Limits to organizational learning  
Hitoshi Mitsuhashi, School of Business and Commerce, Keio University, Japan

Leveraging business role for reducing environmental deterioration and poverty  
Diego Vazquez-Brust, Royal Holloway University of London, United Kingdom

The Philippine economic take-off: A myth, an elusive reality or an anachronistic perspective?  
Tereso S. Tullao, Jr., De La Salle University - Angelo King Institute for Economic & Business Studies, Philippines  
Christopher James R. Cabuay, De La Salle University - Angelo King Institute for Economic & Business Studies, Philippines

Revisiting the virtuous cycles between environmental innovations & financial performance of Japanese automotive, electronics & chemical manufacturing industries  
Michael Angelo A. Cortez, Graduate School of Management, Ritsumeikan Asia Pacific University, Japan

Lead-time management in Bangladesh garments industry: A systems dynamics exploration  
Behrooz Asgari, Graduate School of Management, Ritsumeikan Asia Pacific University, Japan  
Aynul Hoque, Graduate School of Management, Ritsumeikan Asia Pacific University, Japan

Challenges facing the ASEAN economic integration  
Myrna S. Austria, School of Economics, De La Salle University, Philippines
Editor’s Note

This issue of Perspectives emphasizes on the centrality of a global perspective – one that takes into account the decisions that needs to be made on a global scale with its accompanying consequences. This is essential because many decisions made by economies in the contemporary times do affect the global community. This just shows that no economy can isolate itself from the effects of globalization. Moreover, when it comes to economic growth, there have been persistent calls to make it sustainable, also referred to as "green growth." That is, there is a need to inquire on the plausibility of economic growth and sustainability, simultaneously.

Perspectives highlights the value-added of these researches to the expanding business and economic literature. A number of articles discussed the movement of economies in the midst of globalization. The study of Tereso S. Tullao, Jr. and Christopher James R. Cabuay (The Philippine economic take-off: A myth, an elusive reality or an anachronistic perspective?) appealed to Walter Rostow’s concept of economic take-off as far as the Philippines is concerned. They have construed that economic transformations are shown by rapid capital accumulation, development of one or more industries particularly in manufacturing, and the emergence of political, social and institutional structures that bring about changes towards the expansion of the modern sector, the use of capital in business and mobilization of resources. Meanwhile, the study of Michael Angelo A. Cortez (Revisiting the virtuous cycles between environmental innovations & financial performance of Japanese automotive, electronics & chemical manufacturing industries) put accent on environmental innovations and financial performance by implementing Granger causality tests to establish the existence of virtuous cycles. He found that legitimacy plays an important role why Japanese companies invest in environmental innovations. The stark contrasts the relationship of constructs for automotive and electronics and more so, the seeming insignificance of results for chemical manufacturing could thereby be theorized that start of pipe production may not necessarily benefit from the virtuous cycles yet they contribute to the green supply chain in the eventual attainment of sustainable industries. On the other hand, the study of Behrooz Asgari and Anyul Hoque (Lead-time management in Bangladesh garments industry: A system dynamics exploration) developed a system dynamics model to show how the domestic fabric production capacity can reduce lead-time and enhance the backward supply chain strength for the Bangladesh ready-made-garment industry.

On a regional standpoint, the study of Myrna S. Austria (Challenges Facing the ASEAN Economic Integration) suggested that the global economic slowdown might put some risk to the GPN-dependent model of economic integration of the ASEAN. As such, to sustain economic integration, the ASEAN member economies should continue addressing domestic policy reforms that promote efficiency and innovation. Each member economy needs to examine
its performance in the various pillars of global competitiveness index and logistics performance index and address them accordingly.

Given the abovementioned market developments brought about by globalization, the study of Hitoshi Mitsuhashi (Limits to organizational learning) underscored that despite the various social, economic, and technological successes, the world is still experiencing major failures and problems – wars, diseases, accidents, airplane crashes, diplomatic failures, policy failures, and economic standstills.

The pressure to advance and develop economically puts a threat on the environment. As such, the study of Diego Vazquez-Brust (Leveraging business role for reducing environmental deterioration and poverty) highlighted on the vicious circle between poverty and environmental deterioration as a major challenge for those developmental approaches, which look to improve the welfare of vulnerable communities. Environmental deterioration increases poverty while, at the same time, poverty causes further environmental deterioration as the business activities which communities depend upon for survival aggravate environmental deterioration by causing pollution and waste. It is therefore necessary that firms and communities collaborate in order to develop innovative solutions to break this vicious circle.

Beyond the studies included in this issue, it is apparent that there is a gap between objectives of stakeholders. Business leaders are on the pursuit of economic growth while environmental leaders deem that economic growth is the adversary of the environment. In today’s global perspective, there is a need to bridge the gap by pushing for a new rapprochement – the midpoint of economic prosperity and environmental protection. This requires further debates and discussion.

The authors of the articles in this second issue of Perspectives laid emphasis on particular developments in the field of business, economics, and the environment and how economic agents can adapt to these changes for sustainability vis-à-vis the huge role of the international sector and the inevitable need to have a global perspective.

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Limits to organizational learning

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ABSTRACT

Although our societies have celebrated a number of social, economic, and technological successes since the beginning of the world, we are still experiencing major failures and problems, including wars, diseases, accidents, airplane crashes, diplomatic failures, policy failures, and economic standstills. In this keynote speech, I am going to talk about (1) the essence of organizational learning, (2) some errors and distortions in organizational learning, (3) one of such errors which I reported in my previous empirical work (i.e., almost identical experience biases), and (4) implications about how we should make progress using insights from research on organizational learning.

JEL Classification: D23, D83

Keywords: organizational learning, errors, distortions

INTRODUCTION

Our societies have celebrated a number of social, economic, and technological successes since the beginning of the world. Digital devices, for example, allow us to make boundary-less communications and timely access to information and knowledge. For example, the sales of Apple Co.’s iPhone grew from 1.4 million units in the fiscal year of 2007 to 125 million units in the fiscal year of 2012. Given that each individual buys one iPhone, the proportions of people all over the world who bought iPhone in a given year increased from 0.02 percent in 2006 to 1.8 percent in 2012. The iPhone is undoubtedly one of the successful commercialized innovations in the history of the world with substantial impacts on our way of working, thinking, and communicating with others. We also have explored space to understand the universe in which we live. Since the first launch of Space Shuttle in 12 April 1981, the NASA has made 110 launches in total. As of 31 June 2012, there are 528 persons from 38 countries who went into space. In total, they spent 29,000 days in space, equivalent to approximately 77 years. The world has also made great economic progress. According to Angus Maddison’s statistics, the estimated worldwide GDP grew from USD 5.3 trillion in 1950 and USD 50.3 trillion in 2008 with 955 percent growth rates.

1 http://www.ggdc.net/maddison/Maddison.htm
Regardless of these progresses and successes since the modern civilization of the world, some major problems still persist, including wars, diseases, accidents, airplane crashes, diplomatic failures, policy failures, and economic standstills. In 2012, Apple issued a new map application with serious flaw and received massive criticism. The world has experienced a number of serious economic stagnations such as the burst of economic bubbles in Japan in 1992, 1997 Asian Financial Crisis, 2007 Global Financial Crisis, and European sovereign-debt crisis in 2009. Moreover, the National Aeronautics Space Administration (NASA) failed to launch Challenger in 1986 and to reenter Columbia into the Earth’s atmosphere in 2003, causing loss of seven crews in each event.

These examples together with our histories indicate not only substantial progresses that our societies have made so far but also failures in making progresses in productive ways. In the field of organization science, research on organizational learning presents some critical insights not only about mechanisms by which organizations learn but also about mechanisms that cause errors and distortions in the processes of organizational learning. These insights give us some implications about what we should know in order to advance our societies as well as how we should make this world better. This study will discuss: (1) the essence of organizational learning, (2) some errors in organizational learning, (3) one of the examples of such errors from my own research (i.e., almost identical experience biases), and (4) implications from research on organizational learning.

THE ESSENCE OF ORGANIZATIONAL LEARNING

Organizational learning refers to “encoding inferences from history into routines that guide behavior” (Levitt & March, 1988: 320) or “making and updating routines in response to experiences” (Schulz, 2001: 415). Organizations learn when experiences cause managers to reconsider and change preexisting routines with their hope for higher performance. Routines are either formal or informal rules about what to do. Many of the works and problems in assembly lines, merchandising, commerce, and even board rooms do not require managers’ constant attention and decision making if they adopt standardized rules, whether written or unwritten, for efficiently completing works and effectively resolving problems (March & Simon, 1958). Routines help managers proceed to problems in timely manner and preserve their cognitive resources for issues that require specific attention. For example, in McDonald’s, employees do not have to make decisions when new customers enter the restaurants because the routines and in this case the written manuals indicate how to take orders, pick up foods, and serve customers.

Routines develop with the accumulation of experiences. Suppose that you work with a friend who likes to have some structures even in informal meetings. The first meeting is not productive because both of you do not know how to work with each other. On the basis of the first meeting’s
experience, you ask your friend to facilitate the second meeting and lead the discussion, resulting in a slight but not significant improvement in productivity. Then, on the basis of this experience, you change and update routines and propose to make an agenda of the meeting and decide not to spend, say, more than twenty minutes on single issues. The activation of this rule significantly increases the productivity, so the rule is institutionalized.

Organizational learning is a process in which managers find what works and what doesn’t through experiences and update or adjust routines and know-how to maximize the utilities. Managers need to formulate their own personal “theories” about what causes success and failures. Learning involves assessing whether an outcome of actions is success or failure, depriving cause-effect relations, and embedding the obtained causal relations into routines.

Learning occurs as a result of updating preexisting routines on the basis of previous experiences to meet the expected level of performance. The accumulation offers opportunities for managers to reassess and reconsider preexisting routines and update them for higher performance. Empirical studies have supported this prediction by demonstrating learning effects on economic performance (e.g., Epple, Argote, & Devadas, 1991; Mitchell, Shaver, & Yeung, 1994), product quality (e.g., Lapré & Tsikriktsis, 2006), and survival chance (Baum & Ingram, 1998).

SOME ERRORS IN ORGANIZATIONAL LEARNING

Organizations and individuals certainly learn from experiences and update routines on the basis of performance feedbacks, organizational learning sometimes fails and is subject to errors and distortions. To understand types and causes of cognitive errors in learning is important for productive learning.

Superstitious learning

Superstitious learning occurs when managers make misspecifications of cause-effect relations and embed causations that they erroneously draw from experiences into routines (Levitt & March, 1988; Zollo, 2009). In many cases and events, it is challenging for managers to accurately develop cause-effect relations from their experiences. For instance, in the early 1980s, Japanese automakers attacked US automakers in the American markets. Before this attack, US automakers succeeded in boosting sales by introducing new designs. US automakers consider the drop of sales to result from the designs of Japanese small cars. However, customers were actually attracted to Japanese cars because of their energy efficiency, not designs, so the cause-effect relations that account for sales was erroneously specified, allowing the Japanese makers’ further dominance in the US market.

Hot stove effects

We develop our personal theories about causal relations, but sometimes, we formulate them with small sample size and believe the
correctness of the theories regardless of the small sample size (Denrell, 2008). If a cat jumps on a hot stove, she has a bad experience and then will never jump on the stove. This is a reasonable behavior because she learns from this bad experience but unreasonable in a sense that she will never jump on the stove even when the stove is not cold. The issue is not the stove, but the temperature of the stove. In the context of management, this often happens when a firm globalizes its market. Ford Motor started selling big cars in the late 1980s in the Japanese market and experienced performance crisis. Ford then attributed bad sales to the size of its cars, changed its product lines, and started selling small and mid-size cars. However, it failed again because the reason that Japanese customers did not buy Ford cars was not about size, but the quality.

Self-enhancement

Social psychology suggests self-serving biases (Fiske & Taylor, 2007). We tend to attribute success to our internal causes but failure to our external ones. This makes learning processes more difficult because the update of routines does not initiate if we consider preexisting routines not to cause failures. For example, Mitsubishi Motor used to sell trucks with serious flaws, which caused deaths of users. However, the company did not admit its technical error but accused the users for poor maintenance. This attribution does not help the company improve its product quality, and the cost of compensation for death is about JPY 100 million.

ALMOST IDENTICAL EXPERIENCE BIASES

Let me briefly explain one of my own empirical works about biases and distortions in organizational learning, which I published in Industrial and Corporation Change in 2012 (Mitsuhashi, 2012). The research question then was why an organization repeats an error that other organizations in the same industry have already made and under what conditions an organization fails to learn from others’ experiences. Learning from others’ experience (i.e., vicarious learning) is particularly important for high reliability organizations such as airlines, hospitals, and nuclear power plants because the cost of experiencing failures is extremely high.

My prediction was as follows: (1) managers exhibit bounded rationality and have limited attention, (2) managers heed their attention to external events that are salient to them, (3) whether an external event is salient or not is contingent upon what they have already experienced (i.e., the repositories of experience), (4) if an event is slightly different from but highly similar with ones that managers have already experienced, they are more likely to presume that they do not have to learn from it due to the high similarity, and (5) thereby this presumption cause the repetition of past errors that other organizations have already made. We are unlikely to learn from others’ experience that is almost identical with our own previous experiences.
Predictions were tested with the data of incidents and accidents in Japanese nuclear power plants from 1966 to 2006. The data supported initial predictions – managers pay disproportionately less attention to and learn less from an external event if it has attributes almost identical to those that they have encountered in the past. It is important to emphasize that with these theories and empirical evidences, I have no intention to blame managers’ laziness or overconfidence in this industry. Instead, I intend to point out that because of bounded rationality and limited cognitive capabilities, our capabilities to learn accurately and completely from experiences can be restricted.

CONCLUSION

This study discussed the following issues: (1) our societies have made substantial progresses but the progresses are limited in some sense, (2) this progress as well as the limits can be attributed to the quality of learning, and (3) some errors and biases in organizational learning were identified, which include almost identical experience biases. We certainly learn from our experience but only limitedly so. The implications from my discussions are as follows: (1) we should make efforts to learn from experiences and develop our own theories about what works and what does not, (2) in doing so, we have to recognize potential biases and distortions because they can decrease the quality of knowledge that you gain from experiences, and (3) you should always challenge your own theories about what works and what does not and view your theories as tentative ones because the theories can be inaccurate.

Finally, given that the progress of societies rest partially on learning, it is important to study what increases and inhibits the rates of learning.

REFERENCES


Leveraging business role for reducing environmental deterioration and poverty

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ABSTRACT

The “vicious circle” between poverty and environmental deterioration is a major challenge for developmental approaches. Environmental deterioration increases poverty. Poverty causes further environmental deterioration as the business activities worsen environmental deterioration by causing pollution and waste. Thus, it is necessary that firms and communities collaborate in order to develop innovative solutions to break this vicious circle. This study argues that collaborations should be based on genuine stakeholders’ integration and entrepreneurship – a holistic framework to guide business intervention strategies.

JEL Classification: Q50, Q56

Keywords: environment, poverty, vicious cycle

THE NATURE OF ENVIRONMENTAL AND DEVELOPMENTAL CHALLENGES

The debates during the UN 2012 Summit at Rio (Rio+20) show that civil society demands more accountability from business for the environmental and social impacts of production and consumption systems; and more hands-on business intervention to solve social and environmental challenges. Business response to society’s expectations is seen in the growing implementation of company environmental and social practices (Dyllick & Hockerts, 2002).

However, despite two decades of improvements in corporate social and environmental performance, structural poverty has not been eradicated, inequality keeps growing at fast pace and environmental risks have increased. Case in point, 2010 registered an all-history-high in energy consumption. A recent OECD report (2012) claims that advances in technology are expanding the current structure of production and consumption and will further aggravate ongoing trends of environmental deterioration and widening
inequality, posing a serious challenge to ecological integrity and social cohesion. The effects are accumulative and in many cases irreversible.

Therefore urgent action is needed to design and implement corporate policies effectively addressing issues such as climate change and poverty alleviation but neither environmental management nor CSR seem to be up to the challenge. Letting aside interventions suspected of green washing and public manipulation, a major obstacle to success has been the notion that environmental problems and developmental problems can, and indeed should, be tackled separately. This notion is deeply ingrained in a mindset -still dominant between business and policy-makers- that assumes trade-offs need to be made between environmental and social issues\(^2\). However, conceptual and empirical evidence strongly supports the view that trade-offs between environmental and social issues only reinforce long-term lose-lose scenarios, since environmental deterioration, poverty and social inequalities are interlinked and poverty reduction ought to be addressed in conjunction with environmental preservation and social justice. Indeed, any effective long-term solution to the problem of poverty must also provide solutions to the problems of environmental degradation and depletion of natural resources (UNCPSD, 2005).

The intertwined nature of poverty and environmental deterioration is often described as a ‘vicious circle’. Although the poor consume little and contribute little to pollution, poverty increases the chances of exposure to environmental deterioration (Hart, 1995) because it creates incentives for weak governance. In poor areas environmental regulation tends to be weaker because the poor are less informed of the risks, partly because they are less able to apply pressure to improve environmental quality, and partly because they place more relative importance on the possibility of employment than on protecting the environment. Consequently, poverty brings about environmental decline, which in turn increases the poverty of populations in vulnerable ecosystems or in those highly contaminated by human activity,

\(^2\) One of the most cited development theories, known as Kuznet’s curve, argues that the most effective policy to break the vicious circle between poverty and environmental deterioration is to focus solely on the promotion of continued economic growth based on market mechanisms. Although both distributive inequality and environmental deterioration grow in the initial phases of development due to a technological or economic structure change, from a certain level of development, both inequality and environmental impact start to decrease. The practical implication of this theory has been the promotion of uncontrolled economic growth. However, the validity of the theory validity in the present conditions of systemic ecological deterioration and economic globalization is strongly questioned by Sustainability Science. The theory worked while the post World War 2 economical and technological paradigm was dominant. Nowadays, changes in technology, expanding the current structure of production and consumption while increasing growth will further aggravate environmental deterioration and pose a serious challenge to integrity and social cohesion. In terms of climate change, for instance, the negative effects of growth are accumulative and in many cases, as in the existence of species, irreversible (Vazquez-Brust and Sarkis, 2012)
where the productivity of the land decreases or the costs of protecting health increase (Gray and Moseley, 2005).³

At the same time, poverty reduction obtained at the cost of environmental damage is deceptive, and in the long term generates higher social inequality. On the one hand, there is an important environmental deterioration due to higher emissions and an upsurge in the use of natural resources linked to an income rise⁴. On the other hand, when economic growth is achieved at the expense of flexibility in the control of compliance with environmental regulations, the risk of pollution and industrial accidents grows. In turn, this increases inequalities in health, lifestyle and economic standards between the rich and the poor within the neighboring population. The latter have much more limited resources than the former to protect them from being harmed by environmental diseases (as much as 24% of all diseases and 33 percent of illnesses in children under the age of five are due to environmental deterioration, (WHO, 2008) accidents and resource scarcities. As such, these affect their lifestyles, deprive them from job opportunities and from helping towards family subsistence; and ultimately deepened their effective poorness.

Moreover, social and economic vulnerability operates also as a barrier to the development of sustainable environmental strategies (Jongh, 2004). Companies working in areas populated by socially vulnerable communities tend to be subject to stringent cost – based competence, have fewer resources to invest in the environment owing to the urgency of reaching a minimal level of economic performance and have fewer incentives due to the absence of regulatory or social pressure (Dasgupta, Lucas and Wheeler, 2000). In many of such cases, environmentally proactive solutions are controversial because of their social effects. Cleaner processes tend to use fewer workers, which increases unemployment. Recycling and waste reduction, in turn can affect, for example, marginal economies that live on informal recycling.

In this context, it becomes necessary for business to integrate their Environmental Management and Corporate Social Responsibility activities to take an active role to break the vicious circle of the cause – effect connection between negative environmental impact and poverty social vulnerability.

³ Poverty increases environmental deterioration both in rural and urban areas. In poor rural areas, intensive agriculture, overuse of fertilizers and tree cutting, produce deforestation, topsoil erosion and water contamination, exacerbated further by communities’ incapacity to invest in the environment and by demographic pressure (birth rate rises as the income falls) (Hart, 1997). Moreover, in poor urban areas environmental regulation is weaker (Pargal and Wheeler, 1996) partly because the poor tend to be less informed of the risks, partly because their capacity to press for a better environment is limited, and partly because they assign the environment a lower relative value compared to the possibility of a job. (Dasgupta, Lucas and Wheeler, 2000). This leads to a higher density of “dirty” and inefficient industries and to higher pollution levels (Hettige et al, 1998).
EXTENT OF INTEGRATED DEVELOPMENTAL STRATEGIES

It is urgent to find a balance between protecting the environment and decreasing social vulnerability while meeting the interests of companies. Efforts should be made to try and identify, and transmit to every stakeholder involved, tools and/or tactics to reduce poverty and decrease environmental impact in a compatible way. However, the integration of poverty alleviation policies with corporate environmental strategies is an issue where even the more proactive companies are still wanting (Robbins, 2001, Myers, 2008).

Corporate environmental strategies such as ‘industrial ecology’, ‘natural capitalism’ (Hawken, Lovins and Lovins, 1999), Cradle to Cradle ( McDonough and Braungart 2002), or Biosphere Rules (Unruh, 2008) are transformative and aimed to change the current economic system for a new model of production and consumption balancing environmental and social concerns. However, they do not include the management of social aspects in their strategic toolkit. Insights into social strategies rarely go beyond a general normative framework, indicating intervention areas (Hart, 1997, Dyllis & Hockerts, 2002, Sharma & Ruud, 2003), nor do they go into detail about the development of specific strategies and practices to practically enhance social sustainability by applying economic and natural capital to greater societal good (Dyllis & Hockerts, 2002). Therefore, so far as offering comprehensive solutions for the structural problem addressed by this paper they are not completely satisfactory.

Until the end of the last century, poverty alleviation was considered mainly a concern of governments and as a corporate issue had been largely absent from management theory and practice (Jain & Vachani, 2006). However, since the UN Millenium Development Goals put poverty at centre stage of global agendas, there has been a growing pressure for a higher profile role of business in the matter, this triggering a variety of human development initiatives, some of them based on approaches – such as philanthropy and CSR-existing in companies long before poverty became a corporate challenge (Tulder & Kolk, 2008). However, various studies agree on saying that the practical contribution of business initiatives to reduce widespread poverty has

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5 Industrial ecology” proposes “industrial metabolism” (where one industry’s waste is the next one’s raw material) and “dematerialization” (reduction in the use of materials, goods that are more durable and have a longer life cycle along with a wider provision of services offered by the companies throughout the life cycle of the goods). Natural Capitalism (Lovins and Lovins, 2004) adds to the principles of eco-efficiency and dematerialization, the necessity for investing in the preservation of natural capital and in ecologically responsible companies. ‘Cradle-to-cradle’ (Mc Donough and Braungart 2002) rejects eco-efficiency and waste minimization, and underlines eco-effectiveness and sufficiency as principles: close cycles of producer goods and energy, where the important thing is not to reduce waste, but to ensure the production of enough waste to be used as producer goods in the next industrial context, thus granting a continuous use and reuse of matter and energy. The biosphere rules” (Unruh, 2008) explains that manufacturers must design their products at molecular levels, minimizing the number of chemical compounds and raw materials so that they can later be up-cycled for new uses without losing quality (carpets where the base is recycled and the fibers are reinserted again and again).
been limited and only worked in particular circumstances (Prahalad, 2004; Jenkins, 2005; Kircheog & Winn, 2006, Idemudia, 2008). At the most, they were seen to contribute to the development of what Dyllick & Hockert (2002) call welfare islands surrounding a company. Moreover, the CSR agenda often has a very narrow focus that detracts from the bigger picture, in particular the structural causes of poverty and environmental deterioration such as inadequate macro-economic policies, power structures reinforcing inequity, and injustices – both economic and ecological- in North-South relations. Another reason for CSR failure is its inability to tap in firms core competences develop solutions to poverty basing itself on the resources and know-how of the companies (Porter & Kramer, 2002); and its often add-on nature: CSR agenda is rarely integrated to core businesses strategies and CSR managers have limited internal bargaining power.

To address such criticisms, businesses have sought to increase the efficiency of their human development policies in combating poverty. New developmental strategies see the relation with the poor as a market opportunity and build on firms’ resources to make business opportunities out of market failures underpinning structural poverty. For instance, “social marketing” aims to solve social problems using marketing principles. In turn, Bottom of the Pyramid (BoP) seeks to “eradicate poverty through profit” by developing products and services targeted to the needs of the poor – (the untapped base of the pyramid of consumption)⁶. At the same time, community involvement has been increased building alliances engaging critical NGOs and local firms and entrepreneurs in the development of CSR agenda and strategies (Kircheog & Winn, 2006, Brugmann & Prahalad, 2007).

Yet, the biggest problem is that most developmental approaches still ignore or minimize the importance of environmental issues, and suggest solutions, which, because they are dissociated of the potential environmental impact generated by a rise in production and consumption, ultimately reinforce the vicious circle poverty-vulnerability (Kandachar & Halme, 2008)⁷. As a case in

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⁶ BoP sees de-investment in certain social sectors and areas of the Planet as the main cause of poverty. Prahalad (2004) argues that the cost of living in informal economies that supply the poor is much higher in percentage terms than the markets that supply the rich. The poor are seen as a risk sector and there is no entrepreneurial effort to satisfy their needs. The poor have less valuable goods (value for money relation) and they pay more for having – for instance - (bottled) drinking water, for access to luxuries such as television sets or mobile phones, for access to credit (even micro credit social companies apply a 50% yearly interest rate). BoP further claims that there is an extraordinary business opportunity in the market made up by the 4 billion people (the bottom of the global economic pyramid) living on less than 2US$ a day (Prahalad, 2004, p.4) and encourages private companies to change their business model from wide profit margins per unit to high returns in total investment Prahalad (2004)

⁷ BoP seems to have overestimated opportunities for profit gain and underestimated costs and skills required, in particular at the real bottom of the pyramid (Karnani, 2007). When multinational companies have aimed at exploiting BoP markets, few have shown to have the knowledge, contacts and specific capacities to succeed. (Brugmann & Prahalad, 2007) Even if they succeeded, multinational could create more unemployment by crowding out local firms or informal entrepreneurs serving markets at the bottom of the pyramid (Tulder and Kolk, 2008). Other criticisms are ideological. Some people consider it “immoral” to obtain profit from people
point, ‘the enabling environment view of CSR’ proposed by Idemudia (2008) stresses the need for greater integration of community participation, corporate willingness and governmental regulation but environmental issues do not yet play a central role in ‘enabling environment CSR’.

Following the criteria that initiatives which try to solve part of the problem without considering the effects on the other part, are not true solutions, the conclusion is that none of the approaches used in sustainability management or poverty alleviation, are currently ready to offer practical solutions for overcoming the vicious circle poverty-environmental deterioration. Corporate sustainability approaches, although valuable in terms of ecological sustainability, are limited by their superficial development of social aspects (Dyllick & Hockert, 2002), and the approaches to confront poverty have serious flaws in terms of ecological sustainability (Kircheog & Winn, 2006). The fragmented nature of social and environmental corporate practices were also central to Rio+20 debates, which emphasized the need to respect and integrate the three environmental, social and economic "pillars" and ensure that sustainability becomes a core business strategy, rather than an add-on (Utting, 2012).

LIMITATIONS OF MULTI-STAKEHOLDER APPROACHES INTEGRATING DEVELOPMENTAL AND ENVIRONMENTAL SOLUTIONS

A number of multi-stakeholders initiatives aimed to address both poverty and environmental challenges have been launched in the last decade, most notably Sustainable Livelihoods, Human Development through the market and —more recently— Ecosystem Services for Poverty Alleviation (ESPA). Owing to their common focus on entrepreneurship and their framing of social and environmental challenges as business opportunities, multi-stakeholder initiatives can be broadly considered as “market models” to address social and environmental challenges.

who have hardly enough to live on (Brugmann & Prahalad, 2007). Crabtree (2007) believes that it is dangerous to encourage the intervention of the private sector when the State fails to guarantee the population’s welfare, and warns that market models tend to generate ad-hoc solutions and to perpetuate structural flaws. For example, when Pralahad (2004) suggests selling quality bottled drinking water to tackle the lack of drinking water in Indian suburbs, one of the consequences could be that local governments may consider the problem solved and not invest in purification infrastructure.

8 Other topics highlighted as critically in need of structural improvement were measurement, valuation of externalities, sustainability reporting, performance rating, integration of farmers in global value chains, partnerships and multi-stakeholder collaborations (Utting, 2012)

9 The Sustainable livelihoods model sees the poor as consumers and entrepreneurs affected by economic and social injustice and thus deprived of self-esteem, access to credits and insurance and of the necessary infrastructure and technology to develop their abilities. Sustainable livelihoods put the accent on company investment in services and microfinance. The model includes the notion of vulnerability, but only as economic vulnerability towards shocks, stress or seasonal variations. Human development through the market has also a focus on entrepreneurship and emphasise partnerships with local entrepreneurs to exploit opportunities arising from ecological challenges.

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8 Other topics highlighted as critically in need of structural improvement were measurement, valuation of externalities, sustainability reporting, performance rating, integration of farmers in global value chains, partnerships and multi-stakeholder collaborations (Utting, 2012)

9 The Sustainable livelihoods model sees the poor as consumers and entrepreneurs affected by economic and social injustice and thus deprived of self-esteem, access to credits and insurance and of the necessary infrastructure and technology to develop their abilities. Sustainable livelihoods put the accent on company investment in services and microfinance. The model includes the notion of vulnerability, but only as economic vulnerability towards shocks, stress or seasonal variations. Human development through the market has also a focus on entrepreneurship and emphasise partnerships with local entrepreneurs to exploit opportunities arising from ecological challenges.
Multi-stakeholders propose universal templates for good corporate practice in least developed and developing countries. They emphasize collaboration between states, supranational organizations, firms and Civil Society organizations. The World Bank, United Nations, and the World Business Council for Sustainable Development who sees in them the most effective ways to alleviate poverty, given the weaknesses of governments in low-income countries, promote them. However, success with integrated strategies has been elusive (Kates et al, 2007). The scaling-up of these approaches in terms of the number of companies effectively engaged, confronts serious limits, as does the quality and scope of many initiatives (Utting, 2012).

As Brakman et al (2004) observed, saying that your firm implement a new practice is one thing, but actually implementing it is quite another matter. Firms may engage in green-washing or impression management without bearing the cost of really investing in the practice. In other cases, subsidiaries may implement orders from headquarters’ without internalizing them or re-interpreting the meaning of new practices to make them compatible with ingrained behavior. A string of unfortunate cases of “responsible firms” behaving badly (BP’s Deep Horizon spillover the most recent) has contributed to civil society suspicion of the motives underpinning the engagement of corporations with UN initiatives. For many civil society organizations, companies adhere to initiatives such as ESPA, with the purpose to enhance corporate bargaining power and gain leverage within the UN system.

In the build up to Rio+20 more than 400 non governmental organizations signed a petition to restrict the influence of large corporations in the UN and demanded more transparency and monitoring of corporate engagement with UN initiatives. The petition was pronouncedly critical to business involvement in UN initiatives, pointing out mixed results and strong constrains to scale-up firms’ voluntary environmental and developmental actions and CSR. Limitations and “blind spots” were identified in the dominant model based aimed to achieve eco-friendly productions systems through eco-efficiency, certification schemes and voluntary agreements promoting environmental social and governance standards within supply chains and certification (Utting, 2012). It was suggested that substantial dematerializing would be unfeasible within the currents patterns of production and consumption.

Although some criticism are fundamentally oriented to the prevailing model of production and consumption, in other cases they reflect civil society disappointment with the perceived failure of CSR to engage with communities’ real concerns tackle issues related to the ongoing financial, ecological and social crisis. Overall, Rio+20 outcomes suggest a growing divide between business perspectives and civil society’s views of corporations’ responsibility.

More specific criticisms to the outcomes of corporate involvement in UN initiatives, point out to problems of scale, where initiatives at the kevel of
firm or community, do not take into account institutional or global context. As a Sustainable Livelihoods Entrepreneur puts it “they (the MNE supporting the initiative) taught us to make soap but we couldn’t take the soap to the city because there was no proper transport, they helped us to get the soap to the city, but once there we had to compete with Unilever. How could we compete with Unilever?

Although supranational institutions still believe in business true commitment to these initiatives, many participating firms have been found wanting in their ability to align their organizations with sustainability goals and to engage with vulnerable stakeholders to address real local challenges and “southern” agendas. UN research suggests that many firms, which fail in the implementation of responsible practices, believe they are behaving according to universal best practice. However, they are neither aware of what actually goes deep in their organizations (Brakman et al, 2004) nor they understand or have flexibility to work with their stakeholders’ agendas. Difficulties to apprehend the systemic nature of some issues, further widens the divide between conceptualization and operationalization of context-specific practices, leading to corporate implementation failure of integrated developmental and ecological programs.

We argue that such failure is partly related to lack of corporate skills to engage local stakeholders and assess local needs, capabilities and motivators, In the words of a civil society activist in Ghana “they (the mining companies implementing a sustainable livelihood project) trained us to have grass-cutter farms, but even grass-cutters needs grass to eat, and there is no grass without water, what we need is water but they gave us marketing courses”. Consequently, the analysis of the problems of poverty and environmental deterioration requires a holistic approach that analyses different scales of intervention and consider the firm receptiveness to environmental and social issues, and its stakeholders management capabilities to involve a wide range of stakeholders, such as firms, government, communities, NGOs, etc.

OPERATIONALISING MULTI-STAKEHOLDER INITIATIVES: A FRAMEWORK BASED ON SUSTAINABILITY SCIENCE, STAKEHOLDERS THEORY AND ENTREPRENEURSHIP

We suggest that operationalization of multi-stakeholders initiatives should draw more heavily on the principles of Sustainability Science to embed ecological and developmental concerns into practice. Sustainability Science is as yet a developing field (Kates & Dasgupta, 2007). It can be described as a discipline that produces knowledge on the complex interaction between natural and social systems and their roles in affecting the planet’s sustainability (Kua & Ashford, 2004). As such, Sustainability Science aims to develop practical solutions to real sustainability challenges through a new research paradigm that breaks down artificial divides between the natural and social sciences, and between knowledge generation and its practical application in decision-making.
Drawing on system dynamics, sustainability science warns against policy or research downplaying interactions between economic, natural and social systems (Kates et al, 2001; Palmer et al, 2005) The transition to sustainability lies precisely in the acknowledgment of the intertwined nature of environmental issues and human activities (Clark & Dickson, 2003).

Human agency, capabilities and freedom are central to sustainability science, as well as the networks, coalitions and collective action processes leveraging individual values and capabilities towards common objectives. Indeed, Sen (2000a) defined a capability-centered approach to Sustainability stressing that it stands for the type of “development that promotes the capabilities of the present people without compromising capabilities of future generations” (Sen, 2000a, p. 5). Sen (2000a) disagreed with the Brundtland Report focus on “needs” arguing that human beings are not only ‘people with needs’ but also agents of change who can think, assess, evaluate, resolve, inspire, agitate, ally, coordinate and through these means are able to reshape their environments.

Solutions to complex systemic challenges can only result from widespread behavior change promoted through collective action and institutional reform. A person’s ability to contribute to such challenges depends on whether the individual has the willingness and capability to make the behavioral and ideological changes needed to make the contribution successful (Kua & Ashford, 2004). Willingness to change is usually preceded by reflections on the impacts our actions have on nature and society as a whole. In turn, the preamble for such reflection is awareness of the connections between taken for granted behavior and the threat that such behavior represents to particular places and social groups.

Ignoring or downplaying the role that human agency plays in corporate behavior and policy leads to oversimplification and denial of individual’s responsibility. In turn, Ignoring or downplaying the role of coalitions and collective norms leads to underestimation of institutional incentives and disincentives. Therefore, sustainability science sees organizations as dynamic coalitions of actors interacting (influencing and being influenced by) with stakeholders’ networks, collectively accepted rules-in-use, practices and behavior taken for granted.

To start working towards “promoting the capabilities of the present people without compromising capabilities of future generations”, it is necessary that firms and stakeholders endeavor to develop collaborative practices of dialogue and mutual adaptation. Muthuri et al (2009) highlight the importance of community interaction and participation to further its involvement in firms, Vazquez-Brust et al (2009) point out that successful involvement of communities in multi-stakeholders initiatives requires adaptive capabilities, Sustainable Stakeholder Management focus and stakeholder engagement skills (Plaza-Ubeda et al., 2010). All the stakeholders and, in particular, the most vulnerable ones, along with NGOs, must have adaptation capability to join into dialogue with the company (Wustenhagen et
In this context, stakeholders’ adaptation capability is redefined as the ‘ability of the social actor to complement, and utilize the expertise of, the company in pursuit of the partnership goals’ (Global Compact and Dalberg Global Development Advisors, 2008:13).

Stakeholder Engagement/Stakeholders Integration refers to the ability of companies to establish positive collaborative relationships with a wide variety of stakeholders (Rueda-Manzanares et al., 2008; Sharma and Vredenburg, 1998). It is based on three pillars: knowledge (of stakeholders and their demands), interaction (between stakeholders and company) and adaptation (to stakeholders demands). The emphasis is on strategies addressing the wants and needs of those core stakeholders controlling critical resources, information or access to social legitimacy by virtue of their position in a network (employees, customers, local community leaders, suppliers, authorities and investors.

In turn Sustainable Stakeholder Management is a moral approach that emphasizes that companies are part of wider ecological and social systems, thus companies’ survival depends on the development of harmonious relations with nature and communities. It is based on a change in management philosophy that involves new strategies addressing the needs of core and ‘non-core stakeholders (the poor, vulnerable, isolated, divergent, non-human). Sustainable Stakeholder Management seeks tools to understand the roles that stakeholders and companies must play in order to combine traditional management goals with sustainable strategies. Accordingly, sustainable stakeholders’ management redefines traditional management tools and embeds ethical values in tried and tested ‘morally neutral’ business practices (Burgos-Jimenez et al, 2011). When the interests of various stakeholder groups differ, the key to settling those discrepancies lies in identifying which social and environmental approaches allow a better use of a company’s resources and have a better set of impacts on the interests of the different stakeholder groups – in our case on the interests of groups imprisoned in environment- poverty traps (Vazquez-Brust et al, 2009). The focus has moved from stakeholders’ claims to stakeholders’ interests; and from stakeholders’ management to new models of interaction between firms and stakeholders.

How to elucidate what social and environmental approaches will maximize the social and environmental impacts of a company’s resources? Drawing on the capability-centered approach to sustainability, our framework proposes that ‘normative’ criteria to maximize social and environmental impacts will demand two conditions in all firm-stakeholders’ relations: ‘Doing no-harm’ implies that none of the stakeholders see their capabilities and freedom harmed by the firm’s actions. ‘Doing good’ requires preventing the deterioration of stakeholders’ capabilities and freedom by impacts outside of the companies.

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So far, our framework has identified the central criteria that should guide stakeholders’ management to assure its moral goals. The problem is that good intentions and aims are not always translated into successful strategies and outcomes. Thus, we need a third pillar in our theoretical framework to help us conceptualize what conditions are required if firms and communities to succeed in the development of dimensions of adaptive capability. We argue that a most important condition is entrepreneurship.

Entrepreneurship is the key to mobilize the strategies and alliances required to unleash adaptive capabilities in firms and their stakeholders. Entrepreneurship level should be high on both sides so that the new sustainability challenges arising from the competitive global environment and global sustainable development are rapidly faced. The important role of entrepreneurship is well reflected in the literature as achieving balance between economic viability and environment and social goals (Menon & Menon, 1997). Thus, a strong link is identified between entrepreneurialism and environmentalism (Dixon & Clifford, 2007) and also between entrepreneurship and social development (Zapalska et al., 2003). Corporate sponsorship of local entrepreneurs may help communities to participate in developing successful initiatives (Leach, Mearns & Scoones, 1999), as has happened in several initiatives in the sector of eco-tourism (Brunnschweiler, 2010) or in the well-known example of the Grameen Bank micro-credits (Yunus, 2006).

**SCENARIOS AND STRATEGIES FOR CORPORATE INTERVENTION**

In order to better understand a firm’s strategy on poverty and the natural environment, we define a matrix to look at different actuation scenarios in connection with two axes. One Axis reflects the ‘Stakeholders’ dimension of our holistic framework (The company’s Stakeholders Integration Focus). The second reflects the ‘Adaptation and Capabilities’ dimension of our framework (Engagement Capability of Communities where the firms operates). These axis condition the type of strategy adopted by the company and their effect on sustainability. The ‘Entrepreneurship dimension of our framework is intimately related to both axis. Entrepreneurship is a driving force of engagement capabilities but it is also an important influence in the development of stakeholders integration focus. Although both dimensions may be a continuum we adopt simplified scheme that classifies each of them in two categories: high and low. The strategies associated to each possible scenario would be Monitoring Strategies, Defensive Strategies, Mentorship strategies and Integration strategies (refer to Figure 1).

**Monitoring Strategies.** They emerge when the company does not have the capacity or interest for implementing sustainable stakeholders management, and the stakeholders do not set up alliances or lack entrepreneurship and capacity to adapt for improving environmental and social conditions.
In this context, the effectiveness in the result of voluntary actions to solve complex social problems is limited. There is no communication, the company does not understand or does not want to understand the justification or legitimacy of stakeholders’ claims, and they lack the ability to make their necessities heard. This is the case of the so-called “marginalized stakeholders” (Banerjee, 2000) describing the Australians aborigines’ attempts to prevent their land from being used for mining. Rowley and Moldoveanu (2003) argues that inability to act arise due to a lack of mobilization structures, that is, their lack of adaptive and entrepreneurship capabilities.

Even though the company is interested in doing good, it will discredit the stakeholders’ capacity to contribute and will only use its own criteria. The type of actions that will be implemented will depend on the internal relationships of power and entrepreneurship among the groups developing social and environmental strategies (for example, a combination of philanthropic intervention, more directed towards social issues than to environmental ones, and application of global standards distant from the local context).

Figure 1. Strategies and scenarios (Adapted from Burgos-Jimenez et al, 2011)

Monitoring strategies are also favored by many state-owned enterprises, a typical case being the US government nuclear facility owned by the Department of Energy (DoE) in Oak Ridge Reservation. In 1989 the area was officially recognized as one of the most contaminated sites in the Country after years of toxic waste releases from the facilities, However, despite public
meetings sponsored by the Environmental Protection Agency, the indigenous communities concerns have not been taken into account into cleanup plans. The case shows how low stakeholder management capability and low adaptive capabilities from vulnerable communities reinforce negative circles poverty-environmental deterioration. The nuclear facility had a culture of secrecy and isolation of communities from decision-making. The indigenous community, on the other hand, was divided in their perceptions of potential environmental risks and concerns, heavily dependent on the employment generated by the facility and unable to develop pressure networks to voice their concerns (Mix & Shriver, 2007).

**Defensive Strategies.** When the company does not have a focus on the integration of community stakeholders, but communities have high levels of adaptive capabilities and entrepreneurship, the company’s strategy will respond to the intensity of pressure exerted by communities, and the result will be a scenario where the main efforts will go towards issues related to those community stakeholders with stronger power over the company. Since there are multiple stakeholders with multiple interests, what interests will prevail will depend on the relationships of power and influence strategies, (Porter & Kramer, 2006). The fact of not taking into account stakeholder demands and considerations at an early stage may mean of problems of lack of information: on the one hand, the firm may not discover possible opportunities, and on the other side, certain drawbacks (e.g. possible environmental problems) may not become apparent until the negative consequences have appeared and the cost of solving them is very high.

The well-documented case of Orica Chemicals in Botany Bay, Australia (Benn & Brown, 2009) is an example of how tardy change from monitoring to defensive strategies has adverse results for the firm. Orica produced toxic waste for four decades without reaching an agreement on how to dispose of it. When the firm settled in Botany Bay, the local community was in a vulnerable position, unable to perceive the risk due to lack of information. However, in the 80s the local residents were empowered by new legislation, which required the consent of communities in projects, which involve environmental risk. Additionally, the community’s perception of had been growing while its human and social capital strengthened by public participation and social networks. Orica, on the other hand, had made no policy changes; they did not improve their systems of stakeholder integration, rather they continued taking decisions based solely on their own criteria and that of technical consultants. In 1990, Orica presented a project for a new waste treatment plant requiring community approval. The firm’s incapability to detect and act on the community’s environmental concerns gave rise to civil unrest, which culminated in the government’s rejection of the proposal, obliging the firm to opt for the much more costly (and environmentally controversial) measure of exporting its toxic waste to a European site.

The case of the mining company Meridian Gold in the locality of Esquel (Argentina) had far more adverse consequences for the firm. Meridian Gold had neither strategies nor willingness to integrate their stakeholders or to
adapt their practices to address community’s concerns about the use of cyanide in the mines. However, they confronted a community which was well organized and educated, with high social and human capital built around a local economy based on activities other than mining (agriculture, tourism, services). As a result, not only did the firm have to leave the country, but also the use of cyanide in mining was legally prohibited in the region.

The limited effort in stakeholder integration may also result in missing tacit entrepreneurship opportunities (Smith et al. 2009). Although the stakeholder integration initiative is usually based in the enterprise level, some firms may be surprised for stakeholder collaboration and cooperation that result in the creation of new firms to exploit these opportunities (the microcredits and the development of the Grameen Bank). In early stages the new firms are not operating in the same market that existing enterprises, but these new firms may evolve and become serious competitors.

**Mentorship Strategies.** If the firm is strong in sustainable stakeholder integration focus, but the stakeholders are weak in adaptation capacity and entrepreneurship, the company will be capable to guarantee the stakeholders’ integration in the dialogue, but the stakeholders will lack what is necessary to fully benefit from such integration. The company has to use its capacity to empower stakeholders through tangible and intangible capital, training, foundations, maybe product stewardship with local suppliers and also through active search for stakeholders qualified to contribute to this task (NGOs, Universities, commercial associates). In these cases, the firm has the initiative to engage local communities. The latter may benefit from an improvement in their social outcomes (public health, emergency relief) while the former will benefit by improving risk management, increasing social legitimacy and enhancing employee attractiveness (Bowen et al. 2010). However, there is a danger of communities’ growing dependent of firm’s resources and the agenda for improvement being mainly firm oriented. The selection of practices will be based on necessity / legitimacy interpretation internal criteria, and it is possible that, initially, the efforts aimed at improving the environmental impact will be more developed, due to the positive effect over performance (for example in production), because the company can see more clearly the effect over performance on environmental initiatives than on initiatives linked to social vulnerability.

A successful example of mentorship strategy is the alliance established by British Petroleum (BP) with three micro-credit companies in India for the distribution of a portable oven which uses both liquid fuel and biomass. The innovative device responded to a need of poor communities to switch to biomass in economic scarcity, while avoiding toxic fumes release. It was BP responsible to introduce environmental and hygiene and security standards as non-negotiable requirements, while at the same time providing the necessary training to their local partners through a partnership with community’s NGOs. The micro-credit companies on the other hand, once empowered by training, maximized their ability to bring in the partnership their knowledge of local needs and resources, in turn enabling BP to design suitable solutions and
make the product available to isolated rural communities (Brugman & Prahalad, 2007).

Integration Strategies. If the capacities of both company and stakeholders are strong, the conditions exist for a society with full integration of stakeholders within the firm, and with the firm acting as just another stakeholder for solving complex social problems, using its experience and knowledge to develop entrepreneurial projects with local stakeholders and to invest in sustainable entrepreneurs or the acquisition of natural capital.

When the more powerful stakeholders form coalitions, there is a risk of marginalizing those stakeholders who are more vulnerable or who remain excluded from the coalition. In this case, the company must carefully organize the mechanisms for the adequate search of consensus in order to minimize the effects of relationships of power and influence strategies and, at the same time, try to strengthen the weaker stakeholders. Under these circumstances, there is a possibility of attaining a balanced intervention strategy that proposes integral solutions for social vulnerability or environmental impact combining the capacities of all the involved stakeholders.

These type of strategies may result in stable joint benefits to firm and community, the main one is usually a shared accountability of the problem and shared vision of solutions, but sometimes it is possible to transformation of problem domain itself or the generation of new knowledge that results in new products development or efficiency improvements (Bowen et al 2010, Harrison et al 2010).

Brunnschweiler (2010) showed the success of an ecotourism initiative to protect the environment and preserve the livelihood of local communities: The Shark Reef Marine Reserve in Fiji. It involves the local communities and all relevant stakeholders in an area where marine rights are finely subdivided into small units. The local villages have exchanged their traditional fishing rights in the marine reserve for a new source of income through diver user fees.

Finally, the strategies outlined in the previous paragraphs are not static; on the contrary, they could be seen as phases of a process in which the integration strategy represents the result of sustainable development. The continuity of this process requires education and training of companies and stakeholders for them to understand the importance of promoting entrepreneurship, reinforce adaptation capacities and work towards the integration of stakeholders, aimed at searching consensus.

RECOMMENDATIONS

The previous sections suggest that the most positive results to leverage business intervention to alleviate poverty and decrease environmental degradation can be achieved in the “Integration Strategies” scenario. This inspires the following recommendations:

More vulnerable sectors, although underprivileged, are not unimportant for firms; quite the opposite: They sometimes become key allies
for the success of numerous initiatives (De Jongh, 2004). Indeed, Choi and Wang (2009) found positive long effect of non-financial stakeholder (employees, supplies, customers, communities) integration in the firm performance and survival. In this sense we introduce some general consideration in order to increase the integration of this non-financial stakeholder:

- Promoting engagement and mutual knowledge between firms and stakeholders (especially community stakeholders, those more underprivileged and NGOs11)
- Promoting the use of dialogue and communication tools between the main environmental pollution agents and those groups who are especially vulnerable.
- Improving the capacity of implementation of activities and / or projects in those areas that are more vulnerable to environmental impacts and to adverse socio economic conditions.
- Setting up adaptation mechanisms for both firms and stakeholders, so as to try and reconcile their interests and objectives in the short and in the long term.
- Including the promotion of sustainable entrepreneurship within the organization and in the social and institutional context as part of the strategic vision of the firm’s sustainability. Sustainable entrepreneurs are seen here as leverage for the development of proactive company strategies.

Secondly, the company must identify intervention issues at the same time that the company manage the multiple and, occasionally, ‘quasi’ incompatible demands of the different stakeholders (Donaldson & Preston, 1995). As mentioned above, there are certain strategies, which intend to manage the negative impacts of the firm (doing no harm) and other strategies destined to solve generic problems, which are not created by the firm (doing good).

Our suggestion is that ‘no harm’ approaches must change so as to follow the precautionary principle and not carry out activities unless it is guaranteed that they will not cause harm to human capabilities, instead of reactively discontinue activities only when it becomes scientifically proven that some harm has been caused. On the other hand, ‘Doing Good’ strategies

11 Some vulnerable stakeholders have not got a voice of their own (for example, the environment), or lack the organizational capacities or the knowledge required to get effectively implicated and profit from the abovementioned collaboration processes. Hence, vulnerable stakeholders frequently require the support or the representation of their cause by other stakeholders, such as NGOs (Fassi, 2008) and they run the risk of their interests not always being correctly interpreted or negotiated (Moody, 2007). Our model draws attention to the fundamental role played by NGOs in the defence of vulnerable stakeholders, but it emphasises that the ideal scenario would be that of the stakeholders themselves being implicated, and the selection of representatives qualified to maximize participation profits being through democratic and market processes.
ought to be selected on three successive criteria to increase their effectiveness:

- Contribution to the reinforcement of capabilities, freedom and social cohesion
- Better ‘fit’ with the organizational culture.
- Selection of those strategies that make a more efficient use of the companies’ resources (Patter & van Lierop, 2006)

The criteria of ‘fitting in with the organization’s culture’ and of a more efficient use of the company’s resources, lead us to suggest that a higher effectiveness of voluntary actions would be reached by focusing the company’s voluntary intervention on market models (such as sustainable livelihoods, social marketing or Bottom of the pyramid) and, in particular, in the formation of alliances with stakeholders and the creation of new markets through supporting entrepreneurs, both within the company and in the social systems where social and environmental vulnerability prevail (UNCPSD, 2005).

However, in order to maximize the results of sustainable stakeholders management, the company must create a deliberative environment where there is transparency in the discourse, monitoring mechanisms and enforcement of compliance with compromises, comparability in the information, and standards and implementation of mechanisms for the access of the least powerful stakeholders to deliberation. This requires the firm to have clear vision and politics, development of standards and systems of environmental and social performance monitoring and specific leadership, organization and dialogue capacities.

Incorporating elements of entrepreneurship may allow these issues to be adopted by corporate decision makers. Collaboration with local communities and stakeholders may help to acquire tacit knowledge. This knowledge is the basis of entrepreneurial opportunities that are context specific and are difficult to imitate (Smith et al., 2009). The model of micro-credits, which has been successfully implanted (initially in poorer countries and later all over the world), is a good example of the possibilities that entrepreneurship and stakeholder management offer to solve the problem of poverty. However, it is not enough to develop corporative citizen behavior which implies progressing from ‘doing no harm’ to ‘doing good’ (Matten & Crane, 2005). There is a need for the explicit inclusion of protection of the natural environment in which corporate activity is developed to enable the long-term sustainability of socio-economic systems. This may mean a restriction in the areas of activity in which collaboration is possible, but it also opens up business possibilities. This occurs, for example in the systems of industrial symbiosis, which have been implanted in developed economies (Suh, 2009).

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12 We do not exclude that the company can at the same time profit through these interventions, but the point is that the main goal must not be economic or Public Relations profit.
CONCLUSION

The “vicious circle” between poverty and environmental deterioration is a major challenge for those developmental approaches, which look to improve the welfare of vulnerable communities. Environmental deterioration increases poverty while, at the same time, poverty causes further environmental deterioration as the business activities which communities depend upon for survival aggravate environmental deterioration by causing pollution and waste. It is therefore necessary that firms and communities collaborate in order to develop innovative solutions to break this vicious circle. This paper argues that such collaboration should be based on genuine stakeholders’ integration and entrepreneurship, proposes a holistic framework to guide business intervention strategies, and further explores collaboration scenarios between firms and communities.

Sustainability Science and stakeholder theory are the umbrella under which we develop strategies to break this vicious circle. Firm’s strategies promoting integration and engagement of stakeholders, especially local communities, can help to overcome this situation. However, the success of the strategies depends also on the existence of stakeholder adaptation capability and entrepreneurship. The combinations of these elements in a double entrance matrix configure four different scenarios.

Integration Strategies represent the only scenario where synergies between community and company can be unleashed and applied to destroy vicious circles poverty-environmental deterioration. This inspires some of our recommendations (and commentaries): a smart mix of “doing no harm” and “doing good” criteria to be applied as guidance to reinforce the adaptive capabilities of firms and stakeholders; investment in company initiatives promoting entrepreneurship in a variety of forms (in the company, in society, in research) and investments to develop stakeholders engagement skills within the company but also in the community.

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The Philippine economic take-off: A myth, an elusive reality or an anachronistic perspective?

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**ABSTRACT**

The economic takeoff was first introduced by Walter Rostow in the 1960’s as part of the five stages of growth that an economy has to pass towards full development. These stages present an alternative perspective in analyzing the economic performance of a country in contrast from the Marxian view. The stages consist of the traditional society, pre-conditions for takeoff, takeoff, drive to maturity, and age of mass consumption. In addition, they are accompanied by distinct changes in politics, technology, society and the economy. Economic transformations are shown by rapid capital accumulation, development of one or more industries particularly in manufacturing, and the emergence of political, social and institutional structures that bring about changes towards the expansion of the modern sector, the use of capital in business and mobilization of resources. In the light of these conditions, has the economy of the Philippines taken-off towards sustained growth? If it has not, what are the reasons preventing it in attaining these requirements for takeoff? If, however, these conditions have been fulfilled why is the Philippine economy still not considered a developed economy? Is economic takeoff an elusive goal or a myth? Or is it an anachronistic view of economic development?

**JEL Classification:** O41, O47

**Keywords:** development, economic takeoff, Philippines,

**INTRODUCTION**

Modernization is a process of transforming a traditional society into a complex socio-cultural as well as a political-technological organization that characterizes many Western countries today. Distinction is made between
backward or traditional countries and advanced or modern capitalist countries. The goal of modernization is to show how countries make the transition from a simple economy into a multifaceted industrial country. The transition to modernization is marked by sustained and higher rates of growth caused by rising levels/rates of savings/investment.

From this arose several growth theories explaining the process of economic transformation. The classical theory of Ricardo emphasized the role of capital accumulation in the generation of employment. The economy requires the necessary capital to absorb additional laborers in the production process. However, the process of capital accumulation is done through the generation of surplus from production. Given the diminishing marginal returns to labor, the ability of the production process to generate savings may come to a halt as you increase employment.

This dismal prediction of the simple Ricardian model gave rise to a number of Keynesian models including the Harrod-Domar model which emphasizes the role played by capital accumulation and productivity in economic growth. However, because of the assumption of fixed coefficient production function, the model is not realistic in maintaining economic stability. This gave rise to a neo-classical view developed by Robert Solow. The steady growth rate of an economy is described by the equality of the growth in capital and growth in labor used in the production process. Assuming perfect factor substitution between labor and capital, if labor force is growing faster than capital accumulation, the capital-labor ratio will go down. This will lead to an increase in the returns to capital encouraging more capital accumulation. With an increase in capital, the growth rates of the factors inputs will equilibrate.

Because of the irrelevance of these models to the phenomenon of surplus labor in developing countries, the Lewis-Fei-Ranis growth model was developed. The model stresses the need to develop employment opportunities in the modern sector by accumulating capital and through improvement in the productivity of the traditional sector. Other approaches to the modernization process include the Big Push by Rosenstein, the Strategic Push by Hirshman, and the Stages of Growth by Walt Whitman Rostow. This paper focuses on the work of Rostow as he posits that a country starts from a traditional society, and after meeting certain conditions, “takes off” into what is described in modernization as sustained and higher rates of growth with rising levels of savings and investment.

ROSTOW’S STAGES OF GROWTH

W.W. Rostow, an American economic historian, developed a model that gauges the economic status and dimension of a society, and then classifies them within one of the five stages: the traditional society, the preconditions for take-off, the take-off, the drive to maturity and the age of high mass-consumption. The Rostowian perspective argues that economies progresses by undergoing each stage until the last stage is reached.
Traditional society

When a society has an economy which is subsistent in nature it is referred to as a traditional society. This implies that the economy is faced with limited production functions that are heavily based on pre-Newtonian science, technology and behavior. Since the economy is characterized by activities for subsistence, trade in the output of production is insignificant or almost inexistent. The production process uses traditional technology and resource allocation is governed by non-market mechanisms. As a consequence, the economy is predominantly agriculture using labor intensive techniques due to low-level of capital.

Once technological and technical innovations are introduced, productivity level can significantly rise causing the economy to undergo series of expansions. However, there are constraints in realizing this potential growth mainly due to the disregard for the value of modern science and the unavailability of modern technology.

Pre-conditions for take-off

The pre-conditions for take-off is the second stage of economic growth which is referred to as the transitional stage towards economic take-off. This is the period when a traditional society transits to a society that is now capable of exploiting the practical use of modern science and relies on market mechanisms in resource allocation.

Generally the preconditions for take-off include, but not limited to, favorable geography, natural resources, trading opportunities, and changes in the socio-political structure. However, certain exogenous factor rather than endogenous ones stimulate the transition stage for take-off. This exogenous factor comes in a form of an external intrusion by more advanced societies. This produces a stimulus for the traditional society to improve. This transitional stage implies that new production techniques in agriculture and industry are emerging while accompanied by expansion in global trade.

During the transitional stage, the economy diversifies beyond agriculture and focuses on other sectors including industry, communications, trade and services. Because of these changes within the economy, the education system adapts to suit the needs of evolving and expanding economic activities. As a consequence, there is an increase in specialization in production which in turn generates surpluses for trading.

Moreover, the emergence of institutions such as the banks and financial institutions play vital roles in unlocking the preconditions for take-off by mobilizing capital. Hence, there are significant increases in the number of investments specifically for transportation, communication and production of raw materials. Subsequently, the improvement in transport infrastructure provides more support for trade.

As incomes, savings, investments and commerce expand during the transitional stage, more domestic as well as international entrepreneurs take
active part in economic activities. This leads to the emergence of manufacturing enterprises and the strengthening of external linkages.

Given the backdrop the rate of investment together with the per capita capital stock should substantially increase during this period. However, it is necessary for the economy to have its investment rate rise up to the point where the growth of output exceeds the growth of population. This can be attained once modern technologies and innovations are incorporated in the operations and productions leading to higher productivity and efficiency. Aside from these economic factors, changes in the social structure and political system play significant role in bringing the economy towards take-off.

**Take-off**

Once a society fully surmounts the constraints brought about by traditional views, structures and processes, it undergoes a series of steady growth known as the take-off. Normally, this occurs when there is a particular sharp stimulus. The most common form of stimulus for take-off is technological growth and advancement. For some countries, the stimulus came in a form of political revolution. However, Rostow suggested that the form is not the vital key for take-off. Quoting Rostow:

> “What is essential is the fact that the prior development of the society and its economy result in a positive, sustained and self-reinforcing response to it: the result is not a once-over change in production functions or in the volume of investment, but a higher proportion of potential innovations accepted in a more or less regular flow, and a higher rate of investment”

Take-off is generally described as a stage where growth becomes the normal condition of an economy (i.e. sustained and steady growth rate). Specifically, take-off is achieved when three conditions are primarily met. First, when the rate of productive investment rises to about 10% of the economy’s national income. This implies that the economy must be highly suitable for investments (e.g. political stability, low-risk etc.) thus attracting numerous investors. Second, presence of one or more highly productive manufacturing sectors that exhibit sustainably high level of growth. Third, the existence, if not quick emergence, of political, social and institutional structures that would enable the economy to continuously exhaust possible means of expansion. This condition also involves the presence of a political leader or group that is highly prepared to regard the modernization of the economy as a serious “high-order political business”.

It is during take-off phase that an influx and rapid expansion of industries occur that brings about higher profits which are eventually reinvested in new plants. This becomes a beneficial cycle that generates employment and higher output. Also, this series of expansion translates to an increase of income among some individuals who save and place their savings in productive investments. This provides an incentive for the expansion of a
new class of entrepreneurs resulting in substantial increase in the flows of investment in the private sector.

Normally, the economy concentrates its efforts on the manufacturing sector. Although this may be the case, new techniques also introduced in agriculture as well as in other industries in industrial sector. As a consequence, the agriculture sector becomes more commercialized as farmers are keen in accepting new methods and innovations that significantly improves productivity. These radical changes in the agricultural sector are deemed as essentials for enabling a successful take-off.

In viewing economic take-off, it is also necessary to analyze the inner structure of the economy. Rostow stated “We must also consider how rapidly growing manufacturing sectors emerged and imparted their primary and secondary growth impulses to the economy”. The inner structure of take-off may be observed by observing and analyzing the (1) supply of loanable funds; (2) source of entrepreneurship; and (3) leading sectors.

Supply of loanable funds is clearly the monetary and primary source to finance investments as well as for the take-off to proceed. Loanable funds are sourced from income shifts (from those individuals who spend unproductively to those who spend productively) that finance economic development. Hence, when citizens of a country do not spend productively relative to the state itself, taxation measures are highly suggested to induce development and eventual take-off. However, Rostow suggested, “It is the demand side of the investment process rather than the supply of loanable funds, may be the decisive element in the take-off”. This implies that to induce take-off there must be one or more rapidly growing sectors whose entrepreneurs “ploughed back into new capacity a very high proportion of profits”. Whereas, improvements in the supply side (e.g. capital supply) often fall in the preconditions of take-off.

One very significant element in the supply of loanable funds is capital imports. Historically, foreign direct investments and capital have led to the take-off stage of various countries. This is because foreign capital can finance investments for industrial purposes, and most especially investments in utilities, transport and housing of enlarged urban populations. Most of these investments required huge capital and cannot be financed domestically.

Aside from the supply of loanable funds, sources of entrepreneurship have also been observed to contribute in the take-off. Certain group/s in the society must emerge and engage in successful activities to stimulate advancement and development in the economy. These groups must aspire not only for growth but for a balanced and sustainable growth. However, Rostow suggested that take-offs are usually stimulated when a class of farmers become highly responsive to the opportunities created by the modernization of technologies and innovations.

Based from the analysis of previous cases of take-offs, it has been observed that there would be a sector that would lead the growth of the economy. According to Rostow, the leading sector plays a role in “accelerating the development of domestic manufacture of consumption goods over a wide
range in substitution for imports”. In order to determine the leading sector of the economy, Rostow presented four criteria: (1) the product/s the sector produces must accumulate significantly high effective demand resulting to an increasing rate of growth in output overtime; (2) there must be an integration of new yet effective production functions in the sector leading to an expansion of capacity; (3) a high rate of plough-back by the entrepreneurs handling the business/sector is necessary to stimulate further expansion; and (4) the leading sector should be able to encourage series of expansion in capacity and potentiality for new production functions in other sectors that would benefit the economy as a whole.

**Drive to maturity**

The drive to maturity is defined as the stage when the systematic and practical applications of modern technology and innovations have been effectively applied to different dimensions of society including the economy in its entirety. However, this is also the time when the pace of expansion may slow down as the economy possibly experience diminishing returns.

The economy in this stage undergoes an interval of sustained (if not fluctuating) progress due to the extensive application of modern technology to a large portion of its economic activities. Investment at this stage levels at 10 to 20% of the GNP, and thus growth of investment will most of the time outweigh population growth.

The occurring changes in the economy entails a rise of new industries and the decline of older industries. Also, as the economy diversifies into new areas and production significantly improves; products that were normally imported are now being domestically produced. This is because technological innovations are providing a wider range of investment opportunities which translates to production of a wide range of goods and services; hence, this ultimately lessens the reliance on imports.

Rostow, however, assumed three things happen during maturity. First, alterations in the labor force occur. When take-off hasn’t taken off, the workforce is heavily focused on agriculture, consisting of an estimate of 75%. However, during the maturity stage, the percentage decreases to only 20% as workers becomes more professional and skilled they seek employment in the industrial and services sector. Second, leadership considerably improves as managers adapt to the improving operations and work environment. Third, “the society as a whole becomes a little bored with the miracle of industrialization”.

In view of all these, the fourth stage of growth occurs when an economy moves beyond the original industries that powered its take-off and push the complex modernization in technology to its limit by efficiently applying this to its widening range of resources. This is also the time when social improvements occur such as improvements in leadership, ideologies, behaviour and others.
Age of high mass-consumption

The age of high mass-consumption is a stage where the attention of the society shifts from production problems to consumption dilemma. Due to this immense change, society ceases to accept the further expansion and the application of modern technology as an “overriding objective”. Hence, this leads to the gradual phasing out of outdated machines and devices. Furthermore, along with the shift in attention is the shift towards durable consumers’ goods and services. The economy adjusts its focus on the production of consumers’ durables and to the diffusion of services on a mass basis. Another shift that occurs is allocation shift where society values more the resources for social welfare and security.

As the society enters the post-maturity stage it sets three new objectives: (1) it pursues for external power and influence, and as a result, it increases its allocation to military and foreign policy; (2) it envisions for a substantial improvement in the social welfare which can be achieved by redistribute income through progressive taxation; (3) it strives for achievement of maturity by expansion of consumption levels beyond basic food, shelter, and clothing (e.g. into the vast range of mass consumption of durable consumers’ goods and services).

It is within the last stage of growth that the economy is geared towards mass consumption, and the consumer durable industries start to boom. Also, the service sector becomes increasingly dominant. Hence, this is the stage when living conditions are exceptionally good and the economy is based on the society and its welfare.

THE PHILIPPINE ECONOMIC TAKE-OFF

Views of the Philippine take-off

There is very little literature on the take-off for the Philippine setting. Most scholars conclude that the Philippines is stuck in the pre-condition for take-off period and that the Philippines is poised for take-off however there are many detriments in terms of its development that does not allow it to take-off.

Higgins (1957) compared the situation of the Philippines at the time with Indonesia and found many similarities. He argued that the Philippines was ready for a take-off but it has not done so due to many developmental problems it faced. He identifies four major problems. First is that the country was having trouble maintaining past rates of growth and this difficulty may worsen over time. Second, the rise in national income that has not been able to alleviate the rampant poverty in the country and a larger share of investment must be directed towards the provision of the needs of lower income groups. Third, the import-substitution strategy has led to balance of payments disequilibrium. And fourth, unemployment remains high and growing despite the rise in national income and the domestic employment and absorptive capacity created by the nation’s firms.
Brillantes (1993) studied the state of Philippines in 1992 as it was expected that the newly elected President Fidel V. Ramos would usher in the take-off for economy. However, he described the Philippines to be in a “comatose” state with GNP growth rate of 1.2 percent. This lethargic state was accompanied by debilitating power failures and numerous kidnap-for-ransom incidents as well as increasing criminality and rebellions adding a degree of turmoil and unrest to the country. In addition, the Philippines had just been struck by a volcanic eruption and the economy was still recovering from the havoc. The performance of the previous Aquino administration was not also encouraging since it has been judged negatively due to President Aquino’s lack of administrative and political skills. However, credit is due her as she served a rallying point to overthrow the incredibly corrupt Marcos dictatorship, and restored the structures and processes of democracy. (Brillantes, 1993). He concludes that NGOs, cooperatives and other extra-governmental structures will play a key role in the country’s efforts to finally take-off.

Hossain (1996) lauded the Ramos administration as he believed that significant improvements were made as he was able to consolidate political power and strengthen democratic institutions that had become the base of recovery for the Philippines. Inflation rates had started decreasing, exports increased greatly and import increased a little less in proportion. He identified several areas for improvement. First, the need for improvement for the government’s infrastructure development plan. Second, the need to shore up the country’s low savings rate in order to address the continued reliance on foreign investment to finance trade and current account deficits. Third, the need to strengthen sound macroeconomic policies as well as strengthen democratic institutions, reducing dependence of politics on vested interest groups, improving legal and regulatory systems so as to be able to design and enforce non-arbitrary sets of rules to guide economic activity, and improving law and order situations through reducing political conflicts.

Lessons from other countries

**Sweden.** Primarily, the take-off stage for Sweden took place in the 1870’s and was based on the modernization of the timber export industry as well as the railway construction (Rostow, 1960). The turning point for maturity came in the 1890’ through the depression marked by the sagging of Sweden’s export markets (which the take-off was strongly anchored on). The take-off is structurally a surge in output in one or a few sectors, and after this it is necessary to reallocate the resources for the growth of the new leading sectors. In general, there had been shifting from traditional sectors like pig-iron, timber, grain in agriculture industries to highly refined steel, hydroelectric power sources, and more highly productive animal and dairy farming. By the 1890’s, Sweden’s entrepreneurs have expanded and were able to facilitate the big push generated by the take-off.

**Japan.** Japan’s story is similar to that of Sweden’s experience since there was one major industry that was instrumental in its take-off. Japan’s
take-off was made possible by a series of prior and concurrent developments in agriculture (Rostow, 1960). Agriculture provided increased food and fibres, accelerated urbanization and accumulation of foreign exchange earnings. Furthermore, there was a rise of productivity in the rural areas of Japan, providing enlarged markets and encouragement for domestic industry. The commutation of the feudal rents and the diversion of this income stream to the government gave the Japanese modern sector an essential initial infusion of capital. These were all made possible despite a disadvantageous population-resource balance relative to Sweden. But these alone were not able to lift Japan into take-off. In the 1890’s, new industries were established by government initiative and immediately converted into private enterprise. The take-off occurred in the 1890’s to the 1900’s (a decade after Sweden) by the building of railways, ships, cotton manufacture, silk cultivation and then the surge of military outlays which helped build up the engineering industries. Modern chemical industry also played its part in the take-off as the Japanese industrial sector began to fan out chemical fertilizers, steel and electrical equipment.

Assessment of the Philippines according to the features of a take-off

Rostow’s (1960) stages of growth state that the take-off is signified by a sharp stimulus which is usually a significant event in the course of the country’s history. The stimulus may be a political revolution which directly affects the balance of social power and values, as well that in social institutions, income distribution, investment patterns and the degree of innovations in the country. Such examples are the German revolution in 1848, the Meiji restoration in Japan of 1868, and the Communist victory in China in 1949 (Rostow, 1960). The take-off is then noted by a consistent increase in growth and output. Furthermore, the take-off is characterized by (1) the rise in investments of more than 5-10 percent share of GDP along with the development of a country’s resources through the supply of loanable funds, (2) the shift of production intensity from agriculture to manufacturing, the development of a particular substantial industry, and (3) the emergence of political, social and institutional framework thus exploiting impulses to expansion in the modern sector and utilizing capital from domestic sources like entrepreneurship and savings. Using 1960-2009 data from the World Bank and the Bangko Sentral ng Pilipinas, this study analyzes the position of the Philippines in terms of the criteria suggested by Rostow.

Sharp stimulus. As it is known amongst all Filipinos, the Philippines has a rich tapestry of significant events in its history particularly involved with the wave colonization brought by the Spaniards in the 1500’s. This was followed by the American colonization at the advent of the 20th century and the Japanese occupation in the 1940’s. During these periods of colonization many other significant events had occurred: the founding of the first Philippine government under Emilio Aguinaldo, the writing of the first Philippine Constitution, many uprising and rebellions against the colonists, as well as the tumultuous Pacific war. After this, the Philippines encountered a short period
of peace and stability until Martial Law was declared during the Marcos administration that sparked the well-known People Power Revolution in 1986 followed by a more recent People Power II during the Estrada administration. From that time on, the Philippines had presidential regimes filled with either progress or controversies, or both up. With these numerous disruptive events one may not wonder whether any of these events may have triggered the take-off. The end of Spanish colonization may be out of the question since historical records show that the Philippines had just been experiencing the initial touch of modernization during that time (railways, cross-country sea transportation). Unfortunately, up to date, there are no leads as to whether or not these events ignited a take-off for the economy. Scholars believe that the Philippines is stuck in the pre-conditions for take-off just as much as it is still stuck in the first phase of the demographic dividend, and is lacking a lot of prerequisites as to experience the take-off itself. Hence, there is a need to take a look at the economic figures of the country.

**Achievement of regular growth.** As indicated by Table 1, real per capita GDP has slowly increased through the decades and has nearly doubled in a span of almost 50 years. Although not shown in the table but the data for the decade of the 80’s shows a large decrease in GDP mainly traced to the lethargic last few years of the Marcos administration and the People Power Revolution in 1986. Figure 1 shows the trend in GDP per capita as well as the fluctuation of growth through time. Output is generally in an increasing trend but apparently, growth has fluctuated over the years and does not revolve around a stationary mean.

<table>
<thead>
<tr>
<th>Year</th>
<th>Real GDP Per Capita</th>
<th>Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>626.5768377</td>
<td>2.392875471</td>
</tr>
<tr>
<td>1971</td>
<td>750.3099187</td>
<td>2.474636573</td>
</tr>
<tr>
<td>1981</td>
<td>995.3716521</td>
<td>0.659369009</td>
</tr>
<tr>
<td>1991</td>
<td>874.5184942</td>
<td>-2.909267283</td>
</tr>
<tr>
<td>2000</td>
<td>977.1290384</td>
<td>3.852549111</td>
</tr>
<tr>
<td>2001</td>
<td>974.8380573</td>
<td>-0.234460447</td>
</tr>
<tr>
<td>2002</td>
<td>998.6795875</td>
<td>2.445691372</td>
</tr>
<tr>
<td>2003</td>
<td>1028.122596</td>
<td>2.948193636</td>
</tr>
<tr>
<td>2004</td>
<td>1073.281948</td>
<td>4.392409253</td>
</tr>
<tr>
<td>2005</td>
<td>1105.552478</td>
<td>3.006715066</td>
</tr>
<tr>
<td>2006</td>
<td>1143.16396</td>
<td>3.402053106</td>
</tr>
<tr>
<td>2007</td>
<td>1201.385659</td>
<td>5.093031384</td>
</tr>
<tr>
<td>2008</td>
<td>1223.755051</td>
<td>1.861965923</td>
</tr>
<tr>
<td>2009</td>
<td>1214.754378</td>
<td>-0.735496253</td>
</tr>
</tbody>
</table>

**Source:** World Bank.
Output faces a generally increasing trend despite the sudden drop in the 1980’s (left) however output growth has fluctuated over the years with the occasional negative growth (right).

**Rise in investment rates (Gross Domestic Capital Formation).** In 1952, the Philippines was already considered by Rostow (1960) as an economy ready for a take-off, where apparent savings and investment rates, including limited net capital imports have risen over 5 percent of net national product. The US Department of State then estimated that the Philippines had about 8% net capital formation and was considered attempting to take-off or perhaps passed into a stage of regular growth. As seen in Table 2 and confirming the trend in Figure 2, domestic capital formation has increased from the 1960’s to the late 70’s, but began to decrease wildly in the 80’s (this may be attributed to the events in the Marcos regime as well), and has increased again in the 90’s but has slowly decreased again from 2000 up to 2009. It has succeeded in passing the 10% of national income mark, however, the Philippines fails to maintain a consistent growth in gross domestic capital formation.
Table 2. Data on Gross Domestic Capital Formation (in constant 2000 US$)

<table>
<thead>
<tr>
<th>Year</th>
<th>Gross Domestic Capital Formation Percent GDP</th>
<th>Gross Domestic Capital Formation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>20.3354702</td>
<td>2938810624</td>
</tr>
<tr>
<td>1971</td>
<td>21.01872062</td>
<td>4779089141</td>
</tr>
<tr>
<td>1981</td>
<td>27.46274805</td>
<td>11132948042</td>
</tr>
<tr>
<td>1991</td>
<td>20.21833141</td>
<td>9614840150</td>
</tr>
<tr>
<td>2000</td>
<td>21.1663423</td>
<td>16067907730</td>
</tr>
<tr>
<td>2001</td>
<td>18.97433384</td>
<td>14896156430</td>
</tr>
<tr>
<td>2002</td>
<td>17.66500028</td>
<td>14254929595</td>
</tr>
<tr>
<td>2003</td>
<td>16.83371548</td>
<td>14680464929</td>
</tr>
<tr>
<td>2004</td>
<td>16.74991184</td>
<td>15732574326</td>
</tr>
<tr>
<td>2005</td>
<td>14.58456663</td>
<td>14348253037</td>
</tr>
<tr>
<td>2006</td>
<td>14.51379385</td>
<td>15075467020</td>
</tr>
<tr>
<td>2007</td>
<td>15.38219328</td>
<td>16938056520</td>
</tr>
<tr>
<td>2008</td>
<td>15.3379861</td>
<td>17325633198</td>
</tr>
<tr>
<td>2009</td>
<td>14.64586857</td>
<td>16336615030</td>
</tr>
</tbody>
</table>

Source: World Bank

Note: Relative to GDP, Gross Domestic Capital Formation has fluctuated over the years, and although it has exceeded the 10% mark, it does not maintain a steady average over time.

Figure 2. Philippine Gross Domestic Capital Formation as percentage of GDP over time.

Supply of foreign capital. The inner structure of the increase in investment rates entails an increase in the supply of loanable funds and thus the redistribution of the flow of income into more productive activities. It also entails the expansion of banking institutions which can increase the supply of working capital. Another possible mechanism for inducing a high rate of
return on productive investment is the rapid expansion of demand for domestically manufactured goods which give entrepreneurs an increasing proportion of households’ income flows that allow them to expand further. Another important element in the supply of loanable funds is the amount of capital import. Table 3 shows a BOP perspective of the FDI flows in the Philippines. The figures follow no specific pattern and tend to fluctuate randomly. This is shown by Figure 3 and in spite of the fluctuations there does not seem to be any trend in the data.

Table 3. Net Foreign Direct Investments (in BOP terms, current US$)

<table>
<thead>
<tr>
<th>Year</th>
<th>Foreign Direct Investment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>-106000000</td>
</tr>
<tr>
<td>1990</td>
<td>530000000</td>
</tr>
<tr>
<td>2000</td>
<td>2115000000</td>
</tr>
<tr>
<td>2001</td>
<td>335000000</td>
</tr>
<tr>
<td>2002</td>
<td>1477000000</td>
</tr>
<tr>
<td>2003</td>
<td>188000000</td>
</tr>
<tr>
<td>2004</td>
<td>109000000</td>
</tr>
<tr>
<td>2005</td>
<td>1665000000</td>
</tr>
<tr>
<td>2006</td>
<td>2818000000</td>
</tr>
<tr>
<td>2007</td>
<td>-62000000</td>
</tr>
<tr>
<td>2008</td>
<td>1285000000</td>
</tr>
<tr>
<td>2009</td>
<td>1589000000</td>
</tr>
</tbody>
</table>

Source: World Bank

Figure 3. FDI flows in the Philippines

Development of a leading sector (Shift from agriculture to manufacturing). The next qualification for the take-off is the development of a leading sector in the economy. But implicitly, as characterized by the first stage of growth, the traditional society entails heavy intensity in a country’s agricultural sector, and the pre-conditions dictate that there is a shift from agriculture to a more advanced sector such as the manufacturing sector. Table 4 shows the activities in the various sectors of the Philippine economy by
decade since 1961. It shows that agriculture has been steadily decreasing over the years and in recent decades it has registered the lowest valued added relative to all other major economic sectors. The same trend can actually be said for the manufacturing sector. It follows decreasing values added over the years but the decreases in the activities are less pronounced than in agriculture. Turning to Figure 4, it can be seen that despite the decreases in the value added for both agricultural and manufacturing sector, but because of the drastic decrease in agriculture in the 1980s, manufacturing has overtaken agriculture. This can be considered as a shift from agriculture to manufacturing but in reality the shift is towards the services sector.

Table 4. Value Added of Philippine Sectors as % of GDP (in constant 2000 US$)

<table>
<thead>
<tr>
<th>Year</th>
<th>Agriculture</th>
<th>Industry</th>
<th>Services</th>
<th>Manufacturing</th>
</tr>
</thead>
<tbody>
<tr>
<td>1961</td>
<td>26.77652168</td>
<td>31.64851189</td>
<td>41.63222122</td>
<td>24.84936333</td>
</tr>
<tr>
<td>1971</td>
<td>30.30767293</td>
<td>32.36022498</td>
<td>37.33210208</td>
<td>25.86047683</td>
</tr>
<tr>
<td>1991</td>
<td>20.98282788</td>
<td>34.01444378</td>
<td>45.00272834</td>
<td>25.31532174</td>
</tr>
<tr>
<td>2000</td>
<td>15.76485955</td>
<td>32.26584458</td>
<td>51.96929586</td>
<td>22.2301628</td>
</tr>
<tr>
<td>2001</td>
<td>15.12093987</td>
<td>31.64334923</td>
<td>53.2357109</td>
<td>22.89968206</td>
</tr>
<tr>
<td>2002</td>
<td>15.10767754</td>
<td>31.82834864</td>
<td>53.06397381</td>
<td>23.08815724</td>
</tr>
<tr>
<td>2003</td>
<td>14.64112596</td>
<td>31.94488559</td>
<td>53.41398845</td>
<td>23.26020068</td>
</tr>
<tr>
<td>2004</td>
<td>15.07057091</td>
<td>31.7014037</td>
<td>53.22802539</td>
<td>23.04970857</td>
</tr>
<tr>
<td>2005</td>
<td>14.29765195</td>
<td>31.87244759</td>
<td>53.82990046</td>
<td>23.2300732</td>
</tr>
<tr>
<td>2006</td>
<td>14.15511373</td>
<td>31.65946031</td>
<td>54.18542596</td>
<td>22.84057481</td>
</tr>
<tr>
<td>2008</td>
<td>14.87933611</td>
<td>31.68694242</td>
<td>53.43372147</td>
<td>22.33109892</td>
</tr>
<tr>
<td>2009</td>
<td>14.82414461</td>
<td>30.19803111</td>
<td>54.97782427</td>
<td>20.40311428</td>
</tr>
</tbody>
</table>

Source: World Bank

**Growth in a leading sector.** Turning once more to Figure 4, it is apparent that a leading sector has arisen over the years. This may be what Rostow considers being a primary growth sector where possibilities for innovations or for the exploitation of more efficient, unexplored resources and processes yield a high growth rate and sends expansionary movements across the economy. Above all sectors, the services sector appears to be the primary driver of growth in the Philippines all these years. Since the 1960’s, the services sector has already contributed greatly to output, and despite decreases in the 1970’s, it began increasing from the 1980’s up to the present quite steadily and rapidly. This is attributed greatly to the increased trade in services across borders.
Note: As required by the take-off, there is a shifting from the agricultural sector to the manufacturing sector; although the sector that leads growth the most is the services sector.

**Figure 4.** Development of Philippine Industries over time

**Emergence of frameworks and institutions (Establishment of a Central Bank).** In the history of the Philippines, the most notable institution that was established was the Central Bank, or the *Bangko Sentral ng Pilipinas* (BSP). The first draft of the Philippine Central Bank was submitted to the Congress on February 1948. This charter became known as the Republic Act 265, or the Central Bank Act of 1948 that was signed by President Manuel Roxas. The Republic Act was able to list the objectives of the Central Bank as: a) to maintain stability in the Philippines; b) to preserve the international value of the peso and the convertibility of the peso into the freely convertible currencies; c) to promote a rising level of production, employment and real income in the Philippines. The emergence of this institution and with this its independence has allowed price stability that is intertwined with economic growth.

**Increase in the number of financial institutions.** Aside from the establishment of the BSP, the take-off requires an increase in the number of entrepreneurs that are able to capitalize on the redistribution of income. This entails the financial institutions that are able to manipulate the supply of loanable funds to create employment and facilitate growth. Table 5 shows the number of financial institutions in the Philippines which includes banks and even brokerage firms, investment firms and portfolio managing institutions. Clearly, the number of financial institutions has increased steadily across the years ensuring that the savings of consumers are being circulated in the economy to spur growth.
Table 5. Number of Financial Institutions in the Philippines (including both bank and non-bank institutions)

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Financial Institutions</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>19,337</td>
</tr>
<tr>
<td>2005</td>
<td>20,108</td>
</tr>
<tr>
<td>2006</td>
<td>20,954</td>
</tr>
<tr>
<td>2007</td>
<td>21,537</td>
</tr>
<tr>
<td>2008</td>
<td>23,214</td>
</tr>
<tr>
<td>2009</td>
<td>23,821</td>
</tr>
</tbody>
</table>

The Supply in loanable funds and an increase in the resources of the financial system. The supply of loanable funds itself should increase genuinely with the increase in investment and the expansion of institutions and firms. Table 6 shows that the resources of the Philippine Financial system have increased over the years signifying that the supply of funds available to the financial system are growing, implying that money is circulating in the economy and that funds are being capitalized upon to ensure growth and stability in the country.

Table 6. Resources of the Financial System (in billion pesos)

<table>
<thead>
<tr>
<th>Year</th>
<th>Financial Resources</th>
<th>Resource Growth</th>
</tr>
</thead>
<tbody>
<tr>
<td>2003</td>
<td>5,175.85</td>
<td>6.8</td>
</tr>
<tr>
<td>2004</td>
<td>5,619.47</td>
<td>9.8</td>
</tr>
<tr>
<td>2005</td>
<td>6,257.12</td>
<td>8.6</td>
</tr>
<tr>
<td>2006</td>
<td>6,613.79</td>
<td>11.3</td>
</tr>
<tr>
<td>2007</td>
<td>7,475.29</td>
<td>5.7</td>
</tr>
<tr>
<td>2008</td>
<td>7,475.29</td>
<td>11.8</td>
</tr>
</tbody>
</table>

Source: Bangko Sentral ng Pilipinas

Other indicators (Population growth). Implied in the growth of investment is the rate of investment should be able to account for the growth in population. However, it is apparent in the previous section that gross domestic capital formation has decreased in recent years. This trend becomes problematic on whether it can outweigh the growth of population. Aside from this, an implicit requirement in the pre-conditions for take-off requires that people should shy away from having children so as to facilitate greater economic performance. Figure 6 shows that the population growth rate has declined over the years due to women getting more education and employment opportunities. This can be inferred since the death rate has decreased due to better healthcare and nutrition and at the same time the birth rate has decreased as well. Despite these developments, the Philippines could not realize the opportunities provided by the demographic dividend.
Savings rate relative to capital formation. The conditions for take-off also requires (but not up to the same extent as that of the three major criteria) that the percentage of investment should be increasing with the level of savings in an economy. This ensures that the amount of savings is being utilized to invest in companies so as to create greater productivity and supply. As can be seen in Figure 7, in earlier years savings and gross domestic capital formation (GDCF) move with each other, but recently in 2000 savings have rocketed significantly, creating a large gap with capital formation. The motivations behind the dramatic increase in savings are still quite problematic and whether there is an explanation for the large gap or not is still unknown as well.

Openness and FTAs. It is also implied that a country’s development opens its borders to other countries, thus shifting from regional and national relations to that of international relations. This degree of openness is evident in the amount of trade that a country engages, and more recently in regional
integration via the preferential trade agreements that a country establishes with other countries. The Philippines certainly has its share of international relations where the most significant would be the ASEAN established in August 1967 due to political instability and regional security issues during that time. The ASEAN aimed to accelerate growth and social progress along with cultural development in the region, as well as to address the original motivations to its establishment via the promotion of peace and stability in the region.

### Table 7. Common Effective Preferential Tariff of the Philippines

<table>
<thead>
<tr>
<th>Year</th>
<th>Common Effective Preferential Tariff</th>
</tr>
</thead>
<tbody>
<tr>
<td>1993</td>
<td>12.45</td>
</tr>
<tr>
<td>1994</td>
<td>11.37</td>
</tr>
<tr>
<td>1995</td>
<td>10.65</td>
</tr>
<tr>
<td>1996</td>
<td>9.55</td>
</tr>
<tr>
<td>1997</td>
<td>9.22</td>
</tr>
<tr>
<td>1998</td>
<td>7.72</td>
</tr>
<tr>
<td>1999</td>
<td>7.34</td>
</tr>
<tr>
<td>2000</td>
<td>5.18</td>
</tr>
<tr>
<td>2001</td>
<td>4.48</td>
</tr>
<tr>
<td>2002</td>
<td>4.13</td>
</tr>
<tr>
<td>2003</td>
<td>3.82</td>
</tr>
</tbody>
</table>

*Source: ASEAN Secretariat*

The amount of trade contributed by the Philippines has increased over the years, and it is indicative in Table 7 that this is so due to the overall decrease in the preferential tariff. The degree of openness of the Philippines has also increased but relative to the other members of the ASEAN, especially Singapore, the Philippines is contributing very little to the overall trade and investment that the ASEAN is engaging. With regards to the Free Trade Agreements that the Philippines has established, aside from the ASEAN, there is also the American Free Trade Agreement (AFTA) and the Japan Philippines Economic Partnership Association (JPEPA). Through the ASEAN, they are establishing closer economic partnership with AFTA, Korea, China, and Japan.

### CONCLUSION

Looking at the figures and indicators for the Philippine economy, it seems that the Philippines may or may not be ready for take-off. The economy has been able to achieve the levels and requirements that are needed for the take-off; however, it cannot take-off since there are many constraints to its growth and development efforts. Higgins (1957) and Hossain (1996) were able to identify several limitations that are preventing the Philippines to initiate its take-off. Reviewing the figures, the Philippines has been able to reach those needed for the take-off, but problems occur when it cannot sustain these levels consistently. The situation for growth in output as well as capital formation confirms this. The Philippines may be well on its way for its take-off, but just
like its take on reaping the demographic dividend, the Philippines has its resources, but it still cannot capitalize on its competitive advantages.

There are instances when the conditions have been fully met but these were not sustained over time. Whether or not these conditions have been met, it is still possible for the country to experience underdevelopment. For example, poverty persists in the country for decades even if these conditions for take-off have been met. Thus, economic take off may be an inappropriate framework of analysis since there is a need to address the pressing problem of poverty. In this case I guess we are asking the wrong question on whether the Philippine has taken-off economically. There is a need for a paradigm shift in viewing development beyond economic take-off. Aside from investment in physical capital, what is important is the investment in human capital that can address poverty, give employment opportunities and create income enhancing opportunities for those that where displaced by the non-inclusive growth through the traditional neo-classical perspective.

REFERENCES


Revisiting the virtuous cycles between environmental innovations & financial performance of Japanese automotive, electronics & chemical manufacturing industries

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ABSTRACT

Furthering the literature on the virtuous cycles between environmental innovation and financial performance, we revisit the link by challenging conventional wisdom of the resource-based view perspective and the slack availability of resources. In my earlier studies that contrasted the relationships of these constructs for automotive and electronics companies, the virtuous cycles did not appear to hold for longitudinal periods. Automotive companies, although limited in number, seemed to have more virtuous cycles than electronics companies. Revisiting the analysis to include the chemical manufacturing industry paints a bigger if not a better picture of sustainable industries from a green supply chain perspective. In this study, I aim to: (1) explore the directional relationships of environmental innovations and financial performance and if it holds on a longitudinal basis; (2) determine if virtuous cycles exist; (3) establish and contrast patterns of construct relationships for the automotive, electronics, and chemical manufacturing companies; (4) and theorize from a green supply chain perspective. The expectations of my study point to automotive and electronics companies being more susceptible to public perception considering that it is at the end of the green production pipeline. The results of the constructs relationships for automotive companies have stark contrasts with electronics companies; while chemical manufacturing companies exhibit a seeming indifference. This leads us to see that start of pipeline production may not necessarily benefit from the virtuous cycles yet they contribute to the green supply chain in the attainment of sustainable industries.

JEL Classifications: Q00, Q56

Keywords: virtuous cycle, environmental accounting, financial performance, sustainability, Japanese manufacturing

56
INTRODUCTION

Sustainability studies involve longitudinal time periods and Japan has been a forerunner in this non-financial yet supplementary report to a standard annual financial report for investors. The Ministry of Environment (MOE) has promulgated the environmental accounting guidelines in 2000 and revised the framework in 2002 in close working coordination with the academe, accounting regulators, and manufacturing engineers of automotive and electronics companies. For over a decade since, comparable environmental accounting reports are published in the form of corporate social responsibility (CSR) or responsible care reports.

Environmental accounting in Japan pertains to environmental conservation costs as defined in the guidelines that cover maintenance expenses and environmental asset investments in product and process improvements. Henceforth termed as environmental innovations, it could be traced to higher order constructs of corporate social performance, environmental management, and more so, CSR. Environmental accounting involves an adjustment process that extracts particular expense and asset investment amounts from Japanese Generally Accepted Accounting Principle based financial statements. CSR or environmental reports do not necessarily comply with international accounting standards but rather take the form of the framework prescribed by the MOE on environmental conservation for product and process innovations and improvements (Cortez & Cudia, 2012).

After conducting initial studies on sustainability of Japanese automotive and electronics companies (Cortez & Cudia, 2010), this analysis seems to move a step backward into the supply chain. There are several industry suppliers involved in the green supply chain and including an industry at the start of production pipeline by virtue of the network theory could provide a broader understanding of the process.

In my earlier studies, I adopted the resource-based view perspective describing the phenomena of tangible and intangible benefits for a company to invest in environmental innovations. On the other hand, I alternatively viewed it from the slack availability of resources - that for companies to invest in environmental innovations, successful financial performance has to happen first. Scholars have argued the direction of the constructs’ relationship. Does environmental innovations positively impact financial performance as theorized in the business rationale for sustainability? Or is it the other way around? Does financial performance determine investments in environmental innovations? I proposed marrying the perspective in what I coined the accumulated slack theory suggesting the emergence of virtuous cycles.

It is in this light that I revisit the constructs of three key manufacturing industries of Japan with longer time periods (2001-2010) and disaggregated into the earlier (2001-2006) and latter (2005-2010) part of the decade. I aim to: (1) explore the directional relationships of environmental innovations and financial performance and if it holds on a longitudinal basis; (2) determine if virtuous cycles exist; (3) establish and contrast patterns of construct
relationships for the automotive, electronics, and chemical manufacturing companies; (4) and finally, theorize from a green supply chain perspective.

The findings of this study are significant to sustainability theorists considering the comparable information provided by the MOE merged with financial information from COMPUSTAT archival database. Since there are very few studies on Japanese companies, I adopt the cross comparative case study method to support my theoretical propositions and mixed methods analysis substantiated in the form of pattern matching. Ultimately, I perform a cross industry case synthesis to qualify my findings.

LITERATURE REVIEW

Theoretical perspectives

Sustainability studies cite the resource-based view perspective, the slack availability of resources perspective (Barney 2001), institutional isomorphisms (DiMaggio & Powell, 1983), and the network theory (Richardson, 1972) as theoretical basis for corporate social performance and more particularly sustainability practices with legitimacy and the stakeholder theory as the overarching theory.

In my earlier studies (Cortez & Cudia 2012), I adopted the resource-based view perspective as the theoretical basis for the positive impact of environmental innovations on financial performance. By investing in inimitable resources, companies realize both tangible and intangible benefits. Alternatively, provided that initial resources are requisites to invest in environmental innovations, I used the slack availability of resources as espoused by McGuire, Sundgren, & Schneeweis (1988) to explain the phenomenon.

Institutional isomorphism (DiMaggio & Powell 1983) refer to the likeness of companies to behave in a sociological pattern. Through coercive isomorphism, related companies are pressured to keep up with each other to include regulatory compliance. Mimetic isomorphism is simply the strategic and competitive benchmarking that permeates companies to emulate best environmental innovation practices. Normative isomorphism particularly in a consensus based Japanese society, allow more than compliance but rather institutionalize in company practices environmental conservation and innovation in production and process improvements. Relatedly, the network theory extends these isomorphisms not just to related parties but to the entire supply chain. Automotive and electronics companies have thousands of suppliers globally and they all have to be compliant with eco-friendly product designs (Cortez, 2012).

Japan’s consensus based society puts a heavy premium on social legitimacy of a corporation. Over the years, Japanese companies have been trying to satisfy the environmental disclosure requirements of various stakeholders through social, environmental, CSR and responsible care reports that supplement their annual financial report. Thus, with legitimacy brought by environmental innovations, the preference for eco-efficient cars
(Hazegawa, 2008), and a range of electronic products with provisions for end of life disposal, the preference is then translated into revenues (Cortez & Cudia, 2011a). However, chemical companies appear to be less susceptible to public perception. Chemical companies provide valuable materials to the manufacture of automobiles and electronics and, hence, could be designated to be at the start of the pipeline of production.

To connect the theoretical discussion of automotive and electronics companies with chemical companies, the green supply chain and its related theories necessitates discussion. Sarkis, Zhu and Lai (2011) define the concept of green supply chain management (GSCM) “as integrating environmental concerns into the inter-organizational practices of supply chain management including reverse logistics.”

To operationalize this, GSCM could be seen as being practiced in supplier selection of automotive and electronics companies. Sarkis (2003) refers to this as external relationship amongst organizations. Strategic supplier selection and evaluation considers multiple factors that include strategic, operational, tangible and intangible measures (Sarkis & Talluri, 2002). Detailed factors may include emphasis of quality at the source, design competency, product and process innovations among others.

Japanese large manufacturers implement one key GSCM, i.e., internal environmental management. Additionally, they implement four other GSCM practices namely green purchasing, customer cooperation with environmental considerations, eco-design and investment recovery (Zhu, Gen, Fujita & Hashimoto 2010). The large automotive and electronics companies have made these environmental asset investments and are working in close coordination with its network of suppliers for the quality of materials brought into the production chain.

Financial, environmental performance, and disclosures

CSR has been evolving since the beginning of the concept as it inure to the enlightened self-interest of companies (Carroll & Shabana, 2010). A business case is an evaluation of a project or initiative to yield a suitably significant return to justify the expenditure, such as the necessary investments in sustainability (Kurucz, Colbert & Wheeler, 2008). Traditional management would see these as a cost of doing business to manage legitimacy (Hart & Milstein, 2003). Firms bear the environmental costs associated with product disposal because governments require them to internalize the entire life cycle cost of their product; such is the case in Europe and Japan (Christmann, 2000). However, the business rationale for sustainability literature points to four general themes as to why companies engage in environmental activities, namely: (1) cost and risk reduction, (2) competitive advantage, (3) reputation and legitimacy, and (4) synergistic value creation (Hart & Milstein, 2003; Porter, 2008; Senge, 2008; Kurucz, et al. 2008; Carroll & Shabana, 2010).

In addition, Senge (2008) points earning significant other income, establishing points of differentiation, shaping the future of an industry,
becoming a preferred supplier, and changing image and brand preference as benefits of sustainability practices. Hull & Rothenberg (2008) explore the possibility that corporate social performance (CSP) enhances financial performance by allowing the company to differentiate in an industry with likewise high levels of differentiation. Shrivastava (1995) contributes revenue enhancement, supplier ties, quality improvement, reduction of liabilities, social and health benefits, public image and being ahead of the regulatory curve.

Cost savings is arguably the primary economic motive for implementing process-focused environmental practices (Stead & Stead, 1995). Cost savings and risk reductions from environmental management are elaborated in a framework by Klassen & McLaughlin (1996) to include prevention of contingent liabilities, reduced materials and energy consumption, strong competitive positioning for lower costs, other avoidable costs and overall greater productivity (Hart, 1995, Senge, 2008; Stead & Stead, 1995).

One way of looking at significant environmental costs is that it is offset by a reduction in other costs and risks (Cornell & Shapiro, 1987). Investments in pollution prevention, clean technology, and product stewardship (Hart, 1995; Christmann, 2000) may yield cost savings. These are the current internal benefits espoused in the Shareholder Value framework with a corresponding external value of reputation and legitimacy (Hart & Milstein, 2003; Roberts & Dowling, 2002). Christmann (2000) elaborates that market investors value cost advantage from environmental strategies.

Evidence from the U.S. on environmental disclosure suggests the link to financial performance. The largest number for firms that did not have an environmental policy were the low financial performers (Mordhardt, 2009); while high financial performers did have higher incidences of environmental policies as compared to low financial performers. The highest incidence of environmental policies came from medium financial performers (Stanwick & Stanwick, 2000). Relatedly, in a study of the 50 biggest companies as to capitalization, Ho & Taylor (2007) reveal that the extent of triple bottom-line reporting is significantly higher for large sized firms, lower profitability, lower liquidity, and for firms from the manufacturing industry. Mordhardt (2009) adds that as corporate size reaches a certain threshold, sustainability reporting becomes independent of it.

One of the most cited literatures in CSP-financial performance link is by McGuire, et. al (1988). They suggest that a firm’s prior performance assessed as to stock market returns and accounting based measures is more closely related to CSR than is subsequent performance. Using COMPSTAT data database, they used the financial performance measures of ROA, Average Assets, Operating Income Growth, Asset Growth, Total Return, Debt to Assets, Operating Leverage as Independent variables and the Fortune magazine’s ratings of corporate reputations as dependent variable to represent CSR in a comparative period 1977-81, 1982-84. Three of the accounting based measures of performance significantly correlated with CSR: ROA and

60
operating income positively correlated with CSR; and the ratio of debt to assets negatively correlated with CSR. This means profitability impacts CSR and the reduced contingent liabilities encourages the companies to do more CSR work. In their regression analysis, accounting-based performance measures appear to have a higher explanatory value than stock market performance. The most important contribution to CSP literature by McGuire et al. (1988) is espousing the direction of the relationship. They conclude that prior performance is generally a better predictor of CSR than subsequent performance. Arguably, they leave a point that concurrent CSR and financial performance may be artifacts of previous high performance. They admit, however, that there is indeed difficulty in measuring CSR then.

Another significant contribution to literature is by Waddock & Graves (1997) because they establish the concurrent bi-directionality of the relationship between CSP and financial performance that is both variables are dependent and independent. Using the financial performance (ROA, ROE, ROS, Debt to Asset, Sales, Assets) of 469 companies from S&P 500 and its CSP attributes from the Kinder, Lydenberg, Domini (KLD) database they conclude that CSP depends on financial performance and that the sign of relationship is positive supporting the slack view of resources theory, earlier established by McGuire et al. (1988). They add that firms with available resources may choose to spend those resources on ‘doing good by doing well’ and that those resource allocations may result in improved CSP (Waddock & Graves, 1997). Speculating on where the virtuous cycle begins, they argue that it could possibly be simultaneous.

**Environmental accounting**

The most recent literature on Japanese studies was conducted by the Institute for Global Environmental Strategies (IGES). By examining 278 listed companies in Japan from 1999 to 2003, the study reveals that there is a positive effect of corporate environmental activities (using Nikkei Environmental Management Score Report) on financial performance (Tobin’s q minus 1 and ROA). However, similar to the findings of Stanwick and Stanwick (2006), the machinery industry appears to have a negative direction where higher environmental performance leads to lower financial performance. Interestingly, the positive relationship earlier established in the energy-intensive industry group turns negative as a result of the recent trend of tightening climate policies. While acknowledging the simple correlation to a multiple regression applied in the study of Russo & Fouts (1997), the study advanced the analysis using the Hurlin-Venet extension of the Granger causality test. The results appear to be ‘surprising’ in the machinery industry considering that it includes household appliance and automobiles (according to the classification of the Ministry of Economy, Trade, and Industry), which are perceived to have excellent environmental record. The study therefore, suggests further examination (Nakao et al., 2005). In a follow-up study by Nakao, Amano, Matsumura, Gemba & Nakano (2006) they reaffirm their group’s earlier findings that environmental performance has a positive impact
on financial performance and vice versa. Still employing multiple linear regression analysis and Granger causality test on the financial performance of 300 listed companies and Nikkei environmental management survey score, they conclude that the relationship is not just limited to top-scoring firms as to financial and environmental performance but rather a matter of general observation.

In one of my studies, I show that environmental innovations costs positively impact financial performance of Japanese automotive and electronics companies for the periods 2001 to 2009 with a concurrent bi-directional relationship between the constructs. However, even if virtuous cycles are observed through vector auto regressions in determining causality, the significance of relationships in panel regressions do not hold for longer time periods. Hence, environmental innovations impact financial performance only for the first half (2001 to 2006) of the decade while the second (2004 to 2009) half shows diminishing significance of relationships (Cortez & Cudia, 2011a; 2012).

For the automotive companies in 2001 to 2009: revenues, income, assets, long-term debt and equity show significant bi-directional relationships with environmental innovations costs. The same trend is observable in the time period 2001 to 2006. However, due to the global economic crisis, the income appeared insignificant from 2004 to 2009 (Cortez & Cudia, 2011a; 2012).

For electronics companies in 2001 to 2009, only revenues and long-term debt appeared to have significant bi-directional relationships with environmental innovations costs. However, it is notably observed that long-term debt has a negative coefficient suggesting risk minimization benefits of environmental innovations as earlier espoused by scholars of sustainability (Orlitzky, 2008; Cornell & Shapiro, 1987, Shrivastava, 1995). In contrast to the automotive companies, the coefficient of long-term debt showed a positive sign, suggesting that environmental innovations cost are financed through long-term debt (Cortez & Cudia, 2012).

The green supply chain gap

Additionally, as for green supply chain management, the impact of management initiatives is seen to be positive on stock prices of firms. Particularly, high R&D expense and early adopters show a strong increase in stock prices (Bose & Pal, 2012).

Therefore, I revisit the investigation by looking into the decade worth of financial performance and environmental innovations of Japanese automotive, electronics, and chemical companies. By capturing variables of market value, revenue generation, profitability, firm size, liquidity, risk minimization and shareholder wealth management, I attempt to illustrate the bigger picture of Japanese manufacturing within the GSCM perspective.
RESEARCH DESIGN & METHODOLOGY

This is a cross comparative industry case study of Japanese manufacturing companies. Archival secondary databases are merged to perform pattern matching across industries (Yin, 2009). Ten years of financial performance were gathered from Research Insight COMPUSTAT for nine automotive, nine electronics, and 31 chemical companies purposively chosen from the Nikkei 225 and the Tokyo Stock Exchange listed companies on the basis of publishing environmental accounting reports compliant with the MOE guidelines. The environmental accounting costs were taken from 2001 to 2010 environmental reports (CSR reports, responsible care reports). Industry production data were gathered from the Japan Automotive Manufacturers’ Association (JAMA), Japan Electronics & Information Technology Association (JEITA).

Panel data regressions with firm specific and fixed effects are performed for each of the industries (2001-2010; 2001-2006; 2005-2010) using environmental innovations cost as the controlling variable over financial performance (revenue, cost of sales, income, 1-year high price, current assets, total assets, current liabilities, long-term debt, total liabilities, and stockholders’ equity). The relationships of the variables were reversed in another panel data regression. Granger causality tests are performed to determine the direction of variable relationships or if virtuous cycles exist. Finally, multivariate panel regression is performed to establish the impact of the automotive and electronics industry production on the financial performance of chemical companies.

Propositions

With the resource-based view perspective as theoretical basis for establishing the direction of impacts, I operationalize financial performance into: 1-year high price to capture market value, revenues, cost of sales (which is expected to have a negative coefficient), net income to measure profitability, assets to denote firm size, current assets and current liabilities to reflect liquidity position, long-term debt and total liabilities to proxy risks, and stockholders’ equity to represent shareholder maximization. With these I hypothesize according to the three industries represented by the sample companies:

\begin{align*}
H1a. & \text{ Environmental innovations cost positive impact} \\
& \text{financial performance of automotive companies.} \\
H1b. & \text{ Environmental innovations cost positive impact} \\
& \text{financial performance of electronics companies.} \\
H1c. & \text{ Environmental innovations cost positive impact} \\
& \text{financial performance of chemical companies.}
\end{align*}

Alternatively, the slack availability of resources illustrates the reversal relationship of good financial performance has to happen first before environmental innovations are facilitated. Hence, I reverse the variables with...
environmental innovations being the controlled variable by financial performance mentioned above. Therefore, I hypothesize for the three industries as follows:

- **H2a.** Financial performance of Japanese automotive companies positively impact environmental innovations cost.
- **H2b.** Financial performance of Japanese electronics companies positively impact environmental innovations cost.
- **H2c.** Financial performance of Japanese chemical companies positively impact environmental innovations cost.

Orlitzky’s (2009) virtuous cycles, Carroll & Shabana’s enlightened management concept, or what I aptly call the accumulated slack theory describe the concurrent bi-directionality of the relationships of constructs. I proposed that there are virtuous cycles observable in the three industries.

- **H3a.** Virtuous cycles exist between environmental innovations cost and financial performance of Japanese automotive companies.
- **H3b.** Virtuous cycles exist between environmental innovations cost and financial performance of Japanese electronics companies.
- **H3c.** Virtuous cycles exist between environmental innovations cost and financial performance of Japanese chemical companies.

Finally, from a GSCM perspective, the above propositions are integrated across industries and propose that the chemical industry is at the forefront of the Japanese production pipeline. By virtue of the network theory and institutional isomorphisms, the companies perform environmental innovations because of the direct impact of the automotive and electronics industry production on the revenues and profitability of chemical companies. Hence I propose:

- **H4.** Automotive and electronics industry performance positive impact financial performance of Japanese chemical companies.

**RESULTS & DISCUSSION**

**Impact of environmental innovations on financial performance**

**Automotive manufacturing.** Automotive companies appear to have more significant results in terms of financial performance in contrast to electronics and chemical companies in the ten-year period 2001 to 2010. The panel regression (Appendix A) reveals that revenues, cost of sales, income, 1-year high price, current assets, total assets, current liabilities, long-term debt, total liabilities and stockholders’ equity are significantly affected by environmental innovations in the period 2001 to 2010.
The first years (2001 to 2006) of compliance with the MOE’s guidelines on environmental accounting do not show significant impacts on the stock price of automotive companies. However, in the period 2005 to 2010, stock price appears to have been significantly controlled by environmental innovations costs. These suggest that it takes a longer period for the market to appreciate and legitimize environmental innovations. This result is consistent with Bose & Pal’s (2012) results that green supply chain management initiatives yield positive impacts on the company’s stock prices.

The global economic crisis of 2008 appears to have taken its toll on the financial performance particularly profitability, liquidity and leverage position of automotive companies. Income, current assets, and long-term debt turned insignificantly related to environmental innovations costs. Nevertheless for the decade worth of observations support the acceptance of H1a with the exception of long-term debt which runs contrary to expectations. The business rationale for sustainability (Orlitzky 2009) espouses that risks are minimized as measured in long-term debt, i.e., contingent liabilities for environmental damages, clean up costs, etc. However, the positive coefficient suggests that environmental assets and maintenance costs are financed presumably from debt, the usual source of capital in Japan (Cortez & Cudia, 2012). Consistent with the resource-based view perspective (Kurucz, et. al 2008), Japanese automotive companies appear to reap the benefits of environmental innovations on its financial performance.

Alternative, the concurrent bi-directionality of the constructs could be explored. Some scholars suggest that it could be the other way around: that financial performance determines the amount invested in environmental innovations by virtue of the slack availability of resources (McGuire, et. al, 1988; Waddock & Graves, 1997). Considering the multi-trillion financial performance variables against the small environmental innovations costs, it is natural to get a smaller coefficient. If the relationships are reversed with environmental innovations cost as the dependent variable, the panel regression (Appendix B) reveals similar results. Hence, granger causality results discussed below present the direction of constructs relationships. H2a: financial performance of automotive companies positively impact environmental innovations cost, therefore is accepted. These results for one complete decade confirm my earlier findings performed for the period 2001 to 2009 and disaggregated into 2001 to 2006 and 2004 to 2009 (Cortez & Cudia, 2011a).

**Electronics manufacturing.** To elaborate on our study of electronics companies (Cortez & Cudia, 2011a; 2011b), I added the variables current assets and liabilities to capture any effect of environmental innovations on the liquidity positions of companies. Revenues, cost of sales, current assets, long-term debt, total liabilities appear to be significantly affected by environmental innovations over the period 2001 to 2010. Revenues are expected to increase as the legitimacy of environmental innovations is translated into sales. However, costs of sales increases run contrary to expectations that there will be savings (Stead & Stead, 1995; Klassen & McLaughlin, 1996). Investment in
products and process improvements and innovations should ideally bring down costs; hence, the negative coefficient expected was not realized. This suggests that environmental costs are paid out of pocket as an expense and supported by the negative coefficient in current assets. Therefore, environmental innovations cost negatively impacts the liquidity position of electronics companies.

Probably the most important result exhibited in the panel regression (Appendix A) is the negative coefficient for long-term debt as controlled by environmental innovations cost. It has been theorized that sustainability practices ideally bring down business risk (measured in long-term debt), and the results confirm this theorization (Cornell & Shapiro, 1987; Shrivastava, 1995). In contrast to automotive companies, electronics companies perform environmental innovations and appreciate the benefits of reduced risk i.e. contingent liabilities, environmental damages and clean up costs.

The first part of the decade (2001 to 2006) shows the significant negative relationship with total assets and current liabilities. The current liabilities support the decrease in long-term debt and could be interpreted simply as a matter of classifying the risk factor as to time period. It is consequently observable in the latter period (2005 to 2010) but the decade worth of observation generalizes the risk minimization efforts of electronics companies.

Another revelation in the results is the emergence of the moderately significant impact of environmental innovations cost on the 1-year high price of electronics companies in the latter period (2005 to 2010). It was insignificant during the first part and the aggregate period. Given more longitudinal periods, it would be interesting to observe this variable gaining significance suggesting that the market eventually appreciates environmental innovations.

Finally, I earlier revealed that stockholders’ equity is insignificantly affected by environmental innovations. The insignificance of income probably contributed to the eventual lack of impact on stockholders’ equity. Hence, it was earlier thought that shareholder value is not enhanced over the period 2001 to 2010. The first part of the decade reveals likewise. However, the last part of the decade (2005 to 2010) show that environmental innovations cost has a moderate significant impact on stockholders’ equity. For further longitudinal observations, the impact on stockholders’ equity may be revisited.

With these emerging significant variables controlled by environmental innovations costs, the resource-based view perspective appears to explain this phenomenon. Electronics firms are slowly realizing the benefits of environmental innovation in terms of risk minimization; improve revenues, moderate impacts on stock price and shareholder value. Hence, H1b is accepted.

Alternatively, H2b is tested with a panel regression (Appendix B). The results seem to mirror the first regression. I propose the acceptance of H2b with further analysis using the discussions on causality below.
Chemical manufacturing. Almost all financial performance measures (revenue, cost of sales, income, 1-year high price, current assets, total assets, current liabilities, long term debt, total liabilities and stockholders’ equity) are positively affected by environmental innovations in the period 2001 to 2010. With the exception of the coefficients of cost of sales and risk measures, which are expected to be negative i.e., long-term debt and liabilities, the results confirm the expectations to accept H1c: environmental innovations positively impact financial performance. The positive relationship with cost of sales suggests that environmental innovations do not make production more efficient by bringing down costs. Likewise, the positive coefficients in the long term debt and liabilities do not support the claim of risk minimization. However, substituting debt ratio as a variable of risk shows a negative significant relationship (p-value of 0.00). For further research, we can suggest a thorough examination of variables that operationalize risks.

The relationships of variables seem to be mirrored in the period 2001 to 2010 if environmental innovations were to be affected by financial performance. A deeper analysis of the direction of relationships may be revealed below by the vector auto regression results via granger causality tests.

The first six years of the decade (2001 to 2006) shows that the 1-year high price is not significant. Firstly, the market may not have valued the environmental innovations just yet to reflect its impact of stock price. Likewise, during the second half of the decade (2005 to 2010), the relationship turned even more insignificant. However, considering the decade results (2001 to 2010), the significant result suggests that the market appreciates the environmental innovations in the long run.

Almost all the variables of financial performance appear to have insignificant relationships with environmental innovations during the later part of the decade. This may be seen that as most sustainability studies are, longer time periods are necessary to establish any felt benefit.

Therefore, we can accept H1c and H2c considering the decade worth of observations for chemical manufacturing companies. The resource-based view perspective may suggest benefits in financial performance by investing in environmental innovations. On the other hand, with available resources, environmental innovations are facilitated. However, it should be noted that most variable relationship are insignificant in the latter part of the decade.

The Virtuous Cycles

Automotive manufacturing. Granger causality tests (Appendix C) reveal the direction of the constructs variable and suggest the existence of virtuous cycles amongst the constructs environmental innovations costs and financial performance.

Five of nine companies exhibited virtuous cycles between revenues and environmental innovations costs. These are Honda, Isuzu, Mitsubishi, Suzuki, and Toyota. However, only Daihatsu, Suzuki and Toyota show virtuous cycles between income and environmental innovations costs. Observably,
there are more significant results pointing to income as positively affecting environmental innovations costs as espoused by the slack availability of resources.

Stock price shows the most number of impacts of environmental innovations rather than the other way around. Eight out of nine companies exhibit this result and this supports the legitimacy rendered by environmental innovations and benefits felt in the stock price of automotive firms. Hence the relationship of the variables here is predominantly uni-directional.

The virtuous cycles in the current assets and current liabilities with environmental innovations suggest the impact on liquidity of automotive companies. Environmental conservation efforts therefore, are financed readily out of pocket as suggested by the positive coefficients in the regression (Appendix A & B) through current assets or through short-term indebtedness.

The most number of uni-direction (8 out of 9 companies) is also observable in the impact of environmental innovations cost on firm size (assets). However, it does not mean an increase in firm size commands an increase in environmental innovations. In an earlier study, it was shown automotive companies might have already attained that firm size threshold as far as environmental assets are concerned. Hence, decreasing environmental innovations do not necessarily mean negative performance but rather a matter of benefiting from the early adoption of clean technology (Cortez & Cudia 2012).

As discussed earlier, long-term debt does not appear to be minimized with environmental innovations. The more predominant direction (7 out of 9) of environmental costs impacting total liabilities suggest the manner in which these are financed.

Finally, in support of the resource-based view perspective, the seven observations of environmental costs positively affecting stockholders’ equity suggests that the stake of shareholders’ are enhanced, protected and not sacrificed.

H3a is conditionally accepted with the case of the observations for revenues. However, a more noteworthy observation is the seeming complete virtuously cycles for all measures of financial performance in the case of Toyota and Suzuki suggesting that firm size may not necessarily be a requisite factor to engage in environmental innovations. The general direction, however, is that after investment in the necessary environmental innovations, there are more results supportive of the resource-based view perspective. This confirms a perception survey of Japanese management that automotive companies appreciate the resource-based view perspective in as far as sales, profit, and shareholder wealth maximization are concerned (Cortez & Nugroho, 2011).

Electronics manufacturing. Virtuous cycles are most notable between environmental innovations and long-term debt. The negative significant relationship was earlier established in the panel regression. Six bi-directional relationships are established via vector auto regression supporting the view
that environmental innovation minimizes the risks measured in long-term debt i.e., environmental clean up costs, penalties, and other contingent liabilities.

The directions of the relationships appear to be strongly supportive of the resource-based view perspective: that environmental innovations impact financial performance. Nearly all the variables measured in this study (revenue, cost of sales, income, market price, current assets, firm size, current liabilities, total liabilities, and stockholders’ equity) exhibit the uni-directional relationship with environmental innovations.

None of the top electronics manufacturers seem to exhibit full virtuous cycles. Hence, we cannot accept H3b but we could rather emphasize the statistical predominance of the resource-based view perspective over the slack availability of resources. However, an earlier management perception survey reveals otherwise. They perceive that increased sales, improved profitability, enhanced asset size, and maximized shareholder wealth as facilitating factors for investments in environmental innovations, thus, the predominance of the slack availability of resources (Cortez & Nugroho, 2011).

**Chemical manufacturing.** The more samples in the chemical manufacturing industry present more diverse results on virtuous cycles. Ten virtuous cycles are observed out of 31 companies between environmental innovations and revenues, cost of sales, and current assets. There are 11 virtuous cycles between environmental innovations and firm size (assets).

The most virtuous cycles notably happen between environmental innovations and long-term debt; total liabilities. Almost half of the companies sampled exhibit virtuous cycles in terms of risk minimization. Considering the negative coefficient established in the panel regression in Appendices A and B in period 2001 to 2006, the combined results point to the risk minimization efforts of chemical companies.

As for the direction of relationships of variables, the causality established is greater than the observed virtuous cycles suggesting uni-directional impacts. Around 20 to 24 single directions are established, hence, it could no be concluded whether environmental innovations predominantly cause financial performance; vice-versa.

However, the observations of the most virtuous cycles and the predominance of the resource-based view perspective refer to the relationship between long-term debt and total liabilities with environmental innovations. More than two-thirds (or 24 observations) of the 31 companies sampled show environmental innovations having a negative impact on long-term debt.

H3c or the presence of virtuous cycles is therefore accepted for chemical companies’ environmental innovations and financial performance with particular emphasis on risk minimization.
Impact of automotive and electronics industry performance on chemical industry

At this point in our analysis, connecting the discussions across industries provides a bigger picture of the green supply chain in Japanese manufacturing. Using industry output of the automotive and electronics industries as controlling variables, and revenues and profitability of the chemical companies as the dependent variables, cross sectional fixed regression analyses establish the significant impacts (See Table 1).

**Table 1.** Panel Regression: impact of automotive and electronics production on chemical companies’ financial performance

| Dependent Variables | Coefficient | P>|t| | Coefficient | P>|t| |
|---------------------|-------------|--------|-------------|--------|
| Revenue             | 0.0000501   | 0.000  | -9.19e-06   | 0.005  |
| Income              | 6.88e-06    | 0.000  | 1.77e-06    | 0.001  |

The industry production output of the automotive industry positively impacts the revenues of chemical companies with a p-value of 0.000. The significant positive impact is also established on the profitability of chemical companies with automotive production being highly significant at 0.000.

The declining electronics production over the decade presents a negative but significant relationship with the revenues of chemical companies. As a matter of overall economic circumstance, this is expected. Nevertheless, a significant positive impact of electronics production on chemical companies’ profitability is established.

Therefore, H4 is accepted: that automotive and electronics industry performances positively impact the financial performance of chemical companies. This puts chemical companies at the start of the green supply chain as they provide the necessary materials in automotive and electronics production. With the environmental quality standards imposed by the automotive and electronics companies, chemical companies comply by virtue of the network theory and institutional isomorphisms.

**Cross case synthesis**

This section provides for a cross case synthesis by analyzing the relative results of the vector auto regression for the automotive, electronics and chemical companies.

Predominantly, environmental innovations impact revenues of electronics and chemicals companies following the resource-based view perspective. The automotive companies have equal occurrences of bi-directional impacts of the variables environmental innovations and revenues. Significantly, automotive companies have the most relative number of virtuous cycles in terms of these variables. The automotive and electronics companies are more susceptible to public image perception and legitimacy,
hence, customer expectations through patronage of eco-friendly products are translated into revenues. On the other hand, the chemical companies which appears to be at the start of the production pipeline has to engage in environmental innovations as well for it is demanded by automotive and electronics companies, its next in chain customer. The link between automotive and electronics production are established through multivariate panel regression analysis performed above.

I failed to prove the consistency of the cost of sales with the business rationale for sustainability. It has been espoused that sustainability practices such as environmental innovations promote production efficiency. In accounting terms, a negative relationship with environmental innovations could suggest cost effectiveness. Therefore, as for Japanese automotive, electronics and chemical companies, environmental innovations appear to be an additional cost burden, which may rather be viewed from a resource-based perspective. The benefits could alternatively be felt in other areas of financial performance in the succeeding discussions. Cornell & Shapiro (1987) suggest that costs are offset by a reduction in risks.

Income and environmental innovations provide mixed results across industries. Automotive companies appear to favor profitability having an impact on environmental innovations as theorized by the slack availability of resources: increased profits promote more environmental innovations. Electronics companies, on the other hand, have a negative coefficient as environmental innovations cost impact profitability, as a matter of recent economic downturns. The Japanese electronics industry has not yet recovered from its pre-crisis performance and the highest production happened at the start of the decade (Cortez & Cudia, 2011b). Therefore, declining production and profitability is expected to have an inverse relationship with environmental innovations. These companies, however, comply anyway with the guidelines set by the MOE. More than half of chemical companies exhibited both directions of variable relationships; hence, it could be supposed that there are varied uni-directional impacts across samples.

Market price is probably a significant variable that highlights the legitimacy rendered on environmental innovations. Automotive and electronics companies exhibit observations supportive of the resource-based view perspective: environmental innovations positive impact the 1-year high price. The consistency of significant p-values across time periods 2001 to 2010, 2001 to 2006, and 2005 to 2010 suggest that automotive and electronics companies are more susceptible to public perception. Furthermore, 56 percent of the electronics companies exhibit virtuous cycles. This somehow compensates for the negative relationship established above between profitability and environmental innovations. In this cross synthesis, chemical companies appear to have less relative observations on the directions of variable impacts presumably due to the position of these companies in the manufacturing process. They are less susceptible to public pressure yet comply with quality standards they bring in to the automotive and electronics manufacturing process.
The variable to measure liquidity, i.e., current assets and current liabilities are an addition to my sustainability studies to capture the impact of environmental innovations on operating cash flows and vice-versa. For automotive and chemical companies, the availability of current assets and current liabilities positively impact environmental innovations. For electronics companies, on the other hand, the significant negative relationship suggests that environmental innovations that are mostly expensed i.e., research and development, maintenance costs, etc. are paid out of short-term liquidity.

Probably the most important contribution of my findings is on the risk minimization of these Japanese companies. The positive coefficient across the comparative periods for automotive companies suggest that environmental innovations are financed primarily through long-term debt and liabilities. Meanwhile, electronics and chemical companies have inverse relationships between environmental innovations and long-term debt and liabilities. In this category, the most relative number of virtuous cycles happens in the electronics companies long-term debt (67%), liabilities (56%) and environmental innovations. Notably, the coefficients are negative in the time periods thus validating the earlier theorization in the business rationale for sustainability that risks are minimized (Shrivastava, 1995; Shapiro & Cornell, 1987; Klassen & McLaughlin, 1996).

Finally, in terms of shareholder wealth, automotive and electronics companies share the same pattern of environmental innovations having a positive impact on stockholders’ equity, of which, 33 percent of automotive and 44 percent of electronics companies exhibit virtuous cycles. On the other hand, chemical companies show a significant difference between the direction of variable relationships: 68 percent of chemical companies sampled show stockholders’ equity having a significant positive impact on environmental innovations.

**CONCLUSION & RECOMMENDATIONS**

Sustainability studies by its very nature are rendered in the long-run and studying Japanese manufacturing companies with a decade worth of environmental innovation and financial performance measured consistently applied provide for interesting exploratory case studies.

In this research, I revisit the relationships of the constructs environmental innovations and financial performance using automotive, electronics and chemical manufacturing companies which significantly comprise Japan’s manufacturing sectors. These industries and its impact of global production and trade advance sustainability studies using the GSCM perspective.

While we observed virtuous cycles and bi-directional relationships of the constructs, the interconnectedness of these industries is highlighted. By virtue of institutional isomorphisms and network theoretical perspectives, these Japanese manufacturers not simply comply with regulations but rather promote quality complementation. This seeming self-regulation in
manufacturing provides an example of deeper reasons why companies engage in environmental innovations even if it does not simply mean to be profitable. From a sociological perspective, companies perform sustainability practices because it is demanded by the production pipeline considering that the companies contained in this study are subject to different legitimacy pressures from the capital market, the regulators, and next in chain customer, and finally, the consuming public.

By revisiting the variable relationships, I paint a bigger picture of the Japanese environmental innovations and financial performance. Virtuous cycles exist and apply for the decade worth of financial performance measures. Automotive companies being the leading manufacturing industry exhibits the most virtuous cycles but electronics companies provide a deeper meaning of risk minimization. Chemical companies may silently perform environmental innovations but risk minimization is likewise realized.

As for the predominant theoretical perspective, there are mixed results on the uni-directional impacts of environmental innovations on financial performance and vice-versa. In my earlier survey of Japanese management, their perception favors the slack availability of resources but statistical findings point to the resource-based view perspective (Cortez & Nugroho 2011). I suggest that this phenomenon be viewed as a combined management realization. Aptly called the accumulated slack theory (Cortez & Cudia 2011a) or what theorists refer to as enlightened or good management perspective, I propose that the uni-directional observations be treated as a management practice of sustainability either with the provision of resources or with the available resources. There are tangible and intangible benefits in both ways nevertheless.

Future studies may further this study by examining the related industries like suppliers of the automotive, electronics, and chemical industries. The Japanese manufacturing system is composed of complex interrelated and interconnected businesses called the keiretsu. Hence, deeper studies through the network theory may show sustainability studies from more sociological perspectives.

REFERENCES


management on cost advantage: the role of complementary assets. 


APPENDIX

Appendix A. Panel regression: Environmental innovations impact financial performance

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### Appendix B. Panel regression: Financial performance impacts environmental innovations

**Dependent variable:** Environmental innovations

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### Appendix C. Automotive companies Granger causality tests

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**Legend:**
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- □: moderately significant at 0.10
- ×: insignificant

Page 80
### Appendix C. Chemical companies’ green causality costs

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**Legend:**
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- **x** insignificant

81
## Appendix F. Summary of directions of impact and virtuous cycles

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Lead-time management in Bangladesh garments industry: A system dynamics exploration

Behrooz Asgari
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ABSTRACT

The demand driven apparel industry is increasingly being marked by its players (brands, retailers and specialty stores) competing for who can move faster their fashions to better respond to today’s time sensitive customers. This competition of running against time has posed a great deal of challenges which are ultimately to be kept pace with by the apparel manufacturing firms. Therefore, time (lead time for garments delivery) has become a crucial performance parameter among apparel manufacturing economies around the world. China and India have a 55 and 65 day delivery time respectively while Bangladesh remains at a 90 to 120 day delivery time. To stay competitive in the global apparel market, Bangladesh needs to improve its lead time and research shows the opportunity is ample if it can achieve textile sufficiency from domestic production along with its inherent backward linkages. Thus, a system dynamics model has been developed to show how the domestic fabric production capacity can reduce lead-time and enhance the backward supply chain strength for the Bangladesh ready-made-garment industry.

JEL Classification: L11, L23, L60

Keywords: system dynamics model, Bangladesh garments, lead-time management, domestic fabric production

INTRODUCTION

As the impact of physical boundaries is decreasing with the advent of the latest information and communication technologies, markets are continuously becoming more globalized, and new competitors are progressively entering the market with newer and more innovative products and services to
compete with the existing ones. The apparel industry is highly globalized with a number of key exporters and importers from Asia, Europe and the Americas. Moreover, the product life cycle of apparel products, many of which are fast fashion items, is decreasing quickly. Consequently, the time allowed for design-to-market is decreasing over time, which is directly pushing suppliers or manufacturers of garments to reduce the duration of the “order issue date to the shipment date”. Bangladesh garment manufacturers don’t deal with the design and the marketing stages, dealing with only “raw materials sourcing to garment manufacturing to shipments at Chittagong port”. With the emergence of new competitors, the presence of existing players, and the Bangladesh garment sector no longer enjoying the MFA (Multi Fiber Arrangement) in the US market since 2005; the garment business is increasingly becoming more and more competitive in terms of quality, cost and lead time. In such a competitive environment, many suppliers from China, Hong Kong, India, Sri-Lanka, Vietnam and Turkey etc. are supplying similar or better quality apparel at a reasonable cost. However, an industry that can supply a reduction in the product life cycle will garner more customers, who are time sensitive, over competitors who are still struggling with lead-time.

It can be concluded that while several competitors can simultaneously serve higher quality products and at a reasonably low cost, reduced lead time is the last and most important criteria for the industry clientele. So, this study is dedicated to investigating the reasons of long lead time in the supply chain and providing solutions for the Bangladesh Ready-Made-Garment (RMG) industry. In our investigation, these problems are identified in both the backward and forward supply chain links.

LITERATURE REVIEW

Time has become such a valuable asset that any company that can exploit it can increase its competitiveness to a greater extent than ever before. Timing has become a crucial factor in many aspects of business including but not limited to planning, innovating, manufacturing, selling, distributing, and adopting strategies and policies (Stalk, 1988). Stalk (1988) also suggested that while cost, quality, manufacturability, newness /innovation evolved as a source of competitive advantage, time has positioned itself as the latest weapon to compete in the marketplace.

Christopher (p.149, 1998) also asserted that time has become very important to compete against competitors and the main reason for this change is the change of the customers’ awareness and preference for time. In the fashion market, new styles are released frequently, lasting for a short period of time, being replaced by new trends. Thus, end consumers are also becoming more conscious about the latest fashion trends in the apparel market. Now, innovative designers around the world are also bringing new designs to the market with an ever-increasing frequency. It has been noticed that a new and fantastic style, which conquered the market in one season (summer/winter), will also be replaced the following season. So, it’s very
difficult to forecast whether the same popular fashion trend will continue into the following season. As a result, seasonal and cyclical demands are fluctuating severely. So, it clearly indicates a shortening of the fashion life cycle in the end consumer market.

![Comparison of life cycle pattern between fashion and basic products](image1)

**Source:** Cornell University (2013)

**Figure 1.** Comparison of life cycle pattern between fashion and basic products

Products usually pass through the different stages of the life cycle, which requires different planning strategies in order to enhance its success. Each successful product goes through at least the four stages in the product life cycle, which are: introduction, growth, maturity and decline. The product life cycle length is also different depending on the product, where the fashion life cycle usually experiences a sharp decline at the end of the growth stage. According to Figure 1 (Cornell University, 2013), the growth stage is noticeably shorter when compared to a basic product. This means that the declining stage starts immediately after its apex in the growth stage, making fashion item inventories very difficult to manage. Due to the sharp decline seen in Figure 1, there is immense pressure on the manufacturing industry to deliver apparel within and short and limited time span. Hence, the lead-time for manufacturers is also decreasing.

![Obsolence problem for late entrant in the fashion market](image2)

**Source:** Christopher, p.151 (1998)

**Figure 2.** Obsolescence problem for late entrant in the fashion market
Christopher (p.151, 1998) explained (see Figure 2) that if any company introduces its apparels in the market later than its trend, it would probably have a huge number of outdated items as shown in the grey area. Owing to these two important factors; short duration of fashion apparels and obsolescence resulted by late delivery (combining with Fig. 1 and Fig. 2), the lead-time from designing to market will be shorter and crucial. As Bangladesh garment factories begin manufacturing only after obtaining orders, their concerns revolve mainly around manufacturing lead-time. Thus, the time from design to market has become crucial for all fashion garments worldwide.

Bangladesh garment industry in the global value chain:

The apparel industry is a perfect example of a buyer-driven value chain (Gereffi & Memedovic, 2003) and lead firms who are mainly from the United States, Europe and Japan, dominate the market structure in terms manufacturing location (Fernandez-Stark et al., 2011). They also determine the market prices of apparel products.

Fernandez-Stark et al., (2011) classified the global apparel supply chain into five identifiable sectors: (1) raw material supply, including: natural and synthetic fibers; (2) provision of components, such as the yarns and fabrics manufactured by textile companies; (3) production networks made up of garment factories, including their domestic and overseas subcontractors; (4) export channels established by trade intermediaries; and (5) marketing networks at the retail level. Our analysis shows that the Bangladesh RMG industry is partially involved in the second category and fully (100%) involved in the third category to produce garments as per buyers’ orders. How this positioning of the Bangladesh RMG industry makes it profitable is explained in Figure 3.

Source: Frederick (2010,; Fernandez-Stark et al. (2011)

Figure.3. Phases of value addition in global apparel value chain
Value added activities are carried out in different stages and this is shown in the above Figure 3. Most top firms from America and Europe carry out new research and production initiatives with an aesthetic and style design, distribution, market and services, which add high value. Thus those top firms obtain the major part of the profits as well. The Bangladesh apparel sector supplies a small portion of woven fabrics as well as a major portion of the knit fabrics. Therefore, the Bangladesh apparel sector carries out its “production” activities in the low value added stage as shown in Figure 3 above. Thus, the Bangladesh RMG must capitalize on cheap labor and quick delivery in the production process within a short lead time in order to turn a profit.

**Concept of lead-time in Bangladesh garment industry:**

Lead-time is the duration between the start and ending of a process. Within lead-time, every necessary activity is carried out to fulfill a consumer demand and ultimately brings the product within the consumers reach (Elsmar, 2013). It includes the elapsed time that starts at the moment an order is placed and the moment when the goods are delivered to the final destination (Chopra, p.317, 2010; Nuruzzaman & Haque, 2009; Christopher, p.157, 1998). In the case of the Bangladesh RMG, we have been informed by the respondents and experts’ opinions that lead-time is mentioned nowhere in the order confirmation paper. Rather it is implied by two dates; 1) order issue/confirmation date and 2) the shipment date. The time gap between these two dates is treated as lead-time in the Bangladesh RMG business. The lead-time in this case is somewhat different from that, which is described by Chopra (p.317, 2010) and Christopher (p.157, 1998). Chopra and Christopher included shipment time into the lead-time equation however, the Bangladesh RMG doesn’t account for that factor. This factor is considered and dealt with by the merchants from Europe and the Americas rather than the garment manufacturers in Bangladesh.

Nuruzzaman & Haque (2009) and Antonin (2013) have divided lead-time into two parts such as “information lead time” and “manufacturing lead time”. Information lead time includes the time when correspondence between buyers and the RMG factory merchandisers takes place to negotiate about the garments quality, color breakdown, cost/price per unit, order quantity and required delivery date. Order lead time can be defined as starting immediately after the order issue date and spanning up to the last shipment date, in general, at the Chittagong sea port. During manufacturing lead-time, factories source/buy fabrics, the main raw material, either from local markets or outsource from China, India, Pakistan, Sri Lanka, Indonesia or other countries. Sourcing fabrics is a big time consuming factor in the RMG business and it’s included in order lead-time.

Order lead-time plus shipment time is the replenishment lead-time for the overseas merchants who procure garments from Bangladesh. The less replenishment lead-time is allowed, the more pressure there is on every
supplier in the supply chain, which is a source of competition among manufacturers (Nuruzzaman & Haque, 2009; Christopher, p.149, 1998). However, any company who can supply with a shortened lead-time will increase sales as this gives rise to positive customer response. Another reason for shorter lead-time need is the safety inventory, which is an idle investment of capital. If lead-time can be reduced by “X” percentage then the safety inventory will be reduced by •X (Chopra p.326, 2010). Many merchants, including Wal-Mart (Chopra p.326, 2010) are demanding the delivery of garments within a short lead-time to reduce their investment in safety inventory in order to minimize idle capital in the business.

Considering expert opinions gathered through phone-discussions, we have identified the key activities that are carried out during order lead-time by garment companies in Bangladesh. At first, RMG companies import fabrics from overseas countries, mainly from China, India, Pakistan, Indonesia, Sri Lanka, Thailand, or buy from local producers in Bangladesh, then manufacture the garments according to the merchant requirements and, finally, ship out at the Chittagong sea port. So, Bangladesh factories mainly have the following components in lead-time:

**For Bangladesh garments (in general):**

\[
\text{Lead time = Fabric manufacturing time} + \text{time to import fabrics} + \text{fabric inspection / other processing} + \text{Garments Manufacturing (cutting, sewing, washing, finishing and packing)} + \text{Garments Final Inspection and sending to Chittagong sea port} + \text{buffer time (woven garments)}
\]

\[
\text{Lead time = 25 + 28 + 7 + 20 + 5 + 5 = 90 days}
\]

\[
\text{Lead time = manufacturing time of fabrics} + \text{manufacturing time of garments (knit garments)}
\]

**RESEARCH QUESTIONS OF THE STUDY**

On the basis of this literature review, this study was focused to answer the following research questions.

- What are the crucial factors for long lead-time?
- How long time can be reduced so that it can increase competitiveness of Bangladesh apparel industry?
- What might be the impact of different policies that can be adopted by the government and industry players?

**METHODOLOGY**

Both qualitative and quantitative research strategies were applied to deeply look into the breadth of the research questions and to find their possible solutions. Quantitative research method was applied for conducting a survey among target respondents in which a well-defined survey questionnaire was used as the research instrument, which was full of close-ended questions. The
other set of the questionnaire was distributed among experts, which was full of open-ended questions. Most merchandisers responded from different factories because they usually deal with lead-time including order negotiation and import of necessary raw materials such as fabrics and accessories. Survey questionnaires were developed proceeded by a literature research and expert discussion over the phone. The structured questionnaire was composed mostly of “yes/no” and multiple choice questions. The questions for identifying reasons behind long lead-time were asked by using a 5-point Likert scale. These questions had the following multiple choice rating scale given by: 1 = strongly disagree, 2 = Disagree, 3 =Neutral, 4 = Agree, 5 =strongly agree.

Variables and their inter-relationships:
Here we define, explain, and show the inter-relationships among the different variables. The variables are listed in Table 1 including their type and measurement units.

The primary strength of the Bangladesh RMG industry is low cost labor availability and good quality in garment sewing. However, respondents of the survey have identified long lead-time as the most critical problem to compete against China, India and Sri Lanka. For woven garments, China and India can deliver the products within 50-60 days and 60-70 days respectively whereas Bangladeshi exporters can deliver within 90-120 days on the average. This long lead-time is appearing as a potential threat to the future growth of the apparel industry. The respondents opined that China and India have their own textile factories to produce woven fabrics, which have enabled them to deliver within a shorter lead-time. Bangladesh textile mills, as the domestic source of woven fabrics, can only supply 40 percent of the total demand and the other 60% are mostly imported from China, India, Pakistan, Indonesia, Indonesia and Turkey. Contrary to the woven fabrics, Bangladeshi textiles can supply 90% knit fabrics of the total domestic consumption per year. As a result, the knit sector can compete almost equally to the lead-time of both China and India. So, this study has identified the lack of woven fabric production in Bangladesh or import from other countries as the major cause of long lead time. It takes about 28 days to import fabrics from overseas countries (count is based on the major source, China). Some experts have suggested that lack of a deep sea port at Chittagong is another determining factor for long time to import as it takes almost one extra week at a Singaporean or Sri-Lankan (Colombo) deep sea port to change ships. At present, only some feeder vessels ply directly from Shanghai to Chittagong, which only covers 10 percent of the total shipment of Chittagong Port from China, however, the other 90 percent of the time, the route through Singapore is employed, where mother vessels unload to feeder vessels.

From the analysis of the survey questionnaires, we have identified two main variables that contribute to the major factors of lead-time and where policies can possibly be adopted to reduce it. The domestic supply of fabrics and the deep seaport at Chittagong can drastically reduce lead-time as well as build a strong and integrated backward supply chain of the RMG industry.
Based on the survey and its analysis, domestic fabric production (DFP) has been identified as the key stock variable that will determine future lead-time. DFP is primarily determined by two factors (see Fig.4). The first factor is the present amount of production, which is already taking place in existing textile factories in Bangladesh. The amount of present DFP is collected from the website of the Bangladesh Textile Mills Association (2013). The other factor is growth in fabric production (\( r \)), which is calculated on the average growth of production capacity during the last three years. Thus DFP can be expressed as:

\[
DFP(t) = DFP(0)e^{rt} \quad (1)
\]

<table>
<thead>
<tr>
<th>Table 1. Variables in the model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variable name</td>
</tr>
<tr>
<td>Domestic fabric production</td>
</tr>
<tr>
<td>Total fabric demand</td>
</tr>
<tr>
<td>Growth in fabric production</td>
</tr>
<tr>
<td>annual demand increase in fabric consumption</td>
</tr>
<tr>
<td>import requirement</td>
</tr>
<tr>
<td>production capacity addition</td>
</tr>
<tr>
<td>percent that can work 60 days</td>
</tr>
<tr>
<td>import lead time</td>
</tr>
<tr>
<td>demand accumulation</td>
</tr>
<tr>
<td>time reduction factor</td>
</tr>
<tr>
<td>total lead time reduction</td>
</tr>
<tr>
<td>forecast lead time</td>
</tr>
<tr>
<td>present lead time</td>
</tr>
<tr>
<td>impact of deep sea port</td>
</tr>
</tbody>
</table>
After domestic production capacity, the second most influential factor is total fabric demand (TFD), which determines the lead-time and import requirements. This demand is increasing every year depending mainly on two factors. First, the number of newly established garment factories is growing and, second, the production capacity is also increasing through their experience, expansion and increase of orders. Forecasted TFD may be viewed as the total potential for growth of the Bangladesh RMG industry. So, the higher value of TFD for any time and its increasing trend is a good sign for Bangladesh’s economy. However, TFD at any time in the future will be characterized by two factors such as present TFD and annual demand increase in fabric consumption (a). The value of “a” is estimated based on the average growth in fabric consumption during the last five years in Bangladesh. Thus TFD (t) at any time is expressed below as:

$$ \text{TFD} (t) = TFD(0) \text{ e}^{at} \quad (2) $$

The import requirement ($I_{req}$) to meet the total demand TFD (t) is simply the algebraic difference between domestic production and total
demand by garment manufacturers. Import requirement (I(req)) is mainly determined by two other factors of DFP (t) and TFD (t). These two factors are “r” and “a”. Government entities or policy makers can manipulate these two growth rates to control future imports and exports. The simulation scenarios manipulating these two variables may be used for policy making.

\[ I(t) = TFD(t) - DFP(t) \]  \hspace{1cm} (3)

The less the value of “I” is, the less the lead time the apparel sector will be for Bangladeshi exporters which is the top competitive advantage. So, the objective of policy makers should be to minimize I (t) whereas they have to maximize both DFP (t) and TFD (t).

For the sake of analysis, if we assume that all domestically produced fabrics are consumed by some factories to meet their 100% demand and they will not import any fabric from overseas, then we find that those factories can deliver garments within 60 days of lead time as they don’t need to wait 28 days for the fabric to arrive. This shows a strength level of the apparel sector revealing a smaller dependence on imported raw material. In this study, the percent of factories that deliver within 60 days of lead-time (\( \eta \)) is measured below as:

\[ \eta(t) = \left( \frac{DFP(t)}{TFD(t)} \right) \times 100 \]  \hspace{1cm} (4)

The time reduction factor (TRF) is a ratio, which is dependent on import lead time (ILT) and total fabric demand. With the welfare of several local and bilateral trade facilitation initiatives (in forms of reducing trade barriers among nations and improving infrastructure development of international ports, etc.). We, presently, enjoy fabric import lead times of 28 days and 20 days respectively from China and India while these were respectively 38 days and 28 days just 15 years back. There is only a little scope of further improvement in fabric import lead-time through infrastructure development (Chittagong Port’s capacity and efficiency and inland roads / waterways capacities to and from Chittagong Port) within the existing system. Albeit it remains as a matter of hope, this will not substantially improve lead-time even if it occurs. Hence the remaining alternatives are domestically sufficient fabric supply (which makes input import time zero) and a deep seaport (which will reduce both import time, albeit at a minimum, and export time to a substantial extent (not less than a week)). So, we focus on building textile and fabric production capability and setting a deep seaport.

\[ TRF(t) = \frac{ILT(t)}{TFD(t)} \]  \hspace{1cm} (5)

Total lead-time reduction (TTR) is the multiplication of domestic fabric production and the time reduction factor plus the impact of the deep
seaport (DSP). TTR is an important objective, which is achieved through a controlled growth of the domestic capacity and the imports of fabrics. The deep sea port is another option which will have a very good effect to reduce both import and export lead time. However, for more than a decade there has been many political and social debates in Bangladesh regarding this solution. No government agency has made the decision and started the construction work necessary to construct a deep seaport at Chittagong. That is why this study basically focuses on the enhancement of domestic fabric production capacity to reduce dependence on imports. Simulation results are shown without a deep seaport in the next section.

\[ TTR (t) = TRF (t) \times DFB (t) + DSP \] (6)

The final outcome on which the policy will be based on is the forecasted lead-time (LTF). Forecasted lead-time is the difference between the present lead time (LT) and the achievement in lead time reduction (TTR). The significant reduction in LTF will be the best policy to adopt.

\[ LTF (t) = LT(0) - TTR(t) \] (7)

Impact of domestic fabric supply on lead-time

We have assumed from the survey analysis that fabric production in Bangladesh is the best solution to reduce lead-time. Moreover, growth in domestic textile production capacity will reduce the dependence on other nations from where fabrics are imported as the prime raw materials, which will also increase the strength in the backward supply chain link. It is found that domestic fabric production growth is approximately 10 percent during the last three years and the growth in total fabric consumption is approximately 2.5 percent in the last five years. This data was collected from the BTMA (2013) and the Global Agricultural Information Network (2013).

Total fabric consumption has been kept constant at its present growth rate because it seems that the RMG sector has reached its mature phase and growth might not be experienced in an accelerated rate. Experts are saying that growth in total exports of RMG from Bangladesh may suffer because the US and European markets are facing economic recessions. The textile sector can grow more than the present growth rate because there is a huge gap between demand and available production in case of woven fabrics. Data is showing that 90% knit fabrics are supplied from domestic sources; thus we have limited our simulation analysis to woven fabrics. There is a big part of the other 10 percent of knit fabrics, which cannot be easily produced in Bangladesh because those are of special quality and their demand is too small to be feasible to be built a factor or enjoy economies of scale.

However, we have simulated the parameters assuming four scenarios.

- Scenario 1: growth in domestic production will decrease up to 9 percent
- Scenario 2: growth in domestic production will continue with at 10 percent (current scenario)
- Scenario 3: growth in domestic production will increase up to 11 percent
- Scenario 4: growth in domestic production will increase up to 12 percent

Table 2. Simulated values of four target variables

<table>
<thead>
<tr>
<th>variables</th>
<th>Present (actual)</th>
<th>Year-5</th>
<th>Year-10</th>
<th>Year-5</th>
<th>Year-10</th>
<th>Year-5</th>
<th>Year-10</th>
<th>Year-5</th>
<th>Year-10</th>
</tr>
</thead>
<tbody>
<tr>
<td>LTF</td>
<td>90</td>
<td>77</td>
<td>72</td>
<td>77</td>
<td>71</td>
<td>76</td>
<td>69</td>
<td>75</td>
<td>67</td>
</tr>
<tr>
<td>DFP</td>
<td>2100</td>
<td>3231</td>
<td>4972</td>
<td>3382</td>
<td>5447</td>
<td>3539</td>
<td>5963</td>
<td>3701</td>
<td>6522</td>
</tr>
<tr>
<td>I</td>
<td>4080</td>
<td>3761</td>
<td>2940</td>
<td>3610</td>
<td>2464</td>
<td>3454</td>
<td>1948</td>
<td>3291</td>
<td>1389</td>
</tr>
<tr>
<td>η</td>
<td>33.98</td>
<td>46.21</td>
<td>62.84</td>
<td>48.36</td>
<td>68.85</td>
<td>50.61</td>
<td>75.37</td>
<td>52.93</td>
<td>82.45</td>
</tr>
</tbody>
</table>

Graph for forecast lead time

Forecast lead time: 12% growth in DFP
Forecast lead time: 11% growth in DFP
Forecast lead time: 10% growth in DFP
Forecast lead time: 9% growth in DFP
Graph for domestic fabric production

Graph for import requirement
CONCLUSIONS

This study shows how the fabric supply from inside Bangladesh can reduce total lead time and increase the response of the whole supply chain of the apparel industry. To cope with the increased competition from China and India, Bangladesh has no alternative but to develop a backward linkage of textile mills and a domestic fabric supply. A system dynamics model has been developed to analyze and simulate the variables that are linked with lead-time management. As it’s difficult to rapidly change the value of the stock variable, this analysis shows that it takes at least 10 years to raise the production capacity of fabric to meet about 80% of the total demand. However, government has two choices to follow. The best and inevitable choice is to invest more on textile mills specifically to produce woven fabrics. The second, which is the most probable and facilitating choice, is to build a deep sea port at Chittagong, which will further reduce import and export lead-time not only for apparel goods but also for other commodities. Thus, the investment in textile mills to produce fabrics is the best policy advice for the time being.

It must be noted that there are some restrictions of this model. It has not taken other affecting factors such as political instability and production cost of fabrics in Bangladesh. Experts have commented that China and India are supplying the same quality fabrics with 6 percent to 7 percent cheaper than Bangladesh can. Therefore, the government is expected to be more responsive in ways of extending Cash Assistance from its present 5 percent, reducing to a single digit bank interest rate of credit and increasing the time limit in loan repayment for this sector, making ways for Special Textile Zones (Textile Pallis), taking an initiative to create a Special Fund for Technological
Up-gradation in this sector and granting some so voiced duty withdrawals and tax exemptions. All these variables could also be modeled but they are not included in this study. However, this model will help to understand the dynamic relationship among the stated variables and to also help build further complex models including the aforementioned additional variables.

REFERENCE:


Challenges Facing the ASEAN Economic Integration

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ABSTRACT

The goal of the ASEAN economies to deepen and widen economic integration continues, from the ASEAN Free Trade Area (AFTA) to the ASEAN Economic Community (AEC). Recently, the ASEAN has embarked on yet another level of integration, this time encompassing the larger East Asia through the Regional Comprehensive Economic Partnership (RCEP). However, the ASEAN continue to face challenges that if not addressed, may endanger achieving the goal. This paper discussed some of these issues such as the global economic slowdown, increasing non-tariff protectionism, trade facilitation becoming a barrier to trade, and the need to rationalize and consolidate the various FTAs the ASEAN is a member of.

JEL Classification: F130, F150

Keywords: economic integration, economic slowdown, non-tariff protectionism, trade facilitation

INTRODUCTION

The Association of Southeast Asian Nation (ASEAN) has gone a long way since its establishment in 1967. From a simple socio-political-security cooperation, it has transformed and grown over the years into an economic cooperation, beginning with the establishment of the ASEAN Free Trade Area (AFTA) in 1992 with the goal to increase the region’s competitive edge as a production base for the world market. Ten years later, the ASEAN embarked to deepen and broaden economic integration through the establishment of the ASEAN Economic Community (AEC) by 2015. The AEC is characterized by four pillars: single market and production base, highly competitive economic region, a region of equitable economic development, and a region fully

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14 The AEC is one of the three pillars of an ASEAN Community. The other pillars include the ASEAN Security Community and ASEAN Socio-cultural Community.
integrated into the global economy” (ASEAN Blueprint, 2009). In the last ASEAN Summit in November 2012, the ASEAN is yet again aiming for a higher level of economic integration but this time, encompassing the larger East Asia through the Regional Comprehensive Economic Partnership (RCEP) involving the ASEAN+6 countries.

Despite the shortcomings and criticisms against the ASEAN, the region is considered today the most successful regional trading arrangement among developing economies. Likewise, the ASEAN has played a central role in the Asian region starting with the ASEAN+3 initiatives in the aftermath of the financial crisis in 1997-1998. Since then, the ASEAN-based processes (ASEAN+1, ASEAN+3, ASEAN+6, ASEAN Regional Forum, etc.) defined the evolving architecture of regional cooperation in East Asia (Austria, 2012). Through these processes, the ASEAN has drawn increasing attention from the US, EU, and other partner dialogues, with the annual ASEAN Summits providing a forum for these dialogue partners to also hold their annual meetings.

While recognizing the achievements of the ASEAN to date, issues and challenges continue to confront the region with the global economy still reeling from the after-effects of the 2008 financial crisis and the prospects of full recovery still uncertain. These challenges if not addressed, may endanger the goal of achieving the AEC. The primary objective of this short paper is to identify these issues and challenges and offer some suggestions on how best the ASEAN could address them.

The paper is organized as follows. The various initiatives towards achieving the AEC and the milestones and accomplishments are discussed in Section 2. This is followed by a discussion of the challenges facing the region in Section 3 and the ASEAN’s economic performance in Section 4. The summary and conclusion are presented in Section 5.

INITIATIVES AND MILESTONES TOWARDS ACHIEVING AEC

The initiatives towards achieving the AEC build upon earlier initiatives on economic integration of the ASEAN region. These initiatives are listed in the AEC Blueprint and the progress of their implementation is monitored through the AEC Scorecard.

The single market and production base is characterized by free flow of goods, services, investment, capital and skilled labor. The major initiative in pursuing the free flow of goods is the ASEAN Trade in Goods Agreement (ATIGA), which came into effect in 2010. ATIGA consolidates and streamlines all provisions in CEPT-AFTA (Common Effective Preferential Tariff – ASEAN Free Trade Area) and other protocols related to trade goods into one single legal instrument. It focuses on tariff, non-tariff barriers, rules of origin, and trade facilitation.

ATIGA calls for zero tariffs on substantially all trade and full elimination of non-tariff barriers by 2015 for all member economies. Intra-ASEAN tariff
rate is now 0 percent on 99 percent of tariff lines of the ASEAN-6 and 0-5 percent on 98.6 percent of tariff lines of the CLMV (Das, 2012).

On the other hand, achievements to date on NTBs have not matched the commitments in the AEC Blueprint (Austria, 2012). NTBs at the border include, among others, import ban, import subsidy, non-automatic licensing, new procedures for importation, and technical barriers to trade. On the other hand, NTBs beyond the border include, among others, investment measures, state-aid measures, and trade-related facilitation measures.

Trade facilitation is promoted by establishing one-stop online trade system through the ASEAN National Single Window (ANSW) and the ASEAN Trade Repository (ATR), both targeted to be operational by 2015. The ANSW, which will be a network of NSWs of member economies, aims to facilitate the seamless movement of goods across borders through the sharing of pre-arrival information. The NSW will allow exporters, importers and traders to transact with government agencies through a single internet-based window. The ANSW is expected to increase trade efficiency and competitiveness as it will expedite customs clearance and reduce transaction time and costs. To date, only Indonesia, Philippines, Singapore and Thailand have implemented their NSWs and are now gearing up for interconnection with the ANSW (Das, 2012).

On the other hand, the ASEAN Trade Repository (ATR) is an online system for accessing trade laws and procedures for all member economies. Like the ANSW, it requires the establishment of National Trade Repository (NTR). The ATR and NTR are expected facilitate access to and better compliance with regulations; thus, cutting time and cost of trading.

To enhance the region’s attractiveness as a single investment destination, the ASEAN Comprehensive Investment Agreement (ACIA) was signed in 2009 but came into effect only in March 2012. The agreement builds upon and improves on precursor agreements, the ASEAN Investment Area (AIA) and the ASEAN Investment Agreement. The agreement is expected to increase intra-ASEAN investment and encourage greater industrial complementation and specialization among the member economies.

**THE ASEAN AMIDST THE GLOBAL ECONOMIC SLOWDOWN**

The ASEAN member economies have not been spared of the effects of the 2008 global economic crisis and the 2009 great collapse in international trade. This is shown in the decline of the annual real GDP growth rates (Figure 1) and the growth rate of exports (Figure 2) and imports (Figure 3). The recovery in 2010 was short lived as this was immediately followed by another decline in 2011. Nonetheless, the growth of exports and imports to the region by individual member economies fared better than their exports to and imports from the world (Figure 2 and Figure 3).

The less developed member economies (Cambodia, Laos, Myanmar and Vietnam) depend largely on the region for their exports and imports as shown by the large percentage share of the region in their total exports and imports.
imports (Figure 4 and Figure 5). For the ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore and Thailand), the region has increasingly become a market for their exports and a source of their imports, with the region accounting for 15-30 percent of trade and increasing over the years.

Regional economic integration is shown by the value of intra-ASEAN trade, which went up from US$181 billion in 2000 to US$581.5 billion in 2011 (Figure 6). Despite the big increase, intra-ASEAN trade represents only an average of a quarter of the member economies’ total trade to the region during the period (Figure 6). While this has been increasing since the early years of CEPT-AFTA, intra-ASEAN trade is largely driven by only one product, i.e. electrical and electronic equipment and for only one reason, i.e. the role of the region in the global production network (GPN) of multinational companies from the developed countries (See Austria, 2004 for detailed discussion of GPN in the ASEAN). With inputs sourced from developed countries, these are further processed and assembled in developing economies where wages are low and the final product is exported back to developed economies. The supply chain process is also reflected in ASEAN’s trade with Japan, South Korea, China and recently India (Figure 7). Exports to and imports from these countries together accounted for an average of 30% and 35%, respectively, of ASEAN’s trade.

FDI inflows to the region registered a sharp fall in 2008 and 2009 due to the financial crisis but bounced back in 2010 and 2011 exceeding the pre-crisis level (Table 1). Nonetheless, the region’s share in total inflows to East Asia is small compared to China (Figure 8). Intra-ASEAN FDI accounts for 15% of total FDI in the region and mostly coming from the ASEAN-5. While the percentage is small, this has been increasing since the 1990s due to economic integration. Japan (15%) and the European Union (25%) accounted for the bulk of FDI while South Korea, Hong Kong and China are increasingly investing in the region as well (Austria, 2012).

The pattern of trade and FDI reflects the region’s role in the global supply chain. But herein lies the risk in this GPN-dependent model of economic integration. As will be discussed in Section 4 of the paper, as the developed countries suffer from economic slowdown, indicators of ASEAN’s economic integration also show a decline.

**THE ROAD AHEAD: ISSUES & CHALLENGES**

From AFTA in 1992 to AEC in 2003 and now to RCEP in 2012, the region’s goal to deepen and widen economic integration continues. Each of these landmarks in the region’s economic history and development was influenced and shaped by the challenges of the time. AFTA was established initially as a cover for political cooperation given the then mounting political-security issues of the region. AEC came in the aftermath of the 1997-1998 financial crisis; and now, the RCEP with the 2008-2009 global financial crisis and more. This section of the paper discusses the emerging issues and challenges confronting economic integration of the region.
Global economic slowdown. Economic uncertainties in the US and EU threatens the prospects of global economic recovery (UNESCAP 2012; Sala-I-Martin, et. al., 2012). The possibility of the USA falling from a “fiscal cliff” compounds the global risks. The fiscal cliff refers to the termination of tax cuts and reductions in government spending which would have taken effect last January 1, 2013 but were delayed for another two months. Both measures are expected to have similar effects as the severe austerity measures in EU that eventually led to recession in the European region. As the world’s largest economy, the repercussions of a recession in the US are expected to be global.

The impact of global economic slowdown would be channeled to the ASEAN through the global supply chain. Real GDP and the demand for exports and imports by ASEAN’s major trading partners and sources of FDI continue to be on the downswing (Figure 9, Figure 10 and Figure 11). And as indicators would show, this puts the economic integration of the ASEAN at risk (Table 2). The share of electrical and electronic equipment in intra-regional trade has been going down. Intra-regional trade intensity index is also declining\(^\text{15}\).

Competition among countries will become fierce as world demand goes down. The challenge facing the region now is how to strengthen its position and remain competitive in the international production chain. The Global Competitiveness Index (GCI) 2012-2013, which measures the microeconomic and macroeconomic foundations of national competitiveness, bears important lessons for the ASEAN\(^\text{16}\). Singapore remained second place from last year; Malaysia and Indonesia dropped four places; Vietnam dropped 10 places; Thailand improved one place while the Philippines advanced by 10 places, one of the countries that registered the most improvements in 2012 (Table 3). In general, the biggest shortcomings of the ASEAN economies, except of course for Singapore, are in the areas of institutions, infrastructure, technological readiness and innovations (Figure 12).

Achieving AEC by 2015, thus, necessitates improvements on the competitiveness of the ASEAN, especially the weaker member economies. There is a need to continue with domestic reforms especially with institutions and regulatory framework for managing incoming investments and capital and channeling them into projects that contribute towards sustainable and inclusive economic growth. Likewise, product and market diversification

\(^{15}\)The index is the ratio of intra-regional trade share to the share of the region in world trade. An index of more than 1 indicates that trade flow within the region is larger than expected given the importance of the region in world trade.

\(^{16}\)The Global Competitiveness Index (GCI), prepared annually by the World Economic Forum since 2005, is a “comprehensive tool that measures the microeconomic and macroeconomic foundations of national competitiveness” rated on a scale between 1 (worst) and 7 (best) (Sala-I-Martin, et.al., 2012). Competitiveness is defined as “the set of institutions, policies, and factors that determine the level of productivity of a country” (Martin, et.al, 2012). GCI is composed of 12 pillars namely: institutions, infrastructure, macroeconomic environment, health & primary education, higher education & training, goods market efficiency, labor market efficiency, financial market development, technological readiness, market size, business sophistication and innovation.
should be pursued aggressively, particularly in non-traditional export markets (UNESCAP, 2012).

**Increasing non-tariff protectionism.** While intra-ASEAN tariff rates have been progressively reduced over the past two decades, non-tariff barriers (NTBs) in the ASEAN region have become a major concern for the realization of the AEC by 2015. The study by Austria (2013) points to a number of factors that contributed to the slow progress in the implementation of the initiatives to address the NTBs. These include the difficulty in identifying the NTBs from among the non-tariff measures (NTMs) as some of the government regulations have evolved over time in response to political economy developments in the member economies; development divide among the members, thus achieving a consensus to identifying and eliminating the NTBs can be a long drawn out process; and supply-side capacity constraints.

Behind-the-border interventions have increasingly emerged as the new form of protectionism since the recent global economic crisis (Wermelinger, 2011). The shifting of growth potentials away from developed countries and towards developing countries has generated trade policy measures that are discriminatory in nature. The Global Trade Alert also shows that the ASEAN themselves have implemented discriminatory measure during the crisis. Among the member economies, these discriminatory measures are most prevalent in Indonesia with 86 measures affecting 492 tariff lines and Vietnam with 38 measures affecting 940 tariff lines (Table 4 and Table 5). At the same time, discriminatory measures against exports of the ASEAN economies also abound (Table 6).

**Trade facilitation becoming a barrier to trade.** The sustained growth and participation of the ASEAN-5 to the regional/global production sharing would hinge largely on trade facilitation measures that would make easy and less costly the vertical and horizontal operations of these networks in the region. Such measures may include anything from institutional and regulatory reform to transport and telecommunication infrastructures, trade procedures, logistics services and customs and port efficiency that would allow goods to move freely and less costly from the border to the consumers in the domestic market (which may include household, firms, and government). Costs associated with poor or inadequate trade facilitation measures have been found to be substantially higher than those associated with tariffs (WB, 2008; Duval and Utoktham, 2011). Thus, they have become significant barriers to trade.

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17 The Global Trade Alert is an online database (www.globaltradealert.org) that provides information in real time on state measures that are likely to discriminate against commercial interests of countries during the current global economic downturn. The initiative was inspired by the pledge of the G20 countries not to initiate any measure that would raise new barriers to trade and investment. While the commitment was done by the G20, the database includes a broader set of countries. State measures include not only tariffs but other trade policy instruments and domestic regulations as long as there is discrimination against foreign commercial interests.
The Logistic Performance Index (LPI) shows a wide gap in the trade facilitation measures and logistics infrastructure among the ASEAN member economies (Table 7 and Figure 13). Singapore ranked first among 155 countries in 2012, one step higher from its second position in 2011. Except for the Philippines and Thailand, all member economies registered improvements on their ranks from 2010.

Nonetheless, while all member economies registered substantial improvements in the time and cost for completing trade procedures, the logistics gap persists (Table 8). The performance of individual economies pales in comparison with Singapore, which is consistently a logistics top performer. The time for completing trade procedures in Singapore is only 28% of the average of the region; and the cost of completing trade procedures is only 57% of the average of the region.

**Rationalization and consolidation of FTAs.** In November 2012, the ASEAN+6 (China, Japan, South Korea, India, Australia and New Zealand) agreed to launch the negotiations for the Regional Comprehensive Economic Partnership (RCEP). The RCEP may serve as a strategy to gain access into the bigger intra-regional market, given the uncertainty in world demand for exports. If it succeeds, it will be one of the largest trading blocs in the world. The bloc accounts for almost 50 percent of the world population and 28 percent of the global trade and global GDP (Table 9). If it succeeds, it would deepen and widen regional economic integration in East Asia.

However, RCEP may pose new challenges for the region. Each of the six economies has bilateral FTAs with the ASEAN and each of these FTAs differs in rules and characteristics. Thus, how to consolidate these complex overlapping bilateral FTAs is a great challenge by itself (Menon, 2013). Will the consolidation result to the harmonization of the different FTAs and hence, solve the “noodle bowl” effects? The negotiations may involve complex processes and consensus may be difficult to arrive at given the different stages of economic development of parties involved.

**CONCLUSION AND THE WAY FORWARD**

The global economic slowdown may pose some risk to the GPN-dependent model of economic integration of the ASEAN. With global demand for exports of manufacturing goods declining, intra-ASEAN trade on these same goods is also going down. The recent launch for the negotiation of RCEP may be looked at as a strategy to enter the intra-regional market of the bigger region.

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18 The *Logistics Performance Index* (LPI) is a multi-dimensional assessment of logistics performance, rated on a scale between 1 (worst) and five (best). The index consists of both qualitative and quantitative measures that indicate the logistics “friendliness” of the countries in which these global operators operate and with which they trade. It has six (6) components: (i) efficiency of the customs clearance process; (ii) quality of trade and transport-related infrastructures; (iii) ease of arranging competitively priced shipments; (iv) competence and quality of logistics services; (v) ability to track and trace consignments; and (vi) frequency with which shipments reach the consignee within the scheduled or expected time.
comprising the ASEAN+6. But unless the AEC is achieved by 2015, it may be hard to imagine the negotiation for RCEP moving.

To sustain economic integration, the ASEAN member economies should continue addressing domestic policy reforms that promote efficiency and innovation. Each member economy needs to examine its performance in the various pillars of global competitiveness index and logistics performance index and address them accordingly. Unless the supply-side capacity constraints (institutions, infrastructures, logistics, regulatory environment, etc.) are addressed to meet the requirements of global production sharing, full regional economic integration may be at risk.

REFERENCES


APPENDIX

Figure 1. Annual real GDP growth rates, ASEAN, 2005-2011 (%)

Note: Growth rates are based on GDP at constant 2005 prices
Source: UNCTADstat (Downloaded 6 January 2013)

Figure 2. Growth of Exports to the ASEAN and World, by Country, ASEAN, 2005-2011 (%)

Source: ADB-ARIC Database (Downloaded 22 December 2012)
**Figure 3.** Growth of Imports to the ASEAN and World, by Country, ASEAN, 2005-2011 (%)

Source: ADB-ARIC Database (Downloaded 22 December 2012)

**Figure 4.** Share of ASEAN in Country’s Total Exports, By Country, 2000-2011 (%)

Source: ADB-ARIC Database (Downloaded 22 December 2012)

**Figure 5.** Share of ASEAN in Country’s Total Imports, By Country, 2000-2011 (%)

Source: ADB-ARIC Database (Downloaded 22 December 2012)
Figure 6. Intra-ASEAN trade, 2000-2011

Source: ADB-ARIC Database (Downloaded 22 December 2012)

Figure 7. ASEAN Trade with China, Japan, South Korea and India, 2005-2011

Source: ASB-ARIC Database (Downloaded 22 December 2012)
Figure 8. Percentage Share in FDI Inflows in East Asia, 2005-2011 (%)

Source: Author’s estimates using data from UNCTADSTAT, UNCTADSTAT (Downloaded 22 December 2012)

Figure 9. Volume growth rates of merchandise exports, quarterly, Q1 2007-Q2 2012

Note: (1) Volume growth rate over corresponding period of previous year; (2) The countries are ASEAN’s major trading partners & sources of FDI.
Source: UNCTADSTAT (Downloaded 6 January 2013)
**Figure 10.** Volume growth rates of merchandise imports, quarterly, Q1 2005-Q2 2012

Note: (1) Volume growth rate over corresponding period of previous year; (2) The countries are ASEAN’s major trading partners & sources of FDI.
Source: UNCTADSTAT (Downloaded 6 January 2013)

**Figure 11.** Annual real GDP growth rates, Selected Countries, 2005-2011

Note: (1) Growth rates are based on GDP at constant 2005 prices; (2) The countries are ASEAN’s major trading partners & sources of FDI.
Source: UNCTADstat (Downloaded 6 January 2013)
Figure 12. Global Competitiveness Index, 2012

Source: The Global Competitiveness Report 2012-2013 (World Economic Forum)
**Figure 13.** Scorecard, Logistics Performance Index, 2012

Source: Trade Logistics in the Global Economy 2012
Table 1. Amount of FDI Inflows, East Asia, 2005-2011 (million US$)

<table>
<thead>
<tr>
<th>Country</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indonesia</td>
<td>8,336.0</td>
<td>4,914.0</td>
<td>6,928.0</td>
<td>9,318.0</td>
<td>4,877.4</td>
<td>11,771.0</td>
<td>18,906.0</td>
</tr>
<tr>
<td>Malaysia</td>
<td>4,065.3</td>
<td>6,060.3</td>
<td>8,594.7</td>
<td>7,172.0</td>
<td>1,453.0</td>
<td>9,103.0</td>
<td>11,966.0</td>
</tr>
<tr>
<td>Philippines</td>
<td>1,854.0</td>
<td>2,921.0</td>
<td>2,916.0</td>
<td>1,544.0</td>
<td>1,963.0</td>
<td>1,298.0</td>
<td>1,262.0</td>
</tr>
<tr>
<td>Singapore</td>
<td>18,090.3</td>
<td>36,700.2</td>
<td>46,929.9</td>
<td>11,797.8</td>
<td>24,417.6</td>
<td>48,636.7</td>
<td>64,003.2</td>
</tr>
<tr>
<td>Thailand</td>
<td>8,066.6</td>
<td>9,501.3</td>
<td>11,359.4</td>
<td>8,454.7</td>
<td>4,854.4</td>
<td>9,733.3</td>
<td>9,572.0</td>
</tr>
<tr>
<td>ASEAN-6</td>
<td>40,412.2</td>
<td>60,096.7</td>
<td>76,728.0</td>
<td>38,286.5</td>
<td>37,565.4</td>
<td>82,542.0</td>
<td>105,709</td>
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<tr>
<td>Brunei Darussalam</td>
<td>289.5</td>
<td>434.0</td>
<td>260.2</td>
<td>330.1</td>
<td>371.4</td>
<td>625.7</td>
<td>1,208.3</td>
</tr>
<tr>
<td>Cambodia</td>
<td>381.2</td>
<td>483.2</td>
<td>867.3</td>
<td>815.2</td>
<td>539.1</td>
<td>782.6</td>
<td>891.7</td>
</tr>
<tr>
<td>Laos</td>
<td>27.7</td>
<td>187.4</td>
<td>323.5</td>
<td>227.8</td>
<td>318.6</td>
<td>332.6</td>
<td>450.0</td>
</tr>
<tr>
<td>Myrrnmar</td>
<td>235.8</td>
<td>427.8</td>
<td>714.8</td>
<td>975.6</td>
<td>963.3</td>
<td>450.2</td>
<td>850.0</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>1,954.0</td>
<td>2,400.0</td>
<td>6,700.0</td>
<td>9,579.0</td>
<td>7,600.0</td>
<td>8,000.0</td>
<td>7,430.0</td>
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<tr>
<td>BCLMV</td>
<td>2,888.2</td>
<td>3,932.4</td>
<td>8,865.8</td>
<td>11,927.6</td>
<td>9,792.4</td>
<td>10,191.1</td>
<td>10,830.0</td>
</tr>
<tr>
<td>Total ASEAN</td>
<td>43,300.3</td>
<td>64,029.2</td>
<td>85,593.8</td>
<td>50,214.0</td>
<td>47,357.8</td>
<td>92,733.0</td>
<td>116,539</td>
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<td>China</td>
<td>72,406.0</td>
<td>72,715.0</td>
<td>83,521.0</td>
<td>108,312.0</td>
<td>95,000.0</td>
<td>114,734</td>
<td>123,985</td>
</tr>
<tr>
<td>South Korea</td>
<td>7,055.4</td>
<td>4,881.2</td>
<td>2,628.4</td>
<td>8,408.9</td>
<td>7,501.0</td>
<td>8,511.2</td>
<td>4,660.9</td>
</tr>
<tr>
<td>Hong Kong</td>
<td>33,624.7</td>
<td>45,060.3</td>
<td>54,341.1</td>
<td>59,620.5</td>
<td>52,394.0</td>
<td>71,069.5</td>
<td>83,155.6</td>
</tr>
<tr>
<td>Taiwan</td>
<td>1,625.0</td>
<td>7,424.0</td>
<td>7,769.0</td>
<td>5,432.0</td>
<td>2,805.0</td>
<td>2,492.0</td>
<td>(1,962.0)</td>
</tr>
<tr>
<td>India</td>
<td>7,621.8</td>
<td>20,327.8</td>
<td>25,505.6</td>
<td>43,406.3</td>
<td>35,595.9</td>
<td>24,159.2</td>
<td>31,554.0</td>
</tr>
<tr>
<td>East Asia</td>
<td>165,633</td>
<td>214,438</td>
<td>259,359</td>
<td>275,393.7</td>
<td>240,654</td>
<td>313,699</td>
<td>357,933</td>
</tr>
</tbody>
</table>

Source: UNCTADStat (Downloaded 22 December 2012)
Table 2. Intra-regional trade indicators, ASEAN, 2005-2011

<table>
<thead>
<tr>
<th>Year</th>
<th>Intra-ASEAN Trade Share (%)</th>
<th>Intra-regional trade share, electrical, electronic equipment (%)</th>
<th>Intra-regional trade intensity index</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>27.20</td>
<td>52.65</td>
<td>4.652</td>
</tr>
<tr>
<td>2006</td>
<td>27.09</td>
<td>51.96</td>
<td>4.610</td>
</tr>
<tr>
<td>2007</td>
<td>26.93</td>
<td>52.10</td>
<td>4.640</td>
</tr>
<tr>
<td>2008</td>
<td>26.72</td>
<td>48.91</td>
<td>4.549</td>
</tr>
<tr>
<td>2009</td>
<td>25.90</td>
<td>46.60</td>
<td>4.170</td>
</tr>
<tr>
<td>2010</td>
<td>26.34</td>
<td>48.72</td>
<td>3.950</td>
</tr>
<tr>
<td>2011</td>
<td>25.94</td>
<td>46.47</td>
<td>3.881</td>
</tr>
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</table>

Sources: ADB-ARIC Database; UN UNCOMTrade Database (Downloaded 6 January 2013)

Table 3. Global Competitiveness Index Ranking, ASEAN Countries, China, South Korea and India, 2012-2013 & 2011-2012

<table>
<thead>
<tr>
<th>Countries</th>
<th>2011-2012 (out of 140 countries)</th>
<th>2012-2013 (out of 144 countries)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei</td>
<td>28</td>
<td>28</td>
</tr>
<tr>
<td>Cambodia</td>
<td>97</td>
<td>85</td>
</tr>
<tr>
<td>Indonesia</td>
<td>46</td>
<td>50</td>
</tr>
<tr>
<td>Malaysia</td>
<td>21</td>
<td>25</td>
</tr>
<tr>
<td>Philippines</td>
<td>75</td>
<td>65</td>
</tr>
<tr>
<td>Singapore</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Thailand</td>
<td>39</td>
<td>38</td>
</tr>
<tr>
<td>Vietnam</td>
<td>65</td>
<td>75</td>
</tr>
<tr>
<td>China</td>
<td>26</td>
<td>29</td>
</tr>
<tr>
<td>South Korea</td>
<td>24</td>
<td>19</td>
</tr>
<tr>
<td>India</td>
<td>56</td>
<td>59</td>
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</table>

Source: Global Competitiveness Index, World Economic Forum
Table 4. Implemented State Measures by Type, ASEAN-6.

<table>
<thead>
<tr>
<th>Measures</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Singapore</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total number of measures</td>
<td>86</td>
<td>11</td>
<td>14</td>
<td>10</td>
<td>24</td>
<td>38</td>
</tr>
<tr>
<td>Number of measures classified green</td>
<td>11</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Number of measures classified amber</td>
<td>24</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Number of measures classified red</td>
<td>51</td>
<td>4</td>
<td>5</td>
<td>7</td>
<td>6</td>
<td>29</td>
</tr>
<tr>
<td>Number of tariff lines affected by red measures</td>
<td>492</td>
<td>30</td>
<td>5</td>
<td>0</td>
<td>32</td>
<td>940</td>
</tr>
<tr>
<td>Number of sectors affected by red measures</td>
<td>40</td>
<td>12</td>
<td>4</td>
<td>1</td>
<td>12</td>
<td>39</td>
</tr>
<tr>
<td>Number of trading partners affected by red measures</td>
<td>161</td>
<td>105</td>
<td>11</td>
<td>14</td>
<td>104</td>
<td>149</td>
</tr>
</tbody>
</table>

Notes:

*Green* – indicates the measure is either:

a. Announced and involves liberalization on a non-discriminatory (i.e. MFN) basis; or

b. The measure has been implemented and is found (upon investigation) not to be discriminatory; or

c. The measure has been implemented, involves no further discrimination, and improves the transparency of a jurisdiction’s trade-related policies.

*Red* – indicates the measure is implemented and almost certainly discriminates against commercial interests

*Amber* - indicates the measure is either:

a. Implemented and may involve discrimination against foreign commercial interests; OR

b. Announced or under consideration and would (if implemented) almost certainly involve discrimination against foreign interests.

Source: www.globaltradealert.org (Downloaded December 31, 2012)

Table 5. Type of Measures (red and amber), ASEAN Economies

<table>
<thead>
<tr>
<th>Measures</th>
<th>Indonesia</th>
<th>Malaysia</th>
<th>Philippines</th>
<th>Singapore</th>
<th>Thailand</th>
<th>Vietnam</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bail out/state aid measure</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Competitive devaluation</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Export subsidy</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Export taxes or restrictions</td>
<td>/</td>
<td>/</td>
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<td>/</td>
</tr>
<tr>
<td>Import ban</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Import subsidy</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Investment measure</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Local content requirement</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>Migration measure</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>NTB (not otherwise classified)</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
<td>/</td>
</tr>
</tbody>
</table>
Table 6. No. of discriminatory measures affecting the ASEAN economies

<table>
<thead>
<tr>
<th>Economies</th>
<th>Number of red measures</th>
<th>Number of amber measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>Indonesia</td>
<td>249</td>
<td>111</td>
</tr>
<tr>
<td>Malaysia</td>
<td>260</td>
<td>110</td>
</tr>
<tr>
<td>Philippines</td>
<td>183</td>
<td>86</td>
</tr>
<tr>
<td>Singapore</td>
<td>223</td>
<td>105</td>
</tr>
<tr>
<td>Thailand</td>
<td>338</td>
<td>140</td>
</tr>
<tr>
<td>Cambodia</td>
<td>29</td>
<td>34</td>
</tr>
<tr>
<td>Laos</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>Myanmar</td>
<td>34</td>
<td>20</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>172</td>
<td>97</td>
</tr>
</tbody>
</table>

Source: Global Trade Alert (Downloaded as of December 31, 2012).

Table 7. Logistic Performance Index Ranking, ASEAN Countries, China, South Korea and India, 2010 & 2012.

<table>
<thead>
<tr>
<th>Countries</th>
<th>Rank</th>
<th>% of highest performer</th>
<th>Rank</th>
<th>% of highest performer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brunei</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Cambodia</td>
<td>129</td>
<td>44.0</td>
<td>101</td>
<td>50</td>
</tr>
<tr>
<td>Indonesia</td>
<td>75</td>
<td>56.5</td>
<td>59</td>
<td>62.2</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>118</td>
<td>47</td>
<td>109</td>
<td>48</td>
</tr>
<tr>
<td>Malaysia</td>
<td>29</td>
<td>78.4</td>
<td>29</td>
<td>79.8</td>
</tr>
<tr>
<td>Myanmar</td>
<td>133</td>
<td>42.7</td>
<td>129</td>
<td>43.8</td>
</tr>
<tr>
<td>Philippines</td>
<td>44</td>
<td>68.8</td>
<td>52</td>
<td>64.8</td>
</tr>
<tr>
<td>Singapore</td>
<td>2</td>
<td>99.2</td>
<td>1</td>
<td>100.0</td>
</tr>
<tr>
<td>Thailand</td>
<td>35</td>
<td>73.6</td>
<td>38</td>
<td>69.6</td>
</tr>
<tr>
<td>Viet Nam</td>
<td>53</td>
<td>63.1</td>
<td>53</td>
<td>64.1</td>
</tr>
<tr>
<td>China</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>South Korea</td>
<td>23</td>
<td>84.7</td>
<td>21</td>
<td>86.2</td>
</tr>
<tr>
<td>India</td>
<td>47</td>
<td>67.9</td>
<td>46</td>
<td>66.4</td>
</tr>
</tbody>
</table>

Note: Rank out of 155 countries
### Table 8. Trade facilitation indicators, ASEAN & North-East Asia, 2008 & 2012

<table>
<thead>
<tr>
<th>Countries</th>
<th>Time for completing trade Procedures(days)</th>
<th>Cost of completing trade procedures (2000 constant United States dollar)</th>
<th>Import-export Facilitation bias 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2008</td>
<td>2012</td>
<td>% Change</td>
</tr>
<tr>
<td>South East Asia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>23</td>
<td>17</td>
<td>-21.1</td>
</tr>
<tr>
<td>Cambodia</td>
<td>41</td>
<td>24</td>
<td>-41.5</td>
</tr>
<tr>
<td>Indonesia</td>
<td>23</td>
<td>20</td>
<td>-11.1</td>
</tr>
<tr>
<td>Lao PDR</td>
<td>38</td>
<td>26</td>
<td>-31.6</td>
</tr>
<tr>
<td>Malaysia</td>
<td>12</td>
<td>10</td>
<td>-17.1</td>
</tr>
<tr>
<td>Myanmar</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Philippines</td>
<td>18</td>
<td>15</td>
<td>-17.1</td>
</tr>
<tr>
<td>Singapore</td>
<td>5</td>
<td>5</td>
<td>0.0</td>
</tr>
<tr>
<td>Thailand</td>
<td>16</td>
<td>14</td>
<td>-12.9</td>
</tr>
<tr>
<td>Vietnam</td>
<td>24</td>
<td>21</td>
<td>-10.6</td>
</tr>
<tr>
<td>North-East Asia</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>23</td>
<td>23</td>
<td>0.0</td>
</tr>
<tr>
<td>Hong Kong, China</td>
<td>6</td>
<td>5</td>
<td>-9.1</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>11</td>
<td>7</td>
<td>-33.3</td>
</tr>
</tbody>
</table>

Source: APTIR 2012

### Table 9. GDP, Trade and Population, RCEP, 2011

<table>
<thead>
<tr>
<th>Reporter</th>
<th>Total Trade (million US$)</th>
<th>GDP (million US$)</th>
<th>Population (in thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASEAN</td>
<td>2,402,042.14</td>
<td>2,161,001.11</td>
<td>598,879,638</td>
</tr>
<tr>
<td>Australia</td>
<td>531,204.00</td>
<td>1,521,812.26</td>
<td>22,605,73</td>
</tr>
<tr>
<td>New Zealand</td>
<td>74,400.55</td>
<td>160,322.19</td>
<td>4,414,51</td>
</tr>
<tr>
<td>China</td>
<td>3,642,930.00</td>
<td>7,062,847.93</td>
<td>1,347,565.32</td>
</tr>
<tr>
<td>India</td>
<td>769,763.00</td>
<td>1,944,068.19</td>
<td>1,241,491.96</td>
</tr>
<tr>
<td>Japan</td>
<td>1,679,166.00</td>
<td>5,832,183.50</td>
<td>126,497.24</td>
</tr>
<tr>
<td>South Korea</td>
<td>1,086,898.00</td>
<td>1,115,669.77</td>
<td>48,391.34</td>
</tr>
<tr>
<td><strong>Total RCEP</strong></td>
<td><strong>10,186,403.69</strong></td>
<td><strong>19,797,904.95</strong></td>
<td><strong>3,389,845.75</strong></td>
</tr>
</tbody>
</table>

% share in World 28.10 28.45 48.61

Sources: Author’s calculations using the following sources:
- Population - UNCTADSTAT (downloaded 6 January 2013)
- GDP - UNCTADSTAT (downloaded 6 January 2013)
- Total trade - ADB-ARIC (downloaded 6 January 2013)
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- **Policy research**: Studies that use business field research to enact policies on an economy, country, or community.
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