org/wps/wcm/connect/52e2e6804a7184689953dbe6e3180238/Corporate%2BGovernance%2BDevelopment%2BFramework.pdf?MOD=AJPERES&ContentCache=NONE>, and Corporate Governance Methodology: <http://www.ifc.org/wps/wcm/connect/52e2e6804a7184689953dbe6e3180238/Corporate%2BGovernance%2BDevelopment%2BFramework.pdf?MOD=AJPERES&ContentCache=NONE>.
- 22 Anticipated Impact Measurement and Monitoring: http://www.ifc.org/wps/wcm/connect/corp_ext_content/ifc_external_corporate_site/annual-report/2017-online-report/leadership-perspectives/ar17_plh+letter

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"Does it pay to be green? A systematic overview" (2008) Stefan Ambec, Paul Lanoie
- 25 "Green Winners – The performance of sustainability focused companies during the financial crisis" (2009) A.T. Kearney (D. Mahler, J. Barker, L. Belsand, and O. Schultz)
- 26 "The financial performance of real assets impact investments – Introducing the timber, real state and infrastructure impact benchmarks" (2017) The GIIN, Cambridge Associates; "ESG and financial performance: aggregated evidence from more than 2000 empirical studies" (2015) Gunnar Friede, Timo Busch and Alexander Bassen; "The Impact of Corporate Sustainability on Organizational Processes and Performance" (2011) by Harvard – R.G. Eccles, I. Ioannou, and G. Serafeim.
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- 28 The GIIN's survey analyses self-reported data from 229 organizations that collectively manage US\$228 billion in impact investing.
- 29 Per IFC, SMEs account for about 90% of businesses and more than 50% of employment worldwide and are key engines of job creation and economic growth in developing countries. Source: <http://bit.ly/2DLrBhg>
- 30 McKinsey & Company, Indian Private Equity: Route to Resurgence, June 2015
- 31 Between 2000 and 2013, IFC's Funds Group committed US\$2.9 billion to 159 PE/VC funds across more than 1,000 portfolio companies around the world. The track record of this set of PE/VC funds is top quartile against Cambridge's global emerging market benchmarks; IFC's Asset Management Company, raised and manages a resource-efficiency focused fund of funds; IFC Venture Group makes early-stage, venture capital investments into sustainable companies and VC funds and incubators that target them.
- 32 On the advisory side, IFC has contributed significantly to the development of sustainable investing by establishing market standards to help ensure the PE/VC funds sustainably approach their investments (for example, IFC's Performance Standards: http://www.ifc.org/wps/wcm/connect/c8f524004a73daeca09afdf998895a12/IFC_Performance_Standards.pdf?MOD=AJPERES, green building focused EDGE framework: <https://www.ifc.org/wps/wcm/connect/907ed4004aa88a1bb49ef69e0dc67fc6/EDGE-Brochure.pdf?MOD=AJPERES>, Corporate Governance Framework: <http://www.ifc.org/wps/wcm/connect/52e2e6804a7184689953dbe6e3180238/Corporate%2BGovernance%2BDevelopment%2BFramework.pdf?MOD=AJPERES&ContentCache=NONE>) as well as helped make the business case between sustainable investing in emerging markets and increased financial returns.
- 33 The IMF reports that emerging economies forecast 5.2% GDP growth through 2019 versus 2.2% in advanced economies. emerging markets have a median age of 26 years of age compared to 40 in developed markets. Sources: IMF World Economic Outlook Database, April 2015, World Bank Doing Business Report 2014, McKinsey 2012, Economist Intelligence Unit, United Nations Population Database, Brookings Institution, 2014 Data, United Nations 2014 Revision of the World Urbanization Prospects, Bloomberg 2015 Data, and Emerging Market Private Equity Association (EMPEA), March 2015.
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