

NOTES

An Institutional Truth: Increasing Institutional Investor Involvement in Climate Finance

BRIANNA BAILY*

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* J.D./LL.M. in Taxation Candidate 2015, Georgetown University Law Center. © 2015, Brianna Baily.

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I. INTRODUCTION

Climate change is a complex, international issue with a multitude of interconnected parts. Perhaps this is why the global financial system, a structure with these same qualities, is the key to ensuring that global mean temperature increases are kept below the two degrees Celsius (“2° C”) threshold adopted by the United Nations Framework Convention on Climate Change (UNFCCC) in 2010.¹ Currently, spending directed toward meeting that 2° C goal totals over US\$359 billion,² but new funding is needed to stay on track.³ In the effort to mobilize climate finance, no private actors are more important than institutional investors, and their entry into this sector is only possible through measures implemented at the national, regional, and international levels to reduce risk and incentivize investment. However, an appropriate balance must be struck between increasing climate finance and safeguarding systemic stability of financial markets.

This note explores the relationship between institutional investors and climate finance, and it seeks to develop and evaluate solutions to the issues institutional investors may face. Part I provides an introduction and outline. Part II offers a background on climate finance by looking at its consumer foundation, the growth of the market, and the involvement of large investors, and it introduces the three avenues for financing. Part III explores institutional investors’ lack of involvement in climate finance by looking into their underlying concerns. Part IV explains the first prong in a two-step plan to increase the involvement of institutional investors, which is centered on risk reduction. Part V explains the

1. CARLO JAEGER, *Green Growth and Climate Policy*, in *THE WAY FORWARD IN INTERNATIONAL CLIMATE POLICY: KEY ISSUES AND NEW IDEAS 2014* 5 (Heleen de Coninck et al. eds., 2014), available at http://cdkn.org/wp-content/uploads/2014/09/CDKN_climate_strategies_the_way_forward_in_international_climate_policy_2014.pdf. (providing a background of Bill Nordhaus’ theory of the 2° C line, and the UNFCCC’s acceptance of that line and the requirement that humankind reduce global emissions by more than 2% per year in order to stay on track for an optimal warming level of 3.5° C to be reached around 2200, as determined by a climate policy cost-benefit analysis); see also *Background on the UNFCCC: The International Response to Climate Change*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (Oct. 14, 2014, 9:15 AM), http://unfccc.int/essential_background/items/6031.php (stating that in 2010, governments agreed that global temperature increases need to be limited to below 2° C).

2. BARBARA BUCHNER ET AL., CLIMATE POLICY INITIATIVE, *THE GLOBAL LANDSCAPE OF CLIMATE FINANCE 2013* 1, 3 (2013), available at <http://climatepolicyinitiative.org/wp-content/uploads/2013/10/The-Global-Landscape-of-Climate-Finance-2013.pdf> [hereinafter BUCHNER ET AL., *LANDSCAPE 2013*].

3. See HELEEN DE CONINCK & AMBUJ D. SAGAR, *Editorial: What Next? Exploring Ways Forward in the Climate Change Arena*, in *THE WAY FORWARD IN INTERNATIONAL CLIMATE POLICY: KEY ISSUES AND NEW IDEAS 2014* 3 (Heleen de Coninck et al. eds., 2014), available at http://cdkn.org/wp-content/uploads/2014/09/CDKN_climate_strategies_the_way_forward_in_international_climate_policy_2014.pdf.

second prong, which discusses the need to reduce barriers to this involvement and add incentives to promote investment. Finally, Part VI contains general conclusions.

II. THE GROWTH OF CLIMATE FINANCE

Climate finance refers to capital flows targeting low-carbon and climate-resilient development with direct or indirect greenhouse gas mitigation or adaption objectives and outcomes.⁴ This field has exploded recently, with an estimated US\$359 billion per year in global climate finance.⁵ Investment started increasing in 2004 due to the introduction and development of appropriate financing channels and instruments for both end users and industry.⁶ The growth of climate finance has been made possible by a combination of high consumer demand, innovation leading to a plethora of “green” financial products and investment options, and interests aligned with large, influential investors, such as asset managers, who readily participate in boardroom activism. Continuance of growth in climate finance is made possible through three avenues of financing: equity, debt, and government spending.

A. CONSUMER TRENDS

In developed countries, socially, environmentally, and ethically responsible products are very much in demand by consumers.⁷ From clothing to coffee, consumers are concerned with the origins and backgrounds of goods, and their purchasing power allows them to both indirectly support certain practices and oppose those viewed as harmful.⁸ Given this ability to apply one’s ideals to everyday purchases, it is only natural that consumer awareness of the social and environmental impacts of their purchases is extending to their financial portfolios, as well as the desire to make those investments fit within a socially responsible framework.⁹

This movement, termed Socially Responsible Investing (SRI), operates as a way for investors to take a stand against practices they feel strongly about, such

4. BUCHNER ET AL., *LANDSCAPE 2013*, *supra* note 2, at 3.

5. *Id.*

6. Viktoija Bobinaite & Dalius Tarvydas, *Financing Instruments and Channels for the Increasing Production and Consumption of Renewable Energy: Lithuanian Case*, 38 *RENEWABLE AND SUSTAINABLE ENERGY REV.* 259, 261 (2014).

7. The rise in popularity of ethical consumption can be seen in the sales of Fair Trade and organic products, both of which are increasingly consumed in industrialized countries. The largest market for Fair Trade products is the United States, with major European markets such as the UK, Switzerland, Italy, and Germany trailing closely. *See* NINA LAGEN, *ETHICS IN CONSUMER CHOICE: AN EMPIRICAL ANALYSIS BASED ON THE EXAMPLE OF COFFEE* 87 (2013).

8. *Id.*

9. Michael Chamberlain, *Socially Responsible Investing: What You Need to Know*, *FORBES* (Apr. 24, 2013, 3:31 PM), <http://www.forbes.com/sites/feenonlyplanner/2013/04/24/socially-responsible-investing-what-you-need-to-know>.

as deforestation or child labor.¹⁰ It also serves as a way to promote investor ideals by investing only in companies or governments that match these values.¹¹ A similar method of investment, which has also experienced a spike in popularity in recent years, is the practice of “impact investing.”¹² Impact investing refers to investments made in companies, organizations, and funds with the intent of generating social and environmental impacts while also receiving a financial return.¹³ While assets attributable to SRI and impact investing are growing, they remain small in terms of market share.¹⁴ However, the demand for these investment methods is indicative of their potential scale: currently 66% of individual investors would like to see their company add a sustainable and responsible 401(k) option.¹⁵ In turn, these retirement plans, which comprise the majority of institutional holdings in corporations,¹⁶ are motivated to invest responsibly because responding to consumer demand is a necessary aspect of staying competitive. With such a large consumer push, SRI assets—currently weighing in at US\$6.57 trillion in the United States—could increase exponentially with the creation of more socially responsible, and financially secure, options.¹⁷

Environmental sustainability is often at the root of these types of investments and has garnered ardent supporters, particularly within the context of students demanding environmentally responsible university endowments. Student support of fossil fuel divestment has swept across North America, despite criticism of the misunderstanding underlying these campaigns¹⁸ and the allegedly minimal effect divestment has on climate change.¹⁹ Though most universities have opted not to

10. *Id.*

11. *Id.*

12. *About Impact Investing*, GLOBAL IMPACT INVESTING NETWORK, <http://www.thegiin.org/cgi-bin/iowa/resources/about/index.html> (last visited Mar. 4, 2015); Gabriel A. Huppé & Mariana H. Silva, INT'L INST. FOR SUSTAINABLE DEV., *Overcoming Barriers to Scale: Institutional Impact Investments in Low-Income and Developing Countries*, at 5 (July 2013), http://www.iisd.org/pdf/2013/overcoming_barriers_to_scale.pdf.

13. *See About Impact Investing*, *supra* note 12.

14. Assets under management using SRI strategies expanded from \$3.74 trillion at the start of 2012 to \$6.57 trillion at the start of 2014, a 76% increase. THE FORUM FOR SUSTAINABLE AND RESPONSIBLE INV., REPORT ON US SUSTAINABLE, RESPONSIBLE AND IMPACT INVESTING TRENDS 12 (2014), *available at* www.ussif.org/Files/Publications/SIF_Trends_14.FES.pdf.

15. CALVERT INVS., SUSTAINABLE AND RESPONSIBLE INVESTING IN RETIREMENT PLANS 2, *available at* www.calvert.com/nrc/literature/documents/BR20048.pdf.

16. *See* Paul H. Edelman, Randall S. Thomas & Robert B. Thompson, *Shareholder Voting in an Age of Intermediary Capitalism*, 87 S. CAL. L. REV. 1359, 1386 (2014).

17. THE FORUM FOR SUSTAINABLE AND RESPONSIBLE INVESTMENT, *supra* note 14.

18. *See* Alicia Seiger, *Inside Stanford's Coal Divestment Decision*, INSTITUTIONAL INV'R (May 28, 2014, 6:00 AM), <http://www.institutionalinvestor.com/blogarticle/3345908/blog/inside-stanfords-coal-divestment-decision.html>.

19. *See The Rockefellers Reject Oil*, WALL ST. J., Oct. 10, 2014, *available at* www.online.wsj.com/articles/the-rockefellers-reject-oil-1412980960; John Schwartz, *Rockefellers, Heirs to an Oil Fortune, Will Divest Charity of Fossil Fuels*, N.Y. TIMES, Sept. 21, 2014, *available at* <http://www.nytimes.com/2014/09/22/us/heirs-to-an-oil-fortune-join-the-divestment-drive.html> (stating that pension funds are reluctant to divest, and quoting

follow this trend,²⁰ over 180 philanthropies, religious organizations, and local governments have pledged to divest from fossil fuels.²¹ Just as the anti-apartheid divestments of the 1980s served as an expression of a global stance, the existence of a fossil-fuel divestment movement adds to the collective climate consciousness of consumers around the world, regardless of its actual effect on climate change.²² Whether through SRI, impact investing, or calls for divestment, consumers are influencing the way investments are made such that impact and responsibility sit alongside financial return.

B. INNOVATION IN POLICY AND FINANCIAL PRODUCTS

The consumer push toward green investment fits within a general shift toward climate change awareness through a combination of policy and finance mechanisms. Globally, regulations on emissions standards continue to increase,²³ and governments are incentivizing investment and research in renewable energy products.²⁴ The Kyoto Protocol, which entered into effect in 2005, imposes gradually increasing emissions restrictions on developed nations.²⁵ While it encourages the achievement of these goals through national measures, it allows

Pension Danmark's statement that "divestment will itself not contribute to solving the challenges of global climate change, and we believe it is not a very wise way to try and solve this issue"); Ben Adler, *The divestment movement is gaining Steam. What can it achieve?* GRIST (Oct. 8, 2014), <http://www.grist.org/climate-energy/the-divestment-movement-is-gaining-steam-what-can-it-achieve> (quoting Nathaniel Bullard in his opinion that companies are not being hurt because "if you divest, somebody else invests").

20. American University and Cornell University rejected divestment, as well as Harvard University, whose president has repeatedly rejected calls for divestment. Stanford University divested from coal early on in the movement. See Robin Respaud, *American University Rejects Divesting its Fossil-Fuel Assets*, REUTERS (Nov. 21, 2014), <http://www.reuters.com/article/2014/11/21/us-usa-university-fossilfuel-idUSKCN0J52C120141121>; Meg P. Bernhard & Theodore R. Delwiche, *Student Activists File Suit Urging Harvard to Divest*, HARVARD CRIMSON, (Nov. 20, 2014), <http://www.thecrimson.com/article/2014/11/20/students-file-divestment-lawsuit>; Sofia Hu, *Cornell University Assembly Votes Against Fossil Fuel Divestment*, CORNELL DAILY SUN (May 7, 2014), www.cornellsun.com/blog/2014/05/07/university-assembly-votes-against-fossil-fuel-divestment; *Stanford to Divest from Coal Companies*, STANFORD REPORT (May 6, 2014), <http://news.stanford.edu/news/2014/may/divest-coal-trustees-050714.html>.

21. See ARABELLA ADVISORS, MEASURING THE GLOBAL FOSSIL FUEL DIVESTMENT MOVEMENT (2014), available at <http://www.arabellaadvisors.com/wp-content/uploads/2014/09/Measuring-the-Global-Divestment-Movement.pdf>; Schwartz, *supra* note 19.

22. Christa Clapp, *Climate Finance: Capitalising on Green Investment Trends*, in CLIMATE & DEVELOPMENT KNOWLEDGE NETWORK, THE WAY FORWARD IN INTERNATIONAL CLIMATE POLICY: KEY ISSUES AND NEW IDEAS 2014 44 (Heleen de Coninck et al. eds., 2014). Although their impact may be negligible, campaigns to divestment from fossil fuels are gaining more media attention, signifying increasing investor awareness to climate issues.

23. See David Nakamura & Steven Mufson, *China, U.S. Agree to Limit Greenhouse Gases*, WASH. POST, Nov. 12, 2014, available at http://www.washingtonpost.com/business/economy/china-us-agree-to-limit-greenhouse-gases/2014/11/11/9c768504-69e6-11e4-9fb4-a622dae742a2_story.html.

24. See Walid Ben-Amar & Philip McKenny, *Board Effectiveness and the Voluntary Disclosure of Climate Change Information*, BUS. STRATEGY & THE ENV'T 1, 2 (Jan. 24, 2014), available at <http://onlinelibrary.wiley.com/doi/10.1002/bse.1840/full>.

25. Kyoto Protocol to the United Nations Framework Convention on Climate Change, Dec. 10, 1997, U.N. Doc FCCC/CP/1997/7/Add.1, 37 I.L.M. 22 (1998).

for the utilization of market-based mechanisms that serve to stimulate green investment.²⁶ The Kyoto Protocol has been ratified by 192 countries (though not the United States) and is a product of the UNFCCC.²⁷ However, it has had a limited effect on global emissions, and the Intergovernmental Panel on Climate Change (IPCC) is currently working on a post-Kyoto framework for emissions reductions and climate change.²⁸ Within the same U.N. climate change negotiations, developed countries committed to providing climate finance to developing countries, setting a goal of US\$100 billion per year by 2020.²⁹ These contributions are directed to the UNFCCC-established Green Climate Fund (GCF), which serves to channel new financial resources to developing countries and catalyze public and private climate finance at both the national and international levels.³⁰

Ever-tightening emissions regulations and the heightened state of climate policy paved the way for a greening of the financial sector. The global push toward climate finance spurred innovation and the creation of green investment options, including environmentally-conscious portfolios and green bonds. In response to plan participants scrutinizing holdings and requesting more responsible options, many mutual funds and 401(k) plans have gone green, allowing investors to act responsibly in terms of both personal finance and environmental preservation.³¹ While consumer demand still outweighs the supply of green plans, 14% of 401(k) plans offer a socially responsible option.³² Additionally, over three dozen green portfolios exist, including mutual funds and exchange traded funds (ETFs).³³

The debt market is another growing source of green finance and, after experiencing a surge in 2013, a steady rise has been predicted for green bonds.³⁴ Though only 0.05% of the total bond market is considered green, green bonds doubled in issuance in the first half of 2014, with some predicting a market share

26. *Id.*

27. *Kyoto Protocol Fast Facts*, CNN (Apr. 8, 2014, 1:33 PM), <http://www.cnn.com/2013/07/26/world/kyoto-protocol-fast-facts/>.

28. *Kyoto Protocol had "Limited Effect" on Global Warming: U.N. Draft*, KYODO NEWS INT'L (Apr. 10, 2014), <http://www.globalpost.com/dispatch/news/kyodo-news-international/140410/kyoto-protocol-had-limited-effect-global-warming-un-dr>.

29. *Green Climate Fund*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (last visited Mar. 5, 2015), http://www.unfccc.int/cooperation_and_support/financial_mechanism/green_climate_fund/items/5869.php.

30. *Background*, GREEN CLIMATE FUND, www.gcfund.org/about/the-fund.html (last visited Mar. 5, 2015).

31. Scott Sadler, *Finally! A Responsible, Social Impact 401k Plan*, MIDTOWN PATCH (May 20, 2013), <http://www.patch.com/georgia/midtown/bp—finally-a-responsible-social-impact-401k-plan-ef2e259d>.

32. Sarah Morgan, *401(k) Plans Get Responsible*, MARKETWATCH (Dec. 16, 2011), <http://www.marketwatch.com/story/401k-plans-get-responsible-1318458228287>.

33. Anna Prior, *The Price of Green*, WALL ST. J., Oct. 5, 2009, available at <http://www.online.wsj.com/articles/SB10001424052970204518504574418683155971954>.

34. *See Green Bonds Attract Private Sector Climate Finance*, WORLD BANK (Jan. 5, 2014), <http://www.worldbank.org/en/topic/climatechange/brief/green-bonds-climate-finance> [hereinafter *Green Bonds*].

of 10-15% by 2020.³⁵ Green bonds work like any other debt-based financial instrument, except that the money raised is only invested in environmentally-friendly projects. Capitalizing on the multi-trillion dollar bond market, the World Bank issued its first green bond in 2008 and has since issued more than US\$7 billion in green bonds in eighteen currencies.³⁶ The International Finance Corporation (IFC) has also joined the effort, issuing US\$3.7 billion in the bonds.³⁷ Though the public sector provided the initial capital for green bonds, the private sector, comfortable with such recognizable and replicable products, has since taken over the market.³⁸ Corporations now take the lead in terms of issuance, and these corporate issuers are increasingly interested in green bonds as an avenue toward diversifying their investor base.³⁹

C. LARGE INVESTOR INVOLVEMENT

Both consumer demand and growth in the climate finance sector have pushed large investors with significant influence, such as asset managers preferring an activist approach, into the climate finance arena. Large investor involvement, a necessary component for the growth of climate finance, has contributed significantly to climate finance.⁴⁰ In the United States, approximately 11% of assets under professional management are invested according to sustainable investing strategies—a figure which continues to rise steeply.⁴¹ While consumer demand accounts for a portion of large investor involvement in climate finance, another motive hits closer to home (and to the bottom line). Investors and financial institutions have become acutely aware of the negative physical impact that climate change, and its consequences of extreme weather patterns, has on their investments.⁴²

Indeed, the economic consequences climate change presents to corporations and associated investors are significant. Between the 1950s and 1990s, annual

35. See Clapp, *supra* note 22.

36. *Green Bonds*, *supra* note 34.

37. *Id.*

38. See Clapp, *supra* note 22, at 45.

39. *Green Bonds*, *supra* note 34.

40. BARBARA BUCHNER ET AL., CLIMATE POLICY INITIATIVE, THE GLOBAL LANDSCAPE OF CLIMATE FINANCE 2014 10, available at <http://climatepolicyinitiative.org/wp-content/uploads/2014/11/The-Global-Landscape-of-Climate-Finance-2014.pdf> [hereinafter BUCHNER ET AL., LANDSCAPE 2014] (explaining that private investors account for the majority of climate finance).

41. This figure represents “total sustainable investing assets of US\$ 3.74 trillion, a 22 percent increase since year-end 2009.” GLOBAL SUSTAINABLE INVESTMENT ALLIANCE, 2012 GLOBAL SUSTAINABLE INVESTMENT REVIEW 22 (2013), available at <http://gsiareview2012.gsi-alliance.org/pubData/source/Global%20Sustainable%20Investment%20Alliance.pdf>.

42. See RORY SULLIVAN, CLIMATE CHANGE: IMPLICATIONS FOR INVESTORS AND FINANCIAL INSTITUTIONS 6 (2014), available at <http://ssrn.com/abstract=2469894> (discussing the significant monetary value of assets vulnerable to weather events); UNITED NATIONS ENV'T PROGRAMME, FINANCIAL INSTITUTIONS TAKING ACTION ON CLIMATE CHANGE 7 (Sept. 2014), available at <http://www.unepfi.org/fileadmin/documents/FinancialInstitutionsTakingActionOnClimateChange.pdf> (“Some financial institutions recognize that climate change increases uncertainty and investment risk, whilst also producing new opportunities.”).

economic losses from large extreme weather events, including floods and droughts, increased tenfold. Between 1990 and 1996 alone, twenty-two floods occurred, with losses exceeding US\$1 billion each.⁴³ Already, studies predict that climate change will cause extreme weather damage to increase in terms of loss and frequency.⁴⁴ Unprecedented losses loom on the horizon as companies enter a period in which they will have to cope with the negative impacts climate change has on their business activities.⁴⁵ Because investors and financial institutions are, and will continue to be, exposed to climate change risks, it is in their best interest to mitigate climate change through investing in climate finance.⁴⁶

Though driven slightly by a consumer push, activism has increased primarily as a result of concern for the bottom lines of companies and institutions vulnerable to extreme weather events. Insurance firms in particular have become concerned about increasing losses from extreme weather, and the consequent uncertainty about pricing policies for their policy premiums.⁴⁷ While opportunities may arise for new weather-related products due to the prospect of more frequent and severe extreme weather events, any potential upside is still outweighed by damage to existing products—a negative margin that has concerned institutional investors, particularly insurance firms.⁴⁸ Insurers are not alone in their plight; the risk of loss spreads to nearly every large investor. Such a widespread impact has increased the level of activism on issues of environmental impact, through initiatives such as the Carbon Disclosure Project, supported by over 655 institutional investors, and the Coalition for Environmentally Responsible Economics.⁴⁹ Shareholder-sponsored resolutions on climate change issues have increased as well, demanding increased transparency on associated climate impacts.⁵⁰

Despite the concern that environmental problems will have a negative impact on financial performance, many investments in climate finance can be attributed to a view that the sector is an exciting opportunity, particularly the green bond

43. SULLIVAN, *supra* note 42.

44. See INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, CLIMATE CHANGE 2013: THE PHYSICAL SCIENCE BASIS 2 (Thomas F. Stocker et. al. eds., Jan. 2014), available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg1/WGIAR5_SPM_brochure_en.pdf.

45. See Georg Weinhofer & Timo Busch, *Corporate Strategies for Managing Climate Risks*, 22 BUS. STRAT. & THE ENV'T 121, 122 (Feb. 2013).

46. See SULLIVAN, *supra* note 42.

47. THOMAS L. BREWER, THE UNITED STATES IN A WARMING WORLD: THE POLITICAL ECONOMY OF GOVERNMENT, BUSINESS, AND PUBLIC RESPONSES TO CLIMATE CHANGE 62 (2014).

48. *Id.*

49. Both initiatives seek to increase transparency in corporate filings regarding the environmental impact of their operations. *Id.* at 64.

50. In 2013, ninety-two companies faced shareholder resolutions relating to climate change issues, with these resolutions demanding an explanation of the environmental impact of the company's practices. *Shareholder Resolutions*, CERES, <http://www.ceres.org/investor-network/resolutions> (last visited May 5, 2015).

market.⁵¹ Green bonds are appealing to investors because they are familiar, replicable, and scalable, and such interest has caused speculators to predict a steady rise for the market.⁵² A growing number of asset managers, with mandates to increase investment in low-carbon growth opportunities, continue to drive the market for green bonds.⁵³ Additionally, asset managers view investment in sustainability as a way to capitalize on a growing trend and to diversify offerings to investors. Green bonds give investors an alternative to often-volatile equities and may attract a new base of investors.⁵⁴ According to Cecilia Reyes, Chief Investment Officer of Zurich Insurance Group AG, who pledged to spend up to US\$1 billion on green bonds, these bonds are “an opportunity to invest both with impact and at a return fully compensating for the risk.”⁵⁵ While this sentiment is directed toward large investors, the same desire for a win-win situation is a common thread among individual investors, and it is even common for governments and international bodies, wishing to help the environmental movement while also helping themselves.

D. AVENUES OF FINANCING

The growth of climate finance requires financing through three avenues: debt, equity, and government contribution. On the debt side, the ability to finance environmentally friendly projects has been severely limited by capital requirements imposed on banks, such as Basel III, which restricts liquidity ratios for banks. The Basel III rules are likely reducing the number of banks that can provide the financing needed for green infrastructure projects.⁵⁶ Providing climate finance exceptions to these rules is a concern, as any exception has the potential to be exploited, and skirting capital requirements can lead to greater instability in the global financial system by upsetting the balance intended by the establishment of these requirements. Thus, solving the conflict between increasing the availability of financing and meeting the regulatory goals of Basel III and other capital requirement rules implicates a host of complex issues affecting players across the globe.

Equity investment serves as a more hopeful counterpart to debt financing. As discussed above, institutional investors (primarily retirement plans), which maintain large positions within a majority of U.S. corporations, have been pushed

51. See *Green Bonds*, *supra* note 34; Carolyn Bandel, *Zurich Insurance to Spend up to \$1 Billion in Green Bonds*, Bloomberg (Nov. 18, 2013), <http://www.bloomberg.com/news/2013-11-18/zurich-insurance-to-spend-up-to-1-billion-in-green-bonds.html>.

52. See Clapp, *supra* note 22, at 45.

53. *Green Bonds*, *supra* note 34; Bandel, *supra* note 51.

54. Bandel, *supra* note 51.

55. *Id.*

56. Jesse Jenkins et al., *Beyond Boom & Bust*, BREAKTHROUGH INST. 4 (April 2012), http://thebreakthrough.org/blog/Beyond_Boom_and_Bust.pdf.

towards a more responsible and sustainable method of investing due to consumer demand. Retirement plans must retain market share in order to remain competitive, requiring a constant survey of consumer desires. In this sense, consumers have the ability to influence how the largest institutional investors make their investments.⁵⁷ Further, increased institutional investment will motivate companies to undertake sustainable projects to provide an avenue for investment, which in turn will catalyze bank financing of these projects.

Outside of the private sector, government financing and policy measures can be a viable option for increased climate finance. Governments can incentivize investment in climate finance through subsidies, tax breaks, and guarantees, which can protect investors against losses due to policy changes or regime shifts. At the same time, the government can discourage investment in projects having negative environmental impacts. While debt, equity, and government funding can each help to increase the availability of climate finance, effective implementation of all three is optimal.

III. INSTITUTIONAL INVESTORS' LACK OF INVOLVEMENT IN CLIMATE FINANCE

A. THE NEED FOR FUNDING

Regardless of the desires of consumers, governments, Intergovernmental Organizations (IGOs), and the financial community, the success of climate financing is dependent upon the support of institutional investors: insurance funds, pension funds, foundations, and endowments. The recent financial crisis actually has had a positive effect on climate finance, allowing "greening" to swell across the board, primarily due to government stimulus packages targeting green products and growth in the sector.⁵⁸ However, many of the tax breaks and stimulus packages were short-lived, set to expire a few years after their implementation, with no additional grants and little promise of renewal due to changing political climates in many countries.⁵⁹ In the United States, federal spending on clean technology declined by 75% between 2009 and 2014, with funding dropping significantly after 2011.⁶⁰ Additionally, 70% of all federal clean energy policies in place in 2009 expired by 2014.⁶¹

57. See Paul H. Edelman, Randall S. Thomas & Robert B. Thompson, *Shareholder Voting in an Age of Intermediary Capitalism*, 87 S. CAL. L. REV. 1359, 1386 (2014) (discussing the large portion of institutional investors consisting of retirement plans, which are driven by consumers).

58. Jenkins et al., *supra* note 56, at 6.

59. See Frank W. Geels, *The Impact of the Financial-Economic Crisis on Sustainability Transitions: Financial Investment, Governance and Public Discourse*, 6 ENVTL. INNOVATION AND SOCIETAL TRANSITIONS 67, 83 (2013); Michelle Chen, *Where Have All the Green Jobs Gone?*, THE NATION (Apr. 22, 2014 1:00 AM), <http://www.thenation.com/blog/179439/where-have-all-green-jobs-gone>.

60. Federal spending was \$44.3 billion in 2009 and \$11 billion in 2014. Between 2011 and 2012, funding went from \$30.7 billion to \$16.1 billion. Jenkins et al., *supra* note 56, at 4.

61. *Id.* at 6.

While limiting climate change to the 2° C threshold is still possible, current actions and resources are inadequate for this target.⁶² Continued sustainability efforts will only be possible if large sums of money are mobilized.⁶³ To prevent stagnation, or even shrinking of the climate finance sector, more private investors must step in to fill this gap and continue the growth. More specifically, institutional investors that possess an asset base of over US\$83 trillion are needed.⁶⁴ Their large asset base, combined with positive growth prospects despite the financial crisis,⁶⁵ make institutional investors the best hope for continued funding. Due to immense resources and financial power, institutional investors have the potential to make a significant contribution to climate finance and to positively impact the development of the green sector.⁶⁶

B. INSTITUTIONAL INVESTORS' CONCERNS

Though many institutional investors support climate initiatives, they are hesitant to invest in the relatively new sector of climate finance.⁶⁷ Currently, the investments of institutional investors are minimal compared to the scale of their assets, representing less than 1% of private sector climate finance in 2013.⁶⁸ While the private sector accounted for 58% of climate finance in 2013, institutional investors have stayed out, despite the potential for increased returns.⁶⁹ Strong institutional investor support of climate initiatives may have very little to do with the desire to limit climate change; rather, greater corporate disclosure and transparency provides more information to investors, allowing for a more accurate risk and return profile. Risk is the main concern for institutions, and three specific risks are deterring institutional investors' involvement in climate finance.⁷⁰ First, the renewable energy sector is relatively new and unproven, making institutional investors concerned about their ability to predict an accurate risk and return profile for investments. Second, investment in developing coun-

62. See CONINCK & SAGAR, *supra* note 3, at 3.

63. See Geels, *supra* note 59.

64. See Christopher Kaminker et al., *Institutional Investors and Green Infrastructure Investments: Selected Case Studies 7* (OECD Working Papers on Finance, Insurance and Private Pensions No. 35, 2013), available at <http://www.oecd-ilibrary.org/docserver/download/5k3xr8k6jb0n.pdf?expires=1429904920&id=id&acname=guest&checksum=2B949575A28EFE0475BAB65BD9BB8243>.

65. *Id.* at 19.

66. Christopher Kaminker & Fiona Stewart, *The Role of Institutional Investors in Financing Clean Energy 4* (OECD Working Papers on Finance, Insurance and Private Pensions No. 23, 2012), available at http://www.oecd.org/pensions/WP_23_TheRoleOfInstitutionalInvestorsInFinancingCleanEnergy.pdf.

67. See BREWER, *supra* note 47, at 64 (outlining the involvement of institutional investors in corporate disclosure and responsibility projects).

68. BUCHNER ET AL., LANDSCAPE 2014, *supra* note 40; ORG. FOR ECON. COOP. & DEV., UPDATE ON THE OECD'S WORK ON CLIMATE FINANCE AND INVESTMENT 4 (2014), [http://www.oecd.org/mcm/C-MIN\(2014\)19-ENG.pdf](http://www.oecd.org/mcm/C-MIN(2014)19-ENG.pdf) [hereinafter OECD Council].

69. BUCHNER ET AL., LANDSCAPE 2014, *supra* note 40, at 8.

70. See Kaminker et al., *supra* note 64, at 9.

tries, which are often most in need of climate finance, exposes investors to immature financial markets and shaky political and economic regimes. Finally, the fear of stranded assets drives institutional investors to oppose any change in existing policies or systems.

1. Risk in Renewable Energy Sector

Risk is key to institutional investors—the primary concern of investors with fiduciary responsibilities is risk-adjusted financial performance.⁷¹ Pension funds and insurers must follow the “prudent person principle,” investing assets in the best interest of members in a manner that ensures their scrutiny, profitability, liquidity, and quality.⁷² The risks arising from green energy’s status as a relatively new market phenomenon include policy uncertainty, lack of regulation of green financial products, volatility and unproven performance, and, to a lesser extent, liquidity issues.⁷³

Policy uncertainties interfere with investor ability to accurately predict the long-term return on investments in wind energy, solar power, and other subsets of the renewables sector, as changing political tides could halt development. In the United States, investor uncertainty over energy policy contributed to a 9% decline in clean energy investments from 2012 to 2013.⁷⁴ Uncertainty over the regulation of new financial products, such as green bonds, is also a deterrent. While the familiarity of green bonds can be appealing to institutional investors, a range of methods are used in labeling bonds “green,” from outside review to self-labeling by issuers.⁷⁵ This lack of consistency has concerned institutional investors, who worry that inconsistent labeling may lead to an inability to accurately predict a risk and return profile for that financial instrument.⁷⁶

The unproven performance and volatility of the green energy market are the primary concerns preventing institutional investor involvement. Modern Portfolio Theory, a tenet of fiduciary responsibility for institutional investors, encourages benchmarking performance to asset-class specific measures as a way to lessen risk.⁷⁷ This method leaves new markets untapped due to their lack of track record. The limited availability of high quality, or “investment ready” projects, is

71. *Id.*

72. *Id.*

73. *Id.* at 10-11.

74. PEW CHARITABLE TRUSTS, 2013: WHO’S WINNING THE CLEAN ENERGY RACE? 4 (2014), available at <http://www.pewtrusts.org/media/Assets/2014/04/01/clewhoswinningthecleanenergyrace2013pdf.pdf>.

75. Clapp, *supra* note 22, at 46.

76. *Green Bonds*, *supra* note 34 (explaining that improper labeling may lead to inaccurate risk and return profiles); see also GREEN BOND PRINCIPLES, 2014: VOLUNTARY PROCESS GUIDELINES FOR ISSUING GREEN BONDS, CERES 1 (2014), available at <http://www.ceres.org/resources/reports/green-bond-principles-2014-voluntary-process-guidelines-for-issuing-green-bonds> (providing recommendations for clearer labeling processes regarding proceeds and assurances).

77. Huppe & Silva, *supra* note 12, at 13.

also an issue.⁷⁸ While general investor confidence in renewables is improving, recent examples of volatility have caused institutional investor involvement to shrink.⁷⁹ Many solar panel and wind turbine manufacturing firms have gone bankrupt due to sudden price drops, caused primarily by international competition.⁸⁰ Institutional investors are hesitant to invest in a sector so enmeshed with domestic policy and international trade agendas due to the fear of falling returns.⁸¹

On this issue, investors may have a legitimate cause for concern. The cost of new wind turbines has fallen drastically in recent years, causing wind power in prime locations to become nearly as cheap as low-cost natural gas.⁸² Solar power prices have dropped even more, with global costs falling from US\$7.20 per watt in 2007 to 3.47 in 2011.⁸³ However, while this volatility may be extreme, it may not be wholly unexpected to institutional investors with access to seasoned analysts. Many of the declines followed a positive cycle, after which rapid deployment of renewables and high learning rates for replicability of certain technologies pushed pricing downward.⁸⁴ While certainly cyclical, the risk inherent in renewable energy is at least predictable, and therefore, may not be a significant deterrent to institutional investors after all.

Due to the newness of the green energy sector, a lack of liquidity is a concern for institutional investors. A smaller market size, particularly in a newer market sector, reduces the ease with which investors can divest themselves of holdings, leading to the risk of taking a loss on the investment.⁸⁵ The risk of illiquidity diminishes as the market grows, so while this risk takes time to overcome, its dissipation is a natural consequence of growth. In fact, because the market is now reaching a reasonably large size, with bigger benchmark issuance, some large investors who were previously watching from the sidelines are now getting involved.⁸⁶ Previously, these investors required an illiquidity premium before entering the market, but this is no longer the case for new entrants.⁸⁷ While the entry of such large institutions is still a rare event, the involvement of just one or

78. *See id.* at 18; Kaminker et al., *supra* note 64, at 5.

79. FRANKFURT SCH.-UNEP CENTRE, GLOBAL TRENDS IN RENEWABLE ENERGY INVESTMENT 2014 49 (2014), available at http://www.unep.org/pdf/Green_energy_2013-Key_findings.pdf.

80. Kaminker et al., *supra* note 64, at 8 (discussing the collapse and defaults of many solar power and wind energy firms due to price declines and international competition, and the interdependence of the renewable energy sectors with domestic policy and international trade agendas).

81. *See id.*

82. Jenkins et al., *supra* note 56, at 23.

83. *Id.*

84. Kaminker et al., *supra* note 64, at 23.

85. *See* Huppe & Silva, *supra* note 12, at 19-20.

86. Katy Barnato, *Bond Market to Go 'Green' this Year: S&P*, CNBC (May 20, 2014 9:01AM), <http://www.cnbc.com/id/101688679> (discussing the increasing involvement of large investors due to the larger size of the green bond market).

87. *Id.*

two may send a signal that the market is at least on the cusp of greater institutional trust and acceptance.⁸⁸

2. Risk in Developing Markets

The risks inherent in climate finance may be sector-specific, but in developing countries, the reluctance of institutions to invest is motivated by uncertainty surrounding investment in general. Positive macroeconomic conditions and political and financial stability are key indices of attractiveness for institutional investors.⁸⁹ Additionally, any investment implicates the underlying conditions affecting where and how investments are made, and those conditions include respect for contracts, a predictable and credible scheme for public policy, protection of intellectual property, and a relatively efficient mechanism for creating contracts and resolving disputes.⁹⁰ Unfortunately, developing countries tend to end up on the negative side of many, if not all, of these investment conditions.⁹¹ Only by implementing risk reduction mechanisms and positioning investments in developing countries within a consistent framework will institutional investors feel comfortable enough to view developing markets as strong investment opportunities.

Regardless of the type of investment made, institutional investors are virtually never comfortable investing in developing markets.⁹² When private actors are not investing domestically, they invest in the “North,” a reference to the developed regions in the Northern hemisphere.⁹³ Institutional investors prefer stable policy environments that are familiar, offer legal and business certainty, and have clear incentive packages.⁹⁴ Given this already strong preference for developed markets, combining the risky green sector with a possibly riskier developing market results in absolutely no investment by institutional investors. Of the US\$1.5 billion contributed to climate finance by institutional investors in 2013, all of it went to developed countries.⁹⁵

The immature financial markets in developing countries, as well as the policy risks inherent in many emerging regimes, are a significant obstacle to more

88. For example, Zurich Insurance Group AG, Switzerland's largest insurer, decided to enter the green bond market, making it the largest investor in clean-power securities. Bandel, *supra* note 51.

89. Huppe & Silva, *supra* note 12, at 22.

90. DAVID G. VICTOR ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Cross-Cutting Investment and Finance Issues*, in CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE ch. 1, 140 (Ottmar Edenhofer et al. eds., 2014), available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter1.pdf.

91. See Huppe & Silva, *supra* note 12, at 22.

92. See BUCHNER ET AL., LANDSCAPE 2013, *supra* note 2, at 14.

93. *Id.*

94. *Id.*

95. BUCHNER ET AL., LANDSCAPE 2014, *supra* note 40, at 10.

investment by institutions, and they impede climate finance as a whole.⁹⁶ Frequent and unpredictable policy changes reduce certainty about investment returns, a serious problem for institutional investors.⁹⁷ Additionally, confidence in the market is further linked to confidence in national stability, as 80% of green bonds are backed by their respective governments.⁹⁸ The lack of intellectual property rights in developing countries is another obstacle, as developing countries may not give international agreements such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) the same level of respect, and foreign intellectual property laws may not give the same protections as domestic intellectual property laws.⁹⁹ In either event, the potential risk of loss on investment due to poached patents or stolen trade secrets can be daunting.

3. Stranded Assets Risk

Finally, another forceful barrier to institutional investor involvement in climate finance is the risk of stranded assets. Impending changes in climate policies cause investors to face risk, the result of which could be stranded assets that support fossil-fuel infrastructure.¹⁰⁰ This risk explains a push by institutional investors for business as usual, as investors do not want to face the financial penalties that may come with new environmental policies and products, which threaten prior investments in areas such as coal and shale gas.¹⁰¹ However, the flipside of the stranded assets issue is that investors may face a risk from assets supporting current, unsustainable infrastructure (i.e., relying on fossil fuels), due to heightened climate restrictions.¹⁰² A changing climate also has the potential to negatively

96. BARBARA BUCHNER ET AL., CLIMATE POL'Y INITIATIVE, OPERATIONALIZING THE PRIVATE SECTOR FACILITY OF THE GREEN CLIMATE FUND: ADDRESSING INVESTOR RISK 4 (2014), available at http://climatepolicyinitiative.org/wp-content/uploads/2014/04/Operationalizing-the-Private-Sector-Facility-of-the-Green-Climate-Fund_Addressing-Investor-Risk.pdf [hereinafter BUCHNER ET AL., OPERATIONALIZING 2014].

97. SUJATA GUPTA ET AL., INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE, *Cross-Cutting Investment and Finance Issues*, in CLIMATE CHANGE 2014: MITIGATION OF CLIMATE CHANGE ch. 16, 1223 (Ottmar Edenhofer et al. eds., 2014), available at http://www.ipcc.ch/pdf/assessment-report/ar5/wg3/ipcc_wg3_ar5_chapter16.pdf.

98. See Clapp, *supra* note 22, at 45.

99. The WTO's Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS) is a multilateral agreement on intellectual property rules in trade. WORLD TRADE ORG., INTELLECTUAL PROPERTY: PROTECTION AND ENFORCEMENT (2015), www.wto.org/english/thewto_e/whatis_e/tif_e/agrm7_e.htm; see ORG. FOR ECON. COOP. & DEV., OECD POLICY GUIDANCE FOR INVESTMENT IN CLEAN ENERGY INFRASTRUCTURE 17 (2013) (discussing the inconsistent application of the TRIPS rules by many countries).

100. See Clapp, *supra* note 22, at 45.

101. LAUREN RICKARDS ET AL., WIRES CLIMATE CHANGE, BARRIERS TO EFFECTIVE CLIMATE CHANGE MITIGATION: THE CASE OF SENIOR GOVERNMENT AND BUSINESS DECISION MAKERS 1, 12 (2014); NICK ROBINS, INT'L INST. FOR SUSTAINABLE DEV., INTEGRATING ENVIRONMENTAL RISKS INTO ASSET VALUATIONS: THE POTENTIAL FOR STRANDED ASSETS AND THE IMPLICATIONS FOR LONG-TERM INVESTORS 3 (2014).

102. See Clapp, *supra* note 22.

impact investments in nearly any sector.¹⁰³ In either case, it may be in the best interests of an institution to trade those assets for ones supporting green growth now and campaign heavily for increased support for developing green technologies before there is any further economic impact.

The risks in the clean energy sector, in developing country markets, and to existing assets are serious obstacles to institutional investment. However, despite these concerns, market and policy solutions on regional, national, and global scales have the potential to provide institutional investors with security and confidence in the market, and offer incentives to motivate initial and continued investment in climate finance.

IV. REDUCTION IN RISKS

While the risks concerning institutional investors may not be insurmountable, an effective mechanism for increasing institutional investor involvement in climate finance must address each of these risks. A two-pronged approach presents a possible solution: reduce the risks inherent in climate finance and incentivize investment. These two prongs are necessary to support the future of climate finance. Reduction in risk makes institutional investment a possibility, and incentives catalyze and encourage these investments, pushing institutional investors toward increased participation in a greener future. The first prong is discussed below, and the latter is discussed in Section V.

Like any new market sector, a gradual reduction in risk will likely occur naturally as the market for climate finance grows, causing institutional investors to feel more secure about investing in renewables and clean technology. As market size increases, liquidity issues diminish, diversification expands, and innovation grows. Therefore, time and organic growth may be sufficient for increasing green investment and institutional involvement, as green investing and traditional investing eventually become one. However, time is a scarce commodity when the target for reaching the climate finance goal is only a few years away, and the theory that a sector will constantly grow has been brutally disproven in recent years. Instead, reduction in risk can occur now, through the regulation of green financial products, bilateral investment treaties (BITs), improved risk coverage instruments, and strong, targeted national policies. A reduction in risk allows institutional investors to consider participating in climate finance, while incentives motivate their involvement.

A. REGULATION OF GREEN FINANCIAL PRODUCTS

As green financial products continue to gain market share, they will become a more feasible option for institutional investors. Green bonds have great potential,

103. *See id.*; RORY SULLIVAN, UNIV. CAMBRIDGE INST. FOR SUSTAINABILITY LEADERSHIP, CLIMATE CHANGE: IMPLICATIONS FOR INVESTORS AND FINANCIAL INSTITUTIONS 6 (2014), available at <http://ssrn.com/abstract=2469894>.

as they are well-known, replicable, and scalable—all of which are key to institutions in determining risk and reward profiles for financial products.¹⁰⁴ Green bonds can also offer opportunities for public-private partnership, with governments issuing bonds for national projects.¹⁰⁵ Institutional investors have increasingly expressed interest in green bonds, and many have invested.¹⁰⁶ As institutional investment in green bonds grows, they will expect a higher level of consistency and transparency, and the attractiveness of the bonds will depend on increased liquidity and high credit ratings.¹⁰⁷ Green bonds are limited due to a lack of regulation. A range of green bonds exist, from those that are self-labeled as green by the issuer, to bonds that have undergone external review, or those that are generally viewed as environmentally friendly.¹⁰⁸ One such external reviewer, the IFC, lists the following criteria as qualifying investments as green: investments in equipment and systems that enable the use of energy from renewable sources; investments in equipment, systems, products and services dedicated to increasing energy efficiency; and investments that reduce GHG emissions in other ways, such as sustainable forestry or carbon capture and storage.¹⁰⁹ While institutional investors may not care about the wording of the bond's label, they certainly care about the accuracy of the risk advertised. Because an institution may be exposed to the negative impact of environmental disasters if they purchase a green bond, accurate and consistent environmental disclosure is crucial in order for the institution to properly evaluate the risk of a green bond.

Investors across the board have noticed the potential for inaccuracy in risk profiles of green bonds and are calling for a method of increasing transparency to reduce risk. In early 2014, a group of banks launched the Green Bond Principles with the goal of standardizing practices for issuers, and improving transparency.¹¹⁰ While this disclosure process is merely voluntary, current market trends indicate that the green bond market is on the verge of deciding whether environmental due diligence is necessary.¹¹¹ Without information on the depth and quality that would enable institutional investors to assess the risks of performing green investments, institutions are reluctant to invest and may be

104. See Clapp, *supra* note 22, at 45.

105. *Id.*

106. Ben Emons & Luke Spajic, *Green Bonds Planting Seeds for Eco-Friendly Investment*, INSTITUTIONAL INV'OR (Sep. 20, 2014), <http://www.institutionalinvestor.com/Article/3382260/Blogs-and-Columns-Global-Market-Thought-Leaders/Green-Bonds-Planting-Seeds-for-Eco-Friendly-Investment.html#.VHJ1Nr4tGY>.

107. See Clapp, *supra* note 22, at 45.

108. *Id.* at 46.

109. INT'L FIN. CORP., WORLD BANK GRP., GREEN BONDS 2 (2014), available at <http://www.ifc.org/wps/wcm/connect/353c8f004325cabfa308ef384c61d9f7/Green+Bonds+March+2014+final.pdf?MOD=AJPERES>.

110. *Green Bonds*, *supra* note 34; see also GREEN BOND PRINCIPLES, 2014: VOLUNTARY PROCESS GUIDELINES FOR ISSUING GREEN BONDS, *supra* note 76, at 1.

111. Clapp, *supra* note 22, at 46.

prohibited by fiduciary obligations due to unknown returns.¹¹² Clearly, the market for green financial products would benefit from a set of uniform standards enforced by a global ratings agency.

A global ratings agency would aid developing countries as well. Such an agency would provide consistency across markets, making institutional investors far more comfortable investing in a geographically diverse array of economies since the safety of the products would be ensured. The creation and enforcement of these standards should be delegated to this global ratings agency and would be appropriate tasks for the Private Sector Facility (PSF) of the Green Climate Fund (GCF). These tasks are fitting, as the PSF was created to bridge existing investment risks and enhance investor confidence in investing in climate finance across the world.

B. INNOVATION IN FINANCING

New or repurposed investment and financing options like securitization and blended capital financing structures can limit the amount of risk falling on institutional investors, while still providing developing countries with financing for green energy products and projects.¹¹³ Though securitization received much of the blame for the financial crisis due to risk transfer and, consequently, a lack of accountability for the quality of these securitized products, it could be beneficial for climate finance, especially in developing countries.¹¹⁴ To incentivize institutional investors, governments and philanthropic impact investors must agree to the first-loss and junior notes position in the investment vehicle, which represent lower tranches of securities having a higher level of risk.¹¹⁵ This way, the lower risk securities in the first tranche are left for institutional investors.¹¹⁶ Such arrangements have been successful in other countries, with government finance companies purchasing lower tranches and issuing guarantees for senior notes, adding an extra level of protection.¹¹⁷ However, pricing and tax issues, as

112. See KEITH L. JOHNSON, INT'L INST. FOR SUSTAINABLE DEV., INTRODUCTION TO INSTITUTIONAL INVESTOR FIDUCIARY DUTIES 2 (2014), available at <http://www.reinhartlaw.com/Documents/art140402%20RIIS.pdf>.; see also Kaminker et al., *supra* note 64, at 80.

113. See Huppe & Silva, *supra* note 12, at 31-32.

114. Alastair March, *Toxic Debt Condemned in Crisis Heralded as Europe's Savior*, BLOOMBERG (Apr. 11, 2014), <http://www.bloomberg.com/news/2014-04-11/toxic-debt-condemned-in-crisis-now-heralded-as-europe-s-savior.html>; Ben Steverman & David Bogoslaw, *The Financial Crisis Blame Game*, BLOOMBERG BUSINESSWEEK (Oct. 18, 2008), <http://www.businessweek.com/stories/2008-10-18/the-financial-crisis-blame-gamebusinessweek-business-news-stock-market-and-financial-advice>.

115. Huppe & Silva, *supra* note 12, at 33.

116. See *id.* at 32-33.

117. See, e.g., *World's First Microcredit Securitization: \$180 Million Deal between Bangladesh Rural Advancement Committee, RSA Capital, Citigroup, Netherlands Development Finance Company, and KfW Entwicklungsbank*, MICROCAPITAL (July 11, 2006), <http://www.microcapital.org/worlds-first-microcredit-securitization-180-million-deal-between-bangladesh-rural-advancement-committee-rsa-capital-citigroup-netherlands-development-finance-company-and-kfw-entwicklungsbank>.

well as the quality of the underlying asset, still pose challenges to this system.¹¹⁸

These challenges, along with the negative perception of securitization, may make blended capital funds a better alternative for increasing institutional investor involvement in climate finance.¹¹⁹ Blended capital funds layer capital in a manner similar to tranching, with each layer representing a different risk and return profile. The top layer reflects senior equity, meaning it possesses the greatest likelihood of repayment.¹²⁰ Again, first-loss takers play a significant role, so government or multilateral institutions are necessary, as the subordinated securities must be purchased in order to provide a buffer for the senior layers, thus incentivizing institutional investors to purchase them.¹²¹

C. RISK COVERAGE INSTRUMENTS

Developing countries can convince investors of their commitment to property and contractual rights by the number of BITs the country has in force with wealthy countries.¹²² However, despite the increase of BITs across the globe, their ability to attract foreign direct investment has fallen, particularly with regard to institutional investors.¹²³ Instead, a variety of risk coverage instruments have been developed to encourage institutional investment in developing countries, including credit enhancement tools like loan guarantees and letters of credit, insurance, and contract instruments like derivatives and power purchase agreements (PPAs).¹²⁴ Risk transfer instruments play a central role in facilitating institutional investors' investments, particularly in green infrastructure. Also, PPAs, construction management agreements, and operations and maintenance agreements all serve to de-risk investments by providing stable project terms and predictable outcomes.¹²⁵

1. Power Purchase Agreements

PPAs are contracts between power producers (here, renewable energy projects) and buyers (private entities in developing countries), where the producer provides the necessary initial capital and is responsible for installation and maintenance. Costs to the buyer and the expected energy output are predetermined.¹²⁶

118. See Huppe & Silva, *supra* note 12, at 34-35.

119. See *id.* at 35.

120. *Id.*

121. DAVID DE FERRANTI ET AL., BROOKINGS GLOBAL ECON. & DEV., *Innovative Financing for Global Health: Tools for Analyzing the Options* 27-28, 82 (2008) (analyzing the benefits of blended capital funds).

122. Jennifer L. Tobin & Susan Rose-Ackerman, *When BITs Have Some Bite: The Political-Economic Environment for Bilateral Investment Treaties*, 6 REV. INT'L ORGS. 1, 2 (2010).

123. See *id.* at 2-3.

124. BUCHNER ET AL., OPERATIONALIZING 2014, *supra* note 96, at 4.

125. JOHNSON, *supra* note 112, at 73.

126. *Financing Sustainability Projects on Campus*, AM. COLLEGE & UNIV. PRESIDENTS' CLIMATE COMMITMENT (Nov. 8, 2014 10:30 AM), <http://www.presidentsclimatecommitment.org/node/6568>.

Typically, tax credits and rebates are available to both producers and buyers, making the renewable energy project attractive to investors.¹²⁷ However, despite the availability of these instruments, PPAs have been used only infrequently in supporting low-carbon projects due to gaps in risk coverage.¹²⁸ These gaps leave investors open to policy and financing risks, both of which are exacerbated in developing countries by unstable political regimes and immature markets.¹²⁹ The GCF may have the potential to scale up the provision of new and improved risk instruments to address these gaps.¹³⁰ Two instruments in particular are targeted toward filling holes in previous instruments: first-loss dedicated insurance instruments to address financing risks, and first-loss protection instruments to address policy risks.¹³¹ Contractual agreements such as PPAs can be made more viable through the GCF's PSF working with private insurers and taking on some of the liability to increase the affordability of insurance products and encourage their use.¹³²

2. Country-Specific Risk Guarantees

Contractual elements may not increase institutional investor confidence if the country has a history of changing regimes or not honoring contracts. Furthermore, country-specific risk insurance targeting risky business environments, where the PSF provides first-loss funding, could insulate institutional investors from uncertain market and policy regimes. With a guarantee of first-loss funding, investors would be more comfortable, and therefore more likely to invest.¹³³ Another way to attract institutional investment in developing countries is for the country to offer a partial risk guarantee which could be backed by the PSF.¹³⁴ Linking PSF support to performance would ensure that the PSF does not over-subsidize and would encourage local competition, resulting in a more attractive investment market.¹³⁵ With these goals, the PSF has the potential to better enable the GCF to directly and indirectly finance private sector contributions to climate finance at regional, national, and international levels, and it addresses the primary barriers to institutional investment in developing countries.¹³⁶ The GCF could also partner with other financial institutions to de-risk

127. *Id.*

128. BUCHNER ET AL., OPERATIONALIZING 2014, *supra* note 96, at 4.

129. *Id.*

130. BUCHNER ET AL., LANDSCAPE 2013, *supra* note 2, at II.

131. BUCHNER ET AL., OPERATIONALIZING 2014, *supra* note 96, at 5.

132. *Business Model Framework: Private Sector Facility*, GREEN CLIMATE FUND 4 (June 12, 2013), http://www.gcfund.net/fileadmin/00_customer/documents/pdf/B-04_07_BMF_PSF_12Jun13_1745s.pdf.

133. See BUCHNER ET AL., OPERATIONALIZING 2014, *supra* note 96, at 5.

134. Green Climate Fund, *supra* note 132, at 4.

135. *Id.*

136. See BUCHNER ET AL., OPERATIONALIZING 2014, *supra* note 96, at 5.

green investments.¹³⁷ Consolidation with other institutions may be beneficial in the case of some funds, as it could increase policy alignment among these funds and improve efficiency, increasing the availability of climate finance.

3. Public-Private Technology Pools

Another major concern surrounding investment in developing countries is that intellectual property rights are often not as protected as they are in developed countries, creating a risk that a patented method or secret formula will be poached by locals. Additional competition can quickly sink an investment.¹³⁸ Discord often develops between the transferors of technology, who are typically based in developed countries, and the transferees in developing countries, who see the ability to innovate and come up with technology as a source of power that is unattainable unless it is stolen.¹³⁹ Frustration arises due to developing countries' constant status as technology transferee, rather than transferor, which can lead to practices that compromise intellectual property.¹⁴⁰ Guarantees made by governments may not be enough to cut risk down to an appropriate level, as turbulent political regimes are common in developing countries and often render these guarantees worth very little.

A way to satisfy both the intellectual property concerns of institutional investors in developing countries and the desires of these developing countries to have their own intellectual property may be through the use of public-private technology pools. Rather than simply facilitating technology transfer, these pools encourage collaborative development of intellectual property. Within these pools, governments, universities, companies, and institutes work with regional technology integration centers to produce technology promoting the use of all available knowledge to solve problems (with an emphasis on local knowledge and resources).¹⁴¹ The pools promote innovation and produce technology tailored to regional needs and infrastructure, while governments establish conditions that enable further knowledge-based developments.¹⁴²

Public-private technology pools exist in other sectors and have achieved success.¹⁴³ This type of collaboration on research and development would spread

137. See Clapp, *supra* note 22, at 47.

138. TILMAN SANTARIUS ET AL., NORTH SOUTH TRANSITIONS TO GREEN ECONOMIES 19 (Heinrich Böll Found. ed., 2012), available at http://www.boell.de/sites/default/files/2012-06_north_south_transition.pdf.

139. See Carlos Rossi, *Introducing Public-Private Technology Pools to Address Climate Change*, in THE WAY FORWARD IN INTERNATIONAL CLIMATE POLICY: KEY ISSUES AND NEW IDEAS 2014 37 (Heleen de Coninck et al. eds., 2014), available at http://cdkn.org/wp-content/uploads/2014/09/CDKN_climate_strategies_the_way_forward_in_international_climate_policy_2014.pdf.

140. *Id.*

141. See Rossi, *supra* note 139, at 39.

142. *Id.*

143. *Id.* at 40 (providing examples of use of these technology pools within the Montreal Protocol framework).

the costs and risks of that research, broaden access to technological capability and proprietary knowledge, and allow access to new markets.¹⁴⁴ Specific pools, such as patent pools, have other benefits: reduction of transaction costs, decreased infringement litigation and uncertainties associated with the patent, and promotion of technology dissemination.¹⁴⁵ Reducing the risks surrounding intellectual property in developing countries would pave the way for involvement by institutional investors, resulting in increased climate finance for those who need it most.

D. GOVERNMENT POLICY

Clear roadmaps and commitments by governments are necessary to create the sort of stable regime that attracts institutional investors.¹⁴⁶ Government policies can encourage international investment by tackling the perception that overseas investments, particularly in developing countries, are high-risk.¹⁴⁷ A major barrier to institutional investment in climate finance has been uncertainty regarding public subsidy regimes, and while this has started to change in developed countries with renewable energy bond issues reaching low investment grade levels, ratings are still an issue in emerging markets.¹⁴⁸ At the national level, governments could finance urban infrastructure and mitigate investment risk by partnering with cities and municipalities, and state-owned pension funds could invest heavily in green bonds.¹⁴⁹ The risk would be diminished through this burden-sharing, and opportunities for climate finance would be increased.

While green bonds hold much potential for the future of climate finance, they are not a catch-all solution. Currently, the 225 projects in Europe and North America that may be suitable for bond offerings in the near future account for US\$142 billion of potential institutional investments across North America and the EU. This suggests that the market for green bonds is just scratching the surface.¹⁵⁰ However, this figure is significantly lower than the US\$1 trillion of climate finance needed each year to address climate change goals.¹⁵¹ Thus, governments must also continue to support and de-risk clean energy projects and companies to create an attractive and sustainable investment market. A strong example of government support exists in the United Kingdom, where, in July 2012, the Treasury Department announced a substantial guarantee scheme to

144. *Id.*

145. *Id.*

146. *See, e.g.,* Kaminker et al., *supra* note 64, at 72 (finding that the UK government's policy framework that had clear roadmaps was essential to attracting institutional investors); SANTARIUS ET AL., *supra* note 138, at 26.

147. *See* BUCHNER ET AL. LANDSCAPE 2013, *supra* note 2, at I.

148. Kaminker, *supra* note 64, at 39.

149. Clapp, *supra* note 22, at 47.

150. Kaminker et al., *supra* note 64, at 42.

151. *Id.*

back local infrastructure projects, resulting in some of the United Kingdom's largest pension funds joining forces to invest directly in infrastructure.¹⁵²

The success of this endeavor proves that in order to encourage institutional investment in climate finance, governments must continue to focus on reducing risk by guaranteeing green projects. Providing funding at the early stages of project development, before institutional investors are willing to participate, is another way to catalyze growth and drive an attractive market.¹⁵³ While this requires subsidies of the kind that served as short-lived catalysts after the financial crisis, government support is crucial at the initial stages of market growth and is likely to pay off as private investors, particularly institutions, gradually fill the shoes of the government as projects mature.

V. INCENTIVIZING INSTITUTIONAL INVESTMENT

Once risk has been diminished in climate finance as a sector, focus can shift toward incentivizing institutional investors and encouraging contribution. This process involves two steps. First, regional, national, and international policies restricting or discouraging institutional investor involvement must be removed. Once these barriers have been broken down, incentives for institutional investor involvement may be implemented. In order to finance green infrastructure, policies such as capital requirements may require exceptions and solutions to overcome cost barriers. Governments should also focus on creating an attractive investment climate by enhancing enabling environments, strengthening the green market, and providing investors with tax incentives.

A. FINANCING GREEN INFRASTRUCTURE

The Basel III rules and EU Capital Requirements and Directives and Regulations for banks are expected to significantly limit the ability of banks to provide long-term, non-recourse project finance and increase the cost of shorter-term construction finance.¹⁵⁴ Due to the high capital costs of green infrastructure projects and their dependence on these types of financing, the regulations inhibit the ability of banks to provide the necessary financing, which consequently reduces the available projects in which institutional investors may participate.¹⁵⁵ While bonds have a place in financing renewable energy projects, debt finance for these projects is expected to remain dominated by bank lending.¹⁵⁶ Stress tests by the European Insurance and Occupational Pensions Authority encourage short-term investments by insurers, so they can be sure to comply with even the most

152. *Id.* at 44.

153. See Huppe & Silva, *supra* note 12, at 24-25.

154. See Kaminker et al., *supra* note 64, at 49.

155. *Id.*

156. CLIMATE BONDS INITIATIVE, BONDS AND CLIMATE CHANGE: THE STATE OF THE MARKET IN 2014 4 (2014).

improbable of risk scenarios, making these institutions uncomfortable with long-term green infrastructure investments.¹⁵⁷ While green infrastructure projects often leave a strong post-completion bond market for refinancing assets that may be attractive to institutional investors, these markets necessarily follow projects that are only made possible through bank lending.¹⁵⁸ Exempting banks from the capital requirement rules and stress tests may provide an additional avenue for financing, while removing cost barriers to direct investment can stimulate institutional investor involvement in green infrastructure projects.

1. Capital Requirement and Stress Test Exemptions

A clear solution to the tightening of lending, and the consequent reduction in investment opportunities and investments, is a green infrastructure investment exception to the Basel III capital requirements and institutional stress tests. Capital requirement exceptions would increase the availability of funding for these projects, as this additional leeway would make banks more willing to lend. The increase in lending would result in more opportunities for infrastructure investment by institutional investors. With the proper incentives, institutions would be more willing to take these opportunities because they would not face the possibility of failing a stress test due to the risk or leverage taken on by these investments.

However, with this solution arises a separate problem. While exceptions would benefit climate finance, relaxing capital requirements for any reason could open the doors for those who wish to exploit the exception, threatening systemic financial stability. Prior green energy incentive frameworks, like the World Trade Organization's subsidy exemptions¹⁵⁹ and Clean Development Mechanisms under the Kyoto Protocol, have shown that the risk of exploitation is often more prevalent in a large, complicated system.¹⁶⁰ Thus, one of the subsets of the World Bank, or even the Basel Committee, may not be the best body for monitoring which projects truly qualify for capital requirement exceptions.¹⁶¹ One possible solution would be instituting small project-approval committees at a per-capita rate across the globe, provided that these committees were wholly independent. An oversight mechanism by an existing body would then serve as a check on these committees. Two levels of review require more resources than just adding the task to a current climate finance body, such as the GCF, but given the potential

157. Kaminker et al., *supra* note 64, at 49.

158. See CLIMATE BONDS INITIATIVE, *supra* note 156, at 4.

159. The WTO allowed an exemption for government subsidies, provided that these were positioned as "greening" initiatives. See Ha-Joon Chang, *Painting Carmakers Green*, GUARDIAN (Feb. 3, 2009 1:00 PM), <http://www.theguardian.com/commentisfree/2009/feb/03/automotive-wto-green-politics>.

160. Elinor Ostrom, *Nested Externalities and Polycentric Institutions: Must We Wait for Global Solutions to Climate Change before Taking Actions at Other Scales?*, 49 ECON. THEORY 353, 362 (2012).

161. *Id.*

dangers of upsetting the capital-requirement balance, it would appear to be a necessary expenditure of resources. A committee assigned at a per-capita rate ensures that each proposal can be fully examined, the independence of the committee reduces the potential for conflicts-of-interest, and oversight from a large body would further bolster independence and insulate against the potential for coercion or bribery of the independent committee.

2. Removing Cost Barriers to Direct Investment

If the international community relaxed Basel III capital requirements for certain categories of projects, the greater availability of financing would increase the number of these green infrastructure projects, and quite possibly, the amount of institutional investment, as investing directly in infrastructure is appealing to institutional investors. Direct investment allows for asset-liability matching, helps hedge liability risk, helps hedge sensitivity to inflation where infrastructure assets are linked to inflation, and provides returns with a low correlation to the general market.¹⁶² Additionally, direct investment in renewable energy projects can be more appealing than investing in green bonds due to the low level of liquidity in the green bond market.¹⁶³ However, these benefits of direct investment are often outweighed by the costs and they are not widely available. Direct investment typically requires a substantial minimum investment size, and the significant costs—in addition to high asset barriers—can be limiting even to large institutional investors.¹⁶⁴ Globally, only around forty-five pension funds and between seventy and one hundred insurers are large enough for direct investment.¹⁶⁵ Certain institutional investors will also only consider deals of a certain size.¹⁶⁶ Given the many upsides to investing directly, it is likely that if the barriers to direct investment were reduced, institutional investors would embrace it. This presents an opportunity for changing existing policies and creating wider access to direct investment in green infrastructure, thus increasing institutional investors' contributions to climate finance.

a. Pooled Investment Funds

To overcome the cost hurdle, many investors have teamed up, utilizing investment pools and investment funds. While these mechanisms allow investors access to direct investment where they would otherwise be ineligible, complaints about excessive fees charged by managers threaten their survival. Funds also face a trade-off between liquidity and connection to the underlying project because

162. Kaminker et al., *supra* note 64, at 33.

163. Clapp, *supra* note 22, at 45.

164. Kaminker et al., *supra* note 64, at 35.

165. *Id.*

166. Huppe & Silva, *supra* note 12, at 15.

maintaining liquidity requires a fund to be able to sell assets in order to withdraw from the investment.¹⁶⁷ In order to encourage institutional investor involvement with green infrastructure, these pools and funds must strike a better balance.

Some funds have attempted to do this by offering stable returns to investors with reduced volatility. The Real Asset Energy Fund III (RAEF), an infrastructure fund that invests in renewable energy power plants, boasts a risk-averse strategy providing annual, bond-like distributions.¹⁶⁸ RAEF accomplishes this goal by investing in just one class of assets—power plants—and managing them until the end of their industrial life, which is approximately twenty years.¹⁶⁹ The fund, which was designed specifically to meet the needs of institutional investors, claims that its long-term strategy allows for returns that are not tied to the market and offers an annual window of liquidity to investors over that twenty-year period, in the event that unexpected issues arise for investors.¹⁷⁰ Funds operating in this way may be especially appealing to institutions, which strongly desire insulation from volatility and separation from correlation to the broader risk of the financial market.¹⁷¹

While RAEF currently focuses primarily on Europe and North America, this type of fund could be adapted to serve the needs of developing countries, and risks would be reduced by PPAs or new risk-reduction instruments from the GCF's PSF. Not only would this combination of (i) stable returns and (ii) diminished market and country-specific risk not deter institutional investors, as current funds seem to do, but it could actually encourage institutional investments in developing countries. The World Bank has done much to facilitate climate change, but it is possible that the lack of policy coherence among its funds causes them to not operate as efficiently as they otherwise could.¹⁷² Given that multilateral development banks play such a significant role in facilitating renewable energy investments to developing countries, repurposing some of the more redundant funds of the World Bank may be beneficial for increasing institutional investor access to direct investment, and could allow existing funds to operate with less overlap and interference.¹⁷³

167. Kaminker et al., *supra* note 64, at 36.

168. *Strategy*, REAL ASSET ENERGY FUND, <http://www.raefund.com/index.php/strategy> (last visited May 5, 2015).

169. Kaminker et al., *supra* note 64, at 36; *Real Asset Fund Energy Fund (RAEF) to Offer Stable, Long Term Returns through Investments in Renewable Energy Power Plants*, BUS. WIRE (June 26, 2012), <http://www.businesswire.com/news/home/20120626006088/en/€500m-Real-Asset-Energy-Fund-RAEF-Offer#.VG-tF74tGtY>.

170. *Strategy*, REAL ASSET ENERGY FUND, *supra* note 168.

171. *Real Asset Fund Energy Fund (RAEF) to Offer Stable, Long Term Returns through Investments in Renewable Energy Power Plants*, *supra* note 169.

172. GARETH PORTER ET AL., *NEW FINANCE FOR CLIMATE CHANGE AND THE ENVIRONMENT 9* (Heinrich Böll Found. ed., 2008), available at <http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/3882.pdf>.

173. See Bobinaite & Tarvydas, *supra* note 6, at 268.

b. Reduction of Required Minimums

While setting minimum contribution rates allows for focus on large-scale projects and reduces transaction costs, smaller projects may be overlooked even though they may have a large impact.¹⁷⁴ Additionally, the cost barrier to many institutional investors is discouraging.¹⁷⁵ Reducing the minimum investments required by institutions through providing an exemption for investment in renewable energy projects would not only allow for greater opportunities in institutional investment in climate finance, but it would also lend greater support to these smaller, typically local, projects.¹⁷⁶ Local projects are beneficial because they can develop within the country's existing framework, modifying current mechanisms and tailoring results to address the specific needs of the country.¹⁷⁷ Existing World Bank funds could be adapted to support strictly local projects and facilitate finance flows to their host countries, and in the event that local projects' capital requirements do not individually rise to the threshold requirement for institutional investment, local or regional projects could be pooled with grouping by type and risk. This would increase the ability of institutional investors to participate in climate finance, while providing communities in developing countries with bespoke projects, best suited to meet their needs.

B. NATIONAL POLICIES

Increased involvement of institutional investors in climate finance is not possible without governments considering their current policies and evaluating whether any have the inadvertent effect of hindering investments. Institutional investors commonly request better treatment of illiquid assets, more specialized investment expertise for renewable energy, and asset allocation approaches that capture risk and return characteristics of renewable energy assets.¹⁷⁸ Generally, international accounting and funding rules tend to discourage institutional investors from longer-term, illiquid or riskier assets such as infrastructure projects.¹⁷⁹ As a country-specific example, China is notorious for imposing obstacles to foreign investment, making it virtually impossible to obtain a priority return on investment through preferred stock, and actually impossible to directly

174. TAKAYOSHI KATO ET AL., SCALING UP AND REPLICATING CLIMATE FINANCE INTERVENTIONS 16 (Climate Change Expert Grp. ed., 2014), available at http://www.oecd.org/env/cc/Scaling_up_CCXGsentout_May2014_REV.pdf.

175. *Id.*

176. *Id.*

177. See Rossi, *supra* note 139, at 37.

178. See Coninck & Sagar, *supra* note 3, at 3.

179. Kaminker et al., *supra* note 64, at 48 (explaining how these regulatory barriers can inadvertently discourage investors from investing in infrastructure projects).

invest in projects.¹⁸⁰ Recovering money invested in China is one of the primary concerns of green energy investors, and such risk could be a showstopper for institutional investors.¹⁸¹ The removal of investment barriers should be a priority for governments wishing to participate in global climate finance, but it is particularly important for developing countries in need of foreign investment. Encouraging investment is also important, and economic and entrepreneurial opportunities are primary drivers of investment, with taxation following closely behind.¹⁸² Policymakers should examine these barriers and determine the reforms necessary to enhance enabling environments for investment.¹⁸³

1. Enhancing Enabling Environments

An enabling environment, as opposed to a constraining environment, is a system of government policies focused on supporting development processes.¹⁸⁴ Indicators of enabling frameworks for climate finance fall into four categories: policy and regulation, clean energy penetration, price attractiveness, and market size expectation.¹⁸⁵ Countries with the best enabling environments have several commonalities: regular use of PPAs, strong tax incentives and exemptions for renewable and low-carbon energy projects, and credit lines boasting low interest rates established for renewable energy projects.¹⁸⁶ These policies give countries a targeted framework for green investment, and with long-term strategies put into place, institutional investors have assurances that policy shifts will not suddenly occur. In addition to promoting foreign investment, enabling such conditions drives economic growth and enhances opportunities for deal-making in climate finance.¹⁸⁷

2. Strengthening the Market through Subsidies

Governments must also continue to support and de-risk clean energy projects and companies in order to create an attractive and sustainable investment market. They must also implement the stronger policies necessary to change market incentives and encourage investment in green technologies, renewables, and

180. WILLIAM CHANDLER & HOLLY GWIN, FINANCING ENERGY EFFICIENCY IN CHINA, 12 (Carnegie Endowment for Int'l Peace ed., Dec. 6, 2007), available at http://carnegieendowment.org/files/chandler_clean_energy_final.pdf.

181. *Id.*

182. Huppe & Silva, *supra* note 12, at 23.

183. KATO, *supra* note 174.

184. GUPTA ET AL., *supra* note 97.

185. *Enabling Framework*, CLIMATESCOPE 2014, <http://www.global-climatescope.org/en/topic/enabling-framework> (last visited May 5, 2015).

186. *See Policies*, CLIMATESCOPE 2014, <http://global-climatescope.org/en/policies/#/> (last visited Mar. 12, 2015).

187. Huppe & Silva, *supra* note 12, at 23.

other types of climate finance.¹⁸⁸ Government support is crucial initially, and is likely to pay off as private investors gradually fill the shoes of the government by supporting the green sector. Naturally, most governments will view guarantees and subsidies as short-term fixes to encourage permanent investment shifts. Most governments have neither the resources nor the popular support to continuously control the market, so implementing methods that can be gradually reduced, and ultimately dropped, is key. One way to create a strong market, while slowly weaning the sector off of subsidies, is through the use of competitive deployment incentives. These incentives can be created for a variety of comparable green segments, with incentives for each falling steadily over time as a way to demand and reward continuing innovation and price improvements.¹⁸⁹ This strategy would create market demand and serve as a catalyst for constant, or at least consistent, innovation levels.

Another way to incentivize climate investments is through the creation of exceptions by the government that incentivize and protect these investments. Increased capital requirements and other regulations created in the wake of the financial crisis may encourage a bias toward short-term investments, which negatively impact many climate finance avenues, particularly green infrastructure projects.¹⁹⁰ Green exceptions to these regulations may catalyze institutional investor participation in climate finance. The only issue is preventing abuse of this system. Many governments structured auto bailouts as green initiatives to skirt WTO subsidy rules,¹⁹¹ and the risk of that same problem arises here.

3. Tax Incentives

Tax incentives are regularly used to increase investment in desired sectors. In fact, tax incentives are the most widely-used government instrument.¹⁹² Many of the countries regularly rated as having the best enabling environments use tax breaks to encourage investment. In the Philippines, renewable energy projects are exempt from income tax for seven years, and the government applies a zero Value Added Tax (VAT) for these projects.¹⁹³ Contrast this to China's VAT of 17% of revenue for energy efficiency service providers.¹⁹⁴ The differences between countries providing an enabling environment for foreign clean energy investments and those discouraging it is made painfully clear by this comparison.

188. See Geels, *supra* note 59, at 74.

189. Jenkins et al., *supra* note 56, at 8.

190. Kaminker et al., *supra* note 64, at 53.

191. See Ha-Joon Chang, *Painting Carmakers Green*, GUARDIAN (Feb. 3, 2009), www.theguardian.com/commentisfree/2009/feb/03/automotive-wto-green-politics.

192. Bobinaite & Tarvydas, *supra* note 6, at 266.

193. *Id.* at 267.

194. CHANDLER & GWIN, *supra* note 180, at 13.

On the other side of the tax coin, pricing carbon emissions through a carbon tax is one of the most powerful incentives governments have to encourage companies and households to pollute less and to invest in cleaner technologies and adopt greener practices. Carbon taxes are not just effective on companies but also on households.¹⁹⁵ Though carbon-pricing mechanisms have fallen in recent years, emissions trading can be a key climate policy instrument, and these mechanisms may offer the incentives necessary to attract institutional investors.¹⁹⁶ Putting a price on greenhouse gas emissions, either through a carbon tax or emissions trading, can alter the rate of return on high- and low-carbon investments, causing low-emission technologies to attract more investment.¹⁹⁷ At the same time, these taxes raise substantial amounts of revenue, which can then be put toward climate finance and research.

4. Reforming Fiduciary Considerations

It is significant that the laws governing the fiduciary duties of pension fund trustees do not explicitly require that trustees factor in long-term risks like climate change.¹⁹⁸ Consequently, investors often fail to account for these considerations in their investment practices or do not give them enough weight. Additionally, Modern Portfolio Theory disregards a business's broader impact and does not take into account the sustainability implications stemming from an investment, even though they may ultimately have positive financial significance.¹⁹⁹ As a result, the indirect benefits of sustainable investing, such as reduced risk of loss from climate change, are overlooked.²⁰⁰ In the 2014 Global Investor Statement on Climate Change, 362 institutional investors, including the members of the Institutional Investors Group on Climate Change, pledged to support low-carbon investment opportunities, but in a manner that is consistent with their fiduciary duty to their beneficiaries.²⁰¹ This qualifier is telling and may indicate a loophole for institutional investors who do not wish to participate in climate finance. If the institution claims that the risk of investing in renewables is so high that it would constitute a breach of fiduciary duty to do so, the institution would be prohibited from investing.

195. *Carbon Tax or Cap-and-Trade?*, DAVID SUZUKI FOUND., <http://davidsuzuki.org/issues/climate-change/science/climate-solutions/carbon-tax-or-cap-and-trade> (last visited May 5, 2015).

196. Kaminker et al., *supra* note 64, at 28-29.

197. GUPTA ET AL., *supra* note 97, at 1210.

198. Kaminker et al., *supra* note 64, at 48-49 (noting that because these laws do not require that trustees take account of risks like climate change or the potential impact of environmental, social and governance issues on financial returns, investors tend to fail to reflect those considerations in their investment practices).

199. Huppe & Silva, *supra* note 12, at 13.

200. *Id.*

201. *Global Investor Statement on Climate Change*, INSTITUTIONAL INV'RS GRP. ON CLIMATE CHANGE I (2014), <http://www.iigcc.org/files/publication-files/GISCC13Nov.pdf>.

While institutional investors, particularly pension funds holding the sole source of retirement income for many beneficiaries, should certainly be risk-averse, the current state of fiduciary duty may benefit from some adjustment. Given the likelihood of continued economic losses caused by increasingly harsh weather—along with the finite amounts of current energy sources and the resulting political power struggles—failing to factor in climate change into risk profiles may result in institutions carrying an unacceptable amount of risk. Fiduciary duty is continually evolving, and it is time to require that climate change be implemented as an explicit factor in weighing investment risk while following fiduciary duty guidelines.²⁰² Changing this domestic policy would increase domestic climate finance investments, and while it may not directly aid developing countries, forcing climate change to stay on the radar of institutional investors will lead to a global increase of projects, which is likely to have a trickle-down effect to developing countries.

VI. CONCLUSION

Given the necessity of the role of institutional investors in the future of climate finance, reducing risk and incentivizing institutional investment must be made a priority by governments, IGOs, and multinational bodies across the globe. Reduction in risk may occur through the regulation of green financial products, innovation in financing, the creation of new risk coverage instruments, and changes in domestic policy. Once risk has been reduced, institutional investors can consider investment in climate finance. However, to turn this consideration into a real possibility, any deterrents to institutional investment must be removed. Finally, incentives should be implemented in order to stimulate the growth of the green energy market and encourage institutional investment. A challenge arises due to the critical importance of both the sustainability of the environment and the systemic importance of the largest players in the global financial system. Both risk-reducing and incentivizing measures for climate finance must be tempered by an overarching concern for financial stability, and thus, a balance must be struck between maintenance of systemic stability of the global financial system and the embrace of climate finance.

202. See Keith L. Johnson, INT'L INST. FOR SUSTAINABLE DEV., INTRODUCTION TO INSTITUTIONAL INVESTOR FIDUCIARY DUTIES (2014).