Analysis Of Green Financial Markets

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ABSTRACT

Green financial markets are still in early stages of development. There are new green venture capital funds and green stocks to satisfy needs of project developers and investors. Various governments are also subsidizing new green ventures and project developers should take full advantage of these incentives. Also, there have been attempts to quantify riskiness of various green financial products so investors can make informed decisions.

Keywords: green financial market, green venture capital, green stocks, carbon market, subsidy, financial rating

INTRODUCTION

The growth of the green financial markets and the introduction of new rating techniques for carbon products are essential for the future of the low-carbon green global economy. At the same time, institutional investors are playing an important role in pursuing global corporation to disclose their carbon exposure and explain their strategies for cutting down carbon emissions. All these developments are good signs for successful transition to the low-carbon green global economy. The purpose of this study is to highlight the sources of green financing and explore the new developments in green financial markets. This is an exploratory study and this study can serve as a reference to new green project developers and financial consultants.

GREEN VENTURE CAPITAL FUNDS

There are many entrepreneurial opportunities available in carbon trade, clean energy technology, and carbon abatement projects. Among the opportunities is to develop low carbon emissions projects or modify existing projects to cut down GHG emissions. There are also opportunities in developing new carbon abatement technologies and marketing them to other corporations. These activities can be funded by governmental agencies in many developed countries. In the U.S., the National Science Foundation (www.nsf.gov), the U.S. National Renewable Energy Laboratory (www.nrel.gov), the American Solar Energy Society (www.ases.org), and various state funded organizations offer research and seed money for these projects.

There are also "angel investors" who specialize in carbon abatement projects. Angel investors pool their resources and provide early investment in risky projects that have potential for major success. Angel investors are very selective in their investment decisions. Angel investors may aggressively support carbon projects if the new U.S. administration puts high priority on environmental issues.

The most common financing source for new and existing carbon abatement projects comes from green venture capitalists (GVCs). The green venture capital industry is growing at a rate of 50 percent annually since the Kyoto Protocol went into effect (McCarthy 2006). To qualify as a venture capital investor, the investor must be "accredited," which means that the investor must have a net worth of over one million dollars and should have earned over $200,000 in the past two years. The GVCs take an active role to build a corporation, and after making the startup a commercially viable entity, the GVC will walk the corporation through the initial public offering (IPO) or sell the startup corporation to a well establish corporation. The GVC investment in carbon abatement projects offers opportunities to project developers as well as investors. There are dozens of green venture capital funds in the U.S. market. The green GVC funds offer at least four advantages to any small potential investor and startup corporation. First, the GVC funds understand the market, and they bring with them depth of startup management experience, thus minimizing the failure risk. Second, GVC funds understand asset structuring, which means

spreading their investment in several technological categories and minimizing risk while improving profitability. Third, GVC funds help develop a comprehensive business strategy and provide continuous medium-term financial support. Fourth, GVC funds have experience in issuing initial public offerings (IPOs) or selling corporations to the highest bidder. For a clean energy startup corporation, GVC funds are a valuable source of funding, and for high-net-worth investors, investing in a well-managed GVC fund offers a high profitability option (Green VC 2008). In 2005, only 74 green venture capital deals were executed with about $600 million changing hands. By 2006, the number of deals grew to 124 and the value of those deals climbed to almost $2.5 billion. Green venture capital got attention in 2007, when the number of deals grew to 222 at a value of approximately $3 billion. By the end of 2008, green venture capital deals are expected to be around 300 at a $ 4 billion value (Hodge 2008).

One of the major green venture capital networks is the Cleantech Network (www.cleantechnetwork.com). As of summer 2008, Cleantech Network claimed to include over 8,000 investors, 6,000 corporations around the world, 3,500 professional service organizations, and over $3 trillion in assets under management. Cleantech Network started from the U.S. and now operates in the EU countries, China, and India. Corporations interested in securing venture capital financing can directly contact them or attend one of the four annual forums (two in North America, one in the EU, and one in China).

Every green venture capital fund has a unique focus on an industrial sector or geographical region, and green venture capital activities at times are geared toward a particular country. For example, in early 2008, Green Venture, a New York-based emission commodity management corporation launched the first ever carbon fund, which has raised approximately $300 million for investment in CDM projects in India and Nepal. The fund will invest in CDM projects as well as the CERs generated by other CDM projects. It was believed that India was underrepresented in global green investment, so this fund should be good news for CDM project developers. The fund is targeting renewable energy projects in these two countries (Carbon Finance, 2008b).

PUBLICLY TRADED GREEN STOCKS

There are a number of green stocks traded on financial exchanges and these stocks offer an opportunity for small investors to participate in green ventures. These stocks may also offer higher return compared to the rest of the market. A risk adverse investor may consider investing in venture capital mutual funds. Green stocks come from all business sectors and sizes of corporations. As of 2007, there were 60 corporations listed on U.S. exchanges that were classified as exclusive clean energy corporations. The median market cap for these corporations was $500 million with smaller corporations around $75 million. These clean energy corporations, along with large solar-energy-related corporations, are traded on U.S. exchanges. There is also an over-the-counter (OTC) market for smaller corporations (market cap around or under $100 million). These corporations are traded on the OTC Bulletin Board (www.otcbb.com) or the Pink Sheets (www.pinksheets.com).

Small and large U.S. investors can also take advantage of the international clean energy (green stocks) either by directly investing in foreign stock exchanges or investing in American Depository Receipts (ADRs) or Global Deposit Receipts (GDRs) traded on the U.S. stock exchanges. ADRs and GDRs simply bundle foreign stocks and offer them as a financial instrument on a U.S. equity market. Some of the European and Chinese stocks are cross-listed on U.S. exchanges as well. The green European corporations offer a safer investment opportunity because they have been operating for over a decade and they can provide historical performance report.

For a new investor, it is difficult to pick an individual stock that is profitable. One of the strategies to overcome this obstacle is to invest in a green mutual fund or Exchange Traded Fund (ETF). A green ETF allows investors to invest in the entire sector, thus spreading risk and return over several corporations in that sector. An ETF does not pick a better performing stock—the investor just averages out his or her risk and return. On the other hand, mutual funds try to pick better performing stocks in one or several sectors of green corporations. Mutual funds are managed by professionals who have a history of picking a better stock, thus mutual funds offer a low risk opportunity to green investors. Mutual funds do charge a management fee. Some of the larger and better performing U.S. green mutual funds are Winslow Green Growth Fund (www.winslowgreen.com) with market capitalization of $237 million at the end of 2007, New Alternatives Fund (www.newalternativesfund.com) with market capitalization of $201million at the end of 2007, Guinness Atkinson Alternative Energy Fund (www.gafunds.com), and Calvert

Global Alternative Energy Fund (www.calvert.com/alternativeenergy.com). Similarly there are other mutual funds operating outside the U.S. that mainly investing in global green corporations (Asplund 2008).

SUBSIDIZED GREEN PUBLIC FINANCING

In the United States, a wide range of incentives are available from both the federal government and a number of states to support corporations' investment in renewable energy, bio-fuels, energy efficient processes, and forestation. Almost all U.S. states are offering incentives in various renewable energy sectors. A list of the incentives can be found on the U.S. Department of Energy website. For example, the U.S. federal government and fourteen states have been subsidizing industrial wind power generations. These states have set up ambitious goals to generate a portion of their energy from wind farms. At the end of 2008, the U.S. had been producing more wind power than any other country (about 22,000 MW), with Texas leading the pack followed by California, Iowa, and Minnesota (AWEA 2008). These fourteen states have mandated that about one-third of their power should be produced from wind by 2025 or2030. Wind farm developers are getting approximating 1.0 to 2.0 cents per kwh subsidy in addition to the federal government's incentives, which needs to be periodically renewed by Congress. Future investors should pay attention to these programs and consider them in their project financing model.

Most of the U.S. states and federal government have been offering economic incentives and tax breaks to biomass, biodiesel, solar, geothermal and other renewable energy sector. There are also incentives and federal tax breaks for electric car and hybrid car purchases, and employing energy saving devices. A green investor must study these incentives before undertaking new investments.

SALE OF CARBON CREDITS FOR REVENUE

Green ventures can raise significant capital by pledging the future stream of carbon credits generated from the project. These carbon credits are traded on one of the global climate exchange or at the over-the-counter carbon market. There are different names for these carbon credits (depending on the nature and origin of the credits), and they do not enjoy standardized acceptance in all countries because of different certification standards, but it is a new currency of global climate programs (Victor and House 2004). The carbon credit market is expected to be one of the largest commodity markets, if not the largest commodity market, by 2025 (Harvey 2008). The price of a carbon credit is determined by competitive bidding on one of the major climate exchanges, on an over-the-counter (OTC) market, or by bilateral transactions. Carbon credit trading has real economic benefits to both developed and developing countries. The cost for developed countries to reduce each metric ton of CO2e is $300–$500, while developing countries' cost is $10–$25. Because of this cost difference, it is obviously very lucrative for developed countries to purchase carbon credits from developing countries rather than solely reduce their own GHG emissions. Carbon credits also offer significant benefits to the developing countries' environmentally friendly projects by providing an additional source of revenue and by boosting the economic feasibility of new green projects (Carbon Trade 2007).

INVESTORS' DEMAND

Investors are also demanding that corporations disclose their participation in carbon abatement activities and current carbon risk. Investors are interested in minimizing their potential carbon risk and the risk of financial penalties. One of the most talked about developments is public scrutiny by the Carbon Disclosure Project (CDP), which encourages corporations to reduce GHG emissions. The CDP is a coalition of about 385 institutional investors with $57 trillion under their management. Since 2000, the CDP has made six requests to the largest global corporations to disclose their GHG emissions reduction programs. Five of these survey reports are available to the public and the sixth report is announced to be available in later part of 2008 (CDP 2008). Such a request suggests that multinational corporations and large global corporations are subject to increasing pressure not from their governments but also from investment groups to find a market-based solution to environmental problems and reduce their GHG emissions. The CDP has positively influenced the attitude of global corporations towards carbon management. Environmental consciousness is no longer just considered a "nice" thing to do; instead, corporations' actions have economic implications. The CDP boasts that their website is the largest repository of corporate GHG data in the world.

BANKING AND INSURANCE

Commercial banks and other financial service providers are relative latecomers in the carbon finance industry. The carbon finance industry, as a consequence, suffers from a lack of uniform standards and difficulties in risk/return evaluation of carbon projects. Swiss Re and Munich Re were the two pioneer European insurance corporations getting their feet wet in carbon finance projects. Other large insurance corporations such as AIG and Zurich have also developed policies to insure against the non-delivery risk of the carbon credits in CDM and JI projects. The insurance industry's involvement in the carbon market is, at best, described as in the early stages of developing carbon trading policies. After suffering major loses in October 2008, future involvement by banking and insurance sectors in the global carbon markets remains to be uncertain.

Most of the U.S. and international commercial banks have designated a percentage of their financing to green ventures. In addition, these banks require energy efficiency and carbon abatement strategies in all business plans submitted for financing. The rationale for this requirement is that commercial banks wish to protect the project from unexpected carbon emissions compliance costs, which may lower the profitability of the corporation (Asplund 2008). It is also argued that actual implementation of environmental risk management varies among financial institutions, and at times the financial institutions focus narrowly on GHG emissions issue while ignoring economic development and sustainability issues (Montgomery 2008).

QUANTITATIVE MEASURES OF CARBON RISKINESS

Because carbon strategy of the project is gaining legitimacy in investment and other financial analysis, there is a need for quantifiable measures of a project's carbon risk. The quantifiable value of the carbon risk can be incorporated in financing and management decisions of the project. Most of the publicly available GHG emissions and management information is extracted from questionnaire responses. Above all, this information is nothing but subjective opinion of the questionnaire respondents. It is difficult to validate the information and compare the emissions reduction data across industries and countries Traditional rating agencies (Moody's and S&P) are reluctant to rate projects generating carbon credits. In absence of quantitative measures of the projects, a majority of CDM projects have received certification of just over 70 percent of the desired quantity of carbon credits (Carbon Rating Agency 2008). A detailed analysis of the carbon abatement projects by carbon rating agencies may improve the quantity of carbon credits generated from these projects, and hence improve their financial health.

One of the first comprehensive solutions to non-compliance and non-delivery risks in the carbon trading market was announced by the Carbon Rating Agency. In the summer of 2008, the Carbon Rating Agency introduced the Market Initiated Rating Service to evaluate riskiness of carbon emissions reduction projects. The third party evaluation of carbon reducing projects offer additional information for investors in CDM, JI and voluntary market projects—areas where occasional bad news may have scared away potential investors and corporations. The Market Initiated Ratings Service aims to give carbon market participants access to information about the carbon-credit delivery risk profile of a range of CDM, JI, and voluntary projects. The rating agency analyzes projects by focusing on five major categories: project concept, project participants, project context, project implementation, and emission reduction framework. The prime goal of the Market Initiated Rating Service is to increase market efficiency and transparency, and consequently enable market participants to profit from improved market function. Furthermore, information on delivery risk and increased transparency reduce the risk of non-approval of new carbon credits generating projects (Carbon Rating Agency 2008).

A leading financial advisory corporation, Innovest, has introduced a quantifiable measure based on the concept of the corporate beta, which is a measure of the riskiness of an individual portfolio vis-à-vis the entire market. Innovest's risk measure is called the Carbon Beta™. The Carbon Beta™ model addresses three critical factors: absolute and relative environment risk exposures for individual corporations; corporations' capacity to manage these risks; and their ability to identify and capture upside commercial opportunities being created as a result of better environment risk management (Innovest 2008). It is believed that the environmental, social, and governmental parameters that are incorporated in the Carbon Beta analysis have the most impact on corporations' financial and share price performance. The **Carbon Beta™** platform currently covers about 2,300 international corporations in carbon-intense sectors. There are three primary elements for assessing corporate risk and

performance. The Carbon Beta™ analysis incorporates industry sector exposure, corporation-specific carbon analysis, and carbon financials. The Carbon Beta™ is one example of the quantifiable measure availability in the carbon market. The Carbon Beta™ does have its limitations because corporation analysis is focused only on the voluntary carbon disclosure from the corporations, and major corporation analysis is based only on carbon emissions. By focusing exclusively on carbon emissions, the Carbon Beta™ index disregards the corporation's carbon management efforts and possible improvements, which may turn a corporation's project into an opportunity rather than a risk.

Two leading credit rating agencies (Moody's and S&P) have started incorporating carbon risks and opportunities in their bond rating activities of global corporations. Another measure of a corporation's involvement in environmental issues is the Dow Jones Sustainability Index (DJSI). The DJSI is an index available to rank global corporations based on their social responsibility. Carbon management is just one of the elements of the DJSI and bond ratings. The DJSI offers investors professional benchmarks and an investment universe for active and passive sustainability portfolios. This index also provides investors with a platform to encourage corporate progress towards sustainability and long-term business success. In that context, a growing number of corporations desire to be ranked favorably by the DJSI and hope that favorable ranking will highlight their sustainability credentials (DJSI 2008).

AUTHOR INFORMATION

Dr. M. Anaam Hashmi is a professor of international business and finance at the Minnesota State University, Mankato, USA. Dr. Hashmi has held several leadership positions and published over seventy applied research papers. His current areas of interest are carbon market, political risk management, and foreign direct investment.

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