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National Intellectual Capital and the Financial Crisis in Australia, Canada, Japan, New Zealand, and the United States

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Foreword 1

The economic crisis is a consequence of many parallel factors which are all related to globalization and digitalization. My main concern, assessing this in more detail from the European perspective, is that revolutionary global forces have not been taken early nor seriously enough by most national and regional decision makers. The Heads of European States and Governments have once again recalled the importance of fiscal consolidation, structural reform, and targeted investment to put Europe back on the path of smart, sustainable, and inclusive growth. The main question is how capable and ready are the national governments of tackling the complex and manifold issues of crises and of renewing even radically many of our public and private structures and processes.

The first basic requirement is that all the European Union member states remain fully committed to taking the actions required at the national level to achieve the objectives of the Europe 2020 Strategy. The second basic requirement is that the national and regional governments, as well as the people, are ready for radical changes. This booklet, and the other 11 booklets by the experienced authors, focus on national intellectual capital and give necessary insights and facts for us, the readers and especially for our in-depth systemic thinking of the interrelationships of NIC and economic recovery.

How should the national and regional decision makers tackle the existing knowledge of intangible capital? The focus needs to be more on the bottom-up approach stressing the developments on local and regional levels. I highlight our recent statements by the EU Committee of the Regions. The key priorities are to get more innovations out of research and to encourage mindset change towards open innovation.

The political decision makers are finally aware that the traditional indicators created for and used in industrial production cannot be applied to a knowledge-intensive, turbulent, and innovativeness-based global enterprise environment. Indicators that perceive the intangible dimensions of competitiveness—knowledge capital, innovation knowledge, and anticipation of the future—have been developed around the world, but their use has not yet become established in practice. This booklet accelerates the development and the use of these indicators.

This helps the local and regional, as well as central, governments in taking brave leaps forward on a practical level—giving greater ownership and involving all the

stakeholders. This means the need of actions towards increasing the structural and relational capital of regions, both internally in communities of practice and in collaboration with others.

The new generation innovation activities are socially motivated, open and collectively participated, complex and global by nature. The regions need to move towards open innovation, within a human-centered vision of partnerships between public and private sector actors, with universities playing a crucial role.

Regions should be encouraged to develop regional innovation platforms, which act as demand-based service centers and promote the use of international knowledge to implement the Europe 2020 Strategy, smart specialization and European partnerships according to the interests and needs of regions. For this to happen, we need to apply the new dynamic understanding of regional innovation ecosystems, in which companies, cities, and universities as well as other public and private sector actors (the "Triple Helix") learn to work together in new and creative ways to fully harness their innovative potential.

New innovative practices do not come about by themselves. One major potential is the use of public procurement. The renewing of the European wide rules must increase the strategic agility and activities of municipalities and other public operators as creators of new solutions. Especially the execution of pre-commercial procurement should be reinforced even more in combination with open innovation to speed up the green knowledge society development, i.e., for common reusable solutions in creating the infrastructures and services modern real-world innovation ecosystems are built upon. Conditions must be created that also allow for extensive development projects which address complex societal challenges and which take the form of risk-taking consortia.

One of our working instruments within the Committee of the Regions is the Europe 2020 Monitoring Platform, which broadly reviews and reflects the opinions and decisions on regional level all around Europe. It gives a flavor of cultural and other socioeconomic differences inside the EU. This brings an important perspective to the intellectual capital, namely the values and attitudes needed for citizens supporting policymakers on appropriate long-term investments and policies.

Emphasizing the importance of these issues, decision-makers in all countries and regions worldwide need a deep and broad understanding of the critical success factors affecting the national intellectual capital. With all the facts and frames for thinking, this booklet gives a valuable insight in today's challenges.

Markku Markkula
Advisor to the Aalto University Presidents
Member of the EU Committee of the Regions
Former Member of the Parliament of Finland

Foreword 2

Financial crisis—words very much heard today. What is it about, actually, and how to get a grip on what we experience today? The booklet gives an important insight on the factors affecting competitiveness and productivity in modern knowledge society. We need to see beyond the obvious, and have increasingly "qualified guesses" because the character of the society and industry has fundamentally changed.

What is very important to notice is the shift towards intangible value creation beyond the deterministic phenomena we saw very clearly in the industrial era. Cost drivers were the important ones throughout the industry. Mass production, bigger is better; very traditional productivity factors, was the mantra.

However, the production picture is changing. Increasingly value is created by the intangibles, often services related to the tangible components, and even totally in immaterial value creation, where perceptions and expectations determine the market value of the "extended product." We also see rapid change in organizational forms, a new type of entrepreneurship growing besides the traditional industry clusters, and also smart specialization of regions and countries.

This also means that there will be clearly different and complementary roles of the actors in innovation and value creation ecosystems. Large companies, small ones, and even microenterprises together with the public sector are traditionally seen as the active partners in such innovation environments. The real issue in the dynamic markets, however, is that the end users are increasingly to be taken on board as *active subjects* for innovation, and not merely treated as objects or customers. Markets need to be shaped and created in a much more dynamic way than ever before. Open innovation beyond cross-licensing includes the societal capital as an important intangible engine for productivity growth. Innovation happens only when the offering meets the demand. Otherwise we can only speak about inventions or ideas…

We need to have a closer look at the intellectual capital and the different factors within it when we design our policy approaches. Short-term investments in process capital (infrastructures) and market capital seem to be very important for the manufacturing base as such, but at the same time measures for longer-term intellectual capital development and efficiency need to be taken.

The *structure* and the open *processes* related to intangible capital and knowledge pools is increasingly important. For sustainable long-term development, both the *human capital and renewal capital are crucial*, as they are directly related to the innovation capability of the region. The correlation between these factors and the GDP growth is undisputable. In knowledge-intense industries, talent attracts talent, and the connectivity that modern ICT provides makes this talent pool fluid across disciplines, organizations, and geographical settings. It is imperative to modernize the innovation systems enabling the full dynamics needed for success in knowledge intense industries, beyond the traditional boundaries.

Measuring the performance of innovation systems becomes increasingly complex due to the mash-up of different disciplines and having new types of actors and interactions between them. Hence, the importance of analysis of the various components of the national intellectual capital (and equally on national innovation capability) as done in this booklet cannot be underestimated when making qualified guesses for operational choices to create functioning innovation ecosystems. The only thing predictable in true innovation is the unpredictability and the surprises. The role of the public sector is to drive strategy and measures enabling the unpredictable, and to catalyze a fluid, seamless, and frictionless innovation system to grow, with strong interplay with the surrounding society.

We need to have the courage to experiment, prototype in real world settings, have all stakeholders involved to find and remove the friction points of innovation, and achieve sustainable innovation ecosystems for knowledge-intense products and services.

I wish you an interesting read with this mind-opening report.

Bror Salmelin
Advisor, Innovation Systems
European Commission
DG CONNECT

Foreword 3

The 2008 global financial crisis hit the whole world with unprecedented speed, causing widespread financial panic. Consumer confidence dropped to the lowest level since the Great Depression. Taiwan, with an export-dependent economy, was seriously impacted by the crisis and the unemployment rate hiked while household consumption levels dropped. At the onset of the financial crisis, Professor Lin was the Dean of Student Affairs here at National Chengchi University in Taipei, Taiwan. She was the dean in charge of financial aid and student loans and thus saw first-hand the direct impact the financial crisis had upon our students. The crisis was so devastating that Professor Lin, along with the university, was compelled to launch several new initiatives to raise money and help students weather the difficult times.

I am very glad that she took this painful experience to heart and set herself upon the task of investigating the impact of the crisis; trying to look into the causes and consequences for policy implications, not only for Taiwan but for an array of 48 countries. In particular, she approaches the crisis from the perspective of "national intellectual capital," which is very important in today's knowledge-driven economy.

Taiwan is an example of a knowledge economy and has enjoyed the fame of being referred to as a "high-tech island." Without an abundance of natural resources, Taiwan's hardworking and highly educated population is the single most precious resource that the island has. Acknowledging the value of such human resources and intellectual capital, we established the Taiwan Intellectual Capital Research Center (TICRC) under my leadership in 2003. Ever since then, Taiwan's government has continuously funded the university to conduct relevant research projects aimed at enhancing the intellectual capital of Taiwan. Having been thus endowed with the responsibility of nourishing future leaders in the public and private sectors, we have focused on building up our strength in innovation, entrepreneurship, and technology management-related research and education.

To enhance intellectual capital research, we recently formed a joint team of professors for a 4-year project in order to leverage their respective research capabilities. Through this project we hope to provide policy suggestions for the government by exploring the creativity, innovation, and intellectual capital at national, regional, city, and county levels. The goal is to come up with an intangible assets agenda for Taiwan's future sustainability. Professor Lin is an integral member of this research team.

Following her 2011 book *National Intellectual Capital: A Comparison of 40 Countries*, this booklet series is Professor Lin's second attempt at presenting her research, conducted under the sponsorship of TICRC, to international readers. As the Founding Director of TICRC and her President, I am honored to give a brief introduction of the value of this booklet series.

In comparison to her 2011 book, this series increased the number of countries studied to 48 and particularly focuses on the impact of intellectual capital on the 2008 global financial crisis. Rarely has an economic issue been systematically studied from the view point of intangible assets, particularly at such a large scale of 48 countries. The research results show without a doubt that national intellectual capital is indeed an important economic development enhancer. In particular, the fact that countries with higher national intellectual capital experienced faster recoveries from the 2008 financial crisis provides a strong message for the policy makers.

In addition to providing insights to national policy, the booklet also summarizes the background of each country before the crisis, the key events during the crisis, economic development afterwards, and future prospects and challenges. Each volume affords readers a holistic picture of what happened in each country in an efficient manner. The linkage between national intellectual capital and this financial crisis also provides a different perspective of the crisis.

We are happy that Professor Lin continues to share her valuable research results with international readers. I sincerely hope that her insights can garner more attention concerning the benefits of developing national intellectual capital for the well-being of every nation.

Se-Hwa Wu
Professor, Graduate Institute of Technology and Innovation Management
President, National Chengchi University, Taipei, Taiwan

Preface 1

There are "mounting risks of a breakup of the Euro zone." Such comments are frequent today on how the European leaders are handling the escalating crisis and its potential impact on non-European countries. However, few leaders, reporters, or researchers are actually addressing the situation of national intellectual capital (NIC) and its signals. In addition to the financial crisis, is there an emerging NIC crisis as well? Why is it emerging? How should policy makers think about NIC? In what way does it need specific attention? When will the outcome and impact of taken NIC policy steps be realized?

In the midst of the European crisis, there are national interventions to address the issues mentioned above. In leading economical nations, the investments going into intangibles now exceeds tangibles, and is positively correlated to income per capita. However, these still do not show up clearly in national mapping as well as policy making insights. Therefore, the New Club of Paris is focusing the knowledge agenda setting for countries on Societal Innovation (see www.new-club-of-paris.org).

Chairman Ben Bernanke of the U.S. Federal Reserve was addressing some of these same aspects in a key note speech in May 2011 hosted by Georgetown University: http://www.icapitaladvisors.com/2011/05/31/bernanke-on-intangible-capital/. OECD and the World Bank are developing NIC statistics, often based on the model from Corrado-Hultén. Japan has been developing both NIC and Intangible Assets (IA) at METI for some time now. Their research on IC/IA has resulted in a National IA Week with various key stakeholders such as government agencies, universities, stock exchange, and enterprises. Japan is so far the only country in the world to hold such activities, and they have been doing so for the last 8 years. Australia, Singapore, South Korea, and China are currently undertaking various NIC initiatives. Other countries are also becoming more and more aware of NIC, with policy rhetoric centered on innovation, education, R&D, and trade. Despite this, the map for a more justified NIC navigation has been missing.

This booklet highlights NIC development for a number of countries, based on 48 different indicators, aggregated into four major NIC components of human capital, market capital, process capital, and renewal capital. The model here is a refined and verified statistical model in comparison to the Corrado–Hultén model. We call it the L–E–S model after the contributors Lin–Edvinsson–Stahle. Based on a deeper

understanding and the timeline pattern it sets forth, this model will add to a better NIC navigation, not to mention knowledge agenda setting for countries.

Upon looking at a global cluster NIC map, it is evident that the top leading countries seem to be small countries, especially Singapore, the Nordic countries, Hong Kong, and Taiwan. For the USA, Finland, and Sweden, around 50 % or more of its economical growth is related to NIC aspects. Sweden, Finland, Switzerland, the USA, Israel, and Denmark are strongly influenced in its GDP growth by focusing on Renewal Capital.

It might be possible that we will see a clearer map of the NIC ecosystem and drivers for wealth emerge in the extension of this ongoing unique research of NIC. This booklet will present an NIC map for various clusters of countries. It can be used for bench marking as well as bench learning for policy prototyping. The starting point is awareness and thinking of NIC, and its drivers for economic results. Based on this more refined navigation, NIC metrics can be presented.

Deeper understanding will emerge from this research, such as the scaling up of limited skilled human capital in one nation by using the globalized broadband technologies for migration and flow of knowledge (such as telemedicine or mobile banking in Africa). This is also referred to as the IC multiplier. It might also be the way the old British Commonwealth was constructed, but without the IC taxonomy. In modern taxonomy, might it be the shaping of NIC alliances for the migration and flow of IC between nations?

Another understanding that might emerge for policy making is the issue of employment versus unemployment. The critical understanding will be deployment of IC drivers. This will require another networked workforce of value networkers on a global scale, such as volunteering software and apps developers. However, such volunteers do not show up in traditional statistics for the mapping on behalf of policymakers.

On another level, there might be clear gap analyses between nations to support the vision process of a nation. On a deeper level, it is also a leadership responsibility to address the gap of NIC positions versus potential positions. Such a gap is in fact a liability to the citizens, to be addressed in due time.

This will take us to the need for the continuous renewal of social systems. The so called Arab Spring is explained by some as resulting from three drivers: lack of renewal of social systems, Internet, and soccer as cross class interaction space. The lack of social renewal and innovation is most likely critical early warning signals. For Greece, we can see that such a tipping point occurred back in 1999.

On a global scale, we might see that the concern for the Euro zone crisis should and can be explained by a deeper and supplementary understanding of National Intellectual Capital, in addition to financial capital. Hence, we need to refine our NIC understanding, NIC mapping, NIC metrics, and NIC organizational constructs into societal innovation for the benefit of wealth creation of subsequent generations.

Leif Edvinsson
The World's First Professor of Intellectual Capital
Chairman and Co-founder of New Club of Paris

Preface 2

Our first book *National Intellectual Capital: A Comparison of 40 Countries* was published in early 2011, at a time when the 2008 global financial crisis had been declared when the European region was still plagued with sovereign debt problems. Before we finalized the book, we were able to retrieve some of our raw data concerning the troubled countries, such as Greece, Iceland, Ireland, Portugal, and Spain. The results of our analysis based on data spanning 1995 to 2008 revealed some early warning signs of the financial turmoil in those countries. In my preface of that book, I mentioned that the warning signs might reveal only the tip of an iceberg. At that time, my co-author, Professor Edvinsson and I decided to do a follow-up study to trace the development of national intellectual capital (NIC) in as many countries as possible, particularly through the lens of the 2008 global financial crisis. This 12 booklet series is the result of that determination.

The 2008 global financial crisis came with unexpected speed and had such a widespread effect that it surprised many countries far from the epicenter of the initial U.S. sub-prime financial problem, geographically and financially. According to reports, no country was immune to the impact of this financial crisis. Such development clearly signifies how closely connected the world has become and the importance of having a global interdependent view. By reporting what happened during 2005–2010 in 48 major countries throughout the world, this booklet series serves the purpose of uncovering national problems before the crisis, government coping strategies, stimulus plans, potential prospects and challenges of each individual country, and the interdependence between countries. The 6 years of data allow us to compare NIC and economic development crossing before, during, and after the financial crisis. They are handy booklets for readers to have a quick yet overall view of countries of personal interest. The list of 48 countries in 11 clusters is provided in the appendix of each booklet.

Searching for financial crisis-related literature for 48 countries is itself a very daunting task, not to mention summarizing and analyzing it. For financial crisis-related literature, we mainly relied on the reports and statistics of certain world organizations, including OECD, World Bank, United Nations, International Monetary Fund (IMF), European Commission Office, the US Congressional Research Service, the U.S. Central Intelligence Agency, and International Labor Office (ILO).

Some reliable research centers such as the National Bureau of Economic Research in the U.S., World Economic Forum, the Heritage Foundation in the U.S., and government websites from each country were also our sources of information. Due to the requirement of more update and comprehensive information, we were not able to use as much academic literature as we would have liked, because it generally covers a very specific topic with time lag and with research methods not easily comprehended by the general public. Therefore, we had to resort to some online news reports for more current information.

In the middle of 2012, the lasting financial troubles caused the European economy to tilt back into a recession, which also slowed down economic growth across the globe. However, almost 4 years have passed since the outbreak of the global financial crisis in late 2008; it is about time to reflect on what happened and the impact of the financial crisis. By comparing so many countries, we came to a preliminary conclusion that countries with faster recovery from the financial crisis have higher national intellectual capital than those with slower recovery. In other words, countries that rebounded fast from the crisis generally have solid NIC fundamentals, including human capital, market capital, process capital, and renewal capital. We also found that higher the NIC, higher is the GDP per capita (ppp). This booklet series provides a different perspective to look beyond the traditional economic indicators for national development.

In an era when intangible assets have become a key competitive advantage, investing in national intellectual capital development is investing in future national development and well-being.

Enjoy!

Carol Yeh-Yun Lin
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National Chengchi University, Taiwan
Taiwan Intellectual Capital Research Center (TICRC)

Executive Summary

The soundness of national governance was tested in the global financial crisis, which reflects the development of national intangible assets.

How can national intellectual capital (NIC) act as a policy guideline for national well-being? One of the key causes of the financial crisis was the failure of conventional financial metrics and accounting systems to detect potential risks due to non-transparent information disclosure. Our earlier national intellectual capital (NIC) research revealed warning signs of impending financial crisis for Greece, Iceland, and Ireland. Such findings indicate that NIC, albeit intangible, can provide valuable insights into risk control and strategy formulation. This booklet looks at the connections between the financial crisis and NIC development for Australia, Canada, Japan, New Zealand, and the USA.

In particular, this report attempts to answer the following questions: How did these countries weather the 2008 global financial crisis? Why were Australia, Canada, and New Zealand more resilient to the financial shock than other advanced countries? What are the NIC profiles of these countries? What role has NIC played in the national development of these countries?

Data covering 2005–2010 for 48 countries indicate that *the higher the NIC, the higher is the GDP per capita* (*ppp*), accentuating the value of NIC as a driver in major countries throughout the world. *For the six-year average of NIC rankings among 48 countries, Australia ranks 13th, Canada 12th, Japan 15th, New Zealand 21st, and the USA 7th*. In general, these countries are in the second quartile of 48-country NIC, except the USA.

The 2008 financial crisis caused severe impacts across the globe and is considered to be the worst crisis since the Great Depression of the 1930s. The crisis came with unexpected speed and spread into a global economic shock, which resulted in a number of bank failures. During this period, economies worldwide slowed, credits tightened, and international trade declined. In an effort to mitigate the crisis, governments and central banks across the globe responded with unprecedented fiscal stimuli, monetary policy expansions, and institutional bailouts. These measures had their desired impact and the financial crisis was declared over by the end of 2009.

However, the short global recovery in 2010 was overshadowed by the lingering sovereign debt problems in Europe, thus a global economic slowdown recurred in the second half of 2011. Despite the efforts of European leaders to prevent large economies like Italy and Spain from needing bailouts, Spain still asked for external financial assistance in June 2012. Although the global economic outlook for 2013 will be better than that of 2012, growth in most developed countries is still predicted to be weak.

During the financial crisis, Australia, Canada, and New Zealand were relatively resilient compared with other advanced countries for the following reasons.

First, past experience with crises over the last few decades have prompted these countries to improve their financial systems. Second, these countries adopted conservative financial practices that somewhat insulated them from toxic financial products. Third, Australia and New Zealand benefited from China's continuous trading demands even during the financial crisis. Canada's economy was not affected much by the sub-prime mortgage problems of its major trading partner, the USA, mainly because of its conservative financial practices.

In general, relatively sound macroeconomic fundamentals, swift policy responses by their governments, and past experience helped these countries recover from the crisis faster than first expected.

The Global Competitiveness Index ranking (GCI, Fig. 1.1) of Canada and Japan advanced from 14 to 12 and from 12 to 9, respectively in 2011–2012, when compared to their 2005–2006 level. Australia declined from 10 to 20, New Zealand from 16 to 25, and the USA from 2 to 5 with the same comparison. The *real GDP growth* pattern of these countries was largely similar—a drop to negative growth in both 2008 (except Australia) and 2009, and then a rebound to positive growth in 2010. Specifically, Australia experienced less GDP growth fluctuation over the 6 years. Canada and the USA had synchronized development. Japan had the deepest drop in 2009, yet with the strongest rebound in 2010 as well. New Zealand had a relatively flat growth in 2008, 2009, and 2010.

In terms of general *government debt*, Australia and New Zealand carried around 30%, Canada and the USA around 90%, and Japan around 190% of GDP debt in 2010. All the five countries had continuous government debt increase starting from 2008. Aside from GDP growth and government debt, *unemployment* and its social impact is one of the major concerns of the financial crisis. Unemployment rate of all five countries rose starting from 2008, with the USA having the greatest jump, followed by Canada and New Zealand. Australia and Japan were the two countries with the lowest unemployment rate in this group. *Consumer price inflation* (CPI) of these five countries all rose in 2008, dropped drastically in 2009, and then rebounded in 2010. Among them, Canada had the least and the USA had the largest scale fluctuation. Japan had much lower CPI than the other four countries, at around "0," except for fluctuations in 2008 and 2009.

For NIC component capitals, over the six-year time frame of the study (2005–2010), *human capital* (HC) did not vary much among these countries. For *market capital* (MC), Japan and the USA were in the low group, clearly apart from the other three countries. After the financial crisis, all countries (except Japan) had market

capital increase. *Process capital* (PC) of these five countries was at the similar level over the 6 years. In terms of PC score, Japan had the lowest score in 2005 and remained the lowest in 2010 in this group. *Renewal capital* (RC) of these five countries was relatively stable over the 6 years. Contrary to market capital, Japan and the USA were in the high renewal capital group, clearly apart from the other three countries. Australia and Canada were in the middle group, with Canada surpassing Australia starting from 2007. New Zealand consistently had the lowest RC in this group. *Financial capital* (based on a 1–10 scale) did not show much difference among these five countries. However, the USA consistently had the highest score and New Zealand the lowest even though the difference was small. For the overall *NIC*, the USA consistently had the highest score and New Zealand the lowest over the 6 years.

The codevelopment pattern of NIC-GDP, HC-GDP, and PC-GDP was largely the same, with the USA at the top, followed closely by Australia and Canada, then Japan, at lastly, New Zealand. The MC-GDP codevelopment was spread out for the five countries. If MC and GDP was divided into high, middle, and low levels (H.M.L), Australia and Canada were at HM (high MC and middle GDP), Japan at LM, New Zealand at HL, and the USA at LH. For RC-GDP codevelopment, Japan was ahead of Australia and Canada in RC. As for long-term NIC (human capital and renewal capital), Japan and the USA were at the top, followed by Australia and Canada together, and then New Zealand. For short-term NIC (market capital and process capital), the five countries were clustered together with Japan and the USA clearly exhibiting lower MC.

For *dynamic NIC ranking* changes in three time periods (2005–2006, 2007–2008, and 2009–2010), the ranking gains represent increasing international competitiveness (among the 48 countries) after the financial crisis. Australia gained the greatest international competitiveness in financial capital after the financial crisis within this group. However, it also experienced a relatively large decline in human capital and renewal capital. Canada gained international competitiveness in renewal capital and NIC after the crisis. Japan lost its international competitiveness in market capital with a relatively large scale and in NIC with a modest scale after the financial crisis. New Zealand gained most international competitiveness in human capital and process capital after the financial crisis. The USA had a modest drop in market capital after the financial crisis.

NIC 3D *trajectory analysis* was conducted to detect the enhancing and impeding factors of each country in reaching a targeted GDP per capita (ppp), benchmarking Norway due to its highest financial performance among the 48 countries. To reach the GDP level of Norway, Japan has the longest distance (−36.07%) to cover, followed by New Zealand (−28.80%), Canada (−24.68%), the USA (−20.37%), and Australia (−20.15%). Interestingly, even though New Zealand consistently had the lowest intangible scores in this group, it still has shorter route than Japan to reach Norway's GDP level. A plausible explanation is that Japan has been in a decade-long economic slowdown, whereas New Zealand is a gradually rising country. When benchmarking the financially strong Norway, Japan is in a disadvantageous position. Specifically, the pupil–teacher ratio was a concern for all five countries.

Employee training needs to be improved in each country except Japan, as do R&D related issues. In addition, transparency of government policy requires special attention, except for Australia and New Zealand. Other issues including capital availability and skilled labor also deserve some attention.

As of mid-2013, the world economic recovery was still hampered by the pending financial problems in the Euro zone. However, signs of stronger recovery have surfaced in the USA and economic prospect in Japan has also turned promising with Shinzō Abe's financial relaxing policy. Although these five advanced countries showed their resilience during this financial crisis, challenges still lie ahead as described in Chap. 5.

The 2008 global financial crisis provided an ideal opportunity for nations to examine/renew/innovate the soundness of their economic system and the effectiveness of *national governance related to NIC*. The following implications are drawn from our research findings. Readers can refer to Chap. 5 for the rationale behind these implications.

1. National intellectual capital development goes together with the economic development and should be regarded as an enhancer of economic growth.
2. Wisdom to strike a financial system balance between conservative and liberal, supervision and autonomy, and traditional practice and innovation is important.
3. The effectiveness of stimulus packages will be judged by achieving national long-term goals rather than only the speed of recovery or reduction of the unemployment rate.
4. The soundness of national governance was tested in the global financial crisis, which reflects the development of national intangible assets.
5. Overdependence on single or limited sources of exports for growth will be unsustainable.
6. In addition to monitoring government debt, household debt and its cause should also be reviewed for national health.
7. Advanced countries need to help increase global public good in addition to private good, especially in bad times.
8. Advanced countries should set the model of environmental friendly economic development for developing countries to follow.
9. Observing the national development of Australia and Canada in the immediate future may provide significant implications.
10. Unbalanced NIC development may jeopardize future economic development.

This report shows that Australia needs to pay more attention to its human capital and renewal capital development and its overreliance on China's demands. Canada is improving in its renewal capital and NIC. In addition, its financial sector gained a stronger position in the world financial system after this financial crisis. Japan was hit hard by the crisis and recovered from it with almost 200% GDP of government debt. However, its private sectors were relatively rich and household savings were high, which gave the government flexibility in financial maneuvering. In addition, Japan's recent relaxing of its financial system has begun to take effect. New Zealand

needs to pay special attention to its declining market capital and can strategize its future NIC development to become compatible with other advanced countries. The USA started recovering at a good pace in 2013, mainly because its energy industry is building up steam. In 2009 and 2010, its NIC ranking did not change much compared to its 2005–2010 average. Being the largest economy in the world, the USA has some responsibility to facilitate world recovery from the 2008 global financial crisis.

In the future, there will be a rise in the intangible economy. In July 2013, the U.S. Bureau of Economic Analysis announced that R&D will no longer be treated as a mere expense; it will be categorized on the government's books as an investment (Coy 2013). In an era when the intangible asset has become a key competitive advantage, investing in national intellectual capital development is, in essence, investing in future national development and well-being. National intellectual capital should be nourished from both a local cultural viewpoint and global interconnectivity by social media. Based on emerging new insights of values, societal history, and citizen relationships, a key focus for the future will be on the fusion of national intellectual capital and social service innovation as well as societal innovation, for the enabling of a new social fabric.

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