

Climate change challenges of small and medium sized Nordic non-life insurers

1. Introduction

Climate change is one of the most powerful megatrends altering the operating conditions of the insurance sector because of vulnerability of societies, individuals and firms interconnected with their businesses. It has been claimed that climate-related business risk resembles an iceberg, where around 30 percent of the overall risk is visible, while the bigger and much greater part is under the surface (Lenckus, 2008). This is the climate risk exposure that might transfer into insurance risks consciously or subconsciously depending on risk strategies insurers choose. The risk strategies in question are to accept/retain, reduce, share/transfer, exploit, or ignore risks.

Socio-economic development of population growth, urbanization and concentration of wealth in high-risk areas accumulates in great impacts when climate extremes occur. Other contributing factors exaggerating the situation are inadequate preparedness to deal with the situation as well as poverty (IPCC, 2007). These situations generate greater and greater losses in exposed areas such as coastal regions (Munich Re Group, 2008).

Increasingly, scientists believe that the climate change consequences will be much worse than originally predicted, effects may develop gradually, but more likely abrupt, dramatic shift in weather patterns may happen (Dyer, 2009). The Cancun Agreements put forth at the COP16 conference in 2010 stressed the urgency of climate change adaptation. Furthermore it recognizes that insurance industry's expertise brings potential value in reducing vulnerability and building resilience to climate change risks, particularly in developing countries (United Nations Environment Programme Finance Initiative, 2011).

The purpose of the paper is to bring forth a gap in climate change actions between the larger Nordic non-life insurance companies and the small and medium sized companies and the role of finance and insurance associations in narrowing the gap.

2. Methods

The paper is based on the Ph.D. study of the author, which conducted a multi-case study including 16 Nordic non-life insurance companies. Property and casualty insurance are distinguished from life and health insurances, whereas each segment is guided by own set of regulatory requirements. Property and casualty insurances, under the scope of this study, are also referred to as non-life or general insurances. The non-life insurance companies included in the study are among the biggest in each country although they differ a lot in size, ownership and core focus. The study

included companies from Åland, Faroe Islands, Iceland, Denmark, Finland, Norway and Sweden. Qualitative methods were used to collect data, including interviews, observation, documents, reports, website information used for triangulation purpose (Creswell, 2007; Yin, 2003). Interviewees were promised anonymity. For that reason fictitious names are used in direct quotations. In 62 interviews 74 interviewees expressed their thoughts about their companies' environmental actions. Various analysis methods were used, to analyze the 2,614 pages of interview data, including theme analysis, cross case analysis and content analysis.

For analysis purpose the companies were divided into two main groups, named the Island companies and the Mainland companies, each group representing eight companies (see figure 1). The Mainland company group can further be subdivided into groups of equal size, called the Mainland local companies and the Mainland Pan-Nordic companies. The Mainland local group includes companies big in one Nordic country, whereas the Pan-Nordic group includes companies big in more than one of the Nordic mainland countries. All companies are among 2-4 of the biggest companies operating in each country.

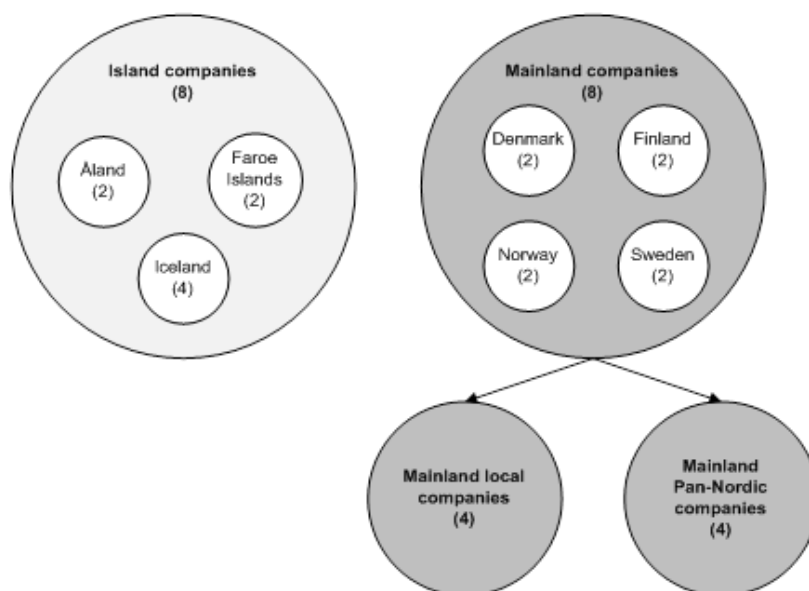


Figure 1 The case groups

Based on Eurostat categories, all of the Islands companies fall under a small and medium sized (SMEs) category (Eurostat & Schmiemann, 2009). Two of the insurance companies, one in Åland and one in Faroe Island, are small according to the definition which means that they employ less than 50 persons. The other two companies operating in the same markets, together with all the four Icelandic companies, fall under the medium size category which means that they employ between 50 and 249 persons. All the Mainland insurance companies are large, with 250 or more persons employed, in this case between 400 to 7 thousand persons. The structure of Länsförsäkringar (LF) has to be explained specifically because of its uniqueness. In this case 23 customer-owned regional insurance companies,

Länsförsäkringar (LF), cooperate together making LF the biggest player in the Swedish insurance market, thereby combining the ability of a small company to adapt to customers' needs and concerns while having the strength and resources of a large company. Individual LF companies cooperate through a jointly owned Länsförsäkringar AB (LFAB) and its subsidiaries. Together with LFAB, one LF regional company with approximately 400 persons employed took part in the research. This company is therefore the biggest among the smallest companies represented in the research, while at the same time it is by far the smallest company within the Mainland company group.

3. Insurers and climate change

All categories of insurance core businesses are vulnerable to climate change consequences (Association of British Insurers, 2007; Epstein & Mills, 2005; Mills, 2005) and insurers are affected directly, through claims, and indirectly through their investments, through clients' ability to pay premiums, by changes in the business environment of their clients, or in retrograded terms of trade from reinsurers. Loss of life, new diseases, rise in sea-levels, hurricanes, violent storms, floods, torrential rainfall, wildfires and landslides are examples of climate related risks insurers will have to deal with (Mills, 2009; The Geneva Association, 2009).

It can be argued that conscious and strategic decision minimizes risks bringing about desirable development by utilizing existing opportunities. Reducing GHG emissions and adapting to climate change is expected to present new business opportunities for the insurance sector (LeBlanc & Linkin, 2010; Mills, 2009; The Geneva Association, 2009), for instance offering of new insurance products, loss prevention technologies, advisory service, risk-management products for emission reduction and so forth. Action taken by insurance companies to integrate mitigation and adaptation to climate change into core businesses is expected to play an important role in reducing insurance losses (Mills, 2005), thereby mitigating the risk of insurers, clients and the society. By understanding how incremental climate change will affect their clients, life, health, and assets, as well as operation of commercial clients insurers can mitigate insurers own risk.

On global, regional and local levels insurers have been identified by governments and multilateral bodies as a key sector which can influence actions to deal with environmental issues, particularly climate change (Ahvenharju, Gilbert, Illman, Lunabba, & Vehviläinen, 2011; Charpentier, 2008; The Geneva Association, 2009; Vellinga, et al., 2001). The case of the Nordic non-life insurers provides a deeper understanding of insurer's role on regional and local levels.

Climate change in the context of Nordic non-life insurers

Although Nordic insurance companies operate in areas less vulnerable to consequences of climate change than most parts of the world (EurActiv Network, 2010) they are nevertheless a part of the global insurance sector and thus prone to climate change losses through their contracts and investments. According to a Nordic

survey made by the Carbon Disclosure Project (CDP) insurers recognizes the link between their own climate exposure and the physical risk of their clients (Carbon Disclosure Project, 2010).

The reinsurance sector has been active in the field of climate research for decades, and the insurance sector is regarded as a leading sector in terms of adapting to climate change (Nitkin, Foster, & Medalye, 2009). Yet, on Nordic institutional level there is very little knowledge available on the adaptation and mitigation efforts of the insurance sector. Only one pan-Nordic study¹ has been done on this topic, but non scholarly literature was found. This study was issued by the Nordic Innovation, on behalf of the Nordic Council of Ministers (Ahvenharju, et al., 2011), in October 2011. The focal point of study was environmental policy in general and what role insurers have to play in developing environmental policies. None of the 22 interviewees interviewed for the study came from the Island companies. This means that actions of SMEs insurers are not known. Nordic insurance companies are therefore well worth the attention of a researcher as the study will “fill a void in existing literature” (Creswell, 2007, p. 102) by bringing in perspectives of big and small insurance companies.

Reputation of industries can be at risk because of environmental disasters or negative environmental impacts of companies within a given industry. Therefore it can be in the best interest of industry associations to develop environmental standards or principles, pressing companies to abide them (Nidumolu, Prahalad, & Rangaswami, 2009). In this case it appears to be the collaboration between the Mainland Nordic industry associations and the four Pan-Nordic companies which is setting standards for others to follow on how the industry should address environmental issues. However other local Mainland companies are also proactively find ways to influence the development of the sector, for instance with eco-labeled insurances (Naturskyddsföreningen, 2011).

4. Barriers for actions

Research has shown that scientific knowledge about climate change is not enough for people to act. There are psychological and sociological factors, which inhibit people to accept the threat and act according to their national climate policies (Sandvik, 2008). One reason is that people believe that they will not be affected by climatic events (Kunreuther, 2006). It is however argued that as the consequences of climate change becomes more evident the social pressure on the corporate world intensifies (Hill, 2010; Hoffman, 2000).

In 2002 United Nations Environmental Programme Finance Initiative (UNEP FI) identified four types of barrier preventing companies from engaging timely in addressing anthropogenic climate changes. These are cognitive, political, analytical, and market operational barriers discussed below (Dlugolecki & Loster, 2003). Other

¹ The role of the insurance industry in environmental policy in the Nordic countries.

barriers for actions which the literature and interview data brings forth are uncertainty barriers, character barriers, lack of pressure and companies size.

Cognitive barriers

This is mainly an internal barrier where environmental (and social) issues are seen as marginal to bottom-line performance of the companies. Secondly, climate change is an issue likely to cut across all functions of financial services, thus making the impression of shared responsibility discouraging any group of financial stakeholder to take the lead. Thirdly, the financial sector does not see economic value in addressing climate change because the financial risk of the planning-horizon and climate change does not link together (Dlugolecki & Loster, 2003).

Political barriers

This is an external barrier hindering actions of the private sector, as there has been, and still is, considerable setback in creating political frameworks for assigning international carbon management, and adaptation measures. This is also a governmental leadership issue, and regulatory and policy issue as there is uncertainty about regulators commitments to uniform establishment and implementation of long-term binding emission reduction targets. In developing countries there is a substantial restriction on foreign financial institutions (Dlugolecki & Loster, 2003).

Analytical barriers

Insufficient analysis and information from key advisors offering service to the insurance sector is seen as a barrier, resulting from low climate change awareness of the advisors. This is both internal and external barrier, since insurers count on external consultants for advice, which themselves rely on basic scientific knowledge. Furthermore, financial benefits of climate friendly projects are poorly understood, and availability of data on corporate climate change strategy makes it difficult to analyze potential business risks. This includes understanding how greenhouse gas and climate change regulations will impact the financial sector (Dlugolecki & Loster, 2003).

Market operational barriers

The main market barrier is that clean technology does not hold commercial advantages for potential investors, leading to environmentally related market failure in five categories of “public goods, externalities, monopoly power, inappropriate government intervention, and imperfect information” (Dean & McMullen, 2007, p. 52).

Uncertainty barriers

This barrier focuses on delay in climate related actions of various stakeholders. A considerable time has been used on 'exact science' meaning to get the climate change forecasts right, which will never be the case, because there are still “weakness and ambiguity of signals about climate change and the uncertainty about

benefits flowing from adaptation measures” (Berkhout, Hertin, & Gann, 2006, p. 135). This means that corporate decision makers as well as policy makers hold off actions while they wait for enhanced information about climate change before impact and adaptation assessments are made.

Character barriers

The nature of the insurance business can also be regarded as a barrier. Inherently insurance business is backward looking sector using claims statistics to evaluate the risk and set premiums. Climate change however requires forward looking thinking and modeling. Insurers must therefore update and adjust their climate change models instead of merely looking in the rear mirror focusing affirmative numbers. In addition the notion of “relatively moderate environmental footprint” of insurers might also reduce the emphasis on climate related actions because of the intangible service insurer’s offer.

Lack of direct pressure

Pressure on insurers to adapt is to greater extent indirect through suppliers and investment options meaning that there might be the notion that there is less need to act on the pressure. Additionally resources needed to adapt might also be arranged by actors outside companies boundaries (Berkhout, et al., 2006), for instance within municipalities which need to adjust local infrastructure to prevent property losses covered by insurers.

Companies’ size

Limited amount of research exists on environmental strategies of micro, small and medium sized firms (SMEs), and how they reduce their environmental impacts (Aragón-Correa, Hurtado-Torres, Sharma, & García-Morales, 2008; European Commission, 2007; Worthington & Patton, 2005). Large companies have showed to be more proactive in carrying out environmental initiatives (Chen, 2008; Worthington & Patton, 2005).

It has been assumed that the key barrier is that SMEs have limited resources to deal with environmental issues beyond complying with laws and regulations (Aragón-Correa, et al., 2008; European Commission, 2007). More specifically main barriers associated with financial resources, organizational structure, management style, human resources, status of environmental management, capacity and experience in manufacturing processes, technological approach, innovative capacity, external cooperation and lack of market rewards (Brío & Junquera, 2003; Hillary, 2004). In addition to resource issues, internal factors such as awareness, attitude and companies culture are considered to be barriers for SME’s when adopting environmental improvements (European Commission, 2002). However, when urged to move SMEs can leverage their size, enabled by short communication lines, flexibility and entrepreneurial mindset to move fast (Aragón-Correa, et al., 2008).

While environmental attitude of SMEs is considered positive it is not followed by actions (Rutherford, Blackburn, & Spence, 2000; Worthington & Patton, 2005).

Environmental awareness of SMEs is regarded limited (European Commission, 2002; Taylor, Barker, & Simpson, 2003; Worthington & Patton, 2005) and SMEs tend to associate costs with environmental action rather than opportunities (Rutherford, et al., 2000; Taylor, et al., 2003; Worthington & Patton, 2005). Furthermore, business focus of SMEs is shorter than for bigger companies (Worthington & Patton, 2005) and managers are more skeptical about the financial benefits associated with environmental actions.

Trade associations are considered a key player moving the SMEs along (Rutherford, et al., 2000).

5. Relative size and importance of SMEs

Acting on local communities concern, addressing needs of local residents and corporations, and influencing the discussion to reduce local vulnerability are the key responsibilities of insurers. In this respect it is critical to recognize the important role of the smaller companies to deal with environmental issues on local level.

As an example the Faroe Islands were hit with severe storms on November 24 and December 25 2011, whereas the storm of November 24 was the worst storm the Faroese had experienced since 1988, contribution to poor financial outcome of the company because of widespread damage to properties (P/F Trygd Tryggingarfelag, 2012). Employees were informed about the situation, and extra help was recruited to handle claims notifications as soon as they started to pour in the following morning. Within two days 10 percent of the claims were already paid out and majority within two weeks (Tryggingarfelagið Føroyar, n.d.). This suggests that small size of companies and strong ties in the community often enables small insurers to act fast when needed.

The study shows that many Nordic non-life insurance companies are responding to environmental and climate risks shaping their business environment. The study also brings forth a striking difference between Islands companies and the Mainland companies in most areas of actions except in loss prevention where companies of all size place their emphasis. Inactiveness of Islands companies is for instance manifested in corporate governance, awareness and employee engagements, housing and energy consumption, transportation, information technology, products, partnership and collaboration.

Size of companies can be relative depending on who is discussing it and in what context. Insurance companies, which are small in regional or global comparison, can be big on the local market, or in niche markets such as marine industry or agriculture. In most cases interviewees from the Islands communities did not see their companies' size as a barrier for action. On the contrary they recognize their companies' size as a benefit, which contradicts to some of the existing literature emphasizing size as a barrier for environmental actions.

The social role of insurer in small communities came forth as a topic; for instance when discussing feelings for their fellow citizen and sympathy, which might be an important factor when adapting to risks threatening small communities. Interviewees from Islands companies claim that even though the companies are small in a Nordic or global context, they are big in their societies, with big client base, and as such they are looked at as role models and therefore important players in terms of solving sociological issues. Big companies in small communities' can raise awareness of various stakeholders about societal issues and support local industries.

Big size was by some interviewees recognized as a barrier for action as it is more challenging to influence actions throughout a large company, than it is in a smaller company.

Based on a framework provided by the Geneva Association (2009) the SMEs are considered inactive/reactive while the Mainland companies are moving towards integrating environmental issues into their core business decisions. Inactiveness or proactiveness is influenced by different strategic mindsets whereas so-called win-lose defensive risk related mindset is to a great extent evident in the Islands group while the Mainland organizations have to a much greater extent embraced environmental strategic perspective (Hoffman, 2000).

Even though interviewees did not recognize size as a barrier, lack of actions evident in the study demonstrates that the SMEs are to great extent lagging behind the Mainland companies in their attempt to address environmental issues. This supports finding of other studies, which claim that while environmental attitude is considered positive among SMEs, it is not followed by actions (Rutherford, et al., 2000; Worthington & Patton, 2005). Barriers for actions discussed in section 4 were all evident in the interview data, except for the market operational barrier which was not brought up in discussion by interviewees.

The SMEs and the large Nordic non-life insurers act under different types of pressure. The smaller insurance companies identify market and regulatory pressure as the main driving force of actions, while the Mainland companies recognize pressure from peers, market and social pressure, e.g. from potential clients and the media, as the most critical factors. The study shows that peer pressure is of different nature than market pressure from competitors, as this pressure is more collaborative than pressure between market rivals as usually defined (Porter, 1979).

In addition, interviewees from the Islands companies expressed a lack of pressure. Lack of pressure also works in the other direction meaning that interviewees do not believe their companies are in the position to influence actions of various stakeholders to same extent as the Mainland companies believe they can.

Both Islands and Mainland companies recognize their role in influencing suppliers. This role can be subdivided into upstream and downstream suppliers, meaning suppliers selling directly to the insurers (upstream) and claims partners (downstream). Both of those roles were evident in the interviewee's answers. The

other important role evident in Islands interviews is the role of influencing customers. Influencing authorizes was on the other hand quite evident in the interviews in the Mainland companies, followed by discussion about influencing customers.

Interviewees in the Islands companies see governments having a role to play in influencing positive changes concerning the environment through taxes and fees for instance in transforming the national vehicle fleet into less emission vehicle fleet. Interviewees did not discuss the role of insurers in supporting this development although this transformation will also influence insurers as cars are one of their big insurance categories.

The media is seen important in balancing the bipolar debate about environmental issues, moving the discussion to a higher level. In Faroe Island political parties have not put environmental issues on the agenda, meaning that politicians are not debating the issue. There is no political party in Faroe Islands with green profile, conversely to many European countries, and as one of the interviewee points out: *We are not interested in green package (Signar Samuelsen).*

In the Islands companies' interviewees were not so convinced that they can influence customers as customers can themselves choose between repair service providers, thus not choosing the one with the greenest profile. The only lack of driver evident in the Mainland group came from Finland, where environmental issues are not faced to the same degree as Denmark, Norway and Sweden according to interviewees. Additionally the Finnish Association of Insurers is seen as a passive group not putting pressure on financial service and insurance companies.

In the Islands group interviewees claim that they act under price pressure and can for that reason not focus on environmental issues. This line of thinking was not evident in the Mainland companies. It was rather seen as a way to differentiate the business from competitors. When price and products are similar it is the "*sympathetic value*" (*Jesper Blomgren*) that will influence customer choice.

Climate change awareness was particularly low in Faroe Islands and Iceland whereas many of the interviewees did not recognize the link between the insurance business and climate change. When discussing environmental issues with high-level executives from the Icelandic insurance sector some of them labeled environmental actions as pet projects, on the sideline of the business, or luxury problems, rather than pressing issues and that kind of projects would be the first to be slashed when downsizing as a result of economic crisis. Those types of projects would also be very low on the priority list.

Those interviewees who mentioned resource issues of SMEs, discussed lack of time or financial resources and lack of joint insurance platform to discuss environmental issues. A joint platform would save resources therefore being an enabling condition for smaller companies.

6. Discussion

Dealing with climate change requires actions of various stakeholders including individuals, businesses, academia, media, authorities, and municipalities. Insurers are in the position to influence actions and reduce local vulnerability. It is likely that larger insurance companies will set industry standards smaller companies have to follow. Although interviewees in the SMEs did not recognize size as a barrier for actions, lack of actions evident in the study demonstrates that the SMEs are to great extent lagging behind the Mainland companies in their attempt to address environmental issues. Even so it is critical to recognize the important role of the smaller companies to deal with environmental issues on local level as the case from Faroe Islands demonstrates. If the SMEs are unable to cope with the situation and become insolvent reputation of industries can be at risk as well.

Giving the fact that the Nordic insurance sector represents over 300 insurance and pension companies providing solutions to more than 25 million citizens (Nordic Insurers Climate Conference, 2009) it is important to bring smaller companies up to speed in acting on climate risks. Even if the study design took into account the SMEs in Islands communities, it is just as likely that size related barriers apply to other SMEs Nordic mainland insurance companies as well.

Size-related barrier is feasible to overcome through benchmarking, collaboration and joint platforms, e.g. insurance and finance associations, for discussing environmental issues which would save limited resources in building up basic knowledge enabling SMEs to act. Trade associations have been considered a key player moving the SMEs along (Rutherford, et al., 2000). Enabling conditions brought up in this study have however not been utilized, as manifested in the absence of the SMEs in pan-Nordic insurance climate change conferences in 2009 and 2012.

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References

Ahvenharju, S., Gilbert, Y., Illman, J., Lunabba, J., & Vehviläinen, I. (2011). *The role of the insurance industry in environmental policy in the Nordic countries*. Oslo: Nordic Innovation.

- Aragón-Correa, J. A., Hurtado-Torres, N., Sharma, S., & García-Morales, V. J. (2008). Environmental strategy and performance in small firms: A resource-based perspective. *Journal of Environmental Management*, 86(1), 88-103.
- Association of British Insurers (2007). *Insuring for future climate: Thinking for tomorrow, today*. London: Association of British Insurers.
- Berkhout, F., Hertin, J., & Gann, D. M. (2006). Learning to adapt: Organizational Asaptation to Climate Change Impacts. *Climatic Change*, 2006(78), 135-156.
- Brío, J. Á. d., & Junquera, B. (2003). A review of the literature on environmental innovation management in SMEs: implications for public policies. *Technovation* 23(12), 939-948.
- Carbon Disclosure Project (2010). Nordic Report 2010: Summary. Retrieved November 8, 2011, from <https://www.cdproject.net/CDPResults/CDP-2010-Nordic-Report-Summary.pdf>.
- Charpentier, A. (2008). Insurability of Climate Risks. [Proceedings Paper]. *Geneva Papers on Risk and Insurance-Issues and Practice*, 33(1), 91-109.
- Chen, Y.-S. (2008). The Driver of Green Innovation and Green Image – Green Core Competence. *Journal of Business Ethics*, 81, 531-543.
- Creswell, J. W. (2007). *Qualitative inquiry and research design: Choosing among five approaches* (2 ed.). Thousand Oaks: Sage Publications, Inc.
- Dean, T. J., & McMullen, J. S. (2007). Toward a theory of sustainable entrepreneurship: Reducing environmental degradation through entrepreneurial action. *Journal of Business Venturing*, 22(1), 50-76.
- Dlugolecki, A., & Loster, T. (2003). Climate Change and the Financial Service Sector: An Appreciation of the UNEPFI Study. *The Geneva Papers on Risk & Insurance*, 28(3), 382-393.
- Dyer, G. (2009). *Climate Change and Security: Risks and Opportunities for Business*. London: Lloyd's and The International Institute for Strategic Studies.
- Epstein, P. R., & Mills, E. (Eds.). (2005). *Climate Change Futures: Health, Ecological and Economic Dimensions*: Published by Harvard Medical School, sponsored by Swiss Re and the U.N. Development Programme. Contributing Authors: Pamela Anderson, John Brownstein, Ulisses Confalonieri, Douglas Causey, Nathan Chan, Kristie L. Ebi, Jonathan H. Epstein, J. Scott Greene, Ray Hayes, Eileen Hofmann, Laurence S. Kalkstein, Tord Kjellstrom, Rebecca Lincoln, Anthony J. McMichael, Charles McNeill, David Mills, Avaleigh Milne, Alan D. Perrin, Geetha Ranmuthugala, Christine Rogers, Cynthia Rosenzweig, Colin L. Soskolne, Gary Tabor, Marta Vicarelli, X.B. Yang
- EurActiv Network (2010). Nordic countries least vulnerable to climate change. Retrieved January 3, 2012, from <http://www.euractiv.com/climate-environment/nordic-countries-least-vulnerable-climate-change-news-498983>.
- European Commission (2002). *European SMEs and Social and Environmental Responsibility*. Luxembourg: Observatory of European SMEs.
- European Commission (2007). Opportunity and Responsibility: How to help more small businesses to integrate social and environmental issues into what they do. Retrieved May 8, 2012, from http://ec.europa.eu/enterprise/policies/sustainable-business/corporate-social-responsibility/sme/index_en.htm.
- Eurostat, & Schmiemann, M. (2009). *SMEs were the main drivers of economic growth between 2004 and 2006*. Luxembourg: European Communities.
- Hill, S. (2010). Climate Change: Primer. Retrieved December 9, 2010, from http://www.nbs.net/wp-content/uploads/Climate-Change-Primer_noline.pdf

- Hillary, R. (2004). Environmental management systems and the smaller enterprise. *Journal of Cleaner Production*, 12(2004), 561–569.
- Hoffman, A. J. (2000). *Competitive Environmental Strategy: A Guide to the Changing Business Landscape*. Washington, D.C: Island Press.
- IPCC (2007). Annex I: Glossary AR4-WG3. Retrieved May 30, 2012, from <http://www.ipcc.ch/pdf/glossary/ar4-wg3.pdf>.
- Kunreuther, H. C. (2006). Disaster mitigation and insurance: Learning from Katrina. *The Annals of the American Academy of Political and Social Science*, 604(1), 208-227.
- LeBlanc, A., & Linkin, M. (2010). Chapter 6: Insurance industry. [New York City Panel on Climate Change 2010 Report]. *Annals of the New York Academy of Sciences*, 1196(1), 113-126.
- Lenckus, D. (2008). Sustainability to take ERM to next level. *Business Insurance*, 42(13), 11-14.
- Mills, E. (2005). Insurance in a Climate of Change. *Science*, Vol. 309, 1040-1044.
- Mills, E. (2009). *From Risk to Opportunity: 2008 - Insurer Responses to Climate Change*. Boston: Ceres.
- Munich Re Group (2008). Catastrophe figures for 2008 confirm that climate agreement is urgently needed. Retrieved July 6, 2009, from http://www.munichre.com/en/press/press_releases/2008/2008_12_29_press_release.aspx.
- Naturskyddsföreningen (2011). Snart kan du välja miljömärkt försäkring. Retrieved February 21, 2012, from <http://www.naturskyddsforeningen.se/bra-miljoval/om-bra-miljoval/nyheter/?news=20434>.
- Nidumolu, R., Prahalad, C. K., & Rangaswami, M. R. (2009). Why Sustainability Is Now the Key Driver of Innovation. *Harvard Business Review*, September(2009), 1-10.
- Nitkin, D., Foster, R., & Medalye, J. (2009). *Business Adaptation to Climate Change*. London, Ontario: Network for Business Sustainability.
- Nordic Insurers Climate Conference (2009). *Nordic Insurers Climate Conference Rapport*. Copenhagen: Danish Insurance Association, Norwegian Financial Services Association, Swedish Insurance Association and Federation of Finnish Financial Services.
- P/F Trygd Tryggingarfelag (2012). *Árfrásøgn 2011*. Tórshavn: P/F Trygd Tryggingarfelag.
- Porter, M. E. (1979). How competitive forces shape strategy. *Harvard Business Review*, March 1979, 137-145.
- Rutherford, R., Blackburn, R. A., & Spence, L. J. (2000). Environmental management and the small firm. An international comparison. *International Journal of Entrepreneurial Behaviour & Research*, 6(6), 310-325.
- Sandvik, H. (2008). Public concern over global warming correlates negatively with national wealth. *Climatic Change*, 90(3), 333-341.
- Taylor, N., Barker, K., & Simpson, M. (2003). Achieving 'sustainable business': a study of perceptions of environmental best practice by SMEs in South Yorkshire. *Environment and Planning C: Government and Policy*, 21(1), 90-105.
- The Geneva Association (2009). *The insurance industry and climate change - Contribution to the global debate*. Geneva: The Geneva Association.

- Tryggingarfelagið Føroyar (n.d.). Slakir 3.000 stormskaðar fyri meira enn 40 mió. krónur. Retrieved March 22, 2012, from https://www.trygging.fo/taenastur/tidindi/3000_skadar/.
- United Nations Environment Programme Finance Initiative (2011). UNEP FI side-events at UN Climate Change Conference. Retrieved August 8, 2011, from <http://www.unepfi.org/events/2011/bonn/index.html>.
- Vellinga, P., Mills, E., Berz, G., Bouwer, L., Huq, S., Kozak, L. A., et al. (2001). *Insurance and other financial services*. Chambridge: Cambridge University Press.
- Worthington, I., & Patton, D. (2005). Strategic Intent in the Management of the Green Environment within SMEs: An Analysis of the UK Screen-printing Sector. *Long Range Planning*, 38, 197-212.
- Yin, R. K. (2003). *Case Study Research: Design and Methods* (3 ed.). Thousand Oaks: SAGE Publications, Inc.