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Responsible Investing
in the Asia-Pacific Region:

Understanding Sustainability and
Investments in Japan and Hong Kong/China
in an Era of Global Climate and
Environmental Change

Maatschappelijk verantwoord investeren in Azië:
Het verband tussen milieukundige duurzaamheid en financiering in Japan
en Hong Kong/China

Thesis

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Jacob Park, Vermont, USA March 2014

Summary

The author of this thesis examined the concept and market development of responsible investing (RI), which can be defined as an investment process that integrates social and environmental considerations within the context of traditional investment processes. RI has become a well-established financial investment approach in United States and Western Europe (US/WE) as well as an important business, environmental, and societal issue. However, RI has not, to date, been explored as a financial investment approach outside of the US/WE region, especially in Japan and Hong Kong, China.

Given its rapidly increasing economic footprint on the global economy, Asian pathways on economic development, particularly China might heavily influence the directions and impacts of corporate sustainability governance on the global level. Moreover, in order for RI to serve as a finance-based solution to climate change and other business and sustainability dilemmas worldwide, this thesis author argues that RI needs to become a market instrument that can respond more effectively to a complex array of social, environmental, and economic sustainability challenges.

In the first part of this thesis, the author provided a general discussion on the historical and institutional market development of RI as a business concept initially in US/WE and later in the Asia-Pacific region (Japan and Hong Kong/China). In the second part of this thesis, the author explored the evolving relationship between business and sustainable development as well as the current and emerging sustainability challenges in Japan and Hong Kong/China. In the third part of this thesis, the author concluded with an analysis of the relationship between RI and climate change worldwide and specifically in the Asia-Pacific region. Climate change has become a critically important global environmental governance issue as well as a RI priority in recent years.

This thesis contributed to the business, environmental and societal management scholarship in the following three ways. On the first level, it contributes to the growing academic scholarship on the global and regional RI market development. How did RI develop initially in US/WE and how did that process compare with the process that took place in Japan and Hong Kong/China? On the second level, it contributed to the academic scholarship on the evolving relationship between business and sustainable development in Japan and China. On the third level, it contributed to the

academic scholarship at the important nexus between RI and climate change, especially with regard to answering the question, 'What is the emerging relationship between RI and climate change on the global and the Asia-Pacific regional levels?'

By providing the important conceptual links between environmental governance, business strategy, and firms in Japan and Hong Kong/China, this thesis author provided a more nuanced insight into these links in terms of the Asia-Pacific regional market context using RI as a case study. Because of the critical global and regional business, environmental and societal importance, the thesis author provided an important analytical emphasis on climate change and how RI can be directed to help to counter it.

The international community is embroiled in trying to identify a long-term global solution to manage climate change-related economic, social, and environmental risks and the issues of finance and investment, including RI, are emerging as critical global climate change governance opportunities/challenges. How effectively the international community responds to the question of who pays for and how climate change solutions will be financed will determine the relative success of global climate change governance and societal success in effecting the transitions that are essential.

Samenvatting

In dit proefschrift staan het concept duurzaam beleggen en de marktontwikkeling ervan centraal. Duurzaam beleggen kan gedefinieerd worden als het integreren van sociale en duurzaamheidsoverwegingen in beslissingen over beleggingen, en het proces waarin die beslissingen genomen worden. Duurzaam beleggen is een gevestigd begrip geworden in de VS en West-Europa, en belangrijk onderwerp in het debat over bedrijfsleven, milieu en maatschappij. Niettemin is duurzaam beleggen tot nu toe nog niet onderzocht buiten de VS en West-Europa, met name niet in Japan, Hong Kong en China.

Azië krijgt een steeds grotere voetafdruk op de wereldeconomie. Daarom zou de economische ontwikkeling in Azië, in het bijzonder in China, een grote invloed kunnen gaan hebben op de richting en de ontwikkeling van duurzaam ondernemen wereldwijd. Duurzaam beleggen zou een oplossing kunnen zijn in het financiële domein voor klimaatverandering en andere uitdagingen op het gebied van duurzaamheid. Dat vraagt er echter om dat duurzaam beleggen een marktinstrument wordt dat effectiever kan reageren op een complex van milieu-, economische en duurzaamheidsvraagstukken.

Het eerste deel van dit proefschrift bevat een algemene bespreking van de historische en institutionele ontwikkeling van duurzaam beleggen zoals deze aanvankelijk op gang kwam in de VS en West-Europa, en later in de Asia-Pacific regio (Japan en Hong Kong/China). In het tweede deel wordt de relatie verkend tussen bedrijfsleven en duurzame ontwikkeling, evenals de actuele en opkomende uitdagingen op het gebied van duurzaamheid in die regio. In het derde deel volgt een analyse van de relatie tussen duurzaam beleggen en klimaatverandering in de Asia-Pacific regio. De governance van klimaatverandering en duurzaam beleggen zijn de laatste jaren een onderwerp van cruciaal belang geworden.

Dit proefschrift levert een drievoudige bijdrage aan de kennis op het gebied van het management van bedrijven, milieu en maatschappij. Op de eerste plaats draagt het bij aan het inzicht in de mondiale en regionale ontwikkelingen in duurzaam beleggen. Hoe ontwikkelde duurzaam beleggen zich aanvankelijk in de VS en West-Europa, en hoe verschilt dat van de ontwikkelingen in Japan en Hong Kong/China? Op de tweede plaats levert het nieuwe kennis over de relatie tussen bedrijfsleven en duurzame ontwikkeling in Japan en China. Op de derde plaats vergroot het de kennis

op het belangrijke snijvlak van duurzaam beleggen en klimaatverandering, in de Asia-Pacific regio en wereldwijd.

Met duurzaam beleggen als 'case study' worden in dit proefschrift de belangrijke conceptuele relaties geïdentificeerd tussen milieu, governance, *business strategy* en bedrijven in Japan en Hong Kong/China; tevens wordt een genuanceerd inzicht verkregen in deze relaties. Daarmee is ook meer inzicht verkregen in de manier waarop duurzaam beleggen een rol kan spelen in het tegengaan van klimaatverandering.

In de internationale gemeenschap is de strijd gaande over de langetermijn, wereldwijde oplossing van het klimaatvraagstuk. Daarbij gaat het om de economische, sociale en milieurisico's, en de vraag hoe financiers en beleggen, inclusief duurzaam beleggen, mogelijkheden biedt om die risico's te beheersen en te reduceren. Het gaat erom hoe effectief de internationale gemeenschap een antwoord kan formuleren op de vraag wie betaalt voor oplossingen van klimaatverandering, en hoe deze oplossingen gefinancierd zullen worden. Dat bepaalt het succes van de mondiale klimaatgovernance en van de transitie die daartoe noodzakelijk zijn.

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Abbreviations

CSR	Corporate Social Responsibility
EM	Ecological Modernization
ESG	Environmental, Social, Governance
EM	Ecological Modernization
EU	European Union
FTSE	Financial Times and Stock Exchange International
IGNs	Investor-Driven Governance Networks
ISO	International Standard Organization
MNCs	Multinational Corporations
NGOs	Non-Governmental Organizations
OECD	Organisation for Economic Co-operation and Development
RI	Responsible Investing
SMEs	Small and Medium-Sized Enterprises
SRI	Socially Responsible Investing
TBL	Triple Bottom Line
US/WE	United States/Western Europe

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CHAPTER

ONE

1. Introduction

1.1 Genesis of this Thesis

When this thesis author was working as an urban development and environmental policy specialist at the Tokyo, Japan-based United Nations University, in the mid- 1990s, he received a query one day from the Switzerland-based Sustainable Asset Management (SAM) company (currently part of the Robeco Asset Management Company) to determine if he might be interested in undertaking a small project to research the corporate social and environmental analysis of publicly-traded Asian companies. At that time, SAM's approach, along with many other responsible investment¹ (RI) research firms, consisted of sending out and asking companies to fill out long questionnaires detailing their social and environmental performance data.

The RI research approach that was developed and refined for the United States and Western Europe (US/WE) may not fit the Asia-Pacific marketplace due to three important factors. This may be true, firstly because China and other Asian economies have grown dramatically throughout the region over the past two decades with an average growth of about eight percent per year. Although this dramatic economic growth has allowed large numbers of people to move out of poverty, there continues to be large numbers of people still living in poverty in contrast to US/WE countries.

For example, China is estimated to have over 300 million people who live in poverty while comparable figures for India are estimated to be 600 million. The large numbers of people who live below the poverty line as well as growing economic inequality have been recognized as key issues for both

¹ RI is used interchangeably in this thesis with concepts such as socially responsible investing (SRI), and ethical investing.

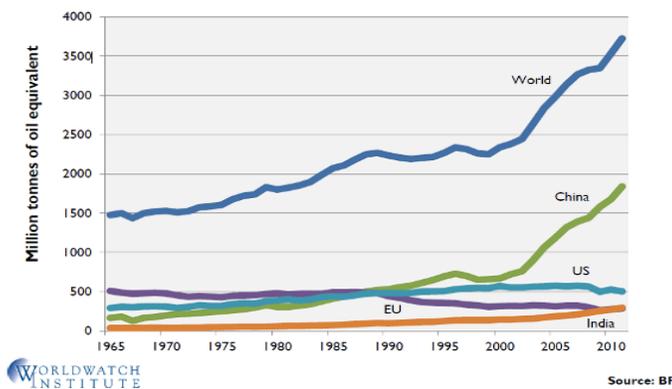
governments and businesses throughout the Asia-Pacific region (ADB 2012). The Asia-Pacific region is an area with countries in the “very high human development” category (e.g. Japan at number 10), with countries in “medium human development” category (e.g. China at 101), and with countries in the “low human development” (e.g. Myanmar at number 149) category as defined by the UN Development Program Human Development Report (2013).

Secondly, the heterogeneity of the economic development levels (for instance, the World Bank’s 2012 estimated that the GDP per capita income² for Japan [\$46,720] which is 7.7 times the GDP of China [\$6,091]). Additionally, the intense economic dependence on oil, forestry products, and other commodities to fuel the ‘business-as-usual’ economic growth in China and other Asian emerging economies, which provides another contrast with the US/We region. As a result, the primary orientation of business strategies within the Asia-Pacific region are focused upon obtaining access to oil, forestry, and other energy/natural resources and not on using resources in a sustainable manner (Alessi and Hanson 2012).

Figure 1.1

Comparing Coal Consumption: World, China, U.S. EU, India (1965-2011)

Figure 1. Coal Consumption, World and Selected Regions, 1965–2011



Source: Lucky and Rogers (2012)

² World Bank <http://data.worldbank.org/indicator/NY.GDP.PCAP.CD> (accessed 1 August, 2013)

China became the world's largest consumer market for automobiles in 2010 and is now the second largest importer of petroleum after the United States. As a result, China uses approximately ten percent more energy and emits almost 40 percent more greenhouse gases than the U.S. (Economist 2011). In the case of coal, China is the largest coal consumer in the world (for instance, 49.4 percent of global use in 2011) and accounted for 80 percent of global coal demand during the period 2001–11 (Lucky and Rogers 2012).

The complex relationship between Asia and environmental sustainability may be best summarized by this description of China's growing economic and resource footprint: "In 1998, for China to grow its \$1 trillion economy by ten percent, it had to expand its economic activities by \$100 billion and consumed only ten percent of the world's industrial commodities - the raw materials that included everything from oil to copper and steel. In 2011, to grow its \$6 trillion economy that fast, it needed to expand by \$600 billion a year and suck in more than 30 percent of global commodity production" (Sharma 2012, p. 19).

Thirdly, companies in the Asia-Pacific traditionally invested less (as compared to their business peers in US/WE) on the organizational structure to manage their corporate environmental and social responsibility issues. Until recently, only a rare Asian company had a team or even an individual assigned to manage environmental, social, and governance (ESG) issues, though this has changed dramatically since the mid 1990s.

According to the 'State of Responsible Business Asia' report by a London-based socially responsible investment research company, Asian companies performed reasonably well on environmental issues, with the report finding that over 40 percent of companies located in the region were assessed as having good or excellent environmental policies. However, less than ten percent of Asian companies were rated favourably on environmental issues because most failed to address industry-specific concerns. Most notably, 90 percent of Asian companies with operations in countries concerned about human rights concerns had no human rights policies in place (EIRIS 2011).

The continuing gap in the way in which many Asian companies deal with social issues like human rights raises an important question: even if human rights can be considered to be universal, how can these norms be best understood across various cultural and socio-economic landscapes on the level of organizations? The notion of human rights may be universal, but how should this concept be understood and examined in companies and organizations based in dozens of countries across nearly three billion people of the Asia-Pacific region? Companies in US/WE have more extensive

business experiences in engaging with non-profit organizations and RI researchers in terms of human rights and business issues, while many companies in the Asia-Pacific region (with the exception of Japanese companies) are only now starting to incorporate terms like human rights as legitimate business concepts. But it will be interesting to observe if the understanding of such issues as human rights, transparency, and environmental sustainability will converge or diverge between companies and organizations based in US/WE and those based in the Asia-Pacific region.

An unexpected consulting assignment for this thesis author, while working as a United Nations University in the mid-1990s evolved into this dissertation research and led him on a most interesting scholarly journey to examine how RI markets have developed and how RI markets evolved in the Asia-Pacific region. Particularly, in Japan and Hong Kong/China, they have developed in conjunction with the important sustainability challenges posed by global climate change.

Now this thesis author expands on the theoretical framework, research questions & methodology, and thesis impact and the overview, which serve as the foundation of this thesis.

1.2 Theoretical Framework

This section reviews the theoretical framework that was used to guide the analyses of the ideas and insights for this thesis. Rather than being used as a theory to be tested, the ecological modernization (EM) theory is used as the theoretical context of this thesis. EM theory was initially developed in the early 1980s by a group of social scientists working in Western Europe, most notably the Netherlands (e.g. Hajer 1995); Germany (e.g. Janicke 2008); and UK (e.g. Murphy 2001) to describe and provide an analytical framework for the ecological transformation affecting nations, societies, and businesses.

Although the EM theory was initially based upon the experiences of scholars based in Western European countries, a more diverse set of scholarly works, including analyses of the Asia-Pacific region, have been produced based upon experiences in Japan (Barrett 2005), Hong Kong (Hills et al 2004), and Asia (Sonnenfeld and Mol 2006). Mol and Sonnenfeld (2000) argued that EM scholarship could be grouped into the following four thematic clusters:

1. The impact of social movements on public and private institutions pertaining to EM changes

2. The increasing importance of market dynamics and economic agents (e.g. such as producers, consumers, businesses, etc.) in fostering EM changes;
3. The transformations in the roles of the nation-state toward a more decentralized and consensual style of governance with greater scope of non-state actors to be involved in administrative, regulatory, and managerial functions;
4. The changing roles of science and technology both in terms of their potential contributions to, as well as, in providing solutions for environmental dilemmas;

The EM theoretical framework is excellent for a study of RI developments in the Asia-Pacific region for the following three reasons:

Firstly, greater understanding of RI market development in the Asia-Pacific region contributes to EM scholarship because RI trends reflect the impact of social movements on public and private institutions (EM thematic cluster #1) as well as it helps to provide insights into the relevance of the changing roles of non-state actors (e.g. financial market institutions) in the administrative, regulatory, and managerial relationships between business, government, and society (EM thematic cluster #3).

In the case of Western Europe, Louche (2004) documented how RI had become a mainstream business activity, dominated by financial institutions and that it was no longer a social movement led by marginal groups. In what she referred to as important “structural and cultural” changes” in the Netherlands (1990-2002), Louche examined how the focus of RI shifted from ethics and religion to sustainable development and corporate social responsibility from the 1970’s to 1990’s (Louche 2004, p. 3). **Section 2.2 of this thesis** provides a concise description of how RI intersects with broader social movements and reflects upon the changing roles of non-state actors in governing businesses, governments, and societies.

Secondly, the emergence of RI is consistent with the EM theory, as proposed and articulated by Mol and Sonnenfeld (2000 and 2009) and other EM scholars, who examined the important roles of market dynamics and economic agents, such as investment and other financial instruments, in fostering ecological modernization changes (EM thematic cluster #2; please refer to **sections 2.3; 3.2; 3.3; and 3.4 of this thesis** for additional relevant details). The emergence of the RI market developments in the Asia-Pacific

region and earlier in US/WE illustrate not only the extent to which a finance-linked business ecosystem has replaced manufacturing as the center of the global economy (Davis 2008), but they also highlight three elements of contemporary global economic and financial market governance.

The first element is that the traditional divide between the domestic and international has become blurred as investment capital is increasingly linked to local corporate activities with global responsibilities. The second element is that there has been a great expansion in the number of actors, from a few dedicated mutual funds mainly in the US to several hundred across the world. This reflects the rise of global institutional investors involved in promoting RI principles as part of their business activities. The third element is that the variety of transnational issues motivating capital markets has grown to include subjects from human rights-related concerns such as apartheid in South Africa to toxic chemicals to general environmental sustainability, among many others (MacLeod and Park 2011; as examined in **section 4.2 of this thesis**).

Thirdly, improved scholarly understanding of RI market development in the Asia-Pacific contributes to EM theory by highlighting the diffusion of EM/environmental innovation. Although the traditional focus of EM theory has been on the environmental innovation as it relates to science and technology, this thesis author complements this approach by examining the diffusion of RI as a sustainable financial market mechanism from NA/WE to the Asia-Pacific region (as discussed in **section 2.3 of this thesis**).

As Janicke and Jacob (2006, p. 11) observed: “The ecological effectiveness of environmental innovation depends on its radicalness, but also on the degree of diffusion. Incremental innovations that remain restricted to niche markets, for instance, will only have a limited effect. With respect to the degree of diffusion, it is crucial to understand the mechanisms underlying the diffusion of environmental innovations, especially when it comes to developing a global strategy of ecological modernisation.”

From a theoretical EM perspective, what is important in terms of market diffusion is the degree of convergence or divergence between the RI-based models in US/WE versus the Asia-Pacific region. **Figure 1.2** presents a conceptual RI framework in the U.S. and **figure 1.3** provides a similar illustration of the case of Western Europe. Although the RI-based model in the U.S. (**figure 1.2**) is similar with the Western European model (**figure 1.3**), one key difference is the role played by shareholder activism between

the two regions. Shareholder activism plays a much greater role in the case of the U.S./North America than in Western Europe.

FIGURE 1.2

RI Framework in the U.S
Relationships Among Financial Markets, Civil Society, Stakeholders



SOURCE: Jacob Park (2012)

FIGURE 1.3

RI Framework in Western Europe.:
Relationships Among Financial Markets, Civil Society, Stakeholders



SOURCE: Jacob Park (2012)

The RI system in the U.S. emphasizes shareholder activism (Cziraki et al 2010) due to a number of regional institutional, legal, and corporate governance differences with Western Europe. Rather than more direct shareholder activism, Western Europe relies more on business engagement as its primary RI business dialogue approach.

FIGURE 1.4

**RI Framework in Asia-Pacific Region:
Relationships Among Financial Markets, Civil Society, Stakeholders**



SOURCE: Jacob Park (2012)

While it varies greatly between industrialized (e.g. Japan) and developing (e.g. China) Asian countries, the governmental/public sector stakeholders play a much more important role while civil society stakeholders play a comparatively weaker role in the RI business collaborative governance system in the Asia-Pacific region than in US/WE (**Figure 1.4**).

Because of the shift in the focus of the global economy to the Asia-Pacific region, one interesting RI trend is the development of mostly US/WE shareholder activist coalitions on Asian sustainability issues, which target the Asia-based supply chain and related business relationships of North American and Western European companies in Asia-Pacific regional and US/WE financial markets. This is particularly true in the case of the consumer electronics industry, where product design is heavily concentrated in US/WE while manufacturing is virtually all based in China and in other Asian countries rather than trying to directly engage Asian companies and business sectors in new product and service design.

1.3 Research Questions & Methodology

What is and how is RI defined? Does RI represent an important market-based leverage point³ in accelerating environmental and social market solutions? Is the market development of RI, which derives its meaning and relevance from the cultural and socio-economic seed of one region (US/WE), likely to be different compared with that of the Asia-Pacific region, where more than half of the world's population reside and to where the center of the world economy is migrating?

While there are a number of important RI research issues (including the effectiveness of RI as an environment and social market solution in US/WE), the focus of this thesis author was to examine how RI has changed over time in the context of the Asia-Pacific region and in the context of emerging global business dilemmas such as climate change.

Global business perspectives on sustainability have made a number of positive strides in the past quarter of a century, but even more dramatic changes and greater understanding, in terms of the potential roles business can play in fostering environmental and social resilience, need to occur in the Asia-Pacific region (particularly in rapidly industrializing Asian countries like China) to maintain this continuing progress and possibly to ensure the survival of humans on this planet.

This thesis author not only sought to increase the salience and scope of existing RI academic scholarship, but also to explain how and why the Asia-Pacific region is and will continue to be such a critically important business sustainability challenge.

The degree to which the international community is likely to achieve sustainable development (particularly in terms of climate change governance) is likely to be shaped by what happens or does not happen in Asia. Underscoring the emerging global importance of the Asia-Pacific region, Bendell and Ng (2009) observed that diverse Asian approaches to responsible enterprise will increasingly affect business practices around the globe and that anybody who is interested in business-society relations needs to better understand Asian approaches to responsible enterprise and finance.

³ The term, 'leverage point', is being used here as defined and proposed by Donella Meadows <http://www.thesolutionsjournal.com/node/419>

Given the diverse social, environmental, and governance/institutional differences between US/WE and the Asia-Pacific region (as well as the diverse socio-cultural and institutional models that exist within regions), RI is not likely to function in response to the same type of sustainability leverage points between the two regions, even if similar language is used (for instance, triple bottom line, sustainable business, corporate social responsibility, and so on) to describe the process of RI in these regions.

An important objective of this thesis was to address the knowledge gap between what the current academic scholars already know (theoretically, conceptually, and empirically) about RI market development in US/WE as compared to what they know and need to know about RI market development in the Asia-Pacific region in terms of actors, institutional changes, and likely market impacts/outcomes. To address this gap, this thesis author:

- Explored how RI developed in US/WE and in Japan and Hong Kong (China);
- Analyzed the evolving relationships between business and sustainable development in Japan and Hong Kong/China;
- Examined how RI and climate change intersect as business and policy concerns on the global and the Asia-Pacific regional level.

The Research Question #1 How did RI develop in US/WE and in Japan and Hong Kong (China)?

In order to answer this question, this thesis author explored the RI market development initially in US/WE and later in Japan and Hong Kong/China. How did RI develop initially in US/WE and how did that process compare with the process that took place in Japan and Hong Kong/China?

A dozen semi-structured interviews were held with North America-based RI industry professionals and a survey was done of the corporate environmental and social responsibility management literature in the 2009-2010 time period. This was the foundation for developing a thorough understanding of the historical and institutional market development of RI as an evolving global business concept.

Moreover, during a two-month fieldwork assignment in Hong Kong (June/July 2004), a literature review of the Hong Kong/China RI marketplace and interviews of RI researchers/practitioners were conducted.

The Hong Kong/China research was complemented with a literature review of Hong Kong/China and Japanese RI markets in the 2008-2009 time period. The initial comparative research and analysis of RI market development in U.S., Western Europe, and the Asia-Pacific region (as conceptualized in **figures 1.2, 1.3, and 1.4**) took place during June/July 2004 fieldwork.

Two important conclusions were noted in the thesis in terms of research question #1. Firstly, RI has a mixed track record in accelerating the business sector generally and in the banking and financial services sector, specifically, toward greater sustainable business practices.

Secondly, global 'success' of RI is likely to depend a great deal on whether RI can become mainstreamed in the financial marketplace of countries and regions outside of US/WE (as outlined in figures **1.2, 1.3, and 1.4**). Although the current total of RI assets in emerging economies is less than five per cent of the total emerging market capitalization, there are signs that increasing shareholder activism and tightening environmental and social regulatory pressures may become an established business norm in a number of emerging economies.

This thesis author documented how EM theory, in terms of the impact of social movements on public and private institutions pertaining to environmental, business, and societal changes (EM thematic cluster #1) and market dynamics and economic agents (EM thematic cluster #2), can be used to explain RI market development initially in the US/WE and later in the context of Japan and Hong Kong (China).

The Research Question #2: How did the relationship between business and sustainable development evolve in Japan and Hong Kong/China?

The research designed to help answer second research question focused on the evolving relationship between business and sustainable development in Japan and China. How has the relationship between business and sustainable development developed in the case of Japan and Hong Kong/ China? An extensive review of the energy and climate change, business management literature, analysis of the 'Carbon Disclosure Project' company profiles was conducted in 2007-2008.

This thesis author found that the regional and global energy/ environmental/climate change management concerns are having an

important impact on the strategic development of Japanese companies and business sectors.

With grant funding support from the AT&T Industrial Ecology Faculty Fellowship program, this thesis author conducted interviews at three information technology and electronics companies in China and in North America. Additionally, he developed an extensive review of the ecological modernization and China-based corporate environmental management literature in 2008-2010, with a focus upon how organizations were able to strike a balance between economic growth and environmental stewardship was explored in the context of contemporary Chinese economy.

In answering research question #2, the thesis author made two conclusions in terms of the relationships between business and sustainable development in Japan and Hong Kong/China.

In the case of Japan, the thesis author concluded that the international challenge of trying to reduce the global GHG emissions by 50 percent or more by the year 2050 would pose a wide range of business and sustainable development risks and opportunities in Japan. The issue is no longer if Japanese companies should engage in climate change and other socially responsible business activities, but how they should undertake such activities. This thesis author highlighted the strategic importance of Japanese companies for improving their stakeholder engagement efforts with local communities and civil society groups, particularly in emerging economies, in designing and implementing their climate change-related business solutions.

In the case of Hong Kong/China, the thesis author concluded that the Chinese government has been forced to recognize the need for a new development strategy to navigate the balance among economic growth, social stability, and environmental stewardship because of the growing public pressures associated with deteriorating ecological systems, resource scarcity, and industrial pollution. Most notably, sustainability practices offer a number of challenges for businesses, but also provide important market opportunities in the case of China.

In terms of EM theory, his thesis author explained how the EM can be used as a framework, in terms of market dynamics and economic agents (EM thematic cluster #2) and the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3), to explain the emergence of Japanese corporate environmental and social responsibility business practices.

The thesis author also explained how EM theory can be used, in terms of the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3) and the changing roles of science and technology in providing solutions for environmental dilemmas (EM thematic cluster #4), might account for the diffusion of China-based manufacturers willing to adopt innovative clean technologies and operational opportunities for process, product and service improvement.

The Research Question #3: How did RI and climate change intersect as business and policy concerns on the global and the Asia-Pacific regional levels (as outlined in **figure 1.4**)?

To seek answers to this research question, this thesis author examined the intersection of RI and climate change internationally and in the context of the Asia-Pacific region. He sought information about the emerging relationships between RI and climate change on the global and on the Asia-Pacific regional levels?

Based on extensive academic review of the transnational private governance and the international political economy literature, the emerging relationships between RI and climate change governance and the concept of investor-driven governance networks were examined. Investor-driven governance networks have become important RI actors in global environmental governance in recent years and deserve more attention from academic and business management researchers.

In seeking to answer research question #3, this thesis author introduced and provided the theoretical basis of the concept of climate change-based investor governance networks (IGNs), which is an emerging form of private environmental governance that reflects the growing integration of climate change and RI in the context of financial markets, in the US/WE region (as outlined in **figure 1.2**).

By extending the important elements of the EM theory in terms of market dynamics and economic agents (EM thematic cluster #2), this thesis author concluded that IGNs represent new market-based attempts to “self-regulate” corporate sustainability behavior by holding corporations accountable via mechanisms of information sharing, monitoring of environmental impacts and disclosure of activities related to the corporate climate footprint, among other governance functions.

This thesis author also expanded the understanding of the Asian regional policy interplay between RI and climate change governance, particularly in terms of devising private-public collaborative strategies to deal with the energy poor and environmentally fragile urban populations.

Building on the EM theory in terms of the impacts of social movements on public and private institutions pertaining to environment, business, and society changes (EM thematic cluster #1) and changing roles of science and technology in providing solutions for environmental dilemmas (EM thematic cluster #4), this thesis author highlighted the lack of RI market instruments (e.g. bonds, equities, insurance, among others) to address climate change-related natural disaster risks. More than 2.4 billion people in Asia and other regions in the world remain vulnerable to natural disasters and to other environmental/public health risk factors that are bound to intensify with rising climate change risks.

1.4 Thesis Overview

Can RI serve as an important market-based leverage point in accelerating financial market solutions to climate change and other environmental/social dilemmas in the Asia-Pacific region?

This question, which was prompted by a short-term consulting assignment while working as a United Nations University researcher nearly two decades ago, led this thesis author on this dissertation research path and on decades-long research project, which examined RI market development on the global and the Asia-Pacific regional level.

Now that the theoretical framework and research questions and methodology addressed in this thesis have been outlined, the key ideas in the thesis chapters are discussed.

Overview of the thesis contents

Chapter 1 framed the key problems, the related issues and the questions that were addressed in this thesis.

Chapter 2 provided a general discussion and the background context of RI market development.

Chapter 3 highlighted the emerging relationship between business and sustainable development in Japan and Hong Kong/China.

Chapter 4 examined the intersection of RI and climate change internationally and in the context of the Asia-Pacific region.

Chapter 5 concluded this thesis with summaries of the key thesis insights and discussions of the important shifts that must occur in market foci from traditional RI markets (e.g. green mutual funds) in US/WE countries to new models of sustainable investment, innovation and entrepreneurship in emerging economies in Africa, Latin America, and Asia-Pacific.

This is an area that this thesis author intends to make the focus of his post-thesis research and outreach activities.

In-depth outline of the thesis contents

Chapter 1 traced the genesis of this thesis starting with an unexpected consulting assignment to undertake research on Asian business sustainability issues for a Swiss investment management company when this thesis author was based in Tokyo as an environmental and urban development specialist for the United Nations University in the early and mid-1990s.

Chapter 2 provided an in-depth discussion of the historical and institutional market development of RI initially in US/WE (as highlighted in **figure 1.2** and **figure 1.3**) and later in Japan and Hong Kong/China (as highlighted in **figure 1.4**). Using EM theory as a theoretical guide, this thesis author explained RI market development initially in the US/WE and later in the context of Japan and Hong Kong (China), particularly in terms of the impact of social movements on public and private institutions pertaining to environment, business, and society changes (EM thematic cluster #1) and market dynamics and economic agents (EM thematic cluster #2).

Chapter 2.2 is introduced with a definition of RI and traces the development of RI to the growing connection between investing, entrepreneurship, and sustainability in US/WE as outlined in **figure 1.2** (RI Framework in U.S.) and **figure 1.3** (RI Framework in Western Europe).

Chapter 2.2, which is based upon this thesis author's article titled, "Responsible Investing: Challenges and Opportunities in the Global Context", explored two important dimensions of research question #1 (How did RI develop in US/WE and in Japan and Hong Kong [China]?). Firstly, how did RI develop historically and institutionally as a business concept? Secondly, what have been the impacts and achievements of RI as a sustainable business management practice?

These two questions in Chapter 2.2 were examined in the following two ways. Firstly, as a visiting research fellow at the Oxford University's Smith School of Enterprise and Environment <http://www.smithschool.ox.ac.uk/> in June-July 2010, this thesis author conducted an extensive review of RI in academic journals and other business management literature. As part of this review, this thesis author examined RI industry reports issued by the Association for Sustainable and Responsible Investment in Asia <http://www.asria.org>, European Sustainable Investment Forum <http://www.eurosif.org>, and World Bank/International Finance Corporation, in addition to prominent academic journals such as the Journal of Business Ethics and others.

Secondly, during 2009-2010, this thesis author gathered information on the broad RI market strategy trends and insights through in twelve, in-depth, face-to-face semi-structured interviews with RI industry professionals based in the United States. The interviews were conducted at two annual conferences (2009 and 2010) of the U.S. Forum for Sustainable and Responsible Investment <http://www.ussif.org>.

Chapter 2.3, which was based upon this thesis author's article titled, "Sustainable Consumption and the Financial Sector: Analyzing the Responsible Investment in Hong Kong and Japan," explored the development of RI and addressed the RI-related theoretical concerns in an industrialized country (Japan) and in emerging economies of the Asia-Pacific region (Hong Kong/China), as highlighted in **figure 1.4**.

Two research dimensions of research question #1 (How did RI develop in US/WE and in Japan and Hong Kong/China?) were explored. Firstly, why is the Asia-Pacific market context so important for us to understand the future market trajectory of RI as a business concept? Secondly, how did the RI develop in the case of Hong Kong/China and Japanese financial marketplace?

Chapter 2.3's two questions were examined in the following manner. Firstly, this thesis author conducted research as a visiting scholar at the University of Hong Kong's corporate environmental governance program in June-July 2004. During this two-month fieldwork, this thesis author examined the RI market in Hong Kong/China by conducting 15 individual, unstructured interviews with RI experts/industry professionals based in a wide range of private (HSBC bank, etc), civil society (Hong Kong-based Civic Exchange

and Worldwide Fund for Nature), and academic contexts (University of Hong Kong, among others).

Secondly, Japan's RI market development research consisted of an extensive literature review consisting of books (e.g. Klare 2012 and Angel and Rock, 2000, among others); Asian think tank reports (e.g. Tokyo, Japan-based Asian Development Bank Institute), Asian civil society group research (e.g. Hong Kong-based Civic Exchange), as well as academic journals such as the Journal of Cleaner Production, the Journal of Industrial Ecology, and others. To capture RI market trends and analysis in the Japanese language research and news, this thesis author consulted the Nikkei financial news database, which provides English translation of Japanese financial news articles and research items.

The emergence of the Asia-Pacific region in the global economy and its sustainability implications are explored in Chapter 3, which discussed the important emerging relationship between business and sustainable development in Japan and Hong Kong/China.

Building on the EM framework in terms of market dynamics and economic agents (EM thematic cluster #2) and the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3), this thesis author analyzed the development of sustainable business and environmental management practices in Japan, the third largest economy in the world after the U.S. and China. For many years, particularly in the 1980s and early 1990s, Japan was the subject of intense international scrutiny with regard to its industrial environmental management practices.

Chapter 3.2, which is based upon this thesis author's article titled, "Strategy, Climate Change and the Japanese Firm: Rethinking the Competitive Landscape of a Warming Planet," explored research question #2 (How did the relationship between business and sustainable development evolve in Japan and Hong Kong/China?).

Based, in part, on a review of the energy and climate change business management literature and an analysis of Carbon Disclosure Project (<https://www.cdproject.net>) company database in 2008, Chapter 3.2 examined relevant business management and social science literature to develop insights into the broad climate change-business management interactions as well as Japanese business sector responses to environmental management challenges.

Chapter 3.2's literature review was conducted in the following three ways: Firstly, this thesis author examined academic journal articles (Lash and Wellington [2007], among others) on broad climate change-business interactions. Secondly, this thesis author analyzed books on Japan's industrial development (Jun Ui's *Industrial Pollution in Japan* book was particularly helpful in terms of understanding Japan's environmental policy history. Thirdly, this thesis author examined relevant international organization's/government's research reports (for instance, the International Energy Agency's research on Japan's energy policy).

This thesis author also used the Nikkei financial news database, which provides an English translation of Japanese financial news articles and research items, to study Japanese business engagement with climate change issues. The analysis of Japanese news articles complemented the more scholarly examination of the Japanese business and environmental management to provide a more complete picture of the relationship between business and sustainable development in Japan.

Although EM as a theoretical framework was not explicitly examined in "Strategy, Climate Change and the Japanese Firm: Rethinking the Competitive Landscape of a Warming Planet" paper, the Japanese climate change business analysis in Chapter 3.2 touched upon two elements of the EM theory: market dynamics and economic agents (EM thematic cluster #2) and the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3)

Chapter 3.3, which is based upon this thesis author's article titled, "China, Business, and Sustainability: Understanding the Strategic Convergence", addressed the following two dimensions of research question #2 (How did the relationship between business and sustainable development evolve in Japan and Hong Kong/China?). Firstly, what kind of public policy and business strategy can serve the economic, environmental, and social needs of China? Secondly, how can the private sector and government work together in facilitating the development of such a strategy?

To examine these two dimensions of research question #2, this thesis author reviewed China's corporate environmental and social responsibility management literature in 2007-2008. Part of the review was conducted while this thesis author was an international visiting fellow at the University of Sydney (Australia) Business School in January 2007.

Chapter 3.3 was based upon a literature review conducted in the following two ways. Firstly, this thesis author analyzed books on the environmental dimensions of China/Asian industrial development. Kelly Gallagher's *China Shift Gears: Automakers, Oil, Pollution, and Development* (2006) was particularly helpful in situating China in terms of the regional and global business and sustainable development context. Secondly, this thesis author examined relevant international organizations/governments research reports, for instance, the Asian Development Bank's annual surveys on Asian environmental policies and conditions.

With growing environmental pressures due to deteriorating ecological systems, resource scarcity, and industrial pollution, one important lesson from Chapter 3.3 is how the Chinese government has been "forced" by a multitude of internal and external pressures to recognize the need for a new development strategy that will help the country navigate the delicate balance between economic growth, social stability, and environmental stewardship.

Moreover, "China, Business, Sustainability: Understanding the Strategic Convergence" paper, which served as chapter 3.3., was among the first scholarly works in the business management literature to discuss an innovative Chinese regulatory policy concept called the 'circular economy', a regulatory and policy framework designed to manage the competing goals of economic growth, environmental stewardship and social justice among many companies, local and regional governments.

Chapter 3.4, which is based upon this thesis author's article titled, "Creating Integrated Business and Environmental Value Within the Context of China's Circular Economy and Ecological Modernization," addressed two dimensions of research question #2 (How did the relationships between business and sustainable development evolve in Japan and Hong Kong/China?).

Firstly, how can companies strike a more effective balance between economic growth and environmental stewardship in China? Secondly, how can the sustainable supply chain management approach create blended business and environmental values for companies and in what types of organizations in China?

With grant support from the AT&T Industrial Ecology Faculty Fellowship Program (2008-2009), these two questions were examined in two ways.

Firstly, sixteen unstructured, in-person interviews⁴ were conducted at three information technology and electronics companies in China and one electric waste recycling company in Massachusetts/U.S. Secondly, this thesis author completed a comprehensive survey of the China-based environmental management, corporate social responsibility, and the industrial ecology academic literature.

Chapter 3.4 use the EM theory as a framework, in terms of the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3) and the changing roles of science and technology in providing solutions for environmental dilemmas (EM thematic cluster #4), to understand and guide ecologically oriented management innovation and change at both the firm and supply chain levels of analysis in China.

An important contribution of Chapter 3 was to provide a deeper, more nuanced understanding of the triple bottom line business models that reflects the market reality of the contemporary Japanese and Chinese economies, while the contribution of Chapter 4 examined how RI is starting to intersect with global climate change issues on the global as well as on the Asia-Pacific regional levels.

Building on the exploration of RI (Chapter 2) and examination of the Asian business, environment, and society regional context (Chapter 3), Chapter 4 contributed to an improved understanding of the relationships between RI and climate change-related finance and investment issues worldwide and within the Asia-Pacific region. As discussed in chapter 4, climate change has become a critically important global and Asian regional RI priority in the past decade.

Chapter 4.2, which is based upon this thesis author's article titled,, "Responsible Investing and the Emergence of Investor-Driven Governance

⁴ The interview/fieldwork was shared equally with the thesis author conducting the lead on the literature review/analysis and interviews in the U.S. with Joseph Sarkis taking the lead on interviews with Dongtai (China) and Zhaohui Wu taking the lead on interviews with Alcatel (China) and Haier (China). The three principal investigators held regular conference calls and shared/utilized interview notes/field research during the course of the fellowship period (2008-2009).

Networks”, sought answers to research question #3 (How did RI and climate change intersect as business and policy concerns on the global and the Asia-Pacific regional level?) by analyzing the rise of what this thesis author referred to as ‘investor-driven governance networks’ (IGNs), which are having important impacts on integrating RI into the core functions of private global environmental governance.

To address this question and to provide the theoretical context for the emergence of IGNs, this thesis author surveyed corporate governance, business sustainability, business and society academic literature by examining:

a) Thirty-five journal articles in such publications as the Journal of Business Ethics, Global Environmental Politics, American Journal of Comparative Law, among others, were reviewed); b) Thirteen books were reviewed, including David Vogel’s, ‘The Market for Virtue: The Potential and Limits of Corporate Social Responsibility’ and Gerald Davis’s, ‘Managed by the Markets: How Finance Re-Shaped America,’ which were particularly helpful in highlighting the growing intersections of financial markets and corporate social responsibility in the context of the global economy; and c) Industry reports were analyzed by the U.S.-based Interfaith Center on Corporate Responsibility were particularly helpful in examining the relationships between shareholder activism and corporate governance.

Extending EM theory in terms of market dynamics and economic agents (EM thematic cluster #2), Chapter 4.2 explained how IGNs have become important RI actors in global environmental governance in recent years and deserves more attention from academics and business management researchers. IGNs can be best described as coalitions or alliances led by investors who are grouped around a specific public goods issue in which investors are the primary actors and whose intent is to purposively steer the behavior of market actors such as corporations and investors, through a broad range of tools at their disposal, including the legally defined rights they have as shareowners.

Despite the growing research on global environmental governance, there has been relatively little systematic assessment of the financial sector and investors both as actors and of the instruments of private global environmental governance. One of the overlooked impetuses to the emerging private environmental governance architecture is the role of the financial sector. As highlighted in Chapter 4.2, a number of high profile IGN alliances consisting of institutional investors with trillions of dollars in

assets and many lesser-known coalitions have been created in the past decade.

Chapter 4.3, which is based upon this thesis author's article titled, "Mobilizing Private Sector Resources Toward Climate Adaptation and Mitigation Action in Asia", analyzed the relationship between RI, climate change, and the Asia-Pacific region by examining two dimensions of research question#3 (How did RI and climate change intersect as business and policy concerns on the global and the Asia-Pacific regional levels?).

Firstly, what are the current state and outlook for public and private investments to address global and Asian regional climate change concerns? Secondly, what new financing strategy is required to respond more effectively to the climate change dilemma in Asia?

To explore these two questions, this thesis author surveyed Asian environmental finance and policy research by research institutes/think tanks (including the World Resources Institute, the World Bank, the UN Economic and Social Commission for Asia and the Pacific, as well as analysis/reports by civil society/non-profit organizations such as the Worldwide Fund for Nature, Oxfam, and the Overseas Development Institute.

There is an urgent need to improve our understanding of the complex global and Asian regional policy interplay in terms of RI, private sector, and climate change governance. Underscoring the serious financial dimensions of creating a long-term sustainable climate change solution, the UK-based Oxfam International (2009) concluded that an *additional* \$42 billion in humanitarian aid is urgently required to help developing countries adapt to the effects of climate change.

The urgency in which these funds are needed to address climate adaptation and mitigation activities in the Asia-Pacific region and elsewhere are not contested; what is less clear is from where the necessary funds will be forthcoming.

Building on the RI/climate change analysis in Chapter 4, Chapter 5 (as the concluding chapter of this thesis) summarized the key thesis insights and the important shifts that are occurring from the traditional RI markets in US/WE countries, as highlighted in **figure 1.2** and **figure 1.3**, to the new network and institutional models of RI, as outlined in **figure 1.4**.

Chapter 5.2 titled, “Key Thesis Contributions,” described how this thesis contributed to the business, environment, and society scholarship in three ways. Firstly, this thesis contributed to the growing academic scholarship on the global and regional RI market development. Secondly, it contributed to greater understanding of the relationship between business and sustainable development in Japan and Hong Kong/China. Thirdly, it contributed to a more nuanced understanding of RI and climate change market integration that is taking place on the global and Asian regional level.

Chapter 5.3, titled “Context for Future Research & Work,” outlined the planned, post-PhD dissertation research & engagement work of this thesis author. He intends to address the question, ‘How can community-oriented social and renewable energy enterprises be designed and developed in a way that they can deliver economic, environmental, and social benefits to the poor, while maintaining, if not improving, the natural resource base of local communities?’

This thesis author is convinced that this is a potentially fruitful area of inquiry, which will serve as the intellectual foundation of his post-thesis research and engagement work. Although there are important conceptual disagreements on how to define sustainable entrepreneurship, there is an emerging consensus among scholars and researchers that entrepreneurs can be defined by their strong desire to conceive of new business opportunities and to develop new products and/or services for the marketplace (Newmark and Park 2010).

Chapter 5.4, titled “Looking Ahead,” described the interest of this thesis author in helping to guide the international business sector to respond more effectively to the market opportunities posed by the pressures of poverty and environmental degradation in emerging economies and the base of the pyramid marketplace. Unfortunately, few sustainability-focused businesses are likely to be started because traditional investors tend to shy away from sectors that seem unfamiliar or too risky.

This is unfortunate because poverty and environmental degradation continue to be two of the biggest sustainability challenges confronting the international community, and there is a critical need within the academic and management practice communities to better understand *how* to strengthen the depth and breadth of investments in sustainable business ventures in emerging economies and base of pyramid marketplace.

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2. Towards a New Understanding of the Practice of Responsible Investing

2.1 Chapter Overview

Chapter 2 provides an in-depth discussion of the historical and institutional market development of RI initially in US/WE (as highlighted in **figure 1.2** and **figure 1.3**) and later in Japan and Hong Kong/China (as highlighted in **figure 1.4**).

Using EM theory as a theoretical guide, this thesis author explains RI market development initially in the US/WE and later in the context of Japan and Hong Kong (China), particularly in terms of the impact of social movements on public and private institutions pertaining to environment, business, and society changes (EM thematic cluster #1) and market dynamics and economic agents (EM thematic cluster #2).

Conceptually, Chapter 2 highlights the potential role RI can play in advancing a deeper set of social, environmental and ethical business norms in US/WE and Japan & Hong Kong/China. Is the emergence of RI as a sustainable business management practice likely to result in "... a paradigm shift regarding the basic relationship between the economy, society and the natural environment" (Stead and Stead 2008, p. 67) and help foster a new model of social, ecological, and community-based business norms based on "... a recognition that *both* market sustainability and environmental sustainability are equally important" (Parnell 2008, p. 41)?

Chapter 2.2 is introduced with a definition of RI and traces the development of RI to the growing connection between investing, entrepreneurship, and sustainability in US/WE as outlined in **figure 1.2** (RI Framework in U.S.) and **figure 1.3** (RI Framework in Western Europe).

Chapter 2.2, which is based upon this thesis author's article titled, "Responsible Investing: Challenges and Opportunities in the Global

Context”, explores two important dimensions of research question #1 (How did RI develop in US/WE and in Japan and Hong Kong [China]?). Firstly, how did RI develop historically and institutionally as a business concept? Secondly, what have been the impacts and achievements of RI as a sustainable business management practice?

These two questions of Chapter 2.2 were examined in the following ways. Firstly, as a visiting research fellow at the Oxford University’s Smith School of Enterprise and Environment <http://www.smithschool.ox.ac.uk> in June-July 2010, this thesis author conducted an extensive review of RI in academic journals and other business management literature. As part of this review, this thesis author examined RI industry reports issued by the Association for Sustainable and Responsible Investment in Asia <http://www.asria.org>, European Sustainable Investment Forum <http://www.eurosif.org>, and World Bank/International Finance Corporation, in addition to prominent academic journals such as the Journal of Business Ethics and others.

Secondly, during 2009-2010, this thesis author gathered information on the broad RI market strategy trends and insights through in twelve, in-depth, face-to-face semi-structured interviews with RI industry professionals based in the United States. The interviews were conducted at two annual conferences of the U.S. Forum for Sustainable and Responsible Investment <http://www.ussif.org>. The interviewees were contacted before the two conferences to schedule the interviews.

Despite the growing number of academic publications on RI and the increasing economic centrality of the Asia-Pacific region in the global economy, there is still a gap in our understanding of RI outside of US/WE. Chapter 2.3 provides an important scholarly perspective on RI market development in Japan and Hong Kong/China.

Chapter 2.3, which was based upon this thesis author’s article titled, “Sustainable Consumption and the Financial Sector: Analyzing the Responsible Investment in Hong Kong and Japan,” explores the development of RI and address the RI-related theoretical concerns in an industrialized country (Japan) and in emerging economies of the Asia-Pacific region (Hong Kong/China), as highlighted in **figure 1.4**.

Two research dimensions of research question #1 (How did RI develop in US/WE and in Japan and Hong Kong/China?) were explored. Firstly, why is the Asia-Pacific market context so important for us to understand the

future market trajectory of RI as a business concept? Secondly, how did RI develop in the case of Hong Kong/China and Japanese financial marketplace?

Chapter 2.3 also used one of the first consumer surveys ever conducted in Hong Kong (at that time) that focused specifically on RI. Methodological details of the Hong Kong RI consumer survey, which was conducted by the faculty and staff of the University of Kong and group of researchers at the Hong Kong-based Association for Sustainable and Responsible Investment in Asia, are included as **Appendix 1**.

Chapter 2.3's two research questions were examined in the following manner. Firstly, this thesis author conducted research as a visiting scholar at the University of Hong Kong's corporate environmental governance program in June-July 2004. During this two-month fieldwork, this thesis author examined the RI market in Hong Kong/China by conducting 15 individual, unstructured interviews with RI experts/industry professionals based in a wide range of private (HSBC bank, etc), civil society (Hong Kong-based Civic Exchange and Worldwide Fund for Nature), and academic contexts (University of Hong Kong, among others).

Secondly, Japan's RI market development research consisted of an extensive literature review consisting of books (e.g. Klare 2012 and Angel and Rock, 2000, among others); Asian think tank reports (e.g. Tokyo, Japan-based Asian Development Bank Institute), Asian civil society group research (e.g. Hong Kong-based Civic Exchange), as well as academic journals such as the Journal of Cleaner Production, the Journal of Industrial Ecology, and others. To capture RI market trends and analysis of the Japanese language research and news, this thesis author consulted the Nikkei financial news database, which provided English translation of Japanese financial news articles and research items.

Whereas Chapter 2 has a more explicit focus on the historical and institutional market development of RI, Chapter 3 provides more of a scholarly corporate environmental and social responsibility context in Japan and Hong Kong/China.

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2.2 Responsible Investing: Challenges and Opportunities in the Global Context

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Responsible investing: challenges and opportunities for sustainable strategic management in the global context

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Abstract: This paper examines the emerging relationship between responsible investment and sustainable strategic management. It argues that responsible investment has a mixed track record in accelerating the business sector generally and the banking and financial services sector specifically toward greater sustainable strategic management practices and that the future 'success' of responsible investment in the global context is likely to depend on what degree it is able to become mainstreamed as a business concept in the emerging and developing economies.

Keywords: responsible investing; emerging markets; environmental sustainability.

Reference to this paper should be made as follows: Park, J. (2010) 'Responsible investing: challenges and opportunities for sustainable strategic management in the global context', *Int. J. Sustainable Strategic Management*, Vol. 2, No. 3, pp.274–283.

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1 Responsible investment and sustainable strategic management

Responsible investment is shedding its common perception as a niche market and emerging as an important global financial investment market instrument. About \$2.7 trillion or about 11% of the \$26 trillion in total investment assets is currently defined as responsible investment assets (SIF, 2008), while the European responsible investment market has grown very rapidly (around 42% annually) for the past couple of years and has reached €2.7 trillion (as of December 31, 2007 and the most recent market data currently available) or as much as 17.5% of the asset management industry in Europe (Eurosif, 2008).

There is little disagreement in the responsible investment practice and research communities that responsible investment has the ‘potential’ to advance a deeper set of social, environmental and ethical business norms on the global level.

What is less clear whether the mainstreaming of responsible investment as a business practice will result in “... a paradigm shift regarding the basic relationship between the economy, society and the natural environment” [Stead and Stead, (2008), p.67] as well as a new model of social, ecological, and community-based business norms based on “... a recognition that *both* market sustainability and environmental sustainability are equally important” [Parnell, (2008),p.41]. The often posed question of whether the financial returns from conventional investments are meaningfully different from returns from responsible investments (and why that might be) is an important one, but this focus – however well-meaning – marginalises the more important question exploring the relationship between responsible investment and sustainable strategic management.

This article argues that responsible investment’s track record on accelerating the business sector generally and the financial and banking services industries specifically toward greater sustainable strategic management is a mixed one and that the likelihood of responsible investing to bring about greater sustainable strategic management on the global level will depend on whether responsible investing becomes more of a market reality in emerging and developing economies. To improve our understanding of the important relationship between responsible investing and strategic sustainable management, this article will examine the following two sets of issues and questions: first, why is responsible investing important in terms of strategic sustainable management and how did responsible investing as a business concept develop historically and institutionally? Second, what has been the impact and achievements of responsible investing so far in terms of mainstreaming sustainable strategic management practices?

2 Understanding responsible investing as a sustainable strategic management concern

2.1 Defining responsible investing

Responsible investing is an investment process that considers the social and environmental consequences within the context of traditional financial analysis. Responsible investors include individuals, businesses and wide array non-profit organisations that use responsible investing to achieve an inter-linked set of economic, social, and environmental objectives. By integrating analysis of environmental, social, and governance issues onto traditional quantitative financial analysis, responsible investing professionals and researchers are working toward mainstreaming the importance of corporate social and environmental risks, while engaging corporations to improve their corporate environmental and social responsibility business practices (SIF, 2010).

The most common and easily understandable way of integrating social and environmental factors into the investment process is portfolio screening, which is an investment process that uses social and/or environmental criteria to include (positive screen) or exclude (negative screen) shares of a certain company from an investment portfolio. Although the weighting of the individual screens differ from one responsible investment fund to another and from one responsible investment asset management

company to another, virtually all responsible investment funds typically screen, positively and/or negatively, individual firms based on environment considerations (e.g., energy intensity, environmental management system, etc.); workplace practices (e.g., employee welfare and opportunities, anti-discrimination policies, etc.); stakeholder relations (e.g., charitable contributions, human rights, engagement with non-profit/community groups) and corporate governance and related board practices (SIF, 2010; see Table 1).

Table 1 Responsible investing strategies: screening, shareholder advocacy, and community investing

Portfolio screening is the practice of evaluating investment portfolios or mutual funds based on social and/or environmental criteria. Screening may involve including strong corporate environmental and social responsibility performers, avoiding poor performers, or otherwise incorporating environmental and social factors into the process of investment analysis and management.

Shareholder advocacy involves actions responsible investors take in their role as shareholders in publicly-traded companies. These efforts include dialoguing with companies on issues of social or environmental concern as well as filing and voting on shareholder resolutions.

Community investing directs capital from investors and lenders to communities that are underserved by traditional financial services. Community investing makes it possible for local organisations to provide financial services to low-income individuals and to supply capital for small businesses and vital community services, such as affordable housing, child care, and healthcare, in the USA and other countries. Outside the USA, community investing is often referred to as micro-enterprise investments.

Source: US Social Investment Forum (<http://www.socialinvest.org>)

2.2 Responsible investing: emerging significance of academic scholarship and business practice

The emergence of responsible investing as a sustainable strategic management concern in many ways reflect the growing interest in the relationship between investing, entrepreneurship, and sustainability (Newmark and Park, 2010) as well as the complexities of contemporary global governance (Macleod and Park, forthcoming): the blurring lines between the domestic and international (as investment capital increasingly attempts to link local corporate activities with global responsibilities); the expansion of actors (from a few dedicated mutual funds mainly in the USA to now several hundred across the world); the variety of transnational issues motivating capital markets (from human rights-related concerns such as apartheid in South Africa to environmental sustainability and related concerns); and the exercise of private authority in issue areas where public authority is seen as unwilling or unable to act (Haufler, 2006).

The significance, in terms of management practice and academic scholarship, of the responsible investment is two-fold. First, there is increasing academic scholarship on a wide range of responsible investment-related themes including the relationship between corporate social responsibility and socially responsible investment (Hill et al., 2007), links between financial and social-environmental performance (Margolis and Walsh, 2001), the ability of social ratings to measure corporate social responsibility (Chatterji et al., 2007) shareholder activism and corporate social performance (Parthiban et al., 2007), among others. There is also compelling evidence that RI fund investors do not have to

sacrifice financial performance for their ethical concerns. For instance, the Kinder, Lydenberg, Domini (KLD) 400 Social Index, one of the earliest and most prominent SRI indices, has exceeded its benchmark, the Standard & Poor 500, since the KLD index's launch nearly 20 years ago. From May 1990 to December 2009, the KLD 400 Social Index had an averaged annualised return of 9.5% compared to Standard & Poor 500's 8.7% (see Table 2).

Table 2 FTSE KLD 400 performance statistics

	<i>Index total returns as of 12/31/09</i>							
	<i>December 2009</i>	<i>Last qtr.</i>	<i>YTD</i>	<i>One year</i>	<i>Three year</i>	<i>Five year</i>	<i>Ten year</i>	<i>Since inception</i>
FTSE KLD 400 Social	3.10%	7.47%	31.73%	31.73%	-3.85%	0.73%	-1.22%	9.51%
FTSE All World USA	2.00%	5.97%	27.16%	27.16%	-5.20%	0.94%	-0.75%	N/A
S&P 500	1.93%	6.04%	26.46%	26.46%	-5.63%	0.42%	-0.95%	8.66%

Source: <http://www.kld.com/indexes/ds400index/performance.html> (accessed on 8 January 2010)

Moreover, a 2009 meta-analysis of 36 academic studies that examine the relationship between financial performance and environmental, social, and governance factors reveal that 20 studies a positive relationship (that is, financial and environmental, social, governance factors are positively correlated) with eight studies show a neutral relationship and six studies show a neutral/negative relationship (Mercer, 2009), while a 2006 survey of 183 large financial institutional investors indicate that as much as 75% of the respondents (22% of whom are currently responsible investors) believe that environmental, social, and corporate governance factors can have a material impact on investment performance (Mercer, 2006).

Second, individual and institutional investors are becoming increasingly transnational actors that not only provide investment capital in international equity markets, but also exerting their social and environmental sustainability influence. Investors are exerting their economic as well as social and environmental sustainability influence through the shares they own in particular companies, which gives them the right to bring forth shareholder resolutions. While it is difficult to determine the long-term impact and effectiveness of sustainable investment activities including portfolio screening and shareholder advocacy/engagement practices, there is growing evidence that sustainable investing is becoming a mainstream investment concept. As noted in a 2009 social investing report commissioned by the Rockefeller Foundation: "Evidence suggests that many thousands of people and institutions around the globe believe our era needs a new type of investing. They are already experimenting with it, and many of them continue even in the midst of a financial and credit crisis. That's why the idea of using profit-seeking investment to generate social and environmental good is moving from a periphery of activist investors to the core of mainstream financial institutions" [Freireich and Fulton, (2009), p.5].

2.3 Responsible investing: from faith to global markets

The current 'success' of responsible investment did not happen overnight with the origins of the responsible investing as a modern business concept originating from the turbulent period in the 1960s when powerful social undercurrents including environmentalism and anti-war activism fuelled a rise in a radical change in the way society viewed faith, values, and commerce. Responsible investing funds were once primarily known and referred to as ethical funds and given their strong Judeo-Christian roots; this is not at all surprising. The notion of an 'ethical business enterprise' has strong roots in Judeo-Christian traditions and one can find examples of such notion in the book of Deuteronomy dating back more than 3,000 years (Kreander, 2001).

However, it is arguably the Quaker faith that had the greatest impact in making the connection between commercial activities and ethical values in the modern age. The Quakers were the first group to practice 'negative screening' of investments when they avoided investments in the armaments sector for more than 140 years by faithfully applying their peace traditions to commercial activities. One of the early examples of what we might now call a SRI-like activity was an investment fund established by the Methodist Church in the 1960s that avoided investments in armaments, alcohol, gambling, and tobacco. Since the fund managed by the Methodist Church was closed to outsiders, the first modern example of what we now call a SRI fund was the US Pax World Fund established by two Methodist ministers in 1971. The first investment fund that specifically addressed ecological concerns was the Ecology Fund established by Merlin/Jupiter Company in 1988 (Kreander, 2001).

The political unrest in South Africa in the 1960s and 1970s set the stage for another major policy push for SRI and the important connection between ethics and business practices. Reverend Leon Sullivan help drafted a code of conduct (subsequently known as the 'Sullivan Principles') for companies doing business in South Africa. By the early 1980s, the Sullivan Principles became the rallying cry for anti-apartheid activism. In 1982, the State of Connecticut adopted the Sullivan Principles and other social criteria to guide its investment decision-making and just two years later, the California Public Employees Retirement System, the largest public pension fund in the world, and the New York Employee Retirement System developed their own investing guidelines in South Africa. Contemporary corporate divestment and boycott campaigns, ranging from Darfur to ExxonMobil, got started thanks in large part due to the success of the South Africa anti-investment campaigners, many of whom were also active in the SRI industry at that time (IFC, 2003).

Today, the international responsible investing market in the wealthy OECD countries is well established and in the case of Europe, entering a major growth phase. In the USA, \$2.7 trillion is currently invested in one of the three core social investment strategies – screening, shareholder advocacy, and community investing, which represents about 11% of the \$26 trillion in total investment assets. Assets in socially screened mutual funds and other pooled products rose to just over \$200 billion in 2007, while the total number of SRI mutual funds has increased from 55 in 1995 to 260 in 2007 (SIF, 2008). The European SRI market has grown even more rapidly, with around 42% annual growth rate for the past couple of years and reached €2.7 trillion as of December 31, 2007, representing as much as 17.5% of the asset management industry in Europe (Eurosif, 2008). Even in countries like Japan and the Asia-Pacific region where awareness of social

responsibility concerns lag that of North America and Europe, SRI represents one of the few financial market segments that remain vibrant in terms of market development. In addition, the SRI market in Australia grew 41% between 2003 and 2004 alone in Australia, twice as fast as the country's retail and wholesale investment market (Brown, 2005).

3 Responsible investment's sustainable strategic management impact and outcome

A journal article on responsible investing was published in the Fall of 2002 (Lydenberg, 2002) that tried to make some predictions about the developments that might occur in the global responsible investing market over the next five years. The 2002 paper (updated as Lydenberg and Sinclair, 2009) made a number of predictions, most notably, that an increasing number of companies will disclose comprehensive data on the social and environmental impact of their business operations and that these companies will adopt specific management practices to integrate these values into their business operations. Many of these predictions have been realised, including the increasing number of companies that are integrating environmental, social, and governance factors into their overall business strategies (Bielak et al., 2007).

How much of this change in the environmental, social, and governance landscape can be traced to the responsible investment's portfolio screening and shareholder advocacy pressures? While it is difficult to draw any firm conclusions as there is likely to be more than one factor or driver leading to sustainable strategic management change, there appears to be a very mixed track record of responsible investing in terms of a measurable sustainable strategic management impact and outcome. On the positive end of the spectrum lie the experiences of CalPERS and the FTSE Group. When the California-based CalPERS, one of the world's largest public pension funds, announced that they would start employing RI principles in their investment management decisions in 2001, it was initially unclear what the practical result might be. A year later, after CalPERS decided that it would divest its investments in Thailand, Indonesia, and Malaysia due to unacceptably low labour, political stability, and financial transparency country rankings, finance and stock market officials in those respective countries began scrambling to adopt policies to improve business practices in those areas.

In 2007, the FTSE Group, the global index provider and the parent body of the FTSE4Good Index Series, announced that the FTSE4Good Index Series had resulted in a number of positive impacts on the practices of corporate environmental and social responsibility practices among listed companies around the world. Through the enactment of various standards and protocols on supply chain management, bribery, climate change, and others, the FTSE4Good Index Series have pushed companies to adopt or at least consider adopting beyond compliance corporate environmental and social responsibility performance measures. As Rory Sullivan, former Head of Investor Responsibility, Insight Investments once observed: "The FTSE4Good Index Series has played a critical role in specifying the systems and processes companies should have in place for managing key CR (corporate responsibility) issues such as human rights impacts, and in using the authority and profile of its brand to encourage change" (FTSE, 2007).

Yet, at the same time, the global banking and financial services industry (in which bulk of the responsible investing field is institutionally-based) appears to be more of a laggard rather than a leader in terms of social, environmental, and governance-related business practices. A 2006 social and environmental benchmarking study of 77 banks and financial service companies from 18 countries by the German socially responsible investing rating firm Oekom concluded that only four of the 21 US banks surveyed earned a passing grade (Baue, 2006), while a 2006 study by BankTrack, a Netherlands-based coalition of non-governmental organisations that work on financial equity and advocacy issues, and Worldwide Fund for Nature (WWF), a prominent global environmental organisation, found only two cases where bank policies met all or most of the relevant international standards or best practices of social and environmental practices when the two international groups surveyed 39 international banks in 13 issue sustainability system issue areas. The Bank Track/WWF study also found almost a complete lack of publicly available information on a wide range of sustainability-related information (BankTrack and WWF, 2006).

Sustainable strategic management future of the global banking and financial services industry is a critical one as these interlinked industries represent the largest in the world in terms of earnings and consist of a wide range of businesses including merchant banks, credit card companies, stock brokerages, insurance companies, among others (Sutton and Jenkins, 2007). As we had seen with the recent 2007–2008 global economic and financial crisis, the state of the banking and financial sector matters a great deal to the broader industrial and business landscape. The 2003 Collevocchio Declaration on Financial Institutions and Sustainability noted that the financial sector's role of facilitating and managing capital is not inherently at odds with sustainability, but in the current context of globalisation, the role of financial institutions play in channelling financial flows, creating financial markets and influencing international policies can be unaccountable to citizens, and harmful to the environment, human rights, and social equity in practice. The Equator Principles are trying to elevate the transparency of project financing and the role of the financial sector in sustainability (Equator Principles, 2009). A 2006 BankTrack report entitled 'Do's and Don'ts of Sustainable Banking' concluded that "Sustainability for the banking sector requires a lot more than cutting down on our paper consumption ... It involves making hard choices and a willingness to forego business opportunities that run counter to your sustainability mission" (Van Gelder, 2006).

What may arguably be the largest 'failure' of responsible investing in terms of sustainable strategic management practices is the lack of any meaningful responsible investing markets in emerging and developing economies, where more than two-thirds of the world population live and work. According to one International Finance Corporation survey (IFC, 2009) of corporate executives and investment professionals' attitudes toward ESG factors in emerging markets, comparing pre-crisis (2007) to mid-crisis (2009) situations, 46% of the investors surveyed strongly agreed with the statement that ESG issues are an important part of their research, portfolio management and manager selection, up from 36% in 2007. The majority of asset owners (78%) also suggested that the importance of ESG factors has been amplified by the 2008–2009 financial crisis and may result in greater use of ESG criteria over time in emerging markets. Moreover, the sum total of SRI assets in emerging markets is approximately \$2.7 billion, or 0.1% of the \$2.7 trillion global SRI market.

According to the most recent figure by the International Finance Corporation (IFC, 2009), the emerging market assets held by SRI investors in industrialised countries may

be anywhere between \$1.5 to \$2 billion, while SRI assets in the emerging market capitalisation is estimated at the most optimistic level of .1% or \$5 billion. Although the economic disparity between the industrialised and the developing worlds is always stark, it is nevertheless startling to such a gap between the wealthy first world and less developed third world for a financial instrument that has the word sustainable as a prefix. This is clearly one of the many institutional hurdles responsible investing need to overcome if it is to become more than just a niche market and realise its potential to sustainability at the bottom of the economic development pyramid (IFC, 2003).

4 Conclusions

Will responsible investing realise its full potential as a global sustainable business mechanism and to advance sustainable strategic management? One answer to this question may depend in part on the quality and sophistication of future responsible investment research methodology. For many smaller responsible investment companies without their own research staff, they tend to rely on responsible investment research providers like KLD Analytics in the USA or Ethical Investment Research Service in the UK for their research needs, while larger SRI fund companies rely on their own internal staff to conduct research and shareholder advocacy and/or engage with companies.

While the more simplistic approach of just screening out of companies from the portfolio is still being used, responsible investing research as a whole has become much more sophisticated, including a matrix of environmental-financial analyses, in recent years. Sustainability business research companies like the UK-based Trucost are starting to use sophisticated economic modelling to assess the environmental externalities that may not be captured in conventional financial accounts. The development of global sustainability indices like the Dow Jones Sustainability as well as the FTSE4Good Index Series have filled a much needed investment indices to the RI capital markets and have lead to greater pressure on companies to disclose relevant environmental and social indicators.

Another way to answer the question may depend on the degree of market pressures, particularly from institutional investors, for corporate transparency and accountability. The 2008–2009 financial crisis has produced a global chorus for transparency in the financial sector, but it remains unclear if this lead to a fundamental change in how the governance of the global financial market, including RI. It is clear, however, that greater transparency and accountability pressures, the better it will be for the future growth of the global responsible investing market. There is now an active campaign to pressure the US Securities and Exchange Commission to require companies to disclose their climate change business risks as part of their 10-K corporate filings and other reporting requirements. Similar international policy initiatives like the Global Reporting Initiative and national/regional governments (particularly UK and the EU countries) programs are putting increasing regulatory pressures to strength disclosure of corporate environmental and social data.

The most important factor in determining the future ‘success’ of the global responsible investing market may arguably be to what degree responsible investing becomes mainstreamed in emerging and developing economies. Just two countries (India and China) constitute 40% of the world’s population and particularly in the case of China, no longer considered to be an ‘emerging’ market. China will become the world’s

exporter and is expected to replace Japan as the second largest economy in the world within two decades or sooner. Although the current total of responsible investing assets in emerging economies is a tiny percentage (still less than 1%) of the total emerging market capitalisation, there are strong signs that institutional shareholder activism and tightening environmental and social regulatory pressures will also become the business norm in certain select number of emerging markets. Case in point: the Johannesburg Securities Exchange in South Africa started to require in 2003 that all companies listed with the Exchange will have to comply not only with corporate governance codes, but also required to use the Global Reporting Initiative guidelines for disclosing social and environmental performance. The actual dollar amount may not be as important as the development of the 'right' institutional infrastructure and public-private partnerships to steer RI toward its next phase of green business development and sustainable strategic management in both the industrialised and emerging/developing economies.

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2.3 Responsible Investing in Japan, Hong Kong/China, and the Asia-Pacific region

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Sustainable consumption and the financial sector: analysing the markets for responsible investment in Hong Kong and Japan

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Abstract

The origins of the modern socially responsible investment (SRI) movement can be traced to the turbulent period in the 1960s when powerful social undercurrents including environmentalism and anti-war activism fuelled a rise, in a radical change, in the way society viewed faith, values and commerce.

Today, nearly 1 out of every US\$9 under professional management in the US is currently invested using social investment strategies while the European green and ethical investment market is estimated to be €1 trillion or as much as 10–15% of the total funds under management.

While some preliminary figures and analyses exist for countries outside these two regions, SRI has been, to date, largely explored within the context of North America and Europe. This is unfortunate as the sustainability of SRI as a consumer market is going to depend, to a great extent, to what happens outside of North America and Europe, and most notably in the rapidly developing Asian economies. In this article, I will explore the development of SRI as a mainstream financial consumer instrument in industrialized (Japan) and emerging (Hong Kong/China) economies of the Asia Pacific region.

To fully analyse the SRI market development in Hong Kong and Japan, I will examine the following three issues and questions: first, how does the sustainable consumption framework offer a useful lens from which to explore SRI, and why is the Asia Pacific market and policy context so important for the broader issue of sustainable consumption? Second, what precisely is SRI and how did it develop into an important global financial investment vehicle? Third, how did the SRI market develop in the case of Hong Kong and Japan? I will then conclude the article with some analysis on the important lessons SRI market development in Hong Kong and Japan hold for market sustainability of the financial sector and sustainable consumption.

Introduction

For the past 12 years, Merrill Lynch, a financial investment company, and Capgemini, a business management consulting firm, have jointly published an annual survey called the World Wealth Report, which tries to better understand the growing global influence of what the two companies refer to as 'high net worth individuals' (individuals with at least US\$1 million in financial assets). One of the key takeaways of the 2008 World Wealth Report was the growing importance of socially responsible investing (SRI) as a financial asset category for individual – albeit very wealthy – consumers around the world. According to the 2008 Report, 12% of the high net worth individuals (HNWIs) and 14% of the so-called ultra-HNWIs (individuals with at least US\$30 million in

financial assets) allocated a part of their investment portfolio to an SRI investment strategy that includes green and alternative energy technologies (Capgemini and Merrill Lynch, 2008).

The most environmentally attuned HNWI and ultra-HNWI populations, as measured by the percentage of investors allocating to SRI investing, were found in the Middle East and Europe, with participation rates ranging from around 17 to 21% in 2007. By comparison, only 5% of HNWIs and 7% of ultra-HNWIs in North America allocated part of their portfolio holdings to SRI investing compared with 13% of HNWIs and 14% of ultra-HNWIs for the Asia Pacific region, and 15% of HNWIs and 17% of ultra-HNWIs for the Latin American region. Interestingly enough, the report also observed that North America was the only region in which social responsibility (that is, non-financial social or ecological

concerns) came up the primary driver of HNWIs' interest in SRI (Cappgemini and Merrill Lynch, 2008).

What was so interesting about the 2008 World Wealth Report was not that it revealed anything significant about the size or composition of the SRI market. A biannual survey documenting the US SRI market, for instance, has been published for the past decade. Rather, the 2008 Report documented how, and to what degree, consumers in around the world differ in their attitudes and investment habits. Defying the easy categorization as a product or a service, SRI can best be described as an investment process that takes into account non-financial variables (most often, social and environmental issues) in the context of traditional financial analysis. Retail (i.e. individual) as well as institutional investors (i.e. public pension funds, university endowments and so on) use SRI to achieve a financial and social/environmental return. For predictable reasons, the consumer market of SRI developed first in the wealthier countries in North America and Europe, and only now has the SRI market development in such as Asia, Latin America and Africa been getting any kind of attention.

Using Japan and Hong Kong as case studies and sustainable consumption (SC) as a theoretical framework, this article examines the market development of SRI and explores the changing consumer attitudes toward sustainable investing in the most economically dynamic and rapidly changing region of the world. Despite the growing academic literature on SRI, I argue in this article that we still have little understanding of the SRI market development outside of North America and Europe. Using Japan and Hong Kong as case studies, I also argue that the mainstreaming of SRI into the global consumer marketplace will only be realized when we have a better understanding of non-North American and European markets, most notably in the rapidly evolving Asian emerging economies.

To fully analyse these two related arguments, I will examine the following three issues and questions: first, how does the SC framework offer a useful lens from which to explore SRI, and why is the Asia Pacific market and policy context so important for the broader issue of SC? Second, what precisely is SRI and how did it develop into an important global financial investment vehicle? Third, how did the SRI market develop in the case of Hong Kong and Japan? I will then conclude the article with some analysis on the important lessons SRI market development in Hong Kong and Japan hold for market sustainability of the financial sector and SC.

Theoretical framework

Sustainable consumption (SC) has served as an effective theoretical framework to contextualize many issues related to environment/social dimensions of business, economics and policy (Spaargaren, 2003; Fuchs and Lorek, 2005; World Business Council for Sustainable Development, 2008), and I argue in this article that SC also serves as a useful scholarly narrative to frame SRI as a sustainable business and development issue (O'Rourke, 2003). SC is conceptually different from its theoretical cousin, ecological modernization (EM), in that SC does not state categorically (like the EM advocates) that it is possible for a society to develop economically and at the same time protect its environmental welfare. At the same time, it does not also support many critics of the EM theory who tend to view economic development as an agent of more intensified environmental deterioration.

Traditional social science approach to SC can be classified into two major streams: the first stream, typified by Veblen's book, *The Theory of the Leisure Class* (1899), tends to regard consumption as morally suspect if not morally corrupting while the second stream looks at consumption less moralistically and focuses more on the social-institutional factors and the psychology of consumer behaviour that shape consumption (Hertwich, 2005). The second research approach to SC is, I argue, where academic scholars need to spend more time on, and the context by which the focus on SRI can be best examined.

While building on the traditional SC framework (at least in terms of the second stream), the analytical focus on SRI also offers two opportunities for more focused scholarly inquiry into two gaps in traditional SC research. First, traditional SC research tends to emphasize tangible goods over services, that is, consuming durable goods such as furniture over the functions or services connected to that particular piece of furniture. While there has been some good recent works on servicizing products or transforming products as services (Heiskanen and Jalas, 2003), we need further elaboration and analysis that connect SC with an act such as financial investment (or in the context of this article, SRI) that does not literally use something up in the literal sense of how one traditionally defines consumption.

Second, similar to its theoretical cousin, EM, the literature on SC tends to be dominated by examples, case studies and research on the wealthy OECD countries in North America and Europe. While this approach can be justified on the basis that SC research needs to focus on where, and who, does the most consuming (i.e. relatively wealthy consumers in North America and Europe who are situated in the top of the global population pyramid), this approach is becoming less salient in terms of overall impact with the intense consumption bubble that is occurring outside North America and Europe, and in particular, whom Myers and Kent refer to as the 'new consumers' in the so-called Brazil, Russia, India, China and South Africa (BRICS) countries and elsewhere (Myers and Kent, 2004¹).

Specifically, I argue in this article that the Asia Pacific region represents an important spatial lens through which to analytically examine the SC theory as well as SRI market development as a case study in SC because of the growing economic and sustainability footprint of this region. The ability of the international community to achieve deeper roots of SC may be determined in large part by what happens – or not – in this region. With the centrality of the global economic engine being shifted to China, India and other countries in the Asia Pacific region, SC as an analytical/explanatory framework and SRI as a financial asset cannot be considered truly global without a more nuanced understanding and taking into account the socio-environmental changes that are taking place in Asia.

Nowhere is the challenge of shifting to patterns of energy-efficient and environmentally friendly economic development more urgent and critical to the future of global economic and environmental governance than the rapidly industrial economies of Asia. Some of the critical macro-sustainability trends shaping Asia and the world at large include the double-digit rate increases

¹For additional analysis on the links between consumption, sustainability and market forces, see Worldwatch Institute (2004) and Princen *et al.* (2002).

in Asian industrial production, the introduction of 300–400 million new middle class consumers from India and China alone and the 80% of the Asian industrial stock that will be built in the next 20 years (Angel and Rock, 2000; Lebel, 2005). Asian pathways on economic development and their impacts on the global environment may well chart the path for other less advanced economies of the world. Consequently, the experiences of Asian countries are critical to understanding the overall concept of SC as well as the necessary trade-offs that may exist between growth, equity and poverty reduction. The Asian region offers a plausible roadmap for how, and to what degree, emerging and developing economies may best integrate to the global economic value chain while meeting the basic human development needs of their respective societies.

SRI's historical and market typology

Understanding the genesis of the modern SRI movement

The origins of the modern SRI movement can be traced to the turbulent period in the 1960s when powerful social undercurrents including environmentalism and anti-war activism fuelled a rise, in a radical change, in the way society viewed faith, values and commerce. SRI funds were once primarily known as ethical funds, and given their strong Judaeo-Christian roots, this is not at all surprising. The notion of an 'ethical business enterprise' has strong roots in Judaeo-Christian traditions, and one can find examples of such notion in the book of Deuteronomy dating back more than 3000 years. However, it is arguably the Quaker faith that has made the greatest impact in making the connection between commercial activities and ethical values in the modern age (Kreander, 2001).

The Quakers were the first group to practice 'negative screening' of investments when they avoided investments in the armaments sector for more than 140 years by faithfully applying their peace traditions to commercial activities. One of the early examples of what we might now call a SRI-like activity was an investment fund established by the Methodist Church in the 1960s that avoided investments in armaments, alcohol, gambling and tobacco. As the fund managed by the Methodist Church was closed to outsiders, the first modern example of what we now call an SRI fund was the US Pax World Fund established by two Methodist ministers in 1971. The first investment fund that specifically addressed ecological concerns was the Ecology Fund established by Merlin/Jupiter Company in 1988 (Kreander, 2001).

The political unrest in South Africa in the 1960s and 1970s set the stage for another major policy push for SRI and the important connection between ethics and business practices. Reverend Leon Sullivan helped draft a code of conduct (subsequently known as the 'Sullivan Principles') for companies doing business in South Africa. By the early 1980s, the Sullivan Principles became the rallying cry for anti-apartheid activism. By 1982, the State of Connecticut adopted the Sullivan Principles and other social criteria to guide its investment decision-making, and just 2 years later, the California Public Employees Retirement System, the largest public pension fund in the world, and the New York Employee Retirement System developed their own investing guidelines in South Africa. Contemporary corporate divestment and boycott campaigns, ranging from Darfur to ExxonMobil, got

started, thanks in large part to the success of the South African anti-investment campaigners, many of whom were also active in the SRI industry at that time (International Finance Corporation, 2003).

SRI and the ecology of financial consumerism

At the most simplest level, SRI can be defined as integrating personal values and societal concerns with investment decisions while both the investor's financial needs and an investment's impact on society. The most easily understood and common way social and environmental factors have been incorporated into the SRI process is through portfolio screening, which is the process of using social and/or environmental criteria to include (positive screen) or exclude (negative screen) shares of a certain company from an investment portfolio. Although the weighting of the individual screens differs from one SRI fund to another and from one SRI asset management company to another, most SRI funds typically screen, positively and/or negatively, individual firms based on the following criteria: environment (energy intensity, carbon emissions, environmental management system, etc.), workplace practices (equal opportunities, employee welfare and opportunities, anti-discrimination policies, etc.), stakeholder relations (charitable contributions, human rights, engagement with non-profit/community groups), and in some cases, corporate governance and related board practices (Social Investment Forum, 2008a).

Over the course of the past four decades, SRI has become an established global financial market instrument in the US, Europe and other advanced industrialized countries. The US Social Investment Forum estimates that US\$2.7 trillion or 11% of the US\$25 trillion in total assets under management has been invested according to an SRI strategy in 2007. Assets in all types of socially and environmentally screened funds – including mutual funds and exchange-traded funds – rose to US\$202 billion in 260 funds in 2007, a 13% increase over the US\$179 billion in the 201 tracked in 2005 (Social Investment Forum, 2008b). Comparable figures for Europe (representing the individual country markets of Austria, Belgium, France, Germany, Italy, the Netherlands, Spain, Switzerland and the United Kingdom) show that the European SRI market has reached the €1 trillion mark in 2006 or as much as 15% of the total European funds under management (European Social Investment Forum, 2006).

Unfortunately, the relative healthy SRI market developments in North America, Europe, and to a lesser degree, Asia, overshadow almost the complete lack of SRI activity in many emerging and developing economies where more than two-thirds of the world population live and work. According to a 2003 report by the International Finance Corporation (2003), the total SRI assets in emerging markets is approximately US\$2.7 billion or 0.1% of the US\$2.7 trillion global SRI market. The emerging market assets held by SRI investors in industrialized countries may be anywhere between US\$1.5 and US\$2 billion while SRI assets as a percentage of the total emerging market capitalization is likely to be no larger than 0.1%. Although the economic disparity between the industrialized and the developing worlds is always stark, it is nevertheless startling to such a gap between the wealthy First World and less developed Third World. This is undoubtedly one of the most important market development hurdles if SRI is to realize

its potential to bring triple bottom line sustainability to the bottom of the economic development pyramid.

Case study discussion: SRI market development in Hong Kong and Japan

One explanation for the diverging SRI market development is the differing financial sector development between the advanced industrialized OECD countries and many Asian countries including Japan. There are still limited number of large (in terms of market capitalization) publicly-traded companies from Japan and other Asian countries that can meet the transparency and listing requirements of the major stock exchanges such as New York and London, although this is slowly changing. Although business awareness of environmental and social responsibility concerns lag that of North America and Europe, SRI represents a growing, if not thriving, financial instrument in the Asia Pacific region (see Table 1). According to a 2005 Association for Sustainable & Responsible Investment in Asia report, 'while Asian markets in general tend to be higher risk than their developed market counterparts, the most striking feature of the market for new funds is the predominance of variable annuity products, bond funds, and products with either regular distributions or guaranteed principle provisions. There are pockets of interest in new equity products, including SRI which has been successful in attracting new investors' (Brown, 2005).

Hong Kong

More than 19 investment funds (see Table 2) that can be classified as SRI are currently based in Hong Kong. The first SRI fund was launched in 1997, the first of its kind in the Asia Pacific region, and

2 years before the first such fund got its start in Japan. While the total number of SRI funds in Hong Kong is not as impressive as compared with South Korea (45 funds, which were all started on or after 2001), and it is technically not even a country (rather it is a special administrative region of China), there are a number of reasons why SRI developed first in Hong Kong and why the development of sustainable investing in this city-state is important regionally as well as globally.

First, Hong Kong has an established economic foundation from which SRI has the potential to become a mainstream consumer financial product. This 'special' Chinese city-state with 7 million people has a globally-linked local financial market (more than US\$416 billion in financial assets is currently under management) (Securities and Futures Commission, 2007), investment-savvy consumers (1.1 million or nearly 20% of the Hong Kong population traded at least once in the local stock market in the past year) (ASrIA, 2004), and has one of the highest per capita incomes in the world [Hong Kong's 2007 per capita gross domestic product purchasing price parity (PPP) of US\$42 000 is only slightly lower than of the US figure of US\$45 800 and higher than a number of countries in the European Union, including Denmark (US\$37 400), Sweden (US\$36 500) and the United Kingdom (US\$35 100)] (CIA, 2008). In a recent survey of the World Economic Forum's global ranking of countries that did the best in terms of promoting enabling trade and free flow of goods and services, Hong Kong came up first in the world in a survey covering 118 economies (World Economic Forum, 2008). It needs to be stressed, however, that the high per capita PPP does not mean that there is no, or little, poverty in Hong Kong. According to one Oxfam 2007 report, one in six of Hong Kong's 7 million people is classified as living at, or below, the poverty line, and this figure has

Table 1 Socially responsible investment (SRI) funds in Asia^a

Total number of SRI funds in Asia (including faith-based funds)					243
Total number of SRI funds in Asia (excluding faith-based funds)					148
	Public funds	Private equity	SRI pension mandates	Faith-based ^b	Country total ^c
China	2	0	0	0	2
Hong Kong	19	0	0	1	20
Japan	59	1	0	0	60
Korea	37	2	6	0	45
Taiwan	3	0	0	0	3
Singapore	3	1	0	10	14
Malaysia	2	0	0	81	83
Indonesia	0	1	0	1	2
India	1	1	0	1	3
Thailand	2	0	0	1	3
Segment total	128	6	6	95	235
Number of SRI funds by country					235
Asia hedge funds					8

^aSRI funds in Australia and New Zealand are not counted here because they are no longer tabulated by the Association for Sustainable & Responsible Investment in Asia (<http://www.asria.org>). For information on SRI funds in Australia and New Zealand, please consult Responsible Investment Association Australasia (<http://www.responsibleinvestment.org>).

^bMostly shariah funds.

^cCountry total figure includes private equity funds.

Source: Association for Sustainable & Responsible Investment in Asia (2008; <http://www.asria.org>; accessed October 2008).

Table 2 Socially responsible investment funds in Hong Kong

Fund managers	Fund names	Launch dates
UBS Global Asset Management	UBS (Lux) Equity Fund – Eco Performance B	Jun 1997
Pioneer Investments	Global Ethical Equity	Dec 2001
Taifook Investment Managers Limited	Taifook SRI Asia Fund	Oct 2002
Credit Agricole Asset Management	AlIA-JF Green Fund (or CAAM Green Planet Fund)	Mar 2006
DWS Global	DWS Global Agribusiness	Sep 2006
Schroders Asset Management	Schroders ISF Global Climate Change Equity Fund	Jun 2007
Allianz Global Investors	Alliance RCM Global Eco Trends Fund	July 2007
Schroder Investment Management (Luxembourg) S.A.	Schroder Alternative Solutions Agriculture Fund	Sep 2007
Aberdeen Global Asset Management	Aberdeen Global Responsible World Equity Fund	Nov 2007
ABN Amro	ABN Amro Clean Tech Fund	Nov 2007
HSBC Investment Funds Luxembourg S.A.	HSBC Global Investment Funds – Climate Change	Jan 2008
Credit Agricole Asset Management	Aqua Global Fund	Mar 2008
Allianz Global Investors	Allianz RCM Global Sustainability Fund	Mar 2008
Pictet Funds (Europe) S.A.	Pictet Clean Energy Fund	Mar 2008
Pictet Funds (Europe) S.A.	Pictet European Sustainability Fund	Mar 2008
Allianz Global Investors	Allianz RCM Global Agricultural Trends Fund	May 2008
Allianz Global Investors	Allianz RCM Global Water Trends Fund	May 2008
DWS Investment S.A.	DWS Invest Climate Change	May 2008
KBC Asset Management Limited	KBC Water Fund	May 2008

Source: Association for Sustainable & Responsible Investment in Asia (2008).

worsened considerably since the city reverted from British to Chinese rule in 1997 (Pomfret, 2008).

Second, Hong Kong has come relatively late to the sustainable development discussion in part because of its unique political and institutional history, a 'history which has left it devoid of many of the core competencies required to achieve sustainable development . . . (including) committed leadership and transparent, democratic, inclusive, and accountable governance . . .' (Mottershead, 2004). However, there is no mistaking the fact that there is an active civil society culture in Hong Kong. This active civil society culture (which is a sharp contrast to mainland China) is best captured in the presence of nearly 3000 non-governmental organizations (NGOs), with many of the leading international environmental and civil society groups (most notably, Oxfam, Worldwide Fund for Nature, Greenpeace and others) having offices in, or around, Hong Kong (ASrIA, 2004).

In terms of the public sector and governance, Hong Kong's Special Administrative Region Government, which has its own legislature and many unique self-government policy mechanisms, launched a number of new sustainable development-related policy initiatives, including the establishment of the Hong Kong Government's own Sustainable Development Unit in 2001 and the Council for Sustainable Development in 2003 in the past decade (Mottershead, 2004). It should be noted that these sustainable development policy initiatives were established after the 1997 handover of Hong Kong from the United Kingdom to China. Hong Kong is not only a late industrialized region and one of the earliest Asian economic tigers but also a late policy embracer of sustainable development as a core governance issue. The Hong Kong experience confirms the importance of having reached a certain level of economic development before there is a rise in the market interest of SRI and other sustainable investments/products, which has important implications for emerging and developing economies in Asia and elsewhere.

Third, there appears to be a core group of consumers in Hong Kong who are ready to embrace SRI as a mainstream financial product. According to a 2004 Association for Sustainable & Responsible Investment in Asia and University of Hong Kong's Corporate Environmental Governance Program survey (Brown *et al.*, 2004) of 884 residents, 61% of the respondents expressed interest in investing in SRI funds as part of their Mandatory Provident Fund [a Hong Kong government pension programme launched in 2000 that requires employees to contribute 10% of their earnings (half paid by themselves and half by their employers) to a pension investment fund]. Perhaps not surprisingly, the survey noted that consumers with interest in social issues (85.7%), higher income levels (79.4%), postgraduate education (73.5%) and religious orientation (73%) had the highest correlation with interest in SRI funds, while industrial pollution and child labour issues were the most salient individual issues among the respondents with the highest interest in SRI issues.

The interest in SRI funds among Hong Kong consumers is consistent with other surveys on green consumer attitudes. A 2001 survey (Civic Exchange, 2001) carried out by a Hong Kong-based NGO, Civic Exchange, reported that 44% of respondents stated that they always, or sometimes, purchased environmentally friendly products when possible, of whom 82% claimed that their decision was to help improve the environment. Of the 28% who stated that they do not buy environmentally friendly products, 61% claimed that this is because those products were hard to find. A 2002 survey (Lam *et al.*, 2003) by the University of Hong Kong's Corporate Environmental Governance reported that 38% of the consumers regard social and environmental issues as the top three factors in purchasing decisions while 70% of the respondents thought that companies should disclose relevant corporate information to the public and show care to the community.

Japan

With the second largest economy in the world and most established market history of personal consumerism in Asia, it is perhaps not surprising that 40% of the SRI funds (excluding faith-based ones) in the Asia Pacific region (see Table 3) is based in Japan. Interest in SRI among Japanese retail and institutional investors has been growing steadily. Total SRI assets, most of which are retail investor-driven, reached US\$7 billion or 1.2% of the total equity fund assets in 2007 (Adachi, 2007). While small by US and European standards, Japanese SRI market has been in existence for only a decade and came to be with the launch of the Nikko Eco Fund in 1999. Compared with the SRI markets in North America and Europe, what is arguably most noticeable about the Japanese SRI industry is the number of investment funds that focus on environmental issues as the primary investment strategy. There are a number of Japanese SRI funds that focus on social issues, including gender, workplace norms and business practices in emerging and developing economies, and it would be incorrect to say that the environmental focus of SRI funds is somehow unique to Japan.

At the same time, the negative screening approach used by many traditional SRI funds (i.e. which screens out companies that do not meet a certain environmental and social criteria) in North America and Europe remains the exception in Japan, and most Japanese 'SRI' funds rely on a best of sector approach (that is, invest in companies that outperform their industry peers on some sustainability criteria, regardless of the sector). For instance, a Japanese SRI fund might invest in a new type of nuclear energy technology whereas many, if not all, SRI funds in North America and Europe would consider nuclear power one of the exclusionary factors (i.e. negative screen) and would not invest in the company if nuclear power research and development was more than a small percentage of its overall business. The negative screen investing methodology is a key reason why Japanese electric utilities (nuclear power) and beer/beverage (alcohol) companies are rarely included in the SRI funds in North America and Europe, although many of these companies compare well with their Western corporate peers in terms of environmental management performance.

Green mutual funds, which invest in companies that deal with environmental technologies and eco-management systems, continue to be very popular with the retail Japanese investors. According to a 2007 report by Daiwa Fund Consulting, there are currently more than 50 so-called green mutual funds in Japan with nearly US\$7 billion in assets (please note that not all of these assets count towards the Japanese SRI figure). Deutsche Asset Management (Japan) launched a US\$2 billion global-focused 'New Resource Fund' that invests in alternative energy and food businesses in December 2006, while Nomura Securities launched its US\$1.4 billion 'Global Warming Prevention Equity Fund' that specializes in companies that specialize in energy-saving technologies in July 2007. Between May and July 2007, Nomura Asset Management, Nikko Asset Management and Mitsubishi UFJ Asset Management Co. all launched global investment funds targeting the water sector (Nikkei Daily, 2007).

Despite the recent consumer popularity, it remains surprising that the first so-called SRI fund did not start until 1999, particularly given that Japan is, and has been, home to one of the wealthiest consumer base in the world for the past two decades. Three

business-related cultural and institutional factors might account for the relatively late market entry of SRI funds in Japan. First, changes in the cultural and social norms governing the Japanese retail investing market. Traditionally, individual Japanese investors account for less than 20% of the trading that takes place in the Tokyo Stock Exchange. However, because of the increase in the growing attractiveness of the Japanese equity market, rebound in the overall Japanese economy and the popularity of online trading, the percentage of trading attributed to individual investors doubled to 40% between 1999 and 2003, and it has more or less plateau at 40% since that increase (Nomura Research Institute, 2006). Until the past decade or around the time of the first Japanese SRI fund, institutional investors rather than individual investors dominated the Japanese stock market and asset management industry.

Most notably in terms of SRI, the increase in individual investors was accompanied by a large number of female investors choosing SRI as their investment strategy of choice. Ninety per cent of the money that came in as early as investor Nikko Eco Fund came not only from the retail investor side but also, most prominently, from female, first-time investors, in the 30 to 40-year age bracket. This was a sharp departure from the typical Japanese investor who is generally male, more than 40 years old, and is a regular investor in the stock market (Jantzi, 2003). One can make a credible argument that the Japanese SRI market would not exist had it not been for this group of novice Japanese female investors who took a chance on a new investing in Japan called SRI.

Second, both the business and consumer awareness of the importance of business sustainability-related information disclosure came relatively late in Japan as compared with North America and Europe. Although the quality, knowledge and energy-management activities of Toyota and other Japanese companies are well known, an international business survey (DTTI *et al.*, 1993) reported as late as 1992 that it could not find one example of a satisfactory corporate environmental report issued by a Japanese company. Although almost routine in US and other OECD industrialized countries, it was not until March 2008 that Japan's Environment Ministry, and Ministry of Economy, Trade, and Industry, released a public report that ranked the biggest corporate emitter of greenhouse gases (Nikkei Daily, 2008). The disclosure of such information is regarded as a well-established policy in North America and Europe through which companies are encouraged if not shamed into improving their climate change-related business practices. An American or a European consumer can consult a wide range of web sites including government agencies to get the environmental information on a wide range of environment and social-related corporate information whereas the average Japanese consumer has to look harder and be more determined to get the same type of information and more so to find such information in the Japanese language.

Third, as compared with the corporate governance structure in North America and Europe (with the possible exception of Germany), individual shareholders as well as stakeholders do not play a prominent role in the Japanese system of corporate governance. While this means the Japanese business executives are not consumed with the pressures generated from rigid quarterly earning requirements and community activism, it also means the absence of environment-oriented business groups such as the US-based Coalition of Environmentally Responsible Economies to lobby the interests of ecologically minded shareholders and

Table 3 Socially responsible investment funds in Japan

Fund managers	Fund names	Launch dates
Nikko Asset Management Co., Ltd.	Nikko Eco Fund	Aug 1999
Sompo Japan Asset Management Co.	Sompo Japan Green Open	Sep 1999
DIAM	Eco Fund	Oct 1999
UBS Global Asset Management Inc.	UBS Japan Equity Eco Fund	Oct 1999
Mitsubishi UFJ Asset Management Co., Ltd.	Eco Partners	Jan 2000
Asahi Life Asset Management Co., Ltd.	Asahi Life SRI Social Action Fund	Sep 2000
Sumitomo Mitsui Insurance Asset Management Co., Ltd.	Eco Balance	Oct 2000
Nikko Asset Management Co., Ltd.	Nikko Global Sustainability Fund (without hedge)	Nov 2000
Nikko Asset Management Co., Ltd.	Nikko Global Sustainability Fund (with hedge)	Nov 2000
Daiwa SB Investments Ltd.	Global Eco Growth Fund (with hedge)	Jun 2001
Daiwa SB Investments Ltd.	Global Eco Growth Fund (without hedge)	Jun 2001
Shinkin Asset Management Co., Ltd.	Fukoku SRI Fund	Jan 2003
UBS Global Asset Management Inc.	UBS Global Equity 40 Fund	Mar 2003
STB (Sumitomo Trust Banking) Asset Management Co.	Sumitomo Trust SRI Japan Open	Dec 2003
Daiwa Asset Management Co., Ltd.	Daiwa SRI Fund	May 2004
Nomura Asset Management Co., Ltd.	Nomura Global SRI 100	May 2004
Nomura Asset Management Co., Ltd.	Tsunagari Morningstar SRI Index Open	Jul 2004
Mitsubishi UFJ Asset Management Co.	Mitsubishi UFJ SRI Open	Dec 2004
Sompo Japan Asset Management Co.	Sompo Japan SRI Open	Mar 2005
AIG Global Investment	AIG-Saikyo Japan CSR Fund	Mar 2005
AIG Global Investment	AIG/Resona Japan CSR Fund	Mar 2005
AIG Global Investment	Japan CSR Fund "Class G"	Apr 2005
Fukoku Capital Management Inc.	Japan SRI Open	Aug 2005
Commerz International Capital Management (Japan) Ltd.	Commerz Asia SRI Fund	Nov 2005
DIAM	High Rated Income Open SRI Fund	Dec 2005
Invesco Japan	Invesco Japan Equity Focus Alpha Fund	Feb 2006
Daiwa Asset Management Co., Ltd.	Daiwa Eco Fund	Mar 2006
Daiwa Asset Management Co. Ltd.	Six Assets Balance Fund (monthly distributed)	Mar 2006
Daiwa Asset Management Co., Ltd.	Six Assets Balance Fund (accumulated)	Mar 2006
DIAM	Natural Environ. Conservation Fund	May 2006
STB (Sumitomo Trust Banking) Asset Management Co.	Sumitomo Trust Japan Equity SRI Fund	Jun 2006
SG Asset Management	SG Woman J Fund	Jun 2006
Shinko Investment Trust Management Co., Ltd.	Global Warming	Jun 2006
Daiwa Asset Management Co., Ltd.	Shigagin	Sep 2006
Chuo Mitsui Asset Management	Mitsui CSR Fund	Nov 2006
DWS Finance Service GmbH	Nikko DWS New Resource Fund	Dec 2006
Shinkin Asset Management	Shinkin SRI Fund	Dec 2006
SGA Societe General Acceptance N.V.	New Generation World Environmental Fund	Jun 2007
Daiwa Asset Management Co., Ltd.	Earth's Environment Equity Fund – World Bond Balanced Fund	Aug 2007
Daiwa Asset Management Co., Ltd.	Earth's Environment Equity Fund	Aug 2007
DLIBJ Asset Management International	DIAM World Environmental Business Fund	Aug 2007
Schroders Asset Management	Global Warming Prevention Fund	Aug 2007
Schroders Asset Management	Global Warming Prevention Equity Open	Aug 2007
Nomura Asset Management SAM (Sustainable Asset Mgt. AG)	Nomura Aqua Investment (with hedge)	Aug 2007
Nomura Asset Management SAM (Sustainable Asset Mgt. AG)	Nomura Aqua Investment (without hedge)	Aug 2007
UBS Global Asset Management	UBS Global Warming Prevention Fund	Aug 2007
Japan Investment Trust Management	Global Warming Prevention Equity Open	Sep 2007
T&D Asset Management	Global Sustainability Equity Fund	Sep 2007
Credit Agricole Asset Management	Global Green Balance Fund	Dec 2007
Shinko Investment Trust Management	Environment Preservation Global Balance	Dec 2007
Toyota Asset Management Co.	TA Clean Energy Fund	Dec 2007
Credit Agricole Asset Management	CA Global Water Equity Fund	Dec 2007
Credit Agricole Asset Management	CA Global Environmental Power Fund	Dec 2007
Credit Agricole Asset Management	CA Global Green Balance Fund	Dec 2007
Sumitomo Mitsui Asset Management	Global Food Resources Fund	Feb 2008
Mitsubishi UFJ Asset Management Co.	Global Warming Prevention Fund	Mar 2008
Sompo Japan Asset Management Co.	Aeon Fat Dividend Green Balance Open	Apr 2008
Sompo Japan Asset Management Co.	Sompo Japan Eco Open	Apr 2008
Russell Investments Japan Co., Ltd.	Russell Global Environmental Technology Fund	May 2008

Source: Association for Sustainable & Responsible Investment in Asia (2008).

commercial interests in Japan. While North American and European firms are subject to a diverse array of pressures from both within (e.g. environment-minded shareholders and managers) and outside the company (e.g. regulatory measures like the US's toxic release inventory as well as pressure from environmental NGOs) to release relevant environment-related information, many uncompetitive, insulated Japanese companies are not bounded by the same set of stakeholder ties and thus, do not have the same types of 'pressures' for environmental improvement from government agencies and the community at large. This explains why the North American and European subsidiaries of many Japanese firms tend to pursue greener beyond compliance environmental policies than the global standards and benchmarks adopted by the companies' worldwide headquarters. Global-minded companies such as Sony, NEC and Toyota do not fall into this trap of weak stakeholder outreach and engagement because they operate all over the world and have a very different set of stakeholder relationships to governments, communities and NGOs than domestic-focused, market-insulated Japanese companies (Park, 1998).

Future of SRI markets in Hong Kong and Japan, and its implications for global SC

Will SRI realize its full potential as the means through which the financial sector will be able to exercise SC? Hong Kong and Japanese SRI case studies examined in this article offer some important perspectives on this question as well as lessons in terms of how SC can be mainstreamed in the financial sector. First, SC is likely to be a global priority as a consumer business only if it can extend its reach outside the advanced industrialized countries of North America, Europe, and to a lesser degree, Japan. It is hard to be considered a global sustainable consumer product when it is virtually absent from the market reality of so many emerging and developing economies where more than two-thirds of the world population live and work.

Second, the current levels of SRI assets represent a small percentage (in the range of 0.1%) of the total emerging market capitalization, but there are new institutional and market pressures that favour the consumer market development of SRI, most notably shareholder/stakeholder activism and tightening environmental and social regulatory pressures, in a growing number of emerging and developing economies. Case in point: the Johannesburg Securities Exchange in South Africa started to require in 2003 that all companies listed with the Exchange will have to comply not only with corporate governance codes but also required to use the Global Reporting Initiative guidelines for disclosing social and environmental performance (Baue, 2003). For the next stage of SRI development, what is going to be critical is the development and implementation of innovative policy instruments and public-private partnerships, or what UK Sustainable Development Unit refers to as 'choice editors' (Sadowski and Buckingham, 2008), to guide, if not prod, consumers towards the purchase of SRI and other forms of sustainable investments.

Third, environmental and socially responsible consumer norms may be, to a certain degree, universal (clustered, say, among the wealthier band of global consumers), but how this value is understood and eventually expressed through consumption is filtered through a particular set of cultural and normative lens. It is difficult

even within one single relatively homogenous country such as Japan to state with any kind of certainty how to define, or what constitutes, environmental and social responsibility consumer norms. The success of the 1999 Nikko Eco Fund is an excellent example of financial consumerism tied to changing environmental and social norms (i.e. the economic importance of working Japanese women). If one assumes that environmental and socially responsible consumer norms also vary enormously across national borders and cultures, and these norms are 'not just the purview of wealthy, highly educated females in liberal Western democracies' but rather 'something embedded in the psyche of individuals' (Devinney *et al.*, 2006), the future discourse on sustainable consumer consumption, at least on the global level, will be determined in large part by how the development of these norms in China and the BRICS countries follow – or deviate from – the experiences of the advanced industrialized OECD countries.

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3. Business and Sustainability in Japan and Hong Kong/China: Exploring the Linkages

3.1 Chapter Overview

The emergence of the Asia-Pacific region in the global economy and its sustainability implications are further explored in chapter 3 (“Business and Sustainability in Japan and Hong Kong/China: Exploring the Linkages”), which highlights the important emerging relationship between business and sustainable development in Japan and Hong Kong/China.

Building on the EM framework in terms of market dynamics and economic agents (EM thematic cluster #2) and the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3), this thesis author analyzed the development of sustainable business and environmental management practices in Japan, the third largest economy in the world after the U.S. and China.

Chapter 3 starts its analysis with Japan, the third largest economy in the world after U.S. and China, and for many years, particularly in the 1980s and early 1990s, the subject of intense international scrutiny of its industrial environmental management practices. For this thesis author, who has been following Asian business and sustainable development issues for the past two decades, the shift in global sustainability scrutiny from Japan to China was very clear and noticeable.

Chapter 3.2, which is based upon this thesis author’s article titled, “Strategy, Climate Change and the Japanese Firm: Rethinking the Competitive Landscape of a Warming Planet,” explored research question #2 (How did the relationship between business and sustainable development evolve in Japan and Hong Kong/China?).

Based, in part, on a review of the energy and climate change business management literature and an analysis of Carbon Disclosure Project (<https://www.cdproject.net>) company database in 2008, Chapter 3.2 examined relevant business management and social science literature to develop insights into the broad climate change-business management interactions as well as Japanese business sector responses to environmental management challenges.

Chapter 3.2's literature review was conducted in the following three ways: Firstly, this thesis author examined academic journal articles (Lash and Wellington [2007], among others) on broad climate change-business interactions. Secondly, this thesis author analyzed books on Japan's industrial development (Jun Ui's *Industrial Pollution in Japan* book was particularly helpful in terms of understanding Japan's environmental policy history). Thirdly, this thesis author examined relevant international organization's/government's research reports (for instance, the International Energy Agency's research on Japan's energy policy).

This thesis author also used the Nikkei financial news database, which provides an English translation of Japanese financial news articles and research items, to study Japanese business engagement with climate change issues. The analysis of Japanese news articles complemented the more scholarly examination of the Japanese business and environmental management to provide a more complete picture of the relationship between business and sustainable development in Japan.

Although EM as a theoretical framework was not explicitly examined in "Strategy, Climate Change and the Japanese Firm: Rethinking the Competitive Landscape of a Warming Planet" paper, the Japanese climate change business analysis in Chapter 3.2 touched upon two elements of the EM theory: market dynamics and economic agents (EM thematic cluster #2) and the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3).

While the growing global economic footprint of China, India, and other large emerging economies in recent years has obscured Japan's role in the international economic landscape, there is still an important scholarly need to better understand how Japanese companies are responding to climate change and other environmental issues because the country is the third largest economy in the world as well as a key player in global economic and environmental governance.

The 2011 Fukushima nuclear power accident has, in many ways, underscored the critical relationship between Japan's long-term energy, environmental, and economic policy making. The nuclear power accident has reinforced the critical and urgent need to better understand the role of private actors in fostering a long-term sustainable energy, environmental, and climate change solution in Japan, which is one of the key lessons from chapter 3.2

Even as China is set to become the largest economy in the world by the middle of the 21st century, this thesis author argued that the country's sustainability challenges, particularly as they pertain to business and industry issues, have not received the international public attention that they deserve. With China as the world's largest energy user and the largest emitter of greenhouse gases, the sustainable future of China and the Asia-Pacific region will have a disproportionate impact on corporate environmental and social responsibility management practices worldwide.

It is difficult to describe the speed and scale by which China has risen in terms of international economic importance over the past two decades. Whether the 21st century will be the Chinese century like the 20th century was for the U.S. and the 19th century was for the UK is unclear. However, it is hard to deny the pivotal economic role China has assumed, particularly in terms of functioning as an international manufacturing hub, in the global marketplace in the past twenty years.

Chapter 3.3, which is based upon this thesis author's article titled, "China, Business, and Sustainability: Understanding the Strategic Convergence", address the following two dimensions of research question #2 (How did the relationship between business and sustainable development evolve in Japan and Hong Kong/China?). Firstly, what kind of public policy and business strategy can serve the economic, environmental, and social needs of China? Secondly, how can the private sector and government work together in facilitating the development of such a strategy?

To examine these two dimensions of research question #2, this thesis author reviewed China's corporate environmental and social responsibility management literature in 2007-2008. Part of the review was conducted while this thesis author was an international visiting fellow at the University of Sydney (Australia) Business School in January 2007.

Chapter 3.3 was based upon a literature review conducted in the following two ways. Firstly, this thesis author analyzed books on the environmental

dimensions of China/Asian industrial development. Kelly Gallagher's *China Shift Gears: Automakers, Oil, Pollution, and Development* (2006) was particularly helpful in situating China in terms of the regional and global business and sustainable development context. Secondly, this thesis author examined relevant international organizations/governments research reports, for instance, the Asian Development Bank's annual surveys on Asian environmental policies and conditions.

With growing environmental pressures due to deteriorating ecological systems, resource scarcity, and industrial pollution, one important lesson from Chapter 3.3 is how the Chinese government has been "forced" by a multitude of internal and external pressures to recognize the need for a new development strategy that will help the country navigate the delicate balance between economic growth, social stability, and environmental stewardship.

Moreover, "China, Business, Sustainability: Understanding the Strategic Convergence" paper, which serve as chapter 3.3., was among the first scholarly works in the business management literature to discuss an innovative Chinese regulatory policy concept called the 'circular economy', a regulatory and policy framework designed to manage the competing goals of economic growth, environmental stewardship and social justice among many companies, local and regional governments.

Chapter 3.4, which is based upon this thesis author's article titled, "Creating Integrated Business and Environmental Value Within the Context of China's Circular Economy and Ecological Modernization," address two dimensions of research question #2 (How did the relationships between business and sustainable development evolve in Japan and Hong Kong/China?).

Firstly, how can companies strike a more effective balance between economic growth and environmental stewardship in China? Secondly, how can the sustainable supply chain management approach create blended business and environmental values for companies and in what types of organizations in China?

In research funded through the AT&T Industrial Ecology Faculty Fellowship Program (2008-2009)¹, these two questions were examined in

¹ This thesis author was awarded an AT&T Industrial Ecology Fellowship (2008-2009) and served as a co-principal investigator with Joseph Sarkis (Worcester Polytechnic

two ways. Firstly, sixteen unstructured, in-person interviews² were conducted at three information technology and electronics companies in China and one electric waste recycling company in Massachusetts/U.S.

Secondly, this thesis author completed a comprehensive survey of the China-based environmental management, corporate social responsibility, and the industrial ecology academic literature.

Researchers and practitioners tend to consider the relationship between the environment and economy from two divergent perspectives. On the one hand, some suggest that it is a win-lose game. Specifically, strategic decisions with ambitious environmental goals come with real economic costs (Hoffman et al 1999). On the other hand, some researchers suggest a win-win relationship (Pagell, Wu & Murthy 2007) where the interests of all stakeholders can be satisfied. According to Hoffman et al. (1999), both views are problematic because they assume a zero-sum game and overlook the opportunity to “expand the pie” for all the relevant stakeholders.

Some environmental practices can create mutual benefits for all parties, while other practices will cost more and cannot be compensated for within the existing economic structure. In conjunction with these differences, as reviewed in Chapter 3.4, sustainability practices offer opportunities as well as challenges, especially in China.

Researchers from a wide range of business management and social science disciplines have in recent years examined how organizations can incorporate

Institute/USA) and Zhaohui Wu (Oregon State University/USA) on “Understanding Business and Environmental Value Opportunities in the Global Supply Chain of China’s Information and Communication Technology (ICT) Industry.”

² The interview/fieldwork was shared equally with the thesis author conducting the lead on the literature review/analysis and interviews in the U.S. with Joseph Sarkis taking the lead on interviews with Dongtai (China) and Zhaohui Wu taking the lead on interviews with Alcatel (China) and Haier (China). The three principal investigators held regular conference calls and shared/ utilized interview notes/field research during the course of the fellowship period (2008-2009).

environmental concerns into their business activities using such frameworks as the triple-bottom-line (Elkington 1998), industrial ecology (Allenby 2000), natural capitalism (Hawkins and Lovins 1999), eco-efficiency (Hupples and Ishikawa 2005), the Natural Step (Holmberg and Robèrt 2000), life cycle management (Matos and Hall 2007) and ecological footprinting (Rees and Wackernagel 1994).

Chapter 3.4 use the EM theory as a framework, in terms of the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3) and the changing roles of science and technology in providing solutions for environmental dilemmas (EM thematic cluster #4), to understand and guide ecologically oriented management innovation and change at both the firm and supply chain levels of analysis in China. EM theory posits that increasing resource efficiency, improving sustainability, while retaining the basic system of capitalist production and consumption, may worsen environmental problems. In this context, environmental protection should not be seen as a 'problem', but as an 'opportunity'.

An important contribution of Chapter 3 was to provide a deeper, more nuanced understanding of the triple bottom line business models that reflects the market reality of the contemporary Japanese and Chinese economies, while the contribution of Chapter 4 is to examine how RI is starting to intersect with global climate change issues on the global as well as on the Asia-Pacific regional levels.

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3.2 Strategy, Climate Change, and the Japanese Firm

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Strategy, Climate Change, and the Japanese Firm: Rethinking the Global Competitive Landscape of a Warming Planet

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Because of the growing awareness of the important role the business sector plays in global environmental governance, there is a critical need for a more nuanced understanding of how multinational corporations in Japan and other advanced industrialized countries manage their corporate environmental and social responsibility concerns. This paper examines the current and future direction of Japanese business responses to the climate change issue and seeks to advance our understanding of the important links among climate change, business strategy, and Japanese companies. Three issues and questions will be analyzed in this paper. First, how and in what manner has Japanese industry responded to previous energy and environmental management challenges? Second, how are Japanese companies responding to the challenges posed by global climate change? Third, what are the important issues and questions in designing and developing the next generation of climate change strategies for Japanese companies?

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Introduction

Thousands of government delegates, representatives of non-governmental organizations and journalists traveled to Japan in July 2008 to participate in the Group of Eight (G8) Summit, the annual gathering of political leaders from Canada, USA, Russia, Italy, UK, France, Germany, Japan, and other invited political leaders. While a number of issues were discussed, the focus was on climate change, specifically, the status of a post-Kyoto Protocol climate change action plan for the years 2012 and beyond. Shortly after the Summit, the Japanese government announced that a national carbon emissions trading plan would be launched in October 2008 aimed at meeting the long-term goal of reducing greenhouse gas (GHG) emissions by 60–80 per cent from current



levels by 2050. While the proposed Japanese carbon emissions trading plan outlined a strategy of investing in R&D in carbon capture and storage technologies, which capture GHGs emitted by power plants and factories and store them underground, and increasing the domestic use of solar power 10-fold by 2020, the plan lacked a number of important details, such as how much the emissions trading plan would cost and how the costs would be apportioned between government, households and, most importantly, the business sector (Maeda, 2008).

Since industry currently accounts for 44 per cent of the final energy consumed in Japan (MIAC, 2007) and typically uses more energy than any other end user in both industrialized and emerging economies (IEA, 2007), any successful adoption of climate change action or emissions trading plan is going to require the active involvement of the business sector. Consequently, there is a critical and urgent need to better understand how and in what manner businesses in Japan and elsewhere can help facilitate a long-term sustainable solution to the climate change dilemma. This paper focuses on the role of Japanese companies because there is a particular need for greater and more nuanced perspectives on the role of Japanese firms and industries in addressing global climate change.¹ Using climate change-related information on Japanese companies from the Carbon Disclosure Project (CDP) and other sources, this paper examines the current and future direction of Japanese business responses to the issue and seeks to advance our understanding of the important links among Japanese companies, climate change, and business strategy. Three issues and questions will be analyzed. First, how and in what manner has Japanese industry responded to previous energy and environmental management challenges? Second, how are Japanese companies currently responding strategically to the challenges posed by global climate change? Third, what are the important issues and questions in designing and developing the next generation of climate change strategies for Japanese companies?

Literature Review: Business, Environment, and Climate Change

Multinational corporations (MNCs) play a key role in international environmental governance and nowhere is this more evident than in the case of global climate change. Until the late 1990s, most companies — particularly those in the energy, petroleum, transportation, and electric utilities sectors — largely opposed any attempts to regulate GHG emissions and argued that voluntary measures represented the most effective policy options. One important shift in the attitude of the business sector toward global warming occurred when John Browne, Chief Executive Officer (CEO) of the petroleum giant BP, called for a ‘precautionary approach’ in dealing with climate change in a speech



delivered at Stanford University in 1997 (Browne, 1997). His remarks were significant because he was the first CEO of a large MNC to adopt a proactive approach to climate change and signaled the first real division in the business community between those supporting and those opposing the policy objectives of the Kyoto Protocol. From the early 1970s to mid-1980s, MNCs and the business community complied with environmental regulations only when absolutely necessary and often fought the enactment of early anti-pollution measures, such as the Clean Air Act. By the mid-1980s, however, corporations started to recognize the importance of integrating environmental issues into overall business strategies. With regulations moving away from mandating compliance and toward emphasizing environmental results, companies began adopting corporate environmental management programs, some of which yield large cost savings and significant reductions in waste emissions (Park, 1998).

Moreover, there has been rapid growth in the number of proclimate action industry groups (eg Pew Center on Global Climate Change, World Business Council for Sustainable Development). The growing influence of proactive companies and business groups means that there is for the first time credible support for a vigorous climate change policy from the global business community (Park, 2005). In the 11 years since the adoption of the Kyoto climate change protocol in 1997, increasing scientific concerns about climate change, growing inevitable sense of a global climate regulatory regime and accelerating use of Kyoto Protocol market mechanisms have propelled many new business responses to global climate change in Japan, the US, and Europe, ranging from energy efficiency and clean technology focused policy approaches in Japan, new and emerging voluntary carbon mitigation programs in the US and mandatory emissions trading regimes in the European Union. As Carey (2004: 60) observes: 'The idea that the human species could alter something as huge and complex as the earth's climate was once the subject of an esoteric scientific debate ... Consensus is growing among scientists, governments, and business that they must act fast to combat climate change. Many companies are now preparing for a carbon-constrained world.'

Although until recently theories of multinational corporate behavior have evolved without their environmental sustainability context and historically regarded private transboundary actions being properly framed as neutral in terms of environmental, social, and community impacts (Choucri, 1993), some of the most pressing and relevant questions about MNCs currently focus on social and environmental (Vogel, 2005) and, increasingly, climate change responsibilities of corporations. What is new and notable in terms of current scholarly research on the environmental and social dimensions of MNCs is the decline in emphasis on traditional state-based regulatory standards and a growing focus on self-regulatory and public-private norms (Braithwaite and Drahos, 2000) that govern business behavior across a wide range of social and



environmental management settings, including the International Organization for Standardization (ISO)'s 14001 environmental management standards (Prakash and Potoski, 2007) and human rights concerns in the natural extractive industries (Frankental and House, 2000). Management and social science literature on the ability of states to cooperate in managing the negative externalities induced by the globalization of economic production is evolving toward a more systematic inquiry into what can be and are being mediated by self-regulating norms and cooperative efforts between business and non-governmental organization actors in governing the environmental and social responsibility business behavior of MNCs.

Alternative regulatory mechanisms, particularly in the environmental management arena, are rapidly becoming important supplements to, if not a substitute for, traditional national governmental policy making. Alternative regulatory mechanisms, including industry-specific voluntary agreements, self-regulatory standards, and information-based disclosure requirements (Wheeler, 1999), can be completely outside the framework of the state or can be mediated by the state. However, unlike traditional governmental regulations, the state does not play a central role in implementing and enforcing these alternative regulatory mechanisms. Traditional state-based regulations, in which public sector agencies play a central role in the regulatory cycle, still have a role to play in the global economy, but new models of policy stewardship include what Haufler (2001) refers to as industry self-regulation, whereby companies themselves design and enforce the rules that govern their behavior over a wide assortment of regulatory settings. Traditional environmental regulations have resulted in considerable improvements in some of the more visible and pressing environmental impacts of industrial activity. However, the demand for more effective and sensible environmental protection is bringing increasing attention to new policy tools that fall somewhere between the market and conventional public regulation (Coglianese and Nash, 2000).

MNCs, whether based in North America, European Union or Asia, are all under increasing pressure to globalize and seek continuing competitive advantages in their business operations. Consequently, many are benchmarking their environmental management and workplace practices to higher standards and have realized important sustainability dividends in the form of improved eco-efficiency, stakeholder ties, and supply chain management practices. Gunningham *et al.*'s (2003) research on pulp manufacturing mills in the US, Canada, Australia, and New Zealand revealed that steadily tightening regulatory standards have been an important factor in raising environmental performance. Environmental performance of these manufacturing facilities varies considerably, but this variation has less to do with differences in regulatory governance and more to do with the complex interaction among tightening regulations, economic constraints, and differences in corporate



environmental management styles. In her study of multinational chemical corporations in Mexico and Brazil, Garcia-Johnson (2000) showed that MNCs have incentives to raise environmental, health, and safety standards of domestic companies in their host countries to maintain their competitive advantage.

Since the cost of building a new state-of-the-art industrial chemical facility typically runs into billions of dollars, environment, health, and safety have become mainstream bottom-line business concerns that go beyond regulatory compliance. In their study of the impact of global environmental standards on the market value of multinational enterprises, Dowell *et al.* (2000) conclude that MNCs have incentives in the form of higher market value to adopt global standards exceeding those required by local law or regulation, and companies that implement uniform and high global environmental standards are more highly valued by the stock market. By investing in state-of-the-art technologies and management processes, MNCs may achieve simultaneously superior economic and environmental performance (see also Porter and van der Linde, 1995). The work of Dowell *et al.* (2000) also suggests that developing countries may be able to attract foreign direct investment by lowering environmental standards, but this is likely to attract already financially weak companies looking for ways to minimize short-term costs, including exploiting low labor costs, just to stay afloat.

One important theoretical contribution to the environmental management literature has been the 'natural resource-based view of the firm' model (Hart, 1995), which attempts to construct a theory of competitive advantage based upon a company's relationship with the natural environment, and is composed of three interconnected strategies: pollution prevention, product stewardship, and sustainable development. Hart and Milstein (2003) later refine this model into what they refer to as a sustainable value framework concept, which attempts to connect sustainability with shareholder value creation. Another notable contribution to the international business literature in terms of business and environment strategy concerns can be seen in the work of Rugman and Verbeke (1998a, b), who suggest that the most important question regarding the nexus of environmental regulations, business strategy and MNCs is how the overall configuration of firm- and country-based advantages of a particular firm is affected by different types of environmental regulations at various institutional levels. Levy and Kolk (2002) examined how the oil industry is responding to the climate change issue through coordinated market and non-market business strategies, while Kolk and Pinske (2007) documented how institutional, resource-based, supply chain and stakeholder perspectives are all important in understanding strategic business responses to the issue and showed that the issue has the capacity to induce firm-based advantages that not only lead to environmental



improvements, but also affect firms' profitability, growth, and survival (Kolk and Pinske, forthcoming).

Understanding the Japanese Business Sector's Climate Change and Environmental Management Challenges

The growing global economic footprint of China and India in recent years have obscured Japan's status as the second largest economy in the world and the largest economy in the Asia-Pacific region. In the most recent survey (Mero, 2008) of the Fortune Global 500 list of the world's largest companies in terms of revenue, Japan had 64 out of the 500 companies, second only to the US (153) and far exceeding Germany (37), France (39), Britain (34), China (29), South Korea (15), and India (7). Because of the continuing importance of Japanese businesses in the international economic landscape and by extension global environmental governance, there is a critical need to improve understanding of how Japanese companies manage environmental and social issues.

In order to better understand the climate change and environmental management challenges confronting the Japanese business sector, the following two issues and questions will be examined. First, how has Japanese industry responded in terms of business–public policies and management strategy to domestic and global environmental problems? Second, what are some of the most important environmental management challenges confronting Japanese industry today?

The Japanese business community has shown three distinct stages of response to domestic and global environmental problems. The first stage, from the late 1960s to mid-1970s, was part of a national, if not international, awakening to the problems of industrial pollution. A series of highly publicized pollution cases in the early 1970s, including the notorious Minamata disease, led to an unprecedented session of the Japanese Parliament (the famous 'Pollution Diet'), which brought about the adoption of the most stringent air, water, and noise pollution standards in the world. In addition to consolidating a national system of environmental administration under the supervision of the new Environment Agency, national environmental legislation was enacted in 1970 to oblige each manufacturing site to maintain an appropriate internal pollution prevention and environmental quality control system (Ui, 1992). The economic impact of stringent anti-pollution standards fell heaviest on the energy- and pollution-intensive industries like steel, industrial machinery, and petrochemicals. This raised much concern between Japanese industry leaders and policymakers, since these industries formed the bedrock of Japan's industrial boom in the 1950s and 1960s.

The second phase of the Japanese business response to environmental concerns took place from the mid-1970s to late 1980s, and was characterized by



broad societal consensus that only a massive mobilization of energy-efficient technologies and investments in resource productivity could save Japanese companies from overdependence on oil imports and increase industrial competitiveness (Hayashi, 1990). Although the overall level of capital expenditures dropped sharply as the result of the economic recession stemming from the 1973 oil shock, Japanese companies continued to place a high business priority on energy-efficient technologies. Between the late 1960s and mid-1970s, the ratio of pollution prevention investments as a percentage of total capital expenditures increased from 3 per cent to a high of 20 per cent. While Japan's GDP grew 1.7 times from 1973 to 1987, its annual energy consumption essentially remained flat, which means that the overall rate of energy consumption declined by more than 40 per cent (Watanabe, 1995).

The third phase of Japanese business response to the environment, from the late 1980s to the present, coincided with the growing awareness of global environmental dilemmas like climate change and the depletion of the ozone layer. The transition to global environmental awareness (apart from energy security issues) did not get underway in Japanese industry until the late 1980s, when Japanese business executives started to get involved in green business groups like the World Business Council for Sustainable Development, to participate in the International Standards Organization's environmental management schemes and to work in partnership with green conservation groups. By the time the Japan Federation of Economic Organizations (now known, since a merger in 2002, as Japan Business Federation),² a leading Japanese business advocacy group similar to the Chamber of Commerce in the US and the Confederation of British Industry in the UK, released its global environmental charter in 1991 (proclaiming that 'corporations must contribute to the realization of an environmentally sound society'), nearly 80 per cent of the 140 largest Japanese companies had a separate department to handle environmental affairs or were planning to create one in the next 2 years. Japanese business interest in climate change and other global environmental issues was no doubt fueled by the potentially lucrative international market for environmental products and services estimated at US\$500 billion a year (Wysokinska, 2005). Underscoring the growing market importance of environmental products and services, Japan's Ministry of Economy, Trade and Industry in the mid-1990s targeted the environmental market as one of its strategic industries for the 21st century and affirmed its importance by slating energy and environmental R&D as a key feature of Japan's Strategic Technology Roadmap (METI, 2005).

The demand for an anti-pollution and energy-efficient production system in the 1970s and early 1980s was brought on by a demand for energy conservation measures related to the two oil crises and the growing awareness of domestic environmental problems. The driver for environmental management strategy



among Japanese companies is now driven less by 'external' factors like sudden rises in energy prices and more by an 'internal' operational need to maintain competitive advantages in the domestic and global marketplace through the design and development of a modern environmental management system. The rapid adoption and diffusion of the ISO 14001 certification in Japanese industry provides an illustrative example of this trend. Japan currently leads the world in terms of the number of ISO 14001-certified facilities and following the introduction of ISO 14001 certification in 1996, the number of 14001-certified Japanese industrial facilities increased within 5 years to 8,123 in 2001, and by the end of December 2006, the number of such facilities had reached 22,593. By comparison, there were 18,842 14001-certified facilities in China, 6,070 in the UK, 5,893 in South Korea, 5,585 in the US, and 5,415 in Germany (ISO, 2007).

While it is possible to dismiss the popularity of ISO 14001 certification among Japanese companies as a public relations exercise, an important tipping point has arguably been crossed in terms of Japanese environmental management awareness and engagement. In their survey of environmental management practices at nearly 1,500 Japanese companies and their facilities, Hibiki and Arimura (2004) noted that facilities, which view the world market as their major market, and have a large number of competitors and employees, as well as being listed on the stock exchange, represented some of the business characteristics associated with higher rates of environmental management system adoption, while a relatively small number of companies surveyed (18 per cent) cited government incentives as the reason for the environmental management system adoption. Furthermore, 70 per cent of the 3,000 Japanese companies surveyed revealed that they are cutting costs through energy and waste reduction as part of their plans for ISO 14001 certification, while the number of Japanese companies considering environmental management as 'a form of social contribution' has been declining (Ito, 2006). In analyzing the survey data and interviews drawn from 1,700 Japanese facilities, Mori and Welch (2008) concluded that ISO 14001-certified facilities are more likely to have established voluntary environmental agreements and have more stringent and higher standard of energy efficiency and waste reduction targets compared to their non-certified peers.

Environmental reporting and transparency represented one area in which Japanese companies had been a traditional outlier for a number of years in terms of international business and corporate governance norms. As recently as 1992, a leading Japan-based accounting company reported that it could not find one example of a satisfactory corporate environmental report issued by a Japanese company (Deloitte Touche, 1993). The lack of shareholder activism, weaker pressures from environmental and civil society groups and later regulatory adoption of pollution data disclosure requirements, like the Toxic



Release Inventory in the case of the US, meant that Japanese companies were not always subject to regulatory pressures to disclose environmental data and performance indicators like energy use intensity. However, recent international comparisons of environmental performance and reporting practices indicate that Japanese companies are catching up with if not exceeding prevailing international norms. Anbumozhi (2005) observed that Japan ranks third in the world (after the US and UK) in number of companies included in the Dow Jones Sustainability World Index and the number of Japanese companies publishing environmental sustainability reports more than tripled to 600 between 1997 and 2003.

According to an OECD/Ethical Investment Research Service (2004) report comparing environmental management practices of the 1,509 companies that make up the FTSE All-World Developed Index (as of September 2003; see Table 1), Japanese companies fall below European business norms in the use of environmental cost accounting (43 per cent for European *vs* 29 per cent for Japanese companies) and third-party verification of environmental data (46 per cent for European *vs* 29 per cent for Japanese companies), but exceed their European peers in percentage of companies releasing environment-related quantitative data (100 per cent for Japanese *vs* 85 per cent for European companies) and disclosing environmental performance and target data

Table 1 International comparison on corporate environmental reporting practices (per cent of companies using particular environmental reporting practice)

	<i>Publish quantitative data</i>	<i>Compare performance with targets</i>	<i>Rely on third-party verification</i>	<i>Environmental cost accounting</i>
Europe	85	56	46	43
<i>of which:</i>				
France	92	44	36	32
Germany	94	71	29	48
UK	89	73	44	35
Asia-Pacific	97	86	29	30
<i>of which:</i>				
Japan	100	90	29	29
Australia	85	85	46	85
North America	94	45	11	21
<i>of which:</i>				
USA	93	38	10	10
Canada	100	67	14	57
Total	91	67	34	34

Source: OECD/Ethical Investment Research Service (2004).



(90 per cent for Japanese *vs* 56 per cent for European companies). Japanese companies exceeded American companies in four areas of environmental reporting and performance indicators.

Emerging Japanese Business Responses to Climate Change and Environmental Management Challenges

To adequately understand the wide array of business initiatives on climate change, Hoffman (2004, 2007) argues that the business community needs to look at the issue of controlling GHG emissions less as an environmental policy issue driven by regulatory pressures and more accurately as a strategic business priority driven by market demands. Unlike other market shifts, climate change is likely to pose a new and different kind of business challenge for many firms. In parts of the world where the Kyoto Climate Treaty has been ratified, companies will be confronting intense market competition in a wide array of climate change-related market (eg emission credits) and emissions abatement technologies. In regions where the Kyoto Climate Treaty is not yet ratified, companies are likely to find themselves in an uncertain business environment in which firms, consumers, and governments all deliberate on the type and scope of GHG reductions to undertake. In either case, companies will be forced to ask new and different questions to guide their business strategies.

It is within this context of an uncertain business environment that many Japanese companies find themselves today. In the case of climate change-related corporate environmental reporting practices, it is striking to see how far Japanese companies have assumed global leadership in this area, especially if one takes into account that there was not a single credible environmental report by a Japanese company as recently as the early 1990s. KPMG International (2008), the international accounting and management consulting firm, examined 50 corporate sustainability reports prepared using Global Reporting Initiative guidelines and concluded that the vast majority of the reports (45 of 50) included the terms 'climate change' or 'global warming' in their reports, while two-thirds (33 out of 50) included a special section devoted to climate change or global warming, and that Japanese companies' reports contained detailed information devoted to this issue. All sustainability reports from Japanese companies (10 out of 10) had a special section devoted to climate change or global warming, while most reports (8 out of 10) had a statement on climate change or global warming from the firm's chairman or CEO.

If Japanese companies are meeting, if not exceeding, global business norms on climate change-related environmental reporting practices, how do they



measure and compare with their international business peers in terms of their strategic responses to the issue? Based on the 136 CDP questionnaires from companies that make up the Financial Times Global 500 list (including Japanese firms), Kolk and Pinske (2005) examined a wide array of climate change-related strategic options available to businesses and classified them into six different response models. Companies that conform to the 'Cautious Planners' response model tend to rank low on all market-related climate change strategy options, while their responses can be best described as focusing on preparation rather than action and highlighting future measures to address GHG emissions without giving specific details. Companies that adhere to the 'Emergent Planners' model tend to be in the early stages of developing a formal energy and climate change business strategy and have not yet gone beyond the stage of setting targets. Firms that follow the 'Internal Explorers' model tend to have a strong internal focus consisting of improvements in production and operational management processes, most notably in terms of energy efficiency. However, these firms have not yet taken the crucial step of moving beyond their internal focus and engaging with companies that are part of their supply chains to undertake carbon offset activities. Companies that fall into the 'Vertical Explorers' model have a strong focus on using their supply chains to gain insights into how well they manage their GHG emissions as well as developing more energy-efficient products and engaging with their suppliers to reduce their carbon footprint. Firms that follow the 'Horizontal Explorers' model focus on the exploration of opportunities in markets outside their current business scope, sometimes in cooperation with partners, while companies that fall into the 'Emissions Traders' model place heavy emphasis on the emissions market and involve carbon offset projects.

Using the climate change profiles of Japanese companies in the CDP database (see Table 2), it might be instructive to evaluate and classify climate change-linked Japanese business responses based on the climate change-firm response typology developed by Kolk and Pinske (2005). In my analysis of the 27 climate change questionnaires of Japanese companies in the CDP database, there were a number of things that were consistent with, as well as deviating from, the conclusions they gathered from the CDP questionnaires. For instance, they observed that the single largest climate change business response model was the Emergent Planners model (36 per cent of the companies surveyed), followed by the Cautious Planners (31 per cent), Internal Explorers (14 per cent), Vertical Explorers (10 per cent), Horizontal Explorers (5 per cent), and Emissions Traders (4 per cent). While the Emergent Planners model also constitutes the largest percentage of Japanese business responses to climate change, the important difference is that the percentage of Japanese companies falling within this model appears to be much greater (in the range of 60 vs 36 per cent) than Kolk and Pinske found. This was in part because of the



Table 2 Japanese company climate profiles in the CDP database^a

Aeon
Canon
Chubu Electric Power
Denso
Fuji Film
Hitachi
Kansai Electric Power
KDDI Group
Matsushita Electric Industrial
Millea Holdings
Mitsubishi Estate
Mitsubishi UFJ Financial Group
Mitsui Sumitomo Insurance
Nippon Steel
Nippon Telegraph & Telephone (NTT)
Nomura Holdings
NTT Docomo
Seven & I Holding
Sharp
Shin Etsu Chemical
Sony Corporation
Sumitomo Corporation
Sumitomo Mitsui Financial Group
Tokyo Electric Power Co.
Toshiba
Toyota Motor
Yahoo Japan

^a*NB:* There are more than 28 climate change profiles of Japanese companies in the CDP database (<http://www.cdproject.net>), but to be consistent with the methodology and strategy framework of Kolk and Pinske (2005), only the climate change profiles of Japanese companies in the FT500 list were examined. Also, there were a handful of Japanese companies in the FT500 list, including Honda Motors, Mitsui & Co., Mitsubishi Electric, Mizuho Financial Group, and East Japan Railways, that did not allow public access to their climate change profiles.

Source: CDP5/CDP (<http://www.cdproject.net>).

relatively fewer Japanese companies matching the Cautious Planners model. Almost all the Japanese companies I examined had concrete details on their GHG emissions and future emissions targets, which would have been absent for a company belonging to the Cautious Planners model. While banks and financial services companies like Mitsubishi UFJ Financial Group and Mitsubishi Sumitomo Insurance had comparatively less detail about current GHG emissions and future goals compared to companies in other industries, this was more of an exception than a norm. The other important difference between the two groups of companies is that relatively fewer Japanese



companies follow the Vertical Explorers model (10 per cent in the Kolk and Pinske's company cluster, against little or no examples in the Japanese company cluster). It would be interesting to see how quickly this will change as green supply chain management efforts, including measuring and reducing the carbon footprint of a company's supply chain, represent one of the most critical environmental management challenges confronting MNCs in Japan and other countries.

The Search for Climate Change Business Strategy 2.0

The international policy challenge of trying to reduce global GHG emissions by 50 per cent or more by the year 2050 is going to present new and emerging business risks and opportunities for companies in Japan and elsewhere. As the international community develops a new set of binding climate change protocols for the year 2012 and beyond, the following set of issues and questions are likely to have special importance for Japanese companies as they design and develop the next generation of climate change-linked business strategies. First, managing climate change-related business risks and opportunities are going to require a different kind of strategy to traditional environmental management issues. Business strategies to deal with the traditional environmental management challenge of regulatory compliance, potential liability from industrial accidents, and pollutant release mitigation (Lash and Wellington, 2007) will have to be adapted to deal with the global, long-term, systematic, and developing country-oriented strategic challenges posed by global climate change. The roots of the global sustainability problem — explosive population growth coupled with rapid economic development in China, India, and other emerging economies — represent social and political issues that are beyond the mandate and capabilities of any single corporation, but at the same time, corporations may be the only organizations with the necessary organizational resources, technological capacity and global reach to help achieve sustainability (Hart, 1997).

Second, in the search for 'climate change business strategy 2.0,' creating stakeholder value may be as important as increasing shareholder value, if not more so. While the mantra of building shareholder value will remain critical for any publicly traded company, there is an emerging need for MNCs to think more broadly and ultimately more creatively about the concept of stakeholder value creation. The issue is not whether companies will engage in socially responsible activities, but how they should do so. For most companies, the central challenge is how best to achieve maximum stakeholder value and move toward a sustained strategy of what Pearce and Doh (2005) refer to as 'collaborative social initiatives.' MNCs often operate under many types of



regulatory regimes and as a result develop a series of different strategies in response to these diverse regulatory pressures. In the case of environmental management, but particularly in the case of climate change management, successful strategy implementation depends on a broad set of deep stakeholder ties, which can be the framework through which internal (eg shareholder activism) and external (eg environmental NGOs, government regulations) pressure points can work together to encourage companies to adopt best practices in energy and climate change management. Japanese companies used to be laggards in terms of global environmental reporting norms and in the case of the climate change issue, it appears that they have caught up with their competitors in North America and Europe. In the same manner, it is critical that Japanese companies improve their stakeholder engagement efforts with local communities and civil society groups, particularly in emerging and developing economies, in designing and developing future climate change-related business solutions.

Third, the long-term success of any climate change-based business strategy is going to be tied to the question of whether sufficient organizational and financial resources can be mobilized toward maximizing the innovative capacity of global environmental R&D efforts. There appears to be enough of a market signal at present to communicate a message to companies in Japan and elsewhere that they all need to take climate change seriously, but for this signal to be strong enough to achieve a 50 per cent reduction or higher in global GHG emissions by the middle of this century, Japanese companies and industries as well as those from other countries need to provide the necessary leadership to initiate the kind of economic and technological transformations that the computer, information technology, and telecom industries went through as the result of the disruptive technological changes brought on by the Internet. Many different types of new business ventures are needed, particularly in China, India, and other large emerging economies, with a business sustainability focus equal to the energy innovation impact achieved by Japanese companies in the 1970s and 1980s and economic impacts achieved by Microsoft, Google, eBay, and Amazon in the 1990s and beyond. The former BP CEO John Browne delivered a landmark speech at Stanford University in May 1997 in which he broke ranks with much of the oil industry by proclaiming a link between fossil fuel use and climate change. He argued then that the 'global environment is a subject, which concerns us in all our various roles and capacities ... (we are now at a) moment when we need to go beyond analysis to seek solutions and to take action' (Browne, 1997).

What appeared to be revolutionary in the business sector more than 11 years ago has now become conventional wisdom and it will be interesting to watch the development of the next generation of climate change-related business solutions and what role Japanese companies will play in this process.



About the author

Jacob Park is Associate Professor of Business Strategy and Sustainability at Green Mountain College in Vermont, specializing in issues related to global environment and business strategy, corporate social responsibility, and community-based entrepreneurship and social innovation, with a special expertise/interest in Japan, China, and the Asia-Pacific region. His book, *Crisis of Global Environmental Governance: Towards a New Political Economy of Sustainability*, was published by Routledge in April 2008, and he is the corecipient/principal investigator of a 2008 AT&T Industrial Ecology Faculty Research Award examining the connection among environmental stewardship, global supply chains, and the information technology and communications industry in the context of China.

Notes

- 1 Although Japan has the second largest economy in the world and it is home to many of the largest companies in the world (see Mero, 2008), the role of the Japanese business sector in addressing the climate change issue has to date been under examined. By comparison, there has been much greater analysis of the climate change–business linkages in the US (see Hoffman, 2004, 2007) and Europe (see Kolk and Pinske, 2005, 2007).
- 2 English translations of Keidanren’s present and past environmental policy proposals can be found at <http://www.keidanren.or.jp/english/policy/index.html>.

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3.3 Understanding the Strategic Dimensions of Business Sustainability in China

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China, business and sustainability: understanding the strategic convergence

China, business
and
sustainability

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Abstract

Purpose – The purpose of this paper is to argue that, despite the attention given to China's rising importance in the international marketplace, there has not been a corresponding attention given to the sustainability dimensions i.e. social and environmental dimensions of this economic development trajectory. Specifically, what type of business strategy can and will best serve the economic, environmental and social needs of China, and what role if any can the private sector play facilitating the development of such a strategy?

Design/methodology/approach – The paper first examines the evolving relationship between business and sustainable development. Second, the sustainability challenge within the regional context in the Asia-Pacific region is outlined. Third, the sustainability challenges posed by China's rise in the global economy are analyzed and the impacts of these challenges on current and future business strategies examined.

Findings – In order to fully understand the strategic convergence between China, business and sustainability concerns, it is important to understand the evolving relationship between business and sustainable development as well as the sustainability challenge within the regional context in the Asia-Pacific region, and assess the impacts of these issues on current and future business strategies in China.

Research limitations/implications – The next step for research will be to explore if the new sustainable business models can be designed and implemented which are suitable to the market reality of China's economy.

Originality/value – The value of this paper is to seek new ideas for business strategy and new venture creation that incorporates a triple bottom line (economic, environment and social) perspective.

Keywords China, Economic sustainability, Newly industrialized economics, Economic development

Paper type General review

Devising a new triple bottom line strategy for china

It is difficult to describe the speed and scale by which China has risen in terms of international economic importance over the past two decades. Whether the twenty-first century will be the Chinese century the same way that the USA was for the twentieth century and the UK in the nineteenth century remains unclear. However, it is hard to deny that the pivotal role China has assumed, particularly in terms of a manufacturing hub, in the global marketplace in the past twenty years. Despite the country's growing economic importance and the projection that China will become the largest economy in the world by the middle of the twenty-first century, I argue in this article that there is one aspect of China's economic development that arguably needs even greater global attention and scrutiny: what kind of public policy and business strategy can serve the economic, environmental and social needs of China, and what role if any can the private sector play facilitating the development of such a strategy?

As Thomas Friedman of the *New York Times* once observed in his column: "Tighter regulation alone won't save China's environment or the world's. And that is why the most important strategy the USA and China need to pursue, in concert, is one that brings business, government and non-governmental organization (NGO) together to



produce a more sustainable form of development – so China can create a model for itself and others on how to do more things with less stuff and fewer emissions. That is the economic, environmental and national security issue of our day. Nothing else is even close” (Friedman, 2005).

In answering this question, this paper will first examine the evolving relationship between business and sustainable development. Second, the paper will then outline the sustainability challenge within the regional context in the Asia-Pacific region. Third, paper will finally analyze sustainability challenges posed by China’s rise in the global economy and examine the impacts of these challenges on current and future business strategies.

Evolving relationship between business and sustainable development

Sustainable development may be a relatively new term introduced only in the late 1980s, but it has arguably forever changed the relationship between the environmental and the business community. Paul Hawken, the influential author of *Ecology of Commerce*, captured the thinking of many green business and economic theorists when he observed that conventional economic theories would not be able to guide our future because they have never placed “natural capital” on the balance sheet. Industries destroy natural capital because they have historically benefited from doing so, and that our current industrial system is based on accounting principles that would bankrupt any company (Hawken, 1993).

The first phase (1970-1985) of this relationship can be traced back to the early 1970s with the first Earth Day celebration and the founding of many environmental ministries and agencies in OECD member countries. This first phase was marked by what Johan Schot and Kurt Fischer describe as “resistant adaptation” (Schot and Fischer, 1993). During this period, companies complied with regulations only when they were absolutely necessary and fought the adoption of early anti-pollution measures such as the US Clean Air Act through legal proceedings and public relation campaigns. Environmental protection was perceived as an operating constraint that had to be taken care of due to outside government and NGO pressures.

The second phase (1985-1992) of the environment–business relationship can be traced to the mid-1980s when firms began to define environmental problems as their own responsibilities and as issues that they could not ignore. This realization was fueled by a series of environmental pollution accidents that received tremendous international public outcry and media coverage, including the accident at the Union Carbide plant in Bhopal, India that caused thousands of fatalities, US\$500 million in financial compensation and the arrest of the company’s former chief executive officer for criminal neglect. As regulations moved away from mandated compliance and toward environmental results, companies started to adopt reduction programs in waste emissions. For example, the pollution prevention program of the US firm 3M reduced the company’s toxic waste emissions by 500,000 tons while saving the company close to US\$650 million (Fenn, 1995).

In the third phase (1992-2002), the sustainable development agenda has engaged business and industry to respond more forcefully and to act in a pro-active manner. Starting in the late 1980s and early 1990s, companies and business groups began to give more attention to global environmental issues by sponsoring workshops and issuing green annual reports. In 1991, the International Chamber of Commerce issued the “Business Charter for Sustainable Development”, while the Keidanren, arguably

Japan's most prestigious business group and the Conference of the Indian Industry, respectively adopted environmental codes of behavior for their member companies.

Even as we acknowledge the improvement in environmental awareness in the business community and the business awareness in the environmental community, it is unclear if the balance sheet imperative of the modern corporation is consistent with the growing societal demand for a sustainable global economy. This is evident in the ongoing debate over what constitutes and whether there is or will be such a thing as a "sustainable business". Whereas a number of companies and business groups like the World Business Council for Sustainable Development believe that it is possible to build a set of corporate sustainability criteria, there are many critics of the green business model who firmly believe that the shareholder-driven objectives of global corporations are at odds with the intergenerational and social equity aspects of sustainability.

One of the most important effects of the sustainable development agenda may have been the way it has forced companies in the industrialized world to examine social and environmental problems as ethical dilemmas. The environmental community, particularly many environmental NGOs and social advocacy groups, regard the sustainable development agenda as a moral issue because it requires that "private" sacrifices – of individuals, communities and of the private sector – be made for the "public good" i.e. for the global common resources. This conceptual disconnect still define many aspects of the contemporary business and sustainable development debate and has wide strategic implications for business in the largest country (in terms of population) and the fastest growing economy in the world.

Coming to grips with the Asian sustainable development context

What makes China and the Asia-Pacific region such a fascinating geographical landscape through which to examine the issues of business, sustainability and globalization is the multi-layered narrative of contrast and diversity. It is hard to imagine another region of the world in which the impacts of globalization have had such differential impacts in terms of sustainability and economic development. Despite the economic crisis of the late 1990s, countries in the Asia-Pacific region have experienced the fastest rate of economic growth in the world over the past 25 years. While the number of absolute poor remains high due to rapid population increases and other factors, the percentage of the Asian population who live in poverty has been cut in half to 25 per cent over the same time period (UNESCAP, 2000).

Although this growth had proved instrumental in the introducing clean technologies and providing new financial resources for environmental programs, the rapid economic growth coupled with expanding urban population have outpaced anti-pollution investments and resulted in deteriorating air and water quality as well as in the rapid loss of biodiversity and natural resources. Environmental degradation in the Asia-Pacific region is in the analysis of the Asian Development Bank "pervasive, accelerating and unabated". What is particularly at risk are people's health, the survival of species and ecosystem services that are the basis of long-term economic development. As the result, even economic development and poverty reduction efforts – that are identified as critical policy concerns for many Asian countries – are increasingly constrained by degradation of fisheries and forests, scarcity of freshwater and other environmental concerns (ADB, 2001).

Since this region is not the only place that suffers from severe environmental degradation, in what way does China specifically and the Asia-Pacific region generally reflect important geographic lens from which to discuss the global sustainable

commerce challenge? The first reason is that “fundamental strategic rethink” is now required by Asian companies and Western multinationals operating in Asia because a rapid economic, political and social change is underway in the Asian business landscape. This change is being driven by first and foremost by China, but also by the cumulative impact of deregulation and trade liberalization across Asia that is beginning to reshape Asia’s future and by extension, the future of the global business future (Williams, 2006).

The second reason is because whether the international community achieves sustainable development on the global level may to a great degree be shaped by what happens or does not happen in Asia. China, India and other Asian countries have already become the world’s manufacturing focal points and this situation is likely to continue for at least the next two decades. Consequently, any hope of realizing the triple bottom line (social, economic and environmental) transformation of business strategy lies to a great deal on how well the international community understands of and invests in business and policy options in this region (Asia) and in this country (China).

Some of the critical industrial and sustainability trends shaping Asia and the world at large include the double-digit rate increases in Asian industrial production; the introduction of 300-400 million new middle-class consumers from India and China alone; and 80 per cent of the Asian industrial stock that will be built in the next twenty years (Angel and Rock, 2000). No country or region is immune from the enormously difficult task of striking a balance between economic development and environmental protection. In the case of many China and other Asian countries, the key difference lies in the pace and the scale of maintaining this delicate sustainability balance.

Understanding the strategic challenges of steering China toward greater sustainability

Since 1978 and the opening up of the country to the global economy, China’s economy has increased fourfold and is now the world’s sixth-largest economy (almost as large as Italy and bigger than Canada). Within 40 years, China is likely to become the largest economy in the world eclipsing the USA (with India becoming the third largest economy), though in terms of per capita terms, it will regarded at best as a middle-income country. The benefit of its rapid economic development strategy to Chinese society has been dramatic: the rural poverty figure declined from 250 million people to 34 million people from 1978 to 2000. Per capita income (in terms of purchasing power parity) in Chinese cities have increased to \$1,000 (three times that of the countryside), while household incomes in places like Shanghai now exceed \$5,000 (World Bank, 2006). In less than thirty years since opening itself to the global economy, China has become the largest consumer markets for a wide array of household products.

Perhaps no one example illustrates the challenge of re-directing China towards greater sustainability (even as we acknowledge the substantial benefits on one particular industry) than the growth of the motor vehicles market in the country. Although only a handful of its citizens can afford any type of motor vehicle at the start of its rapid economic development starting period in the late 1970s, automobile has become the most powerful aspirational symbol of the burgeoning middle class Chinese family. The number of passenger vehicles on the road doubles every two and half years, with annual increase in the sales of automobiles reaching anywhere between 40 to 60 per cent in the past five years. Overall, the Chinese production of automobiles rose from 42,000 cars per year in 1990 to 2.3 million in 2004; the number of passenger

vehicles on the road doubled every two and a half years through the 1990s and continues to grow. If China eventually ends up with the same number of cars per person as we have in the USA (under one high growth industry scenario to year 2020 actually predicts), more than 800 million additional cars might become part of China's transportation load (Gallagher, 2006).

The transition from a poor, agrarian state to an urban industrial and a high consumptive country has been rapid both in terms of the number of impacted and current/potential environmental consequences. To address the alarming environmental problems, China's central government has been promoting a new economic development strategy that emphasizes the developing innovative clean energy technologies, introducing new environmental regulations and laws, expanding public awareness programs, as well as a integrated policy focus on "comprehensive, coordinated and sustainable approach to economic development" (Bi *et al.*, 2004). Unfortunately, strengthening regulations and investing in new clean technologies represent important steps, but it remains difficult to be optimistic whether they will be enough to stabilize if not reverse some of the systematic energy and environmental challenges confronting China.

Nine of the ten most polluted cities (particularly air and water pollution) in the world are in China, while the economic, social and public health impacts of environmental degradation (e.g. increased health expenditures and lost worker productivity) are visible to just about anyone who visits China particularly in the rural parts of the country. The annual cost of China's environmental pollution and degradation is probably at least 10 per cent of its gross domestic product and may well be as high as 15 per cent. But China has been slow to allocate capital for environmental management. These factors, together with China's huge population and ambitious development aspirations, make it the world's most worrisome case of environmental degradation, with global repercussions" (Smil, 1996).

Understanding the strategic convergence for business

Given the scope and scale of the sustainability challenges confronting China, what strategic implications do these challenges have for the business sector? Although they vary in size and time, there might be four ways to classify what I describe as strategic convergence arising from China's sustainability challenges: industrial pollution, water and resource use; and energy and climate change.

Industrial pollution

The efforts of the Chinese government to turn the 2008 Beijing olympics into what it says will be the "green olympics" shows both the seriousness and the ineffectiveness of the country in addressing many of its basic industrial pollution problems. The central government has adopted some of the low-hanging fruit solutions by moving the notorious dirty state-owned steel producer, Shougang, from the west of Beijing while suspending some of the operations at the Beijing chemical works. However, since mobile sources (mostly from increased automobile use) account for the majority of the carbon monoxide and nitrogen oxide emissions, it is unclear how much some of these low hanging fruit steps will actually accomplish in improving the city's air quality in the long run.

To put Beijing's situation in perspective, an August 2006 survey done by the American Chamber of Commerce in Hong Kong reported almost four out of five business leaders knew someone who was thinking of leaving or had left the territory

because of the poor quality of the environment. The survey also said 95 per cent of respondents were personally worried, or very worried, about the air quality in Hong Kong (Reuters, 2006). One can only imagine the gravity of air pollution problem in Beijing where the air quality is lower in just about every measure compared to Hong Kong. Zhou Shengxian, head of China's State Environmental Protection Administration, reported in the summer of 2006 that rapid economic expansion was overwhelming government's anti-pollution goals despite Chinese Premier Wen Jiabao's promise to make environmental friendly economic development a key theme of his administration (Buckley, 2006).

Water and resource use

One of the things that is often forgotten about China is that the country was largely self sufficient in petroleum products until about two decades ago before its economy started to heat up with its double digit annual GDP growth as the norm. China's thirst for petroleum and other types of industrial material needs are largely dictating the way the country conducts its foreign policy and international affairs. China and the U.S may arguably compete more over the next decade on which country can secure its need for petroleum and natural gas resources than anything on the military front. Case in point: China now accounts for 30 per cent of the coal consumption worldwide, while the country's steel consumption is expected to increase by more than ten per cent in 2005 and is projected to account for 61 per cent of total growth in 2005 [by comparison, growth for the rest of the world is expected to reach only two per cent] (Worldwatch Institute, 2005).

Even more than resource needs, what may be even more of an immediate ecological concern to Chinese policy makers and business executives is the country's increasingly precarious water situation. Not only is China's water supply constantly subjected to chemical spills and a wide assortment of industrial accidents (e.g. benzene spill in the Songhua river in November 2005; a sulfuric acid leak near the eastern Chinese city of Hangzhou as well as another chemical spill near the city of Harbin threatening water supplies for millions of people in August 2006), the country's Southwest region (in particular, Chongqing and eastern parts of Sichuan provinces) is experiencing the worst drought in over 50 years.

What is not clear is if the persistent drought condition will actually get worse if the current research on the global water situation proves to be correct. More than two billion people already live in regions facing a scarcity of water, and unless the world changes its ways over the next 50 years, the amount of water needed for a rapidly growing population will double. At the worst, a deepening water crisis would fuel violent conflicts, dry up rivers and increase groundwater pollution and force the rural poor to clear ever more grasslands and forests to grow food and leave many more people hungry (FAO, 2006).

Energy and climate change

Even though electricity consumption in China grew slightly more than seven per cent (compared to Vietnam's 13.4 per cent, Indonesia's 12.8 per cent) between 1988 and 1998, China will be the largest electricity consumer in the Asia-Pacific region by 2020. Moreover, power generation capacity (mostly, coal-fired) of 500 GW is needed over the next 15 years to keep pace with the country's economic growth, equivalent to 80 per cent of the entire generating capacity of Britain. Due to rapid dissemination of electrical home appliances, electricity use in China has increased more than fourfold between

1980 and 1998. Electricity currently accounts for 37 per cent of household energy consumption in China and this is expected to increase as China modernizes and the number of urban residents in the country increases (Dolven, 2004). It is because of this rapid growth in energy use and demand that China is expected to surpass the USA as the world's largest emitter of greenhouse gases by the middle of this century.

Search for new models of sustainable business strategies in China

Virtually all stakeholders in the global sustainable business debate – including governments, international organizations, civil society groups and private companies – agree that the business sector needs to play a more “meaningful role” in helping to steer China toward greater sustainability. With growing environmental pressures due to deteriorating ecological systems, resource scarcity and industrial pollution, the Chinese government has been forced to recognize the need for a new development strategy to navigate the tricky balance between economic growth, social stability and environmental stewardship. This is one of the reasons why a new regulatory policy called the “circular economy” (CE) is getting so much attention as a way to strike the delicate balance between the demands for economic growth and environmental stewardship and increasingly in the past decade, social equity and justice.

Originating within the industrial ecology paradigm and building on the notion of industrial closed-loop supply chains emphasized in German and Swedish environmental policy, the CE concept has been actively promoted by Chinese government policy makers as a way to improve resource productivity, boost eco-efficiency and strengthen environmental sustainability. Although there is no one single definition of CE, the circular (closed) flow of materials and energy remains a core feature of this concept with similarities in practice with the “3R” principles – reduction, reuse and recycling of materials and energy (Yuan *et al.*, 2006).

Under the new Chinese CE paradigm, industrial ecology, eco-industrial parks, cleaner production and environmental supply chain management principles and practices are expected to assume even greater importance in navigating the competing goals of economic growth, industrial development and product stewardship. At the recently concluded ruling party's five year congress, Chinese President Hu Jintao reiterated the need to protect the environment and conserve resources, which he said was vital to the “survival and development of the Chinese nation” (Subler and Xin, 2007).

Instead of replicating the consumer needs and demands of the industrialized world, will these new models of economic development help steer private enterprises toward a more sustainable business development? Can China play a more substantive role in moving the field of industrial ecology from its present wealthy OECD countries' focus to one that fits its more Asian cultural and institutional characteristics? What is clear is that business as usual strategies that emphasize consumption over innovation and market share over sustainability is not only going to fail as a business model, but it will surely accelerate the likelihood toward the breakdown of global environmental governance.

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3.4 Creating Integrated Business and Environmental Value in China

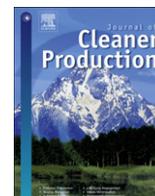
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Creating integrated business and environmental value within the context of China's circular economy and ecological modernization

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ABSTRACT

This paper investigates the challenges and opportunities of how firms and organizations can and will be able to strike a better balance between economic growth and environmental stewardship in the context of China's emerging 'circular economy' policy paradigm and based on ecological modernization theoretic approaches.

Based on three company case studies in the information technology and electronic industries in China, we identify and demonstrate how a blended business and environmental value can be created from adopting a sustainable supply chain management approach. The adoption of a sustainable supply chain management approach is rapidly becoming a key business challenge and opportunity in China and other large emerging economies around the world, where our greatest environmental management challenges currently reside and will continue to exist for many years to come. The value creation framework proposed in research focuses on evaluating three case study companies who appear in various stages of an electronic industry supply chain. Value creation within a supply chain can provide the impetus for organizations to adopt circular economy, sustainable supply chain practices, for competitive reasons.

In addition, we describe how a value proposition can be evaluated at two levels of analysis, a more specific micro-level and a more general meso-level of analysis. The four major business value dimensions include cost reduction, revenue generation, resiliency, and legitimacy and image.

The initial findings are that a variety of opportunities exist for electronic firms in emerging and developing countries, while results from this study provide an important scholarly foundation to develop and refine sustainable supply chain management practices in emerging and developing economies.

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1. Introduction

Management theories suggest that incorporating environmental practices into business operations can lead to sustainable competitive advantage and a more integrated business and environmental value creation. The resource-based view (RBV) of the firm has been utilized as a theoretical lens to evaluate the relationship between environmental performance and profitability (Russo and Fouts, 1997). Using RBV conclusions were made that profits increase when environmental performance increases. They argue that these increases are due to firms creating valuable, rare and inimitable assets by engaging in a pollution prevention strategy (Schroeder et al., 2002). To further this investigation, business

management researchers are starting to examine various environmental and pollution prevention strategies including supply chain management (Seuring and Muller, 2008), reverse logistics (Jayaraman and Luo, 2007; Guide et al., 2003); and end-of-life (EOL) product management (Kocabasoglu et al., 2007; Pagell et al., 2007).

While the RBV provides a compelling theoretical explanation as to why investments in environmental practices can lead to increased profits, it offers little insight into how such initiatives can be deployed by organizations and how such initiatives can be successfully implemented outside North America, European Union, and the OECD block of countries. This is a critical oversight since many traditional, as well as environmental investments, are being made outside North America in the so-called BRICs (Brazil, Russia, India, China) countries and within other large, emerging economies, which are rapidly transforming the economic as well as the environmental landscape of our planet.

Based on three case study companies in the information technology (IT) and electronics industry in China, authors of this paper

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argue that the key to creating a blended economic and environmental value is to devise a more effective sustainable supply chain management approach. The adoption of such a sustainable supply chain management approach represents a key factor in creating a blended business and environmental value for companies and organizations in the context of a rapidly industrializing country like China. Building on the China-related work (Liu et al., 2009) as well as on the information and communication technology (ICT) industry research (Cherry and Gottesfeld, 2009) that have been published in the Journal of Cleaner Production, this paper extends the competitive advantage of a single firm framework and analyzes the value creation and advantages that can be gained from a group of firms, such as those in an eco-industrial park (Shi et al., 2010; Geng and Hengxin, 2009).

Moreover, the authors of this paper investigate the challenges and opportunities of how firms and organizations achieve the blended goal of managing their economic growth in an environmentally conscious way in the context of China's emerging 'circular economy' policy paradigm (Liu et al., 2009; Yuan et al., 2006). We identified and demonstrate how different members of an electronics supply chain can achieve both firm- and industrial-level value in terms of cost reduction, revenue generation, resiliency, and legitimacy. Moreover, ecological modernization theory (EMT) is used as a theoretical lens to more fully contextualize the firm- and industrial-level value streams.

2. China's environmental sustainable business challenge: theoretical context, environmental/economic management dynamic, and policy response

2.1. Theoretical context: an ecological modernization perspective

Researchers and practitioners tend to consider the relationship between the environment and economy from two divergent perspectives. On one hand, some suggest a win–lose game. Specifically, strategic decisions with ambitious environmental goals come with real economic costs (Hoffman et al., 1999; Walley and Whitehead, 1994). On the other hand, some researchers suggest a win–win relationship (Christmann, 2000; Melnyk et al., 2003; Pagell et al., 2007; Porter and Kramer, 2006) where the interests of all stakeholders can be satisfied. According to Hoffman et al. (1999), both views are problematic because they assume a zero sum game and overlook the opportunity to "expand the pie" for all the relevant stakeholders. Some environmental practices can create mutual benefits for all parties, while other practices will cost more and cannot be compensated for within the existing economic structure.

In other words, sustainability practices offer opportunities as well as challenges. As managers become more concerned with the long-term strategic implications of environmental challenges, they are starting to move beyond the question of whether or not it pays to be green (King and Lenox, 2001; King and Lenox, 2002) to focus on maintaining competitiveness (Kleindorfer et al., 2005) and creating business value. Researchers from a wide range of disciplines have in recent years examined how organizations can incorporate environmental concerns in their business activities using such frameworks as the triple-bottom-line (TBL) (Elkington, 1998), industrial ecology (IE) (Allenby, 2000), natural capitalism (Hawken and Lovins, 1999), eco-efficiency (Huppel and Ishikawa, 2005), the Natural Step (Holmberg and Robèrt, 2000), life cycle management (Krikke et al., 2004; Matos and Hall, 2007) and ecological footprinting (Rees and Wackernagel, 1994). These frameworks offer visions that can motivate some company leaders to integrate economic, environmental and social concerns into their activities.

In this paper, ecological modernization theory (EMT) is used to offer a robust framework through which to mediate the conflict between industrial development and environmental protection (Murphy and Gouldson, 2000). Prompted by the need to improve environmental performance and profitably, which is envisaged under EMT, green supply chain management (GSCM) has become an emerging management practice for companies that wish to gain competitiveness through environmental innovation (Sarkis, 2006). The authors of this paper emphasize that EMT is a pertinent management theory that can be used to help corporate managers understand and guide ecologically oriented management innovation and change, at both the firm and supply chain level of analysis. The core theoretical underpinning of EMT is that technological innovation, such as GSCM, will help organizations improve on both environmental and economic dimensions. EMT posits that environmental problems may be mitigated by increasing resource efficiency, improving sustainability, while retaining the basic system of capitalist production and consumption. Within this situation environmental protection no longer is a 'problem', but an 'opportunity'. EMT suggests that manufacturers can overcome barriers to innovation that: prevent them from going beyond control technologies to consider clean technologies; from complementing technological change with organizational change; and from exploring the strategic as well as the operational opportunities for improvement (Murphy and Gouldson, 2000). At the core of EMT is an emphasis on 'ecologizing economy' and 'economizing ecology.'

For example, the ecologizing economy mechanism is met by utilizing science and technology to shift emphasis from 'end-of-pipe' solutions to preventative measures, systems, and technology. Redesigning products for reuse and value creating reclamation, as in the ICT and electronics industry are examples of ecologizing economy. These technologies and science can reduce costs and generate revenues, as described in our framework later in this paper. The economizing ecology dimension of EMT relies on the notions of valuing ecological concerns in appropriate and effective ways such that ecological technology and developments can and do provide competitive and economic advantages to organizations and communities. One very cogent example of this EMT dimension is through the internalization of externality costs. Requirements by organizations for suppliers to adopt certain certifications (e.g. ISO 14000) and/or processes and materials that meet regulatory requirements (e.g. WEEE requirements) are examples of economizing ecology. These are examples of developing legitimacy and making sure suppliers are reliable (resiliency), giving these suppliers the license to operate in supply chains and regional locales. These two dimensions also appear in our business value dimension framework.

2.2. China's economic and environmental management dynamics

In slightly less than three decades since opening itself to the world economy, China has become the world's largest manufacturing engine. China's impressive economic transformation in recent years is remarkable as witnessed in the growth of its GDP from 364.5 Billion RMB to 21.09 Trillion RMB over the past three decades (1978–2006) (National Bureau of Statistics of China, 2009). With the growth of this global manufacturing goliath, there have been dramatic increases in various environmental burdens. Nine of the ten most polluted cities (particularly air and water pollution) in the world are in China. China will become the largest electricity consumer in the Asia and Pacific region by 2020. Power generation capacity (mostly, coal-fired) of 500 gigawatts will be needed over the next decade to keep pace with the country's economic growth, which is equivalent to 80% of

the entire generating capacity of Britain. Due to rapid dissemination of electrical home appliances, electricity use in China has increased more than fourfold between 1980 and 1998. Electricity use is expected to increase rapidly as China modernizes and as the number of urban residents increases (Dolven, 2004). More than a third of the country experiences acid rain, and deaths from air pollution occur at more than twice the rate for South Asia (Pamlin and Baijin, 2009).

Various stakeholders in China such as consumers, communities, local, national and international non-governmental organizations are increasingly calling for renewed policy efforts to combat increased water pollution, mishandling of electronic and hazardous waste, and chronic air quality problems. There is an emerging consensus that the future of China's environment can no longer be viewed exclusively as a national or just as a regional issue. China has already overtaken the U.S. as the world's largest emitter of greenhouse gases. Properly managing the environmental (and by extension, industrial) future of the world's largest producer is increasingly viewed as one of, if not the most, important issue confronting the international community (Friedman, 2005).

Moreover, China's entry into the World Trade Organization (WTO) has increased pressures for Chinese enterprises to compete or cooperate with organizations from developed countries. Acquisitions, joint ventures and other alliances, and especially global supply chains (Quer et al., 2007; Roth et al., 2008; Zhao, 2007; Zhu and Geng, 2001) are evidence of some of these international pressures. This WTO entry brings its own pressures to improve environmental performance (Christmann and Taylor, 2001). Exporting products or becoming suppliers of foreign customers in China requires Chinese enterprises to address environmental concerns more forcefully if they are to overcome green barriers and increase their international competitive ability. Not only are foreign pressures causing increased changes, but the Chinese government has recently taken a more proactive role towards environmental stewardship, prompted, in part, by China's poor environmental image with the general public, NGOs, foreign governments and potential investors abroad. In 2002, the 16th National Congress of the Communist Party of China committed to achieving, by 2020, a development agenda, which includes not only quadrupling of GDP but also social equality and recovery and protection of environmental integrity. With the Ministry of Environmental Protection (MEP) seeking to chart a long-term plan to achieve sustainability, there are increased governmental efforts on a wide range of sustainable development issues, including passage and implementation of the Cleaner Production Promotion law, signing of the Kyoto Accords, and commitment of US\$1.2 billion in science and technology investment for sustainable development by the Ministry of Science and Technology. New statutes and laws related to sustainability include the Law to Reduce Energy Consumption (1997), Cleaner Production Promotion Law (2002), Environmental Impact Assessment Law (2002), The Renewable Energy Law (2005), and the 2008 Law on the Circular Economy (CE), which is designed to formalize the CE policy.

2.3. Origins and business and policy implications of the CE policy

The Chinese government views its CE policy as a way to the mediate the inherent conflicts between rapid economic growth and resource scarcity. The Chinese CE policy originated within the IE policy and is built upon the concept of industrial supply chain loop closing that is emphasized in German and Swedish environmental policy. The CE concept has been actively promoted by Chinese government policy makers as a way to improve resource productivity, boost eco-efficiency, and strengthen environmental sustainability. Although there is no one single definition of CE, the

circular or closed flow of materials and the more efficient use of raw materials and energy remains a core feature of this concept (Liu et al., 2009; Yuan et al., 2006). Under the new Chinese CE policy, industrial ecology, eco-industrial parks, cleaner production, and environmental supply chain management principles and practices are expected to assume even greater importance in helping them to navigate the contradictory goals of economic growth, industrial development, environmental quality, ethical and equitable society and product stewardship. Consequently, there is a critical need within China, and globally, to better understand what CE might imply in terms of business operations, public policy, and organizational strategy. Chinese officials have publicly called for the protection of the environment and conservation of resources, which is vital to the "survival and development of the Chinese nation" (Subler and Xin, 2007).

The CE policy seeks to integrate economic growth with environmental sustainability, with one element relying on new practices and technological developments, similar to the application of EMT (Wang and Bilitewski, 2009). Ministry of Environmental Protection (MEP) was the first Chinese governmental agency to promote the CE concept. It did so in 1999 by launching a series of projects and by providing CE guidelines, especially for eco-industrial parks. From 1999 to 2002 these projects focused on waste recycling. Since 2002, the focus shifted to the more efficient development of industrial structure, reforming industrial policy, and developing new technologies, and a shift to EMT type policies (Yuan et al., 2006).

As part of our initial framework for analyzing the electronics and e-waste supply chain, we studied CE at two firms and the industrial community, such as an eco-industrial park (EIP), supply chain level: At the micro or individual firm level, Chinese firms are encouraged or, increasingly, required (under 2003s Cleaner Production Promotion Law) to conduct auditing of their cleaner production processes. Cleaner production (CP) processes and practices also include green design (design for the environment), CP activities (e.g. internal closed loop manufacturing systems), utilization of clean energy and raw materials, implementation of advanced processes, technologies and equipment, energy and water cascading, end-of-pipe waste management/disposal technology (e.g. scrubbers for electricity producers or carbon injection equipment), and appropriate information disclosure practices and policies. As of 2004, CP centers had been constructed in 20 provinces, including Jiangsu, Anhi, Guangxi, and cleaner production auditing had been implemented in over 400 enterprises in more than 20 industries. By 2004, 13,770 professionals and workers had received training in CP concepts, approaches and tools or in CP auditing (Yap, 2007).

At the meso-level, the CE efforts are focused on the development of EIPs, energy cascading, local infrastructure sharing, and recycling wastes, primarily through intra-system exchange of waste byproducts from production processes and GSCM practices. EIPs use IE principles so that firms use each other's byproducts and wastes as inputs in the production process. For example, Tianjin Toyota re-uses their waste steel after it has been processed by a recycling company, while in the case of Tianjin, Novozymes, waste water is re-used for public irrigation and the residues of enzyme production are used for fertilizers (Salonen, 2006).

3. Greening the ICT and electronics industry in China: policy challenges, business opportunities

3.1. Global supply chains and the circular economy

Not only is internal development an issue with China's growth, but also China's dramatic integration into the global economy is

emerging as a critical dilemma (Child and Rodrigues, 2005; Yeung and Olds, 2000). CE efforts at all domestic levels in China include the development of resource recovery enterprises and supporting public facilities adding a strong economic development dimension to the circular economy through accompanying job creation and new venture investment – opportunities that exist at both the domestic and international levels (Yuan et al., 2006). It is also worth noting the huge importing role that China plays in terms of oil, iron and other metals, fueling the economic growth of resource-rich countries in the developed and in the Third World. Furthermore, China is a major manufacturer of consumer products for companies in numerous countries, worldwide.

Given the important role China plays in a globalization context, both in terms of its economic and environmental impacts, an evaluation of whether China's CE policies can be expanded beyond the domestic level to the international stage is an interesting and important question for organizations within China seeking to internationalize. The environmental practices of Chinese industrial firms have the potential to significantly impact other countries, not only in terms of China's increasing resource demands and environmental degradation and spillover environmental damage to other countries from Korea and Japan to North America, but also as a result of Chinese firms' international participation. Gains in competitiveness from CE through superior resource utilization can be especially synergistic for regional alliances and networks. We look at some of these business value gains in our framework later in this paper.

3.2. ICT, electronics and the circular economy

The growing application of the CE policy in China's economic and industrial activities is likely to have a profound impact on the way multinational corporations conduct business in such areas as product design, production, supply chain management and trade. An important objective of this paper is to examine and highlight how the ICT sector should respond to the emerging CE regulations and how ICT companies should position themselves in this new business environment in order to create increased value for their stakeholders.

Although it is still a developing country, particularly in rural areas, China is not a stranger to ICT development. It has one of the highest growth rates in the world in personal computer and cell phone usage and partly as a result, China is experiencing the same spiraling electronic scrap ("e-scrap")¹ problem experienced by many industrialized countries. China has generated roughly 1.1 million tons of e-scrap annually since 2003, including five million TV sets, four million refrigerators, five million washing machines, five million computers, and tens of millions of mobile phones. Beijing produced 115,200 tons of e-scrap in 2006 alone, including 2.3 million mobile phones, with this figure projected to grow to 158,300 tons by 2010. Cell phone user growth in China has risen from approximately 3 million 1995, to 85 million in 2000, and to 400 million units in 2005. These values do not include the millions of tons of additional scrap from infrastructural portions of the ICT industry (e.g. switching technology, storage cabinets, cables, antennae, etc.) and its supply chain (World Resources Institute, 2009).

Given the scope and degree of environmental stewardship concerns arising from the ICT sector, it is imperative that private

companies in this sector and the public sector that are supposed to be regulating this industry to be better aware of the technological, operational, organizational, and environmental dimensions of ICT supply chains within and outside China's boundaries. Underscoring the importance of this issue, China's State Environmental Protection Administration is currently researching the environmental and supply chain management of China's ICT industry with the objective to establish a mechanism to monitor the illegal e-scrap imports.

3.3. A framework for business value development in the CE

Traditionally, creating economic value and promoting environmental stewardship has been regarded as a zero sum game. A company's leaders had to choose if their company would focus on environmental issues, then it would naturally assume some loss of economic value. One important way to get out of this zero sum game is for such firms to use an integrated approach to ICT, environment and supply chain management. The U.S. Environmental Protection Agency has categorized environmental costs and benefits in organizations along a spectrum from conventional costs to image and relationship costs, and on minimizing these costs and adopting what an integrated management approach; thereby, companies can obtain substantial business value. The authors of this paper have identified four ways, which are part of a framework by which the blended environmental and economic value can be created.

First, reduce cost through sustainable supply chain management. ICT equipment manufacturing, packaging, delivery, usage, and disposal all contribute to environmental burden. Consequently, sustainably managing the life of ICT products from conception to EOL management and recovery can often lower overall supply chain management costs by reducing the waste flow.

Second, generate new revenue streams through a more effective life cycle management of ICT products. The ICT products and materials should not end at a landfill site. There are many unrealized opportunities to reuse, reclaim, and recycle ICT products and materials, while the financial value generated from these streams can be substantial. When the commodity prices for various ICT materials are increasing, although this will not always be the case, the business value of reuse, reclaim, and recycling strategies can lead to financial dividends.

Third, provide organizational and supply chain resiliency through environmentally sound management practices. Having the technological and organizational capacity to reuse, reclaim, and recycle ICT-related waste streams can greatly enhance the availability of materials as well as maintain the supply channels. A case in point: an important objective of China's new CE policy is to extract resources from EOL products for the purpose of attaining both economic and environmental gains. Moreover, environmentally conscious organizations and suppliers are more likely to thrive under various regulatory regimes and social legitimacy pressures than within less environmentally attuned organizations.

Fourth, enhance the right to operate and regulatory compliance, by building organizational legitimacy and improved public image. Companies are allowed to enter markets and expand their business operations more easily if they have a track record of environmentally sound management practices. One of the most critically important objectives of ICT supply chain management is making sure that products meet all the necessary regulatory and market standards. There has been extensive worldwide media coverage of hazardous materials entering the supply chain of many consumer products and regulatory standards in North America, Europe, and Asia, including those that impact ICT products are being tightened. By working with ICT eco-management standards like EPEAT (<http://www.epeat.net>), companies will be able to more effectively

¹ We are using the term electronic scrap or "e-scrap" instead of the more commonly used term electronic waste or "e-waste" because we feel that e-scrap more accurately captures the important idea of resource extraction or recovery embedded in this term.

manage their operational, regulatory, and environmental risks in their supply chain.

To help develop a framework for investigation of the roles of particular members within an electronics supply chain can gain value within China's CE, we will need to connect these four value dimensions (reduce cost, generate new revenue, promote organizational and supply chain resiliency, and create organizational and supply chain legitimacy) within the micro- and meso-CE dimensions (see Table 1). The micro focus is on individual firms, while the meso focus is on supply chains and eco-industrial parks.

4. Documenting the business value/CE framework using the case study companies

To examine the policy challenges and business opportunities on the firm level, fieldwork and in person interviews were conducted with three companies (Dongtai, Haier, and the China office of Alcatel) in China in 2008 in order to provide initial case study analysis and information. These three companies represent various supply chain stage players in an ICT supply chain. First, Alcatel is a components manufacturer that either sells to retailers or to original equipment manufacturers (OEM), while Haier is an OEM and a producer of consumer goods whose brand-name is well known to consumers. Finally, the third company, Dongtai, is an illustrative EOL processor in the supply chain. We first briefly describe each of these case companies and how they are functioning within China's current economic and environmental situation. We then summarize how each of these case companies can gain competitiveness on different dimensions of business value and within different levels of the CE.

4.1. The case study companies

4.1.1. Alcatel

Alcatel is one of the largest telecommunication companies in the world; it manufactures telecommunication terminals and equipment for the Chinese market in China. We were able to interview a representative of Alcatel China's Eco-design group, and discussed a wide range of topics including network equipment, subway control equipment, and monitoring camera. Alcatel is closely monitoring the development of China's evolving 'e-waste management standard.' As a foreign company competing within China, e-waste management issues are becoming increasingly critical for Alcatel because poor environmental performance can induce intangible costs in the eyes of Chinese regulators and business customers.

The company collaborates with Chinese recyclers and with other western OEMs in China in order to handle electronics equipment recycling. Due to their relatively small quantity of electronics products, they collaborate with other western ICT companies to share third party e-waste collectors and processors. The third party collects the products, free of charge, but they make money by selling the salvaged materials from the collected equipment.

As a business model, Alcatel collects its telecommunication equipment such as network equipment and replaces them with new ones to generate continued business with local governments who manage the telecommunication infrastructure. The challenge is that customers usually want to use the products beyond the contract period and are reluctant to replace the old products. So far, Alcatel has not completed a detailed cost-benefit analysis of its

Table 1

A framework describing case studies details of business value dimensions for micro- and meso-level circular economy levels.

		Business value dimensions			
		Cost reduction	Revenue generation	Resiliency	Legitimacy and image
Circular economy level of analysis	Micro	As regulatory policies increase the amount of regulated waste streams logistical economies of scale can reduce the costs of transportation per unit weight for Dongtai. Decreasing the cost of production for Alcatel, by retrieving returned and recycled material from its telecommunications infrastructure. Implementing DFE in Alcatel can help reduce costs for environmental issues later. Haier re-uses the collected material in production, which eventually drives down production cost.	Alcatel can lengthen the life of their products by reselling and reusing older systems to locations that cannot afford newer systems. Dongtai is poised to garner additional revenue by investing in e-waste technology. This revenue may double the size of the organization. Haier: Not a profit-generating model at this moment. The capital investment has not been offset by the revenue generated from the EOL* tasks. *EOL = End-of-Life	Alcatel may lose its license to operate or become less profitable if the products it manufactures are not taken back but left to enter other markets. Many non-certified companies in e-waste exist the likelihood of their existing after new regulatory policy and further enforcement ensues is lessened. Dongtai is investing its future in these certifications. EOL helps Haier to reduce risks associated with raw material price fluctuation. EOL efforts facilitate integrated supply chain management.	Dongtai is trying to maintain legitimacy on an international level. They are certified and will gain value by monitoring and certification of its waste streams. Overseas companies seek out Dongtai. Haier has a strong reputation in China for its "green product" brand. EOL supports this reputation. Such reputation won Haier the demonstration project sponsored by the government. Corporate social responsibility is critical for a foreign-owned Dongtai doing business in China.
	Meso	Alcatel is able to reduce costs when its sales and consequently collected equipment increase. The relationships with other partners in an EIP Park vicinity for the collection and demanufacturing and reuse of materials by Haier. Dongtai currently resides in an economic development zone that is targeted to become an eco-industrial park. Having a certified waste management company such as Dongtai within the zone reduces the overall e-waste cost management for the eco-industrial park. With scales of economy, Haier will be able to reduce material cost over time.	Alcatel does not yet view this as a revenue generation model. EIPscan profit share for wastes that are regenerated into useful materials. Dongtai is in one of these EIPs Haier in the long run, EOL activity can be a profit center when Haier can achieve economy of scale.	Haier is able to identify and collaborate with local 3rd party companies in EOL. Positive corporate social responsibility image and legitimacy of doing business in China for Alcatel Eco-Industrial Park operations will be closely monitored to make sure their wastes are managed by certified companies and Haier. Haier is exemplary in China on green design; they work closely with the regulatory body in rule-setting processes.	Legitimacy of doing business in China Companies such as Canon, Sharp, etc., that do business in the Eco-Industrial park with Dongtai, can further their image and legitimacy by paying the extra amount for certified waste management. Haier is prepared when the national regulation rolls out. It can retain its leadership in the industry for sustainability and brand equity.

objective to make sure the used products are not lost in the market. For Alcatel, this is a risk reduction strategy where intellectual property, risks of old product failure and possible public image damage associated with environmental problems, could outweigh the “profit” generated from the used material.

Internally, Alcatel adopts Hewlett-Packard (HP)’s Product Life Cycle process as its environmental management principle. Specifically, a new product will go through inter-departmental review for environmental issues such as environmental claim, waste product treatment, etc. Furthermore, energy consumption, battery life and toxicity, radiation, noise, worker health and safety, customer safety, packaging and labeling issues are reviewed. The key reason for Alcatel for undertaking its product take back and other environmental management activities is that the companies want to motivate users (villages, municipalities) to upgrade to newer products and want to make sure that it maintains its strong corporate citizenship reputation in a market with numerous domestic competitors.

4.1.2. Haier

Haier is one of the largest consumer goods manufacturers and one of top 100 ICT companies in China. With support from the government, the company established a demonstration project to analyze how to handle EOL product management issues, including a factory with an annual capacity to process 200,000 units of electronic products and home appliances. Both Haier and the government expect that the demonstration project will help to understand the manufacturing processes and access different options/equipment needs. Eventually, the goal of this demonstration project is to develop similar facilities in other cities in China when the government is ready to implement its e-waste management regulation, throughout the country. Presently, Haier does not do much e-waste collection. Because of the salvage value of metals and parts, there is a large secondary market in China for the used electronic products. In each region, many third party collectors, repair shops, and waste management companies collect, repair and sell old appliances and electronics products. Haier, also collaborates with the third party companies in the collection of e-waste.

This demonstration project has yielded the following benefits. First, the project has helped Haier’s management to better understand the most advanced manufacturing technology in the industry and to adapt them to meet the company’s needs. For instance, Haier’s management has a better understanding of the quality problems associated with its products in the Chinese market as the result of this project. The company’s extensive sales and repair contractors can quickly report back problems associated with material and design which aid the overall product design process and facilitate the eventual development of a closed loop supply chain system. Second, Haier is accumulating knowledge to prepare for the anticipated large-scale implementation of the e-waste management regulation’ in China. Given the size of the country and the disintegrated nature of collection systems in China, the company is in a better position to know who they need to work within different regions and where they should establish future processing centers to effectively collect and process e-scrap.

4.1.3. Dongtai

Dongtai, a small waste management company located in Northeastern China, is one of the first specialized Chinese domestic companies engaged in centralized waste treatment (a ‘one-stop’ waste treatment facility). Although it is a small to medium sized company with sales in the range of USD 10 million (70 Million RMB), its official certified waste management status makes it a unique waste management company within China. The company is mainly engaged in the collection, treatment, recycling and

disposal of industrial wastes and EOL products and materials. It manages over 200,000 tons of waste per year and has invested greatly in some of the latest waste management technologies for managing particular types of industrial wastes. One quarter of this waste is recycled at some level. Its electronic waste management division has a lower level of technological automation for its disassembly, even though it does have significant technology to manage materials that are derived from disassembly. The disassembly processes still rely on significant quantities of manual labor. There are branch locations in Hunan Province and others in the Northeast of China.

Dongtai began the treatment of e-waste in 1996, with its focus on industrial customers. It expanded its scope to consumer e-waste management in 2008, foreseeing increased regulations and demands for this type of service. Currently, most of its clients are located in a regional Economic and Technology Development Zone in Dalian, China and includes some of the largest and well-known electronics companies in the world such as Toshiba, Sanyo, and Canon. It is currently in negotiation with China Netcom, China Telecom and the government for telecommunication equipment. Even though the overall recycling rate is relatively small (ca. 25%), customers (such as Canon) that utilize design for environment (DFE) principles have as much as 96% recycled wastes in their e-waste. Dongtai believes its business will grow tremendously when new e-waste regulations are imposed and are poised to take advantage of the market when these regulations go into force. Many of their current customers currently envision these regulations and are prepared to work with Dongtai in establishing the necessary infrastructure to manage the e-wastes. It is expected that Dongtai will have to double its capacity to manage potential new waste streams generated by new policies.

4.2. Clarifying and establishing the evaluation framework

As presented in Table 1, each of these organizations may be able to achieve improved business value in various levels of the CE in China. The existence of various current and potential value generation alternatives is a powerful driver for these organizations to identify blended opportunities. These opportunities range from simple direct and short-term financial benefits, getting additional products returned and extending the life of products, to broader, more strategic and intangible benefits, such as improved image with their international partners.

We observe that large and small firms play a very important role at both the firm level and at the supply chain level of the CE. For example, firms at different stages of the supply chain may also play direct roles within eco-industrial parks, even when their products are not necessarily for the same customers or have very different usage characteristics (e.g. appliances versus antennas for telecommunications infrastructure). Part of this framework is designed to aid organizations to define and identify value opportunities taking advantage of new technologies or practices related to environmental initiatives. These dimensions and the related CE environmental levels of analysis not only provide avenues that individual firms can gain value, but also show them how their value can be observed in a broader supply chain or eco-industrial park situation.

Even at higher levels of analysis (regional and global, which are not included in our framework), increased value is also sought. For example, the Chinese government continues to invest billions of dollars on CE demonstration projects and principles. They would like to see value returns in many of these areas. Cost reductions can occur by preventing future costs from environmental damages, revenue generation from additional activities in the domestic closed loop, supply chain practices; as a consequence China can

become more resilient by have the necessary internal cycles in place, and the international image of China and its industrial infrastructure can improve. The diffusion and application of these values in localized supply chains can also occur, as is evidenced by this framework and the three case studies presented.

5. Implications for future management research and scholarship

The authors of this paper presented a preliminary analysis of the emerging integration of business value and environmental returns in the context of China's CE using the theoretical lens of EMT and a multidimensional, multilevel business value framework (Table 1). EMT posits the use of technological and emergent innovative practices as possible ways to add value to organizations and supply chains while reducing the environmental degradation caused by their economic growth. We looked specifically at e-scrap within three companies from different points within this industry's supply chains showed how they have and/or will gain business value within China's CE. By looking at the broader perspective of supply chains and eco-industrial parks, we need to extend the horizon of how organizations can gain competitive advantage through integration of these business value elements. The RBV theoretical underpinnings may not provide a complete picture of building a competitive advantage due to its focus on individual organizations. EMT provides a complementary and more robust insight into how improved business value can be generated from environmentally sound practices and improved technologies, which might benefit members throughout the entire supply chain.

However, the added value that is realized in these supply chains may not exist without external constraints and forces that cause development and diffusion of these technologies. For example, there are international supply chain pressures that Chinese organizations will need to respond to, especially when it comes to legitimacy and image issues. Thus, understanding the supply chain implications of EMT can not only help individual organizations, but also overall supply chain competitiveness. As supply chain competitive advantage, rather than individual organizational competitive advantage, becomes more important, sustainability within supply chains takes on a more important role. Investigating how competitiveness across a supply chain increases due to specific practices related to CE principles is something that requires more investigation.

Although this type of investigation can take on a quantitative focus, our study is limited to only presenting an initial framework with qualitative competitive evaluations of business value. Developing formal models and simulations can help quantify the relationships within and between organizations in a CE environment. Scenarios to help relate various policies within a CE regulatory regime can provide a situation to help model various flows and valuations associated with e-waste management. For example, if and when WEEE-like regulations are adopted and enforced, e-waste flow management will become even more critical for organizations. Planning for this situation and what it means for business value, on any of the four dimensions of the framework, could benefit from formal modeling and simulation approaches. Designs of this study may also incorporate various growth patterns of ICT usage in China.

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4. From Responsible Investing to Investing in Sustainability

4.1 Chapter Overview

Building on the exploration of RI (Chapter 2) and examination of the Asian business, environment, and society regional context (Chapter 3), Chapter 4 enhance the understanding of the relationships between RI and climate change-related finance and investment issues worldwide and within the Asia-Pacific region. Climate change has become a critically important global and regional RI priority in recent years.

Chapter 4.2, which is based upon this thesis author's article titled, "Responsible Investing and the Emergence of Investor-Driven Governance Networks", sought answers to research question #3 (How did RI and climate change intersect as business and policy concerns on the global and the Asia-Pacific regional level?) by analyzing the rise of what this thesis author referred to as 'investor-driven governance networks' (IGNs), which are having important impacts on integrating RI into the core functions of private global environmental governance.

To address this question and to provide the theoretical context for the emergence of IGNs, this thesis author reviewed corporate governance, business sustainability, business and society academic literature by examining:

a) Thirty-five journal articles in such publications as the Journal of Business Ethics, Global Environmental Politics, American Journal of Comparative Law, among others, were reviewed); b) Thirteen books were reviewed, including David Vogel's, 'The Market for Virtue: The Potential and Limits of Corporate Social Responsibility' and Gerald Davis's, 'Managed by the Markets: How Finance Re-Shaped America,' which were particularly helpful in highlighting the growing intersections of financial markets and corporate

social responsibility in the context of the global economy; and c) Industry reports were analyzed by the U.S.-based Interfaith Center on Corporate Responsibility were particularly helpful in examining the relationships between shareholder activism and corporate governance.

Extending EM theory in terms of market dynamics and economic agents (EM thematic cluster #2), Chapter 4.2 explained how IGNs have become important RI actors in global environmental governance in recent years and deserves more attention from academics and business management researchers. IGNs can be best described as coalitions or alliances led by investors who are grouped around a specific public goods issue in which investors are the primary actors and whose intent is to purposively steer the behavior of market actors such as corporations and investors, through a broad range of tools at their disposal, including the legally defined rights they have as shareowners.

Despite the growing research on global environmental governance, there has been relatively little systematic assessment of the financial sector and investors both as actors and of the instruments of private global environmental governance. One of the overlooked impetuses to the emerging private environmental governance architecture is the role of the financial sector.

As highlighted in Chapter 4.2, a number of high profile alliances of institutional investors with trillions of dollars in assets – and many lesser-known coalitions, some with individual investors with much less financial clout – have been created in the past decade. IGNs exert their influence on issues as varied as corporate responsibility (e.g. the Interfaith Center for Corporate Responsibility); toxic chemicals (the Investor Environmental Health Network); higher education sustainability (e.g. the Responsible Endowments Coalition); and climate change within which the Coalition for Environmentally Responsible Economies, CERES, is perhaps the best known.

With the general relationship between RI and climate change established in Chapter 4.2, Chapter 4.3, which is based upon this thesis author's article titled, "Mobilizing Private Sector Resources Toward Climate Adaptation and Mitigation Action in Asia", analyze the relationship between RI, climate change, and the Asia-Pacific region by examining two dimensions of research question#3 (How did RI and climate change intersect as business and policy concerns on the global and the Asia-Pacific regional levels?).

Firstly, what are the current state and outlook for public and private investments to address global and Asian regional climate change concerns? Secondly, what new financing strategy is required to respond more effectively to the climate change dilemma in Asia?

To obtain answers to these two questions, this thesis author surveyed Asian environmental finance and policy research conducted by research institutes/think tanks (including the World Resources Institute, the World Bank, the UN Economic and Social Commission for Asia and the Pacific, and information provided by civil society/non-profit organizations such as the Worldwide Fund for Nature, Oxfam, and the Overseas Development Institute.

Since industry currently accounts for one-third of the energy consumed worldwide and the growing carbon and energy footprint of China, India, and emerging Asian countries (IEA 2008), there is an urgent need to improve our understanding of the complex global and Asian regional policy interplay in terms of RI, private sector, and climate change governance.

In the seventeen years since the adoption of the Kyoto climate change protocol in 1997, increasing scientific concerns about climate change, a growing sense of the need for a global climate regulatory regime, and accelerating use of Kyoto Protocol market mechanisms have propelled many new types of private sector responses to global climate change around the world, which range from improved energy efficiency, shifting to renewable energy sources, clean technology focused policy approaches, voluntary carbon mitigation programs, and mandatory emissions trading regimes.

There have also been increasing numbers of high level calls for increased financial resources devoted to climate adaptation and mitigation activities. Underscoring the serious financial dimensions of creating a long-term sustainable climate change solution, the UK-based Oxfam International (2009) concluded that an *additional* \$42 billion in humanitarian aid is urgently required to help developing countries adapt to the effects of climate change.

The urgency in which these funds are needed to address climate adaptation and mitigation activities in the Asia-Pacific region and elsewhere are not contested; what is less clear is where the necessary funds will be forthcoming.

Building on the RI/climate change analysis in Chapter 4, Chapter 5 (as the concluding chapter of this thesis) provide a summary of the key thesis

insights and sketch the context and the issues/questions this thesis author plans to examine at the conclusion of the thesis process.

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4.2 Responsible Investing and the Emergence of Investor-Driven Governance Networks

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Financial Activism and Global Climate Change: The Rise of Investor-Driven Governance Networks

Michael MacLeod and Jacob Park*

Introduction

Recent contributions in this journal have noted the complexity of global environmental governance, especially the high degree of fragmentation of governance architecture and the significance of transnational networks in governing such issues as climate change.¹ Despite this attention, there has been relatively little systematic assessment of the financial sector and investors both as actors and instruments of private global environmental governance. This article focuses on the emerging influence of collective shareowner activism and of “investor-driven governance networks” (IGNs) on private global environmental governance. IGNs are coalitions or alliances led by investors (or dominated by their concerns), formed around a specific public goods issue or issue-areas, in which investors are the primary actor. The intent of these networks is to purposively steer, i.e. govern, the behavior of market actors through the broad range of tools at their disposal, including the legally defined rights they have as shareowners but also their power to shape and define the obligations of the business community at large.² In this context, we see the governance function of these networks as an innovative form of public governance that is created and managed

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1. Andonova et al. 2009; and Biermann et al. 2009.
2. CSRWire.com, the primary online source for news related to corporate social responsibility, has created a directory of what it calls “investor advocacy networks”—without defining precisely what these entail. Michael Kane, manager of CSRWire, says that investor advocacy happens “where shareholders leverage corporate change by acting as a pivot point, connected to companies on one end and activists on the other” and that such advocates are upping their effectiveness by creating issue-specific networks (see CSRWire.com 2008). CSRWire’s online directory currently lists at least 67 investor advocacy networks (without defining what exactly constitutes such a network).

by private organizations for specific purposes, which in this case are investors and their collective actions.³

The vast majority of IGNs are very recent creations. In less than a decade, several high profile alliances of institutional investors with trillions of dollars in assets—and many lesser known coalitions, some with individual investors with much less financial clout—have been created to exert their influence on issues as varied as climate change, toxic chemicals, and access to affordable medicine and genocide. Most are relatively unknown and niche-focused, e.g. the Investor Environmental Health Network, the Pharmaceutical Shareowners Forum, the Responsible Endowments Coalition. Other IGNs are better-known organizations within the financial community (the Carbon Disclosure Project, CDP and the Interfaith Center for Corporate Responsibility, ICCR). Additionally, whereas some IGNs are established, centralized institutions (the Coalition for Environmentally Responsible Economies, Ceres, is perhaps the best known), others are smaller, more ad hoc alliances of individual investors and financial professionals and activists (e.g. Investors Against Genocide, the Network for Sustainable Financial Markets).

At the core of most of these networks are pension funds and mutual funds who increasingly engage corporations to strengthen global capitalism and to transform it into a more sustainable, long-term proposition by incorporating non-traditional considerations into their investments. Also participating in these networks, either formally or informally, are non-governmental organizations (NGOs) and social activists, whose presence is often critical to the functioning of collective investor activities. IGNs are an increasingly transnational phenomena in three ways. First shareholders, especially institutional investors, operate in multiple markets and many have substantial foreign equity. Second, many of the issues they are concerned with are intrinsically global, such as climate change. Lastly, the objects of their activities are mainly large corporations operating in multiple national jurisdictions with complex multinational operations.

Using climate change as a case study, we argue that IGNs represent an emerging form of private environmental governance that reflects the growing relevance of socially responsible investing in the business community with investors acting as a powerful force articulating a clear business case for why climate change is, and will remain, a critical sustainable business issue in the global economy. As networked instruments of governance, these IGNs are attempts to re-orient and “regulate” the behavior of business by holding corporations accountable via mechanisms of information sharing, monitoring of environmental impacts, and disclosure of activities related to the corporate climate footprint.⁴ Furthermore, we argue that IGNs operate in ways similar to transnational advocacy networks, especially in their role as vehicles of principled per-

3. Ronit and Schneider 1999.

4. Andonova et al. 1999.

suasion, but differ in seeking to maximize profits rather than to disseminate values. The networks described here, in other words, both reflect the dictates of the market (the essential private institution) yet seek to transform it by using the power of socialization within the structure of shareholder rights and responsibilities.

To the extent these investor-driven networks have been successful in shaping and transforming the discourse surrounding climate change, and in linking global climate change to the core strategic interests of corporations in general and investors specifically, we argue that they have a degree of effectiveness, in both their outputs (i.e. what have they done?) and outcomes (i.e. has there been any changed behavior?) as a governance institution.⁵ This article does not, however, offer an assessment of the precise impacts these networks have had on the problem of climate change, in part because of the methodological difficulty in demonstrating a clear causal link between the activities of investors and the solving of specific environmental problems. (This is a task for further research, and we address this in the conclusion of this article.) In any case, we believe our assessment of IGNs reveals them to be important financial actors that require further analysis from scholars in global environmental politics. At the very least, these networks are clearly attempting to perform governance functions of public goods from a platform of private authority and a private institution (the market), and the evidence shows that the ICCR, Ceres, and the CDP are powerful instruments of persuasion, socialization, and affect the construction of climate change-linked corporate environmental and social responsibility norms.

The article proceeds first with a review of relevant literature to contextualize and conceptualize the idea of investor-driven governance, drawing on the global environmental governance, private authority, and advocacy networks scholarship. The second section explores the dynamics between the rise of responsible investing⁶ and the growth of collective shareholder activism, specifically the emergence of investor networks. The third section combines theory and empirical data by exploring the case study of current investor driven governance networks on climate change, which is arguably the most prevalent single issue driving IGN formation.⁷ Finally, we assess the theoretical and practical significance of investor-driven networks as a form of global environmental governance.

Theorizing Investor-Driven Governance Networks

The rise of global governance as a conceptual framework is linked to the globalization of capitalism and the responses to it. Even as deregulation and privatization became the central component of economic neoliberalism in the 1980s, a

5. Young 1999.

6. Responsible investing is being used in this article interchangeably with what many refer to as socially responsible investing (SRI) and ethical investing.

7. It should be noted that there are other environment-focused IGNs that address other issues such as toxic chemicals, water usage and equity issues. For example, see Wheelan 2009.

societal backlash—what Polanyi calls a “double movement”—has taken place.⁸ According to Polanyi, the intensification of market liberalism is usually followed by an attempt to check the power of business in order to “re-embed” the market economy into society and its relations (rules, customs, and institutions) rather than have society be at the mercy of the laissez-faire system and its dictates. This is perhaps most apparent in the growing demands in the 1990s for transnational corporations to demonstrate greater responsibility in their operations, and has led to “a variety of new governance structures—rules, norms, codes of conduct and standards—that constrain and shape” their behavior.⁹ It is here that we can locate the rise of corporate social responsibility, a type of privately-based governance of corporate behavior: CSR is part of the emerging global governance, the multi-layered and multi-actor system of political authority that “seeks to order, channel and constrain economic activity and its impacts in relation to international issues of public concern.”¹⁰

Understanding the various analyses that fall under the heading of “corporate social responsibility” is important from a theoretical political economy perspective because it has not been created exclusively by traditional public governance (state-based regulation). Rather, it reflects the emergence of a new model of private, nonstate-based governance, also known as business self-regulation,¹¹ civil corporation,¹² civil regulation,¹³ or “transnational new governance.”¹⁴ All these terms refer to institutional arrangements organized among elements of business and/or civil society with minimal involvement by states or governmental actors. Virtually unknown before the 1990s, they have since rapidly multiplied and become central to the global governance infrastructure.¹⁵

Many of these collaborations are central to understanding the emerging fragmented architecture of global environmental governance¹⁶ and the roles of nonstate actors or what Biermann refers to as “agency” in global climate governance.¹⁷ From the Equator Principles for banks to the Forestry Stewardship Council for sustainable forestry practices to the Responsible Care program in the chemical industry—there are literally hundreds of such institutions, codes of conduct, and the like that seek to steer the behavior of corporations by using privately-based mechanisms to avoid public regulation. As such, these arrangements are based on the primary logic underlying corporate social responsibility—the need for corporations to be seen addressing the social and environmental externalities of their business operations, especially as they become transnational enterprises.¹⁸

8. Polanyi 1944/2001, 13.

9. Levy and Kaplan 2008, 433.

10. Levy and Kaplan 2008, 437.

11. Haufler 2001.

12. Zadek 2007.

13. Vogel 2005.

14. Abbott and Snidal 2009.

15. Cutler, Haufler, and Porter 1999; Haufler 2001; and Hall and Biersteker 2002.

16. Biermann et al. 2009.

17. Biermann et al. 2010.

18. Zaek 2007; and Crane et al. 2008.

One overlooked contributor to CSR-based global private governance is the role of the financial sector. Over the past three decades, finance and financial considerations have increasingly taken center stage in global capitalism and this finance-centered business ecosystem has replaced manufacturing at the center of the global economy.¹⁹ The various literatures on the rise of private governance have not yet examined the role of institutional investors and shareholder activism in business and public policy. The modern responsible investment industry is very much a reflection and instrument of the emerging private governance architecture in the wider international political economy.

A key actor involved in the responsible investment industry is the institutional investor. These mutual and pension funds and, in certain markets, insurance companies, attempt to steer the behavior of corporations toward non-traditional as well as financial goals and standards. Individual investors are also increasingly active in financial markets in promoting corporate responsibility, having much greater access to information and analysis of business activities and their impact on the environment. The mobilization of these investors into collaborative arrangements among themselves—and more often than not also with NGOs and social activists—is not an entirely new phenomena (the Interfaith Center on Corporate Responsibility was created in 1971 and the Ceres organization was launched in 1989). But dozens of investor networks have been created since 2000 and the development of the UN Principles on Responsible Investment reflect a new and significant attempt to leverage the collective power of shareholders to steer businesses toward improved environmental and social practices.

Conceptually, these investor networks seem similar to other private governance arrangements such as those of nonstate market-driven governance (NSMD) analyzed by Cashore.²⁰ Systems based on NSMD—such as the Forestry Stewardship Council or Fair Coffee trade certification programs—are (self) regulatory arrangements (of varying rigor) in specific issue areas that use global supply chains to recognize, track and label products and services from firms as being socially responsible. Operationally, IGNs have not been primarily concerned with developing these precise types of governance arrangements, at least not directly, but may occasionally act to encourage corporations to become part of a NSMD system. The biggest difference between the two, however, is that NSMD institutions contain only one actor from the corporate sector, i.e. the participating companies or industries, whereas investor networks contain two profit-driven actors, the targeted companies and industries and the investors who are pressuring companies.²¹

The presence and activities of organized, collective investor activism thus generates a different decision-making environment for corporations. In an

19. Davis 2008.

20. Cashore et al. 2004.

21. This also means we should treat investors and corporations as separate nonstate entities for an-

NSMD system, the firm usually decides to participate in a voluntary arrangement for either competitive reasons (to be a trend leader or avoid trailing behind what its competitors are doing) and/or in response to external pressures on its operations (e.g. from civil society groups or activists attempting to influence corporate decisions).²² While NSMD systems are purely voluntary for corporations, investor networks present a more complicated situation insofar as non-participation (or non-response) by a corporation might be seen as a rejection of the (rightful) demands of the financial community, usually a more powerful statement to capital markets. Faced with sustained pressure from investor networks, corporations have to decide to respond to either actual shareowners of their company or to a conglomeration of the investor community, either of which may directly allied with civil society groups.

Because these investor networks act as sources of external pressure on corporations, IGNs might seem more analogous to the concept of transnational advocacy networks (TANs). Keck and Sikkink utilize the concept of TANs—collaborations of social activists, non-governmental organizations (NGOs), scientists, and other professionals—to portray a potent force in world politics, networks that target states and international organizations to implement or change policy in specific areas.²³ A transnational advocacy network includes those actors working internationally on an issue, who are bound together by shared values, a common discourse, and dense exchanges of information and service. Such networks are marked by the centrality of values or principled ideas, the belief that individuals can make a difference, the creative use of information, and the use of sophisticated strategies in their campaigns, which are most often in the areas of the environment and human rights. Keck and Sikkink argue that TANs are “simultaneously principled and strategic actors, they ‘frame’ issues to make them comprehensible to target audiences, to attract attention and encourage action . . . they also promote norm implementation, by pressuring target actors to adopt new policies, and by monitoring compliance with international standards.”²⁴

MacAteer and Pulver adapt this concept of TANs to describe the advent of corporate-focused networks in which shareholder activists played a central part, what they term STANs, shareholder transnational advocacy networks.²⁵ However, their focus is on ad-hoc networks formed to pressure specific corporate targets in specific countries and they do not examine the broader phenomena of collective shareholder activism in which more permanent networks have been formed. Their analysis, while helpful, does not address the critical issue of the institutionalization of IGNs as a form of private governance, the process by

alytical purposes, something not common in the IR literature but increasingly common in the business management literature (for example, Guay, Doh and Sinclair 2004).

22. Cashore et al. 2004.

23. Keck and Sikkink 1998.

24. Keck and Sikkink 1998, 26.

25. MacAteer and Pulver 2009.

which actors and instruments create regularized forms of cooperation and self-regulation in the business world.²⁶ We argue that investor-driven governance networks share many—but not all—characteristics of TANs, including the centrality of information, the shared discourse on a particular issue, and their emphasis on implementing new norms of behavior among both investors and corporations. In addition, IGNs (like TANs) act to transform actor identities, including both corporations and capital markets). The significant difference between TANs and IGNs is that investor networks are engaged together primarily for material reasons. They nominally operate according to a “logic of consequences”—that responsible investing is actually rational, “responsible” investing because it takes into account factors that will ultimately improve the corporate bottom line and, hence, represents a fiduciary duty. They do not overtly appeal to international moral standards or norms—a “logic of appropriateness”—as do TANs or traditional value-based responsible investing.

Nevertheless, while investor-driven governance networks operate ostensibly under the auspices of fiduciary responsibility because they have to do so by law, they also reflect the power of persuasion and socialization of profit-based actors as instruments of global governance. IGNs emerge from the confluence of rational concerns of the sustainability of capitalism, and are composed of highly motivated, socially-oriented individuals, many of whom are dedicated to alleviating social and environmental problems because it is the appropriate thing to do, not just to save capitalism from itself.²⁷ Although they are not necessarily new actors in the global economy, these IGNs have become institutionalized agents of investor advocates on a wide range of social and environmental issues and have been joined in the past decade by several similar coalitions of investors. Investor-driven governance networks should thus be viewed as an important actor and instrument in the private regulation of global corporate conduct,²⁸ using the particular financial power of investors to promote increased global corporate accountability and responsibility. These IGNs, in other words, have at least the intent (and arguably the ability) to steer the behavior of corporations according to broader societal goals such as environmental sustainability. How these networks have emerged is linked to the development of responsible investing, the subject of the next section of this article.

Responsible Investing and the Rise of IGN Activism

The emergence of investors as important financial actors and the rise of the international responsible investing industry since the 1970s highlight the complexities of contemporary global governance. Firstly, the divide between the domestic and international has become blurred as investment capital increasingly

26. Pattberg 2005.

27. Waddock 2008.

28. Vogel 2008.

attempts to link local corporate activities with global responsibilities. There has also been a great expansion in the number of actors, from a few dedicated mutual funds mainly in the US to now several hundred across the world reflecting the rise of global institutional investors involved in promoting responsible investing principles in their activities. Thirdly, a global civil society has emerged that increasingly attempts to influence financial capital. Fourthly, the variety of transnational issues motivating capital markets has grown to include subjects from human rights-related concerns such as apartheid in South Africa to toxic chemicals to general environmental sustainability, among many others. All of these trends highlight the exercise of private authority in issue areas where public authority is seen as unwilling or unable to act.²⁹

Responsible investing can best be defined as an investment process that embeds environmental, social, and governance (ESG) issues within the context of traditional financial analysis.³⁰ By embedding ESG issues into traditional financial analysis, responsible investing professionals and industry work toward mainstreaming the importance of environmental, social, governance risks, while engaging corporations to improve their ESG business practices.³¹ Today, the global responsible investing market in the wealthy OECD countries is well established and in the case of Europe, entering a major growth phase. In the US, US\$ 2.7 trillion is currently invested in one of the three core social investment strategies—screening, shareholder advocacy, and community investing—which represent about 11 percent of the US\$ 26 trillion in total investment assets. Assets in responsible investing mutual funds and other related products rose to just over US\$ 200 billion in 2007, while the total number of responsible investing funds has increased from 55 in 1995 to 260 in 2007.³² The European responsible investing market has grown even more rapidly, with around 42 percent annual growth rate for the past couple of years and reached € 2.7 trillion as of December 31, 2007, representing as much as 17.5 percent of the European asset management industry.³³ Even in countries like Japan and the Asia-Pacific region where awareness of social responsibility concerns lag that of North America and Europe, responsible investing represents one of the few financial market segments that remain vibrant in terms of market development. In addition, the SRI market in Australia grew 41 percent between 2003 and 2004, twice as fast as the country's retail and wholesale investment market.³⁴

Responsible investors can be any individual or institution that has investment capital but the largest component of responsible investing involves accounts managed by institutional investors, including pension funds, investment

29. Rosenau 1997; and Haufler 2006.

30. See Social Investment Forum (<http://www.socialinvest.org>) for greater details on the history and concept of responsible investing.

31. SIF 2008.

32. SIF 2008.

33. Eurosif 2008.

34. Brown 2005.

companies, and insurance companies. Individual or retail investors—who owned as much as 93 percent of all US stocks in 1950 and as much as 75 percent in the 1970s—now own a record low 34 percent of all shares, and just 24 percent of stock in the top 1000 companies.³⁵ In contrast, institutional investors are quickly gaining greater control over the equity markets, increasing their ownership shares from an average of 47 percent in 1987 to over 76 percent by year end in 2007. In 1985, no company had institutional ownership of 60 percent or above, whereas, by 2007, 17 companies had institutional ownership of 60 percent or above, including six with institutional ownership of 70 percent or above.³⁶ This reflects in part the great increase in the number of individual Americans who own equities via institutional investment vehicles. As recently as the 1950s, few Americans had heard of mutual funds. Today, US mutual funds represent the largest financial industry in the world with over 88 million shareholders and nearly US\$ 11 trillion in assets.³⁷ Only 20 percent of Americans owned stock when Ronald Reagan was elected President in 1980, while it is currently estimated to be somewhere between 60 and 70 percent.³⁸ In the UK, institutional investors have been more significant historically than individual shareholders, and their control has slowly increased over time, representing the majority of all UK publicly held shares, compared to 14 percent for individuals.³⁹

The institutional investment sector includes both extremely large actors, such as public and private pension funds, myriad of smaller asset holders with mere hundreds of millions of dollars, as well as fund managers and research firms that advise on investment issues and strategies. Increasingly, these investors provide the most significant source of capital and debt in global markets and their economic power is growing rapidly. Overall, US institutions hold about 60 percent of this total, EU countries hold about 31 percent, and Japan and Canada hold most of the remainder.⁴⁰ Furthermore, the largest institutional investors have fairly extensive assets in foreign equity markets (i.e. outside their home country).⁴¹

The significance of these trends is two-fold. Firstly, institutional investors are increasingly transnational actors who have become the primary provider of capital in international equity markets and their interests are of concern to policy-makers and corporate actors alike.⁴² In 2005, for example, the largest twenty-five pension funds in the US held 14 percent of their assets in foreign markets.⁴³ Secondly, they have substantial economic influence through the

35. Conference Board 2007.

36. Conference Board 2008.

37. Fink 2008.

38. Kinder 2005.

39. OECD 2007.

40. OECD 2007.

41. Jacoby 2007.

42. Conference Board 2001.

43. Hebb 2008, 10.

shares they own in particular companies, which gives them the right to bring forth shareholder resolutions, and the shares that they do not own, but over which they exert influence through creating standards or screens for future potential equity purchases. As Proffitt and Spicer note, a growing literature has developed since the mid-1990s that “studies institutional investors mobilizing as a social movement, developing increasing power to influence the behavior of business firms.”⁴⁴

The rest of this article will explore the emergence of IGNs as it relates to climate change governance. These networks may be single-issue, devoted exclusively to climate change, or multi-issue, with climate change being only one of their concerns. We can also designate IGNs as either single-actor or multi-actor. The former are composed of investors whereas the latter also include non-investors in the form of civil society groups and corporations.

Case Study: Climate Change Investor Activism

In less than a decade, climate change has changed from an environmental problem into a fiduciary and investment problem. This partly reflects a growing scientific and social consensus on the extent, potential consequences, and human causes of climate change. Although the debate over climate change was reignited in 2009 because of questionable activities by some Intergovernmental Panel on Climate Change (IPCC) researchers in the United Kingdom, even prominent skeptics admitted in the same year that questions over the science “have been answered pretty unequivocally” and the main disagreement is over the policy prescriptions.⁴⁵ The intensifying interest of the business community and financial sectors has paralleled growing evidence of the large financial costs of climate change for various industries. Two influential reports in 2005 forecast massive costs from floods, storms and heat waves resulting from global climate change.⁴⁶ The Association of British Insurers (ABI), using data from the IPCC, predicted a two-thirds increase in the cost of responses to natural disasters due to climate change by 2080. A 2006 report from Allianz Global Investors, one of the world’s largest asset managers, and the World Wide Fund for Nature, warned that action must be taken to calculate the risks to investors from climate change and make provision for them.⁴⁷

Even before the recent increase in awareness within the investor community of the important links between environmental and financial sustainability, a number of IGNs had been actively involved and collaborating on this issue for years, attempting to persuade corporations of the reality and importance of climate change. Three IGNs in particular have emerged as important global

44. Proffitt and Spicer 2006, 165.

45. Bjorn Lomborg, interview with Fiona Harvey, “Sceptic Switches Tack and Urges More Effective Solutions,” *Financial Times*, 7 August 2009.

46. EurActiv.com 2005.

47. Allianz and WWF 2006.

financial actors: the ICCR, Ceres, and the CDP. We assess each of these as examples of private environmental governance, asking how they try to steer the behavior of corporations on climate change, what governance functions they perform, and the extent to which they contribute to climate change discourse within the financial and business communities?

The New York city-based Interfaith Center on Corporate Responsibility is a well-established and highly active collaborative network among investors and domestic and international NGOs. Some have claimed the organization “essentially invented modern shareowner activism” and is at the forefront of much responsible investing-related advocacy.⁴⁸ Established by the National Council of Churches in 1971, its original mandate was to advise member churches on the ethical dimensions of financial investments. Within a few years of its creation the ICCR engaged in a highly publicized and controversial battle with multinational corporations about their marketing of infant formula to mothers in developing countries.⁴⁹ Although the ICCR downplays the faith-based aspects of its financial power, the related imagery is useful in its campaigns; “you haven’t seen shareholder activism until you see a nun battling it out with CEOs. They can be devastating.”⁵⁰

Currently, the organization has working groups devoted to nine issues ranging from global warming to environmental justice to human rights to water and food safety and access. The ICCR is perhaps best known for its role in organizing and filing proxy (shareholder) resolutions on such issues. Each summer, the organization holds meetings among its members and other institutional investors to identify topics for possible shareholder resolutions at subsequent annual company meetings. Companies with a particular stake in the issue are identified and letters sent to executive management asking questions about potential risks. If the response is deemed inadequate, proxy resolutions are announced for the following spring annual meeting. Issues are prioritized according to a variety of factors, including the concerns of both individual funds and civil society groups.

The ICCR is a central node of ESG-related shareholder activism in the US, although it rarely acts alone. While most shareholder resolutions filed in the US are related to corporate governance issues, social and environmentally-related votes have shown the largest recent increases: about 350 shareholder resolutions concerning ESG-related issues were filed in 2005, and between 2003 and 2005 more such resolutions were filed than in the prior thirty years. The decision to file proxy resolutions does not necessarily mean that a vote will be held. In recent years filers have withdrawn between 25–30 percent of introduced resolutions. Many of these withdrawals occur because the very act of proposing a vote forces companies into action, whether cutting deals with shareholders to

48. Baue and Rheannon 2008.

49. Ermann and Clements 1984.

50. Frel 2005; and Slater 2007.

avoid public relations disasters at the annual meeting or seeking to discuss and resolve issues of concern to investors. Thus, the increase in US shareholder activism in part results from the increased collaboration among investors via IGNs such as the ICCR.

The ICCR has been engaging corporations on climate change since the early 1990s, and helped to sponsor the first shareholder resolution on the issue in 1991.⁵¹ ICCR has prompted much of the increase in US shareholder activism on climate change. The ICCR Global Warming Working Group was formed in 1998 to proactively address climate risk by engaging in dialogues with corporate management and filing shareholder resolutions asking companies to disclose the greenhouse gas emissions from their products and operations and to adopt strategies for reducing those emissions. Its shareholder actions for climate change were ramped up in 2005 with the creation of an official, annual Global Warming Shareholder Campaign which seeks to attract broader and deeper institutional investor support beyond ICCR members to include pension funds, foundations, and university endowments. More recently, the organization, like others in the financial industry, has used more sophisticated analyses of climate change risks to supplement its shareholder activism. In February 2009, the ICCR announced it would use independent Climate Risk Profiles for more than 150 companies facing shareholder resolutions on climate change in the 2009 proxy season.⁵²

The ICCR illustrates a type of IGN with clear parallels to Keck and Sikkink's "transnational advocacy networks."⁵³ The organization has developed a highly institutionalized network of information sharing among its members and uses shareholder proxy resolutions—a tool that does not require management to respond to the wishes of investors—to persuade corporations (and other investors) of the legitimacy of the issue at hand. ICCR has been instrumental in shaping business community discourse on this issue both because of its religious basis and by framing climate change as a risk to business and society. Given the increasing tendency for many corporations to engage investors on climate change, and to agree to report on emissions (and in some cases cut them), it is conceivable that the ICCR is helping to change corporate norms of behavior in this area, although more evidence would be required to identify the linkages between the ICCR and corporate behavior. Regardless, it is clear that ICCR has been at the forefront of helping to (re)shape the identity of financial investors through its promotion of socially responsible investing.

The Boston-based Coalition Ceres was created in 1989 as an alliance of North American institutional investors (including major public pension funds), environmental, labor, and public advocacy groups. Although its website headline markets Ceres as investors and environmentalists for sustainable prosperity,

51. Interfaith Center on Corporate Responsibility 2006.

52. Interfaith Center on Corporate Responsibility 2009.

53. Keck and Sikkink 1998.

the organization in fact engages corporations in both dialogue on environmental issues and encourages them to formally endorse an environmental code of conduct (the Ceres Principles). In the late 1990s, Ceres launched the Global Reporting Initiative (GRI) on environmental, social and economic performance, which has become the de-facto international standard used by over 1300 companies. In 2003 Ceres helped create the Investor Network on Climate Risk (INCR) and has become a key advocate of shareholder activism on climate change. Because of the extensiveness of its activities and its unique position of incorporating investors, civil society and corporations, Ceres is often referred to as a leading proponent of socially responsible investment in the United States and worldwide, having “persuasive regulative and constitutive effects” on both its corporate members and on environmental practices and business culture among corporations.⁵⁴

Ceres has become a prominent IGN because of its mandate on promoting environmental sustainability, its wide-ranging programs including the Ceres Principles and the Green Hotel Initiative, and its annual conference that attracts most major socially responsible investors in the US and globally to discuss a variety of issues. However, since 2003 the organization has become much more focused on climate change, producing 26 reports on the issue, and launching specific initiatives such as Electric Power Dialogue and the Northeast and Canada Climate Program, in addition to creating and maintaining the operations of the above-noted INCR. All of these efforts seek to alter the existing discourse on climate change within the business community—promoting global warming as a critical business risk and a serious financial concern—and to market Ceres as the central investor-driven network encouraging dialogue with corporations on this issue.

Given the extensiveness of its climate change-related activities, Ceres, like ICCR, has had major influence in the framing of this debate in the business and investor communities. Perhaps as a result, the organization is now doing very little to market its other activities, especially the Ceres Principles—its primary claim to fame in its early days. Since 2006, Ceres has become the lead organizer of shareholder resolutions on climate change, coordinating closely with ICCR.⁵⁵ In 2010, the network helped organize a majority of the record 101 climate-related shareholder resolutions filed by investors during the proxy season, up from 57 resolutions filed in 2008.⁵⁶ Perhaps the most obvious evidence of Ceres’ success in framing the debate for business investment and climate change has been its concerted effort to convince the US Securities and Exchange Commission (SEC) to adopt global warming as a material risk factor that must be reported by companies to investors. In January 2010, after six years of Ceres involvement in this issue with the SEC, the latter announced new interpretive

54. Pattberg 2005.

55. PRNewswire 2010.

56. SustainableBusiness.com 2010.

guidance for business disclosure on climate change.⁵⁷ Ceres has helped to change the entire definition of what it means to be a responsible investor and to integrate climate change as a strategic corporate concern in the international business community. As an institution of private environmental governance, Ceres resembles a transnational advocacy network in that it includes a variety of actors bound together by shared environmental values, a common discourse, and dense exchanges of information and services. Most critically, Ceres has worked to transform the identities of investors and corporations and the recent change at the SEC indicates the organization has a measure of power to persuade and “socialize” the corporate sector on climate change, even as it seeks to do so within the confines of material considerations.

The London-based Carbon Disclosure Project (CDP) was launched in 2000 as a collaborative effort among institutional investors to pressure the largest corporations in the world to reveal (and ultimately reduce) their greenhouse gas emissions. All its members (currently 211 investors with US\$ 31 trillion in assets, up from an original 35 members with US\$ 4.5 trillion) annually sign a request to the world’s largest companies to disclose their emissions and policies on climate change and then describe and assess the responses in an annual report printed and disseminated via the CDP website. The CDP was started through the joint efforts of investor and social activists and key government officials in the UK, and is currently funded in part by the UK government and by civil society organizations (including philanthropic organizations such as the Rockefeller Foundation and advocacy NGOs such as the World Wide Fund for Nature).

The CDP has grown and achieved relative success quickly. Its membership now represents 75 percent of the worldwide assets managed by the investment industry. More than 73 percent of corporations approached in 2008 answered its detailed questionnaire on climate emissions and policies. It has become a highly visible vehicle of private environmental governance on climate change. The co-founder and present Executive Director argues that the network has had a real but unquantifiable success: “I’m quite confident that the CDP approach has had a real impact on business . . . but what it is we can’t quantify yet even as more and more investors jump on board. They’re convinced they have to be here, that they have to do the right thing for the planet.”⁵⁸

As a form of governance, the CDP ostensibly serves as an “information depot” for one sector of the business community, investors, concerned with the actions of another sector, corporations, and the health of the overall economy. Investors are the main participants, although civil society groups were involved in the creation, provide some funding and have the ability to use the information gathered to influence corporations directly. Its activities are essentially, singular: the development of an annual request from investors to corporations to

57. Ceres 2010.

58. Author interviews with Paul Dickinson, Carbon Disclosure Project, May–June 2006.

disclose their exposure to risks from climate change, and their strategies to deal with these risks. Essentially, the CDP seeks to wield influence through a group of financial actors—institutional investors—leveraging a response and commitment from corporations. The organization sees its essential mission to force corporations to admit the undisclosed liabilities they face from climate change within their financial statements.⁵⁹

Those who created the organization worked hard to develop convincing arguments that negative consequences would result if investors did not pressure corporations to respond. Civil society organizations were just as skeptical as those in the business community: “when the CDP first approached us four years ago [2001], the issue had barely made a ripple in the financial world; there was almost no coverage in the financial press, and investors and managers saw it as a fringe issue. From an American perspective, we can see now that Wall Street is waking up to climate change risks and opportunities.”⁶⁰ But some investors were more easily convinced at the beginning; according to the CEO of Allianz Global Investors, one of the founding institutional investors behind CDP, “as an investor, we wanted to know whether the companies we are investing in are taking sufficient account of climate-related risks. However, the data is often not available, sometimes not comparable, or of poor quality.”⁶¹ More recently, the CDP has been moving toward being a more “activist” organization on the climate change issue. In part, there is frustration that the CDP’s institutional investor membership could and should be leveraged to achieve even more change in behavior by corporations, possibly by requiring companies to answer the CDP or face shareholder resolutions forcing compliance or bringing pressure directly on governments to aggressively tax or regulate GHGs.⁶²

The CDP is the least analogous to a transnational advocacy network in terms of its governance functions and impact among the three climate IGNs examined here. While it monitors climate disclosure activity by businesses, generates much data, and attempts to shape the global discourse on climate change (e.g. recently making its information on corporate disclosure of climate emissions available via Google Finance and even as an iPhone application), CDP’s governance capabilities and its effectiveness seem more limited than the other two IGNs. This may be the result of the limited active involvement of actors outside the investor community (i.e. civil society, which plays a more integrated role in Ceres and ICCR) or it may be that the nature of this particular governance instrument is simply weak by virtue of its singular focus on disclosure. But the CDP continues to expand in scope and recently expanded its activities to monitor global corporate water usage.⁶³ Moreover, more attention is being paid to the impact of CDP participation on investor value, with a recent study high-

59. Author interviews with Paul Dickinson, Carbon Disclosure Project, May–June 2006.

60. Allianz 2005.

61. Allianz 2005.

62. GreenBiz.com 2009.

63. Schwartz 2010.

lighting that institutional activism on climate change via the CDP can have a positive impact for shareholders.⁶⁴

Conclusion: Explaining and Understanding IGNs and their Impact on Climate Governance

IGNs are emerging actors in and instruments of private global economic and environmental governance. Largely formed to promote corporate social responsibility through the principles of responsible investing, IGNs are an unprecedented attempt to collaborate and coordinate investor activities. They are diverse institutions that can differ in terms of their membership structures, their focus across the spectrum of issues usually associated with responsible investing, and the functions and activities associated with shareholder activism that they undertake. Environmental sustainability and the problem of climate change in particular have dominated the motivations and activities of investors who are forming collective enterprises. Three important conclusions can be inferred from the global economic and environmental dimensions of IGNs.

First, the emergence of IGNs is ultimately tied to and reflects the changing structure of the modern global economy itself. The growth in the size and scope of institutional investors as sources of investment capital, combined with the participation and incorporation of citizens in capital markets through mutual and pension funds, and the emergence of a shareholder rights movement in the late 1980s have facilitated the development of investors as critical stakeholders in the governance of publicly traded companies. From simply promoting dialogue among investors to more complex and institutionalized arrangements among investors, companies, and other stakeholders, IGNs share a common strategic emphasis on changing business behavior. Almost all of these groups produce reports on the relevance of their particular issue area of concern on the fiduciary obligations of investors and to the general business community at large. Many go beyond this to actively engage corporations on their operations and activities, something that was quite rare and considered “inappropriate” less than two decades ago. All of the IGNs assessed here reflect growing investor concern that climate change has not been sufficiently internalized into corporate activities and are attempts to strengthen investor influence over corporate behavior.

Second, corporate environmental and social responsibility concerns are rapidly becoming mainstream principles in the investment and asset management business. For institutional investors, the argument that “fiduciary responsibilities” requires taking into account social and environmental concerns that were previously thought to be non-pecuniary, has been a critical point of contention that is increasingly accepted by large segments of the financial community. The creation of the UN Principles for Responsible Investment (PRI) in

64. Kim and Lyon 2008.

2006 was based on the very logic and assertion that integration of ESG principles are mandated as fiduciary duties for investors. The PRI now has over 400 signatories (mainly asset owners and investment managers) representing over US\$ 15 trillion in assets. The recent decision by the SEC to mandate climate change disclosure (noted above) provides another indication of the mainstreaming of environmental concerns.

This analysis reveals that organized investor collaboration is increasing and is using various methods—from reporting on the financial costs of climate change to shareholder proxy resolutions and other forms of shareholder engagement—to shape the climate change discourse in the business community. Moreover, IGNs are increasingly trying to coordinate their activities to enhance their effectiveness. Ceres and the ICCR, as noted earlier, are working more closely on annual shareholder resolution campaigns on climate change. More recently, IGNs are collaborating to influence international negotiations on climate change.

Third, the emergence of IGNs is consistent with, but at the same time departs from the mainstream rationalist conception of institutions in international relations theory, that assume agents to be acting rationally to maximize their utilities.⁶⁵ On the one hand, these institutional investors recognize the material benefits of acting collectively to leverage their financial power to change corporate behavior on issues deemed to have an impact on the economic bottom line. This is most clearly evident in the promotion of environmental sustainability among the most activist institutional investors. For many IGNs, climate change is the sole or major focus of their activities, and their activism can be characterized as an attempt to persuade other investors and the corporate community of the material impact of global warming on business.

On the other hand, IGNs actively persuade, coerce, and socialize other investors—and corporations—into new norms of corporate behavior, which is a central assertion of constructivist theory. The collaborative efforts of investors through IGNs resembles the *raison d'être* of transnational advocacy networks in which coalitions of social activists, professional experts, and others coalesce around issues of common interest to persuade, coerce, and socialize other actors to change their behavior. Similar to transnational advocacy networks, investor network activities focus on generating and sharing information and on framing discourse over issues of common interest. The more established IGNs such as the ICCR and Ceres exemplify efforts to influence perceptions of social and environmental issues, and have been joined in the past decade by several similar coalitions of investors, most of them more focused in their efforts, but all intent on making the same arguments as to the necessity of an expanded responsibility on the part of corporations. The CDP is the most visible of these recent attempts, although its governance functions are more limited than that of the Ceres and ICCR, and its relative impact is still difficult to assess.

65. Duffield 2007.

The obvious and critical next step for future research is to examine the effectiveness of IGNs as actors in and instruments of private global economic and environmental governance. To what extent and under what conditions do they make a difference? Given the complex interplay between global, regional, and local economic and environmental dilemmas, how can one define and measure “effectiveness” in terms of governance? Does the inclusion of multiple stakeholders in governance instruments such as IGNs—for example, the involvement of civil society groups—enhance their effectiveness and legitimacy, or is the opposite the case? Much work remains to be done to identify the extent to which participation of non-investors in investor-driven governance networks affects corporate activities.

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4.3 Responsible Investing and Sustainable Finance in the Context of Climate Change in the Asia-Pacific region

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Mobilizing Private Sector Resources Toward Climate Adaptation and Mitigation Action in Asia

Jacob Park

Summary

This paper will explore the current state of and future outlook for mobilizing private sector resources in the Asian post-climate 2012 policy context, with a special emphasis on the energy poor and environmentally fragile urban population. Two issues and questions will be explored in this paper. First, what is the current state of and future outlook for public and private investments to address global/Asian climate change concerns? Second, what new triple bottom line strategy of financing climate change action is required to respond more effectively to the urban climate change dilemma in Asia?

1. INTRODUCTION

In the 13 years since the adoption of the Kyoto climate change protocol in 1997, increasing scientific concerns about climate change, growing inevitable sense of a global climate regulatory regime, and accelerating use of Kyoto Protocol market mechanisms have propelled many new types of private sector responses to global climate change around the world, ranging from energy efficiency and clean technology focused policy approaches, voluntary carbon mitigation programs, and mandatory emissions trading regimes.

There has also been a rapid increase in high level calls for increased financial resources devoted to climate adaptation and mitigation activities. Most notably, European Union proposed in Fall 2009 that the industrialized countries should give developing countries US\$74 billion a year by 2020 and should begin with an annual US\$7.5 to 10 billion from 2010 to 2012 in “fast start finance” (Barber 2009). Underscoring the serious financial dimensions of creating a long-term sustainable climate change solution, Oxfam (2009) stated in a recent report that an *additional* US\$42 billion in humanitarian need will be urgently required to help developing countries adapt to the effects of climate change.

The urgency in which the funds are needed to address climate adaptation and mitigation activities are not contested; what is less clear is where the necessary funds will come from. This chapter¹ will explore the current state of and future outlook for mobilizing private sector resources (financial, technological, and organizational) in the Asian post-climate 2012 policy context, with a special emphasis on the energy poor/environmentally fragile urban population. While the percentage of climate projects sourced from Asia nearly doubled in 2007 and Asia continues to attract the bulk of the Clean Development Mechanism related investments, it remains unclear how and to what degree the relative health of the voluntary carbon market address the long-term sustainability needs of the Asian energy poor/environmentally insecure urban population. Two issues and questions will be explored in this chapter

First, what is the current state of and future outlook for public and private investments to address Asian climate change concerns? Finance is one of the building blocks of the Bali Action

Plan. Like other parts of the world, Asian countries will be under a lot of pressure to accelerate the mobilization of bilateral/multi-lateral aid and private investment flows to address regional climate change concerns. Second, what new triple bottom line strategy of financing climate change action is required to respond more effectively to the urban climate change dilemma in Asia? Since

¹I gratefully acknowledge the support and comments received at the Institute for Global Environmental Strategies Policy Forum on Energy Security and Post-2012 Climate Regime Conference held in Bangkok, Thailand in August 2008 in shaping the analysis presented in this paper.

industry currently accounts for one-third of the energy consumed worldwide and growing carbon and energy footprint of China, India, and emerging Asian countries, there is a urgent need to improve our understanding of the complex global/Asian regional policy interplay between private sector and climate change governance as part of an overall goal to build a sustainable post-2012 climate policy framework.

2. CURRENT AND FUTURE OUTLOOK FOR PRIVATE AND PUBLIC INVESTMENTS TO ADDRESS GLOBAL AND ASIAN CLIMATE ACTIVITIES

2.1 Defining the Climate Adaptation and Mitigation Investment 'Need'

The Bali Action Plan stated the importance of mobilizing financial resources and investment to support climate change-related mitigation, adaptation and technology cooperation activities, including “improved access to adequate, predictable and sustainable financial resources and financial and technical support ... mobilization of public- and private-sector funding and investment, including facilitation of carbon-friendly investment choices ... financial and technical support for capacity-building in the assessment of the costs of adaptation in developing countries, in particular the most vulnerable one...” (Nakhooda 2008; UNFCCC 2007a).

Despite the obvious importance, it is unclear what constitutes or how one might define a “sustainable” level of financial resources and investments in climate change-related mitigation, adaptation and technology cooperation activities. On the lower end of the cost estimate, the World Bank (2008) estimates that up to \$100 billion in mitigation and \$30-70 billion in adaptation spending will be required in 2030, 80 percent of which will have to be financed by the private sector. At the high end of the estimate, the Stern Review (2006) suggests committing 1 percent of the global GDP, somewhere between \$350 and \$480 billion each year to cut GHG emissions. At the middle of the cost estimate, the United Nations Framework Convention on Climate Change report (UNFCCC 2007[b]) states that additional mitigation-related investment and financial flows of \$200-210 billion as well as \$20-30 billion in adaptation-related investment and financial flows would be necessary in 2030 just to return GHG emissions to current levels, with 86 percent of the investment and financial flows being generated from the private sector. (UNFCCC 2007b).

According to Asian Development Bank (2009) report, “Economics of Climate Change in Southeast Asia: A Regional Review”, there are also growing number

of regional and global financial (both private and public) resources to address climate adaptation and mitigation activities. However, these financial resources are likely to fall way short of what will be required to address climate adaptation and mitigation programs, activities, and projects in Southeast Asia.

2.2 Measuring the Global and Asian Climate Financial and Investment Flows

The global carbon market grew to \$64.0 billion in 2007, more than doubling the figure from 2006, according to a recent World Bank report (Capoor and Ambrosi 2008). The report also notes that the emissions allowance market, which consists of the Chicago Climate Exchange (\$72 million); New South Wales GHG Reduction Scheme (\$224 million); and the European Union Emission Trading Scheme (\$50.0 billion) also saw a doubling of both value (to \$50.3 billion) and number of allowances transacted (to 2,109) from the 2006 level. The global carbon market doubled or tripled in value for all segments (including secondary CDM, Joint Implementation, and other Compliance & Voluntary Transactions) except for projects in developing countries which saw a leveling off of market volumes transacted under the CDM — from 537 million tons of carbon dioxide equivalent (MtCO₂e) in 2006 to 551 MtCO₂e in 2007. \$9.5 billion was also invested in 2007 in 58 public and private funds that either purchase carbon directly or invest in projects and companies that can generate carbon assets, while CDM has been able to leverage \$33 billion in additional investment for clean energy.

The emerging carbon market has resulted in financial and investment benefits for a number of Asian countries. China and India have been active as CDM project hosts, with China accounting for 46 percent and India 36 percent of all CDM projects in Asia (see figure 1). China accounted for 73 percent of all new CDM projects in 2007 (see figure 2). Worldwide, China, India, Brazil, and Mexico represent the market leaders with the four countries playing host to as much as 80 percent of all projects in recent years. In Asia, China, India, South Korea, and Vietnam are in the top five countries in terms of certified emission reduction (CER) credits received. The country that has arguably gained the most in terms of climate change-related financial and investment flow is South Korea, who received about 18 percent of all the CER credits worldwide so far and is currently the third largest recipient of CER credits, after China and India (see figure 3). Although China and India have more than 15 times the number of CDM projects in South Korea, these two countries only have twice as much CER credits as compared to South Korea. This is not likely to continue as most people expect South Korea to be re-classified as a “developed country” after 2012 (Forelle 2008).

FIGURE 1
CDM Projects in Asia by Country

Source: UNEP Risk Centre 2008.

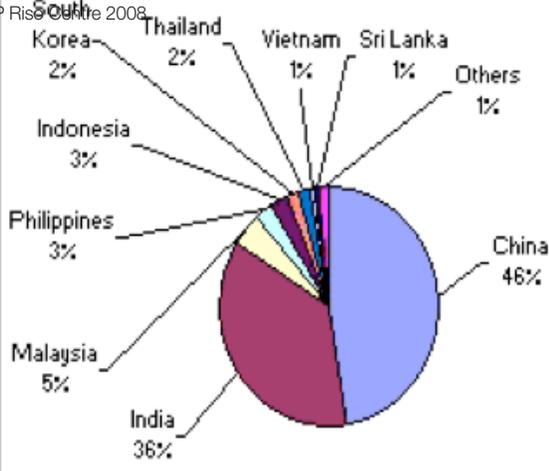
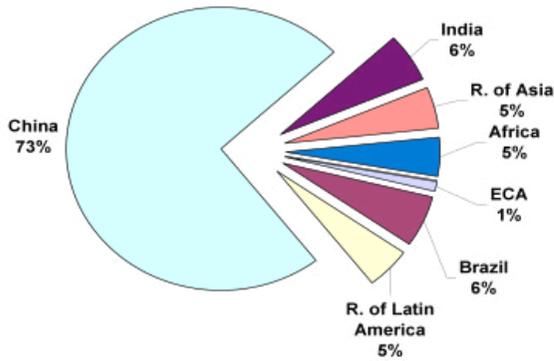


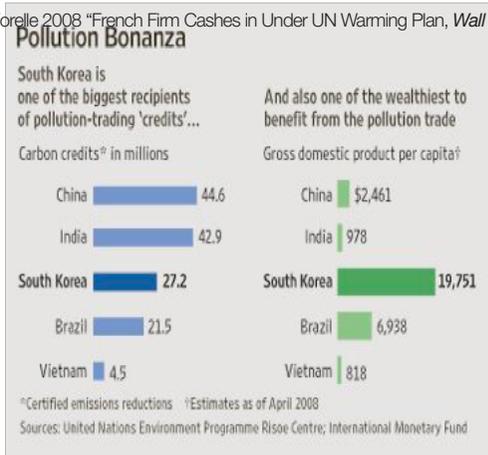
FIGURE 2
Location of CDM Projects in 2007



Source: World Bank 2008.

FIGURE 3
Asia and Certified Emissions Reduction (CER) Credits

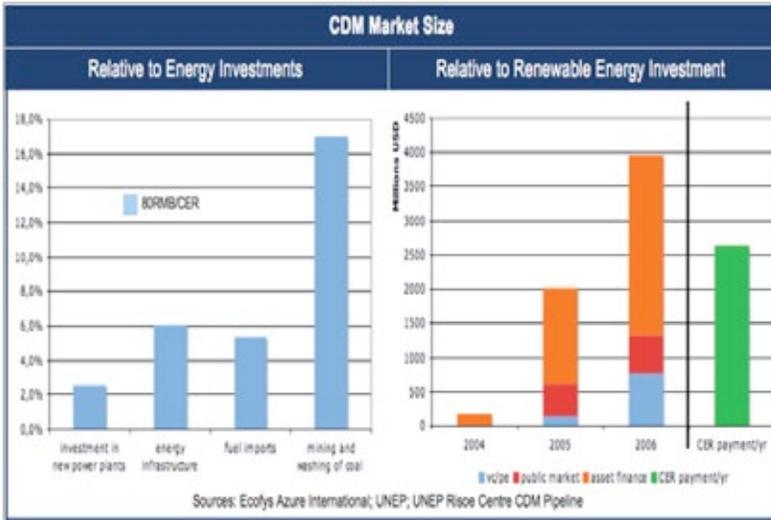
Source: Charles Forelle 2008 "French Firm Cashes in Under UN Warming Plan," *Wall Street Journal*, July 23, A1.



If South Korea has done surprisingly well in terms of garnering climate change-related financial and investment flows, China is the place where the future global carbon market is likely to be determined. Worldwide Fund for Nature (WWF) recently analyzed the CDM market in China and had the following conclusions (WWF 2008):

- The rapid rise of economic development and energy demand has reduced the potential environmental dividend of the increase in renewable energy and CDM growth in China (see figure 4). Given the dramatic increases of total domestic energy consumption, the overall environmental impact of renewable energy will be lower than what can otherwise be achieved.
- CDM can be useful tool for policy makers in steering the market towards achieving national policy objectives and CDM has played a significant role in supporting the growth of renewable energy sector, particularly in the wind sector.
- CDM contributed to improving market transparency and efficiency in renewable energy and industry sectors. Through formalizing project development actions both at the local level and at the international level, CDM has improved market transparency and the provision of reliable data in relevant sectors.

FIGURE 4
China and Clean Development Mechanism



Source: Worldwide Fund for Nature 2008.

The development of CDM and the voluntary carbon market is a positive market-based trend in addressing the climate change threat. But, it should be noted that the Kyoto Protocol and related market/policy mechanisms like CDM were designed to address climate mitigation, not adaptation (Keane and Potts 2008). Although it was agreed at the Bali Conference that a 2% levy can be placed on CDM transactions to fund an Adaptation Fund of some sort, it is not clear whether such a levy will generate enough funds that will become a basis of a sustainable funding mechanism. Moreover, institutionally, whether or not such a Fund will become a reality will depend on what kind of post-2012 climate change regime will be realized at the December 2009 UNFCCC conference in Denmark.

2.3 Challenge of Financing a Sustainable Asian Urban Future

Beyond what South Korea, China, and Asia as a region have received in terms of financial and investment flows through the global carbon market, additional financial and investment flows might be generated within Asia through Japan's \$10 billion Cool Earth Partnership, which is expected to provide as much as \$2 billion per year over the 2008-2012 time period (Porter et al. 2008). Asian Development

Bank's Energy Efficiency Initiative may be able to allocate as much as \$1 billion in terms of new project financing, while the proposed carbon investment fund that is expected to finance around 40 carbon reduction projects (Minder 2008).

Given the scale of energy, environmental, and climate change challenges confronting Asia, it remains unclear what level of energy- and climate change-related financial and investment resources is going to be sufficient. Whatever the amount that will be required, the Asian urbanization process is likely to have a profound impact on both the amount and scope of the climate adaptation and mitigation activities. In 1960, Asia had only one megacity, defined as an urban center with a population with more than 10 million people or more. Today, there are over a dozen megacities in Asia. By 2015, 12 of the 22 megacities in the world are projected to be in Asia and by 2030, Asia will account for more than half of the world's urban population — 2.7 billion out of a total global urban population of 4.9 billion people (East-West Center 2009). According to the East-West Center (2009) report, "this shift in human living patterns produces new challenges in virtually every aspect of Asia's human organization".

U.S. Agency for International Development (2007) recently examined some of the most serious Asian energy, environmental, and climate change challenges and noted the following:

- Developing Asia currently accounts for about 23 percent of global CO₂ emissions (6 million out of 26 million metric tons (Mt)), and its share of global emissions is projected to increase to nearly 50 percent (20 Mt out of 40 Mt) of global CO₂ emissions by 2030.
- Coal use in developing Asia is projected to increase nearly four-fold during the period 2006-2030. Together, China and India are slated to consume 57 percent of the world's annual coal supply in 2030, up from 40 percent in 2004.
- If current trends continue, the increased demand for transportation will lead to a 2.6-fold increase in oil demand in developing Asia during this period, and a corresponding three-fold increase in CO₂ emissions.

The key issue in determining whether the threat posed by climate change in the Asian context will persist, be dramatically worse, or improve is likely to be shaped whether or not the \$6 trillion in new energy and other related infrastructure investments in China, India, Indonesia, Philippines, Thailand, and Vietnam, which account for 96 percent of the GDP in developing Asia, that will be made over the next two decades will be environmentally sustainable (UNFCCC 2007b).

2.4 Japanese Environmental and Energy Financial Innovation Case Study

Japan provides an excellent case study of how the different if not conflicting challenges of energy security, economic development, and environmental stewardship can be reconciled. From the early 1970s to the late 1980s, Japanese industry was suffering from oil boycotts and embargoes as well as a general slowing down of the world economy. Fortunately, there was broad consensus in Japan at that time that only a massive mobilization of energy efficient technologies and investments in resource productivity would save Japanese companies from an overdependence on oil imports and increase its industrial competitiveness (Hayashi 1990).

Although the overall level of capital expenditures dropped sharply as the result of the economic recession stemming from the 1973 oil shock, Japanese companies continued to place a high business priority on energy-efficient technologies. Between the late 1960s and the mid-1970s, the ratio of pollution prevention investments as a percentage of total capital expenditures increased from 3 percent to a high of 20 percent. While Japan's GDP grew 1.7 times from 1973 to 1987, its annual energy consumption level essentially remained flat, which means that the overall rate of energy consumption declined by more than 40 percent (Watanabe 1995).

The focus on energy efficiency and innovation has provided Japan with an important shield against unpredictable swings in the global energy market. The key component of its overall strategy is investing in energy efficient and environmental technology R&D, which has resulted in noteworthy economic dividends and efficiency gains. Japan on average consumes half as much energy per dollar worth of economic activity as the European Union or the United States, and one-eighth as much as China and India in 2005 (IEA 2008).

Japanese industry has managed to keep its overall annual energy consumption unchanged at the equivalent of a little more than a billion barrels of oil since the early 1970s, even as the economy doubled in size during the country's boom years of the 1970s and '80s. Japanese steel industry, for instance, invested about \$45 billion in developing energy-saving technologies between 1972 and 2006, or about \$1 billion annually for more than 30 years (Fackler 2008), while the Japanese government announced that it will inject about \$30 billion into the environmental and energy sector R&D will focus on R&D over the 2009-2013 time period (IEA 2008).

The key lesson from the Japanese experience in terms of energy-related financial and investment flows is that the importance of financing extends beyond just the disbursement of money. It has ultimately lead to the creation and development of a country or a region's capacity and knowledge for environmental and

energy market innovation. To achieve the desired results, the increased financial and investment flows to address climate change need to be linked to a set of institutional structure and public policy which can facilitate and create business-led eco innovation. The increased flows will have to be completed by fiscal reforms that encourage innovation in renewable energy sources by decreasing the relative price of the use of renewable energy compared to fossil fuels, or by providing upstream tax incentives for private sector investments in R&D and capital investment (Johnstone and Hascic 2008).

3. MOVING TOWARD A NEW TRIPLE BOTTOM LINE STRATEGY OF FINANCING CLIMATE ADAPTATION AND MITIGATION ACTION IN ASIA

The socio-economically trans-nationalized character of environmental problems like climate change means that any global or regional solutions are going to present many problems, barriers, and most likely, a number of unintended consequences. Compounding the complexity of the problem is the challenge of making sure that any climate solution helps or at least does not hurt the poor, energy insecure, and economically marginalized groups in the region. How can the post-2012 Asian climate adaptation and mitigation strategy be economically efficient and market friendly and at the same time, be socially and environmentally equitable? Three issues and questions will be examined in the context of designing and building a new triple bottom line (economic, social, and environmental) strategy of financing climate change action in Asia.

3.1 Invest in a Sector-based Carbon Mitigation Strategy for Asian Industries

One of the more interesting developments arising from the increasing awareness of global climate change and the sharp rise in energy prices has been the growing awareness of concepts like ‘carbon footprint’ or ‘food miles’ (the distance travelled between farm to plate). In the business sector, with the assistance of groups like the carbon disclosure project and other similar initiatives, measuring, reducing, and managing the carbon footprint of industries has become an important business priority.

Of course, not all industries have the same level and scope of carbon footprint concerns. It is estimated that the commercial and residential building sector in the U.S. consume 65% of all electricity generated, 12% of fresh water supplies, 40% of all raw materials, as well as contribute to about 33% of all greenhouse gas emissions. Even in a newly industrializing country like Mexico, the building

sector consumes 25% of all electricity generated and contributes to about 20% of greenhouse gas emissions (CEC, 2008). In the case of China, two billion square meters are constructed; about 50 percent of the floor space built worldwide. Consequently, the China's building sector represents not only an important regional as well as global climate mitigation challenge (GDI 2008).

For the developing Asia region, it is important to acknowledge the uncertainty and complexity of quantifying and assessing the economic impact of putting a price tag on carbon, and this will be of particular importance to electric utilities and other companies in energy-intensive sectors in developing Asia, as they are significantly more carbon intensive compared to Japan/OECD advanced industrialized countries. For instance, a Japanese electric utility produces on average only a third of the carbon emissions per unit of electricity as compared to a typical Chinese electric utility.

In terms of social equity considerations, any attempt to lower the carbon intensity and/or reduce energy consumption through the introduction of a carbon tax and/or cutting the fuel subsidy is likely to impact (at least on the short-term) the poor/economically marginalized population through increased prices and/or transitional costs. Reducing the various fuel subsidies in Asian countries will reduce the market distortion such subsidies are causing the market and improve the market acceptability of more environmentally-friendly energy options. However, additional policy measures may be necessary to minimize the short-term economic impact on the poor.

3.2 Finance Community-based Ecosystem and Clean Energy Micro-Enterprises

SMEs (small and medium-sized enterprises) represent the dominant form of business organization worldwide, accounting for more than 90-95 percent of the business enterprises worldwide depending on the country or the region. Most critically in terms of market development, SMEs can have a multiplier effect on the economy by accelerating employment, raising incomes, and helping build new products, services, and business models that fundamentally alter an industry (Yago, Roveda, and White 2007).

Despite the surge in the popularity of the micro-credit/enterprise model worldwide, SMEs remain underserved by financial markets in emerging and developing economies. Weak business climates as well as an underdeveloped financial system severely limit SME business development in industrialized (most notably in Japan) and developing Asia. If these SMEs are unable to raise capital to take advantage of new opportunities to design new products and services, then small firms are less likely to become bigger and more successful companies (Yago, Roveda, and White 2007).

This is what many development experts refer to the “missing middle” dilemma, where SMEs are caught in the middle of the business financing cycle where they are too large to cater to micro-credit/enterprise financing and too small and unstable in terms of cash flow to attract financing from commercial banks. Microsoft, Ebay, and Google were all once SMEs in the U.S. and received many rounds of venture capital and other financing before becoming a world-renown multinational business enterprise.

The high financial inflexibility and low business scalability have been traditionally regarded just as economic development issues, but they are also emerging as critically important environmental and social concerns. According to the World Resources Institute (2008), forestry, fishing, farming and other types of ecological extractive activities can be the basis of a powerful model for ecosystem- as well as renewable energy-based business enterprise that delivers continuing economic and social benefits to the poor, even as it improves the natural resource base.

Helping the poor to increase their environmental income through good resource stewardship and competent business models can contribute to reducing rural poverty and building more resilient rural communities that can better withstand the complex environmental and economic challenges posed by climate change. Without adequate financial and organizational resources, coupled with necessary land tenure and other policy reforms, these rural communities will not be able to effectively engage their local, national, and even international markets.

The development of these ecosystem-oriented micro-enterprises is a critical one for developing Asia because nearly 90% of poverty occurs in rural areas, which is even higher than the global rate of 76%. Moreover, the vast majority of the about 2.4 billion people in developing countries that lack access to clean and reliable sources of energy live in the Asian and Pacific region. To meet the basic cooking needs of these 2.4 billion people, it is estimated that no more than 1% of the current global commercial energy consumption is required, while financially viable and technologically feasible off-grid electricity sources are currently available to households and business enterprises. Increased use of efficient and renewable systems improve energy security of the Asian rural communities by avoiding excessive dependence on imported fuels, developing local sources and diversifying energy portfolios and suppliers (UNESCAP 2005).

While the need is greater than the supply, there are a number of social/environmental investment funds and business development technical assistance providers in the U.S. (e.g. the New Jersey-based E+Co that work on sustainable energy issues, and Cambridge, Massachusetts-based Root Capital that help support biodiversity-oriented business enterprises) and Europe that provide support for Asian energy and social micro-enterprises like Desi Power (India), Solar Electric (Philippines), Lotus Energy (Nepal).

3.3 Build Climate Resilience Through a Market-Based Adaptation Strategy

The insurance/financial industry is specifically mentioned in the UNFCCC as a possible tool to address climate change. Article 4.8 of the Framework Convention requires all Convention Parties to fully consider actions, including actions related to insurance, to meet the specific needs and concerns of developing countries with respect to the adverse impacts of climate change. While the bulk of the weather-related insurance losses occur in the wealthy industrialized countries, most of the human suffering occurs in the poor developing countries. Between 1985 and 1999, the wealthy countries accounted for 57 percent of the \$984 billion in total economic losses and 92 percent of the \$178 billion in insured losses whereas only 25 percent of the economic losses and 65 percent of the 587,000 deaths took place in the poorest countries.

There are a number of reasons why the poor in Asia and in other regions/countries remain vulnerable to climate change-related natural disaster risks. First, the poor often live in areas especially vulnerable to destructive events such as floods, hurricanes, and landslides. Second, disasters can severely depress the food production of the rural poor. Third, even small reductions in income can have a dramatic impact on the poor. The poor are unlikely to have enough savings to withstand the economic shocks of large-scale or multiple catastrophes. Fourth, damage to water supply and transport infrastructure hurt the poor more than they hurt the wealthy (Freeman and Muthukumara 2003).

There are a number of emerging market-based adaptation instruments to address weather and climate disaster type risks including: catastrophe bonds; contingent surplus notes; exchange-traded catastrophe options; catastrophe swaps; and weather derivatives. Case in point: Commonwealth and Smaller State Disaster Management Scheme was established in 2002 to provide affordable insurance so that the outstanding public sector loans can be continued to serviced for up to three years following natural disasters. Payouts are triggered by extreme weather events based on independently verified meteorological data. Based on preliminary studies undertaken in Ethiopia, Morocco, Nicaragua, and Tunisia, the World Bank is investigating the possibility of providing weather index insurance for the agricultural sector, in which a new insurance plan will pay out for extreme weather events (e.g. where rainfall is dramatically lower than the regional average), as opposed to waiting for a full blown humanitarian crisis to develop before disbursing development assistance.

One promising (though untested) market-based climate adaptation tool is the catastrophe bond market, which was developed after Hurricane Andrew devastated the insurance industry in 1992. Most of the bonds are intended to protect insurers from disasters that happen once or maybe twice in a century, so they will

not be applicable to natural disasters that happen frequently like flooding due to monsoons. In exchange for relatively high interest rates between 5 to 15 percent, which makes them attractive to many institutional investors, the poor in developing Asia and elsewhere may be able to tap into the international bond market to get some economic compensation from natural disasters.

4. MAINSTREAMING MARKET-BASED CLIMATE ADAPTATION AND MITIGATION STRATEGY IN URBANIZING ASIA

Until very recently, few business strategies for even private companies to protect themselves against a wide range of weather-related market risks. This is surprising given that nearly 20 percent of the U.S. economy is directly affected by the weather, and the business outlook for some of the world's largest industries — energy, travel, agriculture, entertainment, and others — are subject to uncertain weather fluctuations and disturbances. Business insurance typically provided protection against catastrophic damages and did little to nothing to protect companies from a downturn in business as the result of unexpected weather warming or cooling.

It was until the 1990s that people began to realize that it might be possible to package and trade weather like a commodity if they could quantify and index weather patterns in terms of monthly or seasonal average temperatures and attach a dollar amount to each index value. For instance, a ski resort might purchase a weather derivative to protect itself against an unexpected downturn in the amount of snowfall. The concept of weather as a tradable commodity was officially launched as the first weather derivative trade took place in the Chicago Mercantile Exchange in 1997 and the current market for weather derivatives may be approaching close to \$10 billion.

Unfortunately for the 2.4 billion people in Asia and elsewhere around the world that lack access to clean and reliable sources of energy, there are little to no government disaster relief programs and/or government/private insurance schemes to protect them against natural disasters and other environmental/public health risk factors that are bound to intensify with global climate change. While trying to put in place global and regional policies to mitigate greenhouse gas emissions, an important business, if not an ethical, case can be made for an effective and equitable climate adaptation solutions so that the economic, social, and environmental consequences of a warming planet do not fall disproportionately on the global poor.

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5. Conclusion: Towards a New Model of Investing in Climate Resiliency and Sustainable Business Start-ups in the Developing World

5.1 Chapter Overview

Can RI serve as an important market-based leverage point in accelerating financial market solutions to climate change and other environmental/social dilemmas in the Asia-Pacific region? This question, which was prompted by a short-term consulting assignment while working as a United Nations University researcher nearly two decades ago, led this thesis author on this dissertation research path and on a decade-long research project, which examined RI market development on the global and the Asia-Pacific regional level.

Chapter 5 summarizes the key thesis insights and the important shift that is taking place from the traditional RI markets in US/WE countries, as highlighted in **figure 1.2** and **figure 1.3**, to the new network and institutional models of RI outside of US/WE regions, as outlined in **figure 1.4**.

This geographical shift was important on a personal level to this thesis author because he plans to devote his post-PhD research and outreach/engagement efforts on RI market development in emerging economies and at the base of the pyramid.¹

¹ The term base of the pyramid refers to the socio-economic group of 4 billion people who live on \$2.50 a day (or less) as discussed in CK Pralahad (2004) *The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits* Philadelphia, PA: Wharton School Publishing

5.2 Key Thesis Contributions

Chapter 5.2 titled, “Key Thesis Contributions,” described how this thesis contributed to the business, environment, and society scholarship in three ways. Firstly, this thesis contributed to the growing academic scholarship on the global and regional RI market development. Secondly, it contributed to greater understanding of the relationship between business and sustainable development in Japan and Hong Kong/China. Thirdly, it contributed to a more nuanced understanding of RI and climate change market integration that is taking place on the global and Asian regional level.

1. The thesis contributed to the growing academic knowledge on the global and regional RI market development.

Based on semi-structured interviews with a dozen RI industry professionals based in North America and a survey of the RI research in the business management literature, Chapter 2.2 (“Challenges and Opportunities of Responsible Investing in the Global Context”) had two important conclusions.

Firstly, RI has a mixed track record in accelerating the business sector generally and in the banking and financial services sector specifically toward greater sustainable business practices. Secondly, global ‘success’ of RI is likely to depend, to a great extent, upon whether RI can become mainstreamed in the financial marketplace of countries and regions outside of US/WE (as outlined in figures 1.2, 1.3, and 1.4).

Although the current total of RI assets in emerging and developing economies is less than five per cent of the total emerging market capitalization, there are signs that increasing shareholder activism and tightening environmental and social regulatory pressures may become an established business norm in a number of emerging economies.

Chapter 2.2 illustrates how the EM process in the form of emerging institutional and market pressures (e.g. tightening environmental and social regulatory pressures) is starting to impact RI market development in a number of emerging and developing economies. For instance, Johannesburg Securities Exchange in South Africa started to require the adoption of international norms such as the *Global Reporting Initiative’s* corporate guidelines for its listed companies in 2003 and this emerging market stock exchange is now regarded as one of the sustainability innovation leaders in the world.

Based on a two-month long fieldwork (June/July 2004) as a visiting scholar at the University of Hong Kong conducting interviews and extensive literature review of the Japanese and Hong Kong/China RI market, Chapter 2.3 (“Responsible Investment in Japan, Hong Kong/China, and the Asia-Pacific region”) concluded that RI can and is likely to play an important role in advancing a deeper set of social, environmental and ethical business norms in Japan & Hong Kong/China.

This thesis author concluded in Chapter 2.3 that it was possible to find US/WE region-like environmental and socially responsible norms in economically similar but socially-culturally different countries such as Japan and Hong Kong/China. While environmental and socially responsible norms may be, to a certain degree, universal (clustered say among the wealthier band of global consumers across countries in Asia, Europe, Africa, and so on), this thesis author argued that certain norms or values are filtered through a particular set of cultural and normative lens that is often unpredictable if not unexpected.

The successful launch of the Nikko Eco Fund in Japan in 1999, for instance, illustrate how the EM process (e.g. social movements on public and private institutions pertaining to environmental, business, and societal changes [EM thematic cluster #1]) impacted Japan in the form of rising economic importance of working women.

In addition to the impact of social movements on public and private institutions pertaining to environmental, business, and societal changes (EM thematic cluster #1), this thesis author documented how EM theory, in terms of market dynamics and economic agents (EM thematic cluster#2), can be used to explain RI market development initially in the US/WE and later in the context of Japan and Hong Kong (China).

2. The thesis contributed to a more robust theoretical understanding of the relationships between business and sustainable development in Japan and China.

Based, in part, on a review of the energy and climate change business management literature and an analysis of Carbon Disclosure Project (<https://www.cdproject.net>) company database in 2008, Chapter 3.2 (“Strategy, Climate Change and the Japanese Firm”) concluded that the international challenge of trying to reduce the global GHG emissions by 50 percent or more by the year 2050 will pose a wide range of business and sustainable development risks and opportunities in Japan. The issue is no longer if Japanese companies should engage in climate change and other

socially responsible business activities, but how they should undertake such activities.

In the search for what this thesis author described as “climate change business strategy 2.0”, Chapter 3.2 concluded that creating stakeholder value may be as important, if not more important, than increasing shareholder value for the Japanese business sector. While the need to build shareholder value remains critical for any publicly traded company, there is a particular need for Japanese companies to think more creatively about how to move toward a deeper business focus on what Pearce and Doh (2005, p. 30) described as “collaborative social initiatives”.

In the same manner that Japanese companies caught up with their North American and European peers in terms of global environmental reporting norms, an important conclusion of Chapter 3.2 is that Japanese companies need to continually improve their stakeholder engagement efforts with local communities and civil society groups, particularly in emerging and developing economies, in implementing their climate change-related business solutions. While many Japanese companies have caught up with if not surpassed EM-related business norms in US/WE countries, the Japanese business sector continues to lag established global EM norms in terms of local community and civil society engagement efforts.

Chapter 3.3, which is based upon this thesis author’s article titled, “China, Business, and Sustainability: Understanding the Strategic Convergence”, argued that the question of what type of public policy and business strategy can effectively address the economic, environmental, and social needs of China has become one of, if not the most, important long-term economic development concern facing contemporary China.

Virtually all stakeholders in the global sustainable business debate - including governments, international organizations, civil society groups, and private companies - agree that the business sector needs to play a more active role in helping to steer China toward greater sustainability. This is one of the reasons why China’s regulatory policy called the ‘circular economy’ is receiving so much attention among scholars and policy makers, which underscores the importance of the question, ‘How can the delicate balance among economic growth, environmental stewardship and social justice be achieved in a rapidly growing economy like China?’

Based on sixteen unstructured, in-person interviews, conducted at three information technology and electronics companies in China and at one electric waste recycling company in Massachusetts/U.S. and a comprehensive survey of the China-based environmental management,

corporate social responsibility, and the industrial ecology academic literature, Chapter 3.4, which is based upon this thesis author's article titled, "Creating Integrated Business and Environmental Value Within the Context of China's Circular Economy and Ecological Modernization," concluded that the adoption of a sustainable supply chain management approach represented an important approach in creating a blended business and environmental value for companies and organizations in the context of China's rapid industrialization.

Using EM theory as a framework, in terms of the transformations in the roles of the nation-state toward a more decentralized and consensual style of governance (EM thematic cluster #3) and the changing roles of science and technology in providing solutions for environmental dilemmas (EM thematic cluster #4), Chapter 3.4 examined three Chinese companies and documented how improved business value can be generated from environmentally sound practices, most notably through green supply chain management.

Because of the importance of global supply chain management practices for many Chinese organizations, Chapter 3.4 provided an important scholarly integration of EM theory and sustainable supply chain management practices in the context of contemporary Chinese economy.

3. This thesis contributed to an enhanced understanding of the relationship between RI and climate change-related finance and investment issues worldwide and within the Asia-Pacific region.

Based on a survey of corporate governance, business sustainability, business and society academic literature, Chapter 4.2, which is based upon this thesis author's article titled, "Responsible Investing and the Emergence of Investor-Driven Governance Networks", examined the rise of what this thesis author referred to as 'investor-driven governance networks' (IGNs), which are having important impacts on integrating RI into the core functions of private global environmental governance.

Extending EM theory in terms of market dynamics and economic agents (EM thematic cluster #2), Chapter 4.2 filled the gap in the academic literature by analyzing the role of the financial sector of the emerging, private environmental governance. Over the past three decades, this finance-linked business ecosystem has replaced manufacturing as the center of the U.S. and the global economy (Davis 2008). Despite the growing research on global environmental governance, there has been relatively little systematic

assessment of the financial sector and investors both as actors and instruments of private global environmental governance.

Based on extensive analyses of the Asian environmental finance and policy research conducted by research institutes/think tanks and civil society/non-profit organizations, Chapter 4.3, which is based upon this thesis author's article titled, "Mobilizing Private Sector Resources Toward Climate Adaptation and Mitigation Action in Asia", analyzed the relationship between RI, climate change, and the Asia-Pacific region.

In Chapter 4.3, this thesis author concluded that there is an urgent need to improve our understanding of Asian regional policy interplay between RI and climate change governance, particularly in terms of strategies to deal with energy poor and environmentally fragile urban populations.

This thesis author also concluded that there is a lack of RI market instruments (e.g. including bonds, options, derivatives) to address climate change-related weather and natural disaster risks to protect the 2.4 billion people in Asia and other regions in the world who remain vulnerable to natural disasters and to other environmental/public health risk factors that are bound to intensify with increasing climate change risks.

If it is properly re-designed and implemented, RI has the potential to serve as an effective market-based solution to help to ensure that the economic, social, and environmental consequences of a warming planet do not fall disproportionately on the global poor.

Unfortunately for the 2.4 billion people in Asia and in other regions in the world where people lack access to clean and reliable sources of energy, there are few or no government disaster relief programs and/or government/private insurance schemes to protect them against natural disasters and other environmental/public health risk factors that are bound to intensify with global climate change.

5.3 Context for Future Work & Research

The best way to describe the post-thesis future research and engagement work of this thesis author is: 'What will be the roles of RI in sustainable innovation and entrepreneurship in emerging economies in the base of the pyramid marketplace?'

Can community-oriented social and renewable energy enterprises be designed and developed in a way that they can deliver economic, environmental, and social benefits to the poor, while maintaining if not improving the environmental/natural resource base of local communities? This thesis author is convinced that this is an important research question, which will serve as an effective guide for his post-thesis research and engagement work.

Although there are important conceptual disagreements on how one might define sustainable entrepreneurship, there is an emerging consensus among scholars and business researchers that entrepreneurs can be defined by their strong desire to conceive of new business opportunities and develop new products and/or services for the marketplace (Newmark and Park 2010).

Definitions of social and environmental or sustainable entrepreneurship are varied. Mair and Ganly (2010, p. 104) define it as initiatives that proactively address social or environmental issues through delivery of a product or service that directly or indirectly catalyzes social change,” while what sustainable entrepreneurs do as a core strategy can be regarded as “challenging or trying to change excessive consumption, environmentally unsustainable practices, and a culture of individual private gain over shared community or public benefit. . . .”

While the origin of the term “social entrepreneurship” can be traced to Bill Drayton, former business management consultant who started Ashoka in 1980 (Mair and Ganly 2010), there are various subcategories of the sustainable entrepreneurship term including “enviro-capitalists” (Anderson and Leal 1997) and “ecopreneurship” (Schaltegger and Petersen 2001, Ivanko and Kivirist 2008).

Books such as David Borstein’s, “How to Change the World: Social Entrepreneurs and the Power of New Ideas,” (2004) and C.K. Pralahad’s “The Fortune at the Bottom of the Pyramid: Eradicating Poverty Through Profits,” (2004), along with the Grameen Bank founder Muhammad Yunus being awarded the Nobel Peace Prize in 2006, underscored what many people in the sustainable economic development community have known for many years: sustainable entrepreneurship, along with RI approaches, have emerged as important global market vehicles of sustainable or potentially sustainable economic development.

What is less clear, however, is whether the market promise of sustainable entrepreneurship and innovation will be realized at the ‘base of the pyramid,’

where nearly 80 percent of the 7 billion people on this planet live. Under the right set of policy and market circumstances, it may be possible for the poor to become engaged in good resource and stewardship and business management practices while reducing poverty and building more resilient communities (World Resources Institute et al. 2008).

The likelihood of this market promise being realized at the base of the pyramid may depend on one critical question, which this thesis author intends to focus on in the next phase of his research. 'Can small-scale ecological and renewable energy resource-based business enterprises develop so that they provide a strong business foundation for delivering economic, environmental, and social benefits to the poor, while simultaneously not degrading the environmental/natural resource base of the local community?'

Problems of high financial inflexibility and low business scalability have traditionally been regarded as purely economic development issues, but they are now emerging as critically important environmental and social concerns due to the fact that the financial markets in many emerging and developing economies are underdeveloped. Three quarters of the world's poor currently lack access to financial services such as savings accounts. Of adults in developing countries working in farming, forestry or fishing, only 6% of them have crop, rainfall or livestock insurance (World Bank 2012).

In a well functioning and more established financial system, SMEs are likely to have a range of financing options and support services as they grow. A "typical" business start-up in the United States, for instance, is likely to have access to personal savings and contributions from friends and family to finance the initial launch with additional funding from angel or venture capital investors as well as traditional bank loans for the latter stages of the business development cycle (Yago, Roveda, and White 2007).

In contrast, SMEs in developing countries typically operate in a much less supportive environment. For sustainable SMEs, the organizational barriers are even higher. Banks are particularly reluctant to support businesses in rural areas, where many sustainable SMEs are located, and they tend to be very cautious about lending in relatively new product and industrial sectors such as organic farming or renewable energy generation (Barreiro, Hussels, and Richards 2009).

Whether ecological and renewable energy, resource-based SMEs in emerging and developing economies can deliver economic, environmental, and social benefits to the poor and local communities may be the most important

sustainable business as well as environmental governance question of the 21st century.

5.4 Looking Ahead

One of the key themes discussed at the United Nation's Conference on Sustainable Development (Rio+20), which took place in Brazil on June 2012, was how a green economy can be forged in the context of sustainable development and poverty eradication.

Although there are increasing calls for the global business sector to respond strategically to the market opportunities posed by the pressures of poverty and environmental degradation in emerging and developing economies, many sustainable businesses around the world are not likely to get started because traditional investors tend to shy away from sectors that are unfamiliar to them or seem to be too risky.

This is unfortunate because poverty and environmental conservation critical to sustainable development continue to be two of the biggest challenges confronting the international community, and they will continue to be serious challenges without a more effective and sustainable private sector involvement, particularly for and by SMEs. Consequently, there is an urgent need to better understand the process and the institutional mechanisms behind investing in sustainable entrepreneurship and business ventures in emerging and developing economies.

In the Spring of 2012, this thesis author received an e-mail query from a senior executive with the Africa Enterprise Challenge Fund, a Nairobi, Kenya-based \$150 million sustainable investment fund <http://www.aecf africa.org>, asking if this thesis author might be interested in serving on the Fund's Renewable Energy and Adaptation to Climate Technologies Investment Sub-Committee.

Similar to the way working on an unexpected consulting assignment from the Switzerland-based Sustainable Asset Management company when this thesis author was working in the Tokyo, Japan in the mid- 1990s, this opportunity came at a critical juncture in my development as an academic scholar and sustainable entrepreneurship/investment researcher.

After the conclusion of this Ph.D. thesis, its author intends to engage in intensive research on entrepreneurship, investing, and sustainability issues in order to help address climate change adaptation, food security, energy

poverty, and other sustainable development priorities of the emerging economies within base of the pyramid markets in Asia-Pacific, Africa, Latin America, and other regions.

In describing the paradox of reconciling the need for environmental sustainability with the demand for increased economic development to lower global poverty, Michael Klare (2012, p. 227) observed: “Instead of rushing to extract whatever remains of the earth’s vital resources, major political and corporate powers could engage in a *race to adapt*: a contest to become among the first to adopt new materials, methods, devices and services that will free the world from its dependence on finite resource supplies.”

This thesis author firmly believes that this global race to adapt has been underway for a while and he intends to be an active participant in that journey.

5.5 References

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5.6 Appendix 1

Hong Kong RI Consumer Survey Methodology

Source: University of Hong Kong and Association for Sustainable and Responsible Investment (2004)

This questionnaire was designed jointly by the Corporate Environmental Governance Program at the University of Hong Kong and the Association for Sustainable and Responsible Investment in Asia. The groups identified for survey were:

1. The caring group made up of people involved in clinical and medical provision (mainly doctors and nurses)
2. The green group made up of members of environmental associations and NGOs in Hong Kong
3. The women's groups

All these groups were chosen since it was thought that they might have a preference for investment funds with an environmental, social or ethical focus. In addition three other groups were chosen because of their education and relatively high incomes they would probably be interested in investment more broadly:

4. The investors group
5. The teachers' groups
6. The high income estate groups representing a diverse mixture of people, but all of whom lived in one particular, relatively expensive housing development on Hong Kong island.

A total of 884 responses were received by the University of Hong Kong and Association for Sustainable and Responsible Investment research team.