

6 Standards to Create New Insurance Markets

The preceding chapter shed light on the (re)insurance industry as an obscure, yet significant, object of global finance and governance, with a distinct focus on regulatory standards. This chapter goes a step further in looking at insurance standards used in market creation rather than associated to market regulation. How does the industry rely on standards to create new insurance markets? How do such standards help to transform the uncertainty of the material world into a fungible risk likely to be sold to prospective policy holders? Risk assessments and the drafting of sample insurance policies notably rest on complex procedures that seek to collect data that is as detailed and reliable as possible. To this end, insurers depend on the accessibility of such data, their comprehensiveness (their granularity in the jargon of the professionals), and last but not least, an industry-wide defined and harmonised format that can be easily exchanged and reported among all market players and regulators. As for any other data used in a service sector based on information, such interoperability requirements are reinforced by extensive use of ICT resources, longer value chains relying on all sorts of outsourced services, intra-firm exchanges between parent companies and their affiliates, as well as arm's length transactions on an increasingly global plane.

There is a consensus among our sources that the industry is known to use only a limited number of insurance-specific standards. Some instruments do, however, exist. The following stocktaking exercise aims to unveil a number of little-known standards that are nevertheless indispensable to the functioning of insurance markets. Some help to create new markets; others reinforce existing markets or drive changes in their functioning. To understand these two dimensions (market creation and market support or transformation), I shall examine two distinct areas. On the one hand, my enquiry focuses on how standards are instrumental in pushing the frontier of highly innovative and securitised insurance markets further, with a distinct focus on life insurance and its close connection to pensions. I thus first put the life insurance industry in

the context of the challenges of the post-crisis environment, its relations with pension policy reforms, and on-going plans to strengthen the market integration of pensions. Against this backdrop, I present the project that insurers, pension schemes, and investment banks developed over several years for a standardised solution to pass over to capital markets the risk associated with longer and different expectations in populations' longevity – known as 'longevity risk'. On the other hand, I examine how existing markets heavily rely on standardised formats of data exchange. Here, the focus is on insurance against natural catastrophes, in particular the role of reinsurers that, together with states, are the only ones in a position to assume responsibility for covering rare but extreme losses resulting from natural catastrophes. After some background on generic data exchange formats widely used by, but not confined to, the insurance industry, I shall turn to the unique history of a standard developed over several decades by the world largest reinsurers to gain a more accurate picture of the exposure to natural hazards risks included in their portfolio. Finally, I shall look into another type of data exchange not confined to insurance: the standardised guidelines used for extra-financial reporting by the largest listed insurance and reinsurance companies around the world – the guidelines of the Global Reporting Initiative (GRI). While highly formalised with a view to establishing a harmonised – if not fully measurable – global standard of comparison for investors on globally integrated financial markets, such guidelines are closer to the societal pole of the material continuum of my topology of international standardisation. At first sight, this case may appear a long way off the core focus of my enquiry. It provides, however, evidence that standards are not sector-dependent and can set quality and security attributes even when they further oppose political economy objectives; it thus keeps on probing the extensive hypothesis put forward in Chapter 3.

The enquiry follows my basic three questions: who standardises what and where. In doing so, the evidence gathered will be wrapped up according to my three-dimensional framework. It will situate the actors setting those standards primarily along the private sphere of the institutional continuum. While what is standardised predominantly belongs to the physical pole of the material continuum, we will see that it nonetheless brings a number of societal issues on board. Finally, evidence gathered in this chapter suggests that although those standards largely belong to a logic of market creation and rationalisation, compliance remains ambiguous and falls short of a mere exogenous principle supporting the transnationalisation of capital accumulation.

The Cost of Not Dying

In the previous chapter we saw the crucial role played by standards in the paradigmatic shift of risk-based regulation as state regulators transfer a significant part of their authority to large insurance companies able to develop internal risk and solvency models, as well as to successfully lower the reserve capital and other requirements supposed to protect policy holders. Those models are assessed by regulators who ensure that the firms they supervise do not threaten the stability of the financial system and provide convincing reporting that an appropriate degree of protection has been undertaken for policyholders. For that, regulators and insurers need to agree on how to be sure that reserves match liabilities far into the future. That is obviously easier said than done, all the more so when insurers themselves lack an agreed methodology and calibration for standardised asset and liabilities pricing. This is what we now turn to, with particular focus on current developments in the life insurance market. The analysis sheds light on the technical specifications underlying the internationalisation of the life insurance market. In doing so, it keeps sight of their social and political implications following the global economic crisis, in particular with their close connection with financial services, contemporary pension policy reforms, and contentious plans to create a single market for pension funds within the EU.

Life Insurance after the Crisis

While securitisation was undoubtedly one of the drivers of the financial crisis of 2007–2008, the life insurance industry continues to assign it centre stage in the post-crisis environment. Shaping new standards for pricing securitised life insurance products and establishing commonly accepted contracts is critical in this regard. A standardised securitisation of life insurance products responds to three challenges of the post-crisis environment. First, it provides instruments of risk-based regulation that respond to attempts by state regulators to adopt a more complex and stringent regulation with closer convergence towards the banking industry – something we considered in the previous chapter focused on the insurance supervisory and regulatory environment. Then, it offers a convenient way to mitigate the dramatic implications that post-crisis ultra-low interest rates have for life insurance companies, facing a higher cost of their products (to match the loss of compound interests), lower returns from investments of their assets, and an increased valuation of

their liabilities.¹ Set against the backdrop of a long-term prospect of super low interest rates, the pessimistic tone of the leading world reinsurer Swiss Re is largely shared among the industry: ‘the longer interest rates stay low, the higher the losses in [life insurance] will be’ (Swiss Re, 2012a: 38). Last but not least, the ability to scale up the market of securitised products according to standardised methods responds to the significant challenge that the long-term and macro trend of ageing has become for life insurance companies. The impact of an ageing population varies according to the type of pension arrangements. The evolution of fertility rates, improved life expectancy, and the end of the baby boom generation have joined market ideology as main driving forces behind the shift towards a massive substitution of defined contribution for defined benefits systems across industrialised countries. Significant tax and other state incentives also support the development of complementary funded private pensions. Since the crisis of the 1970s, debates on the so-called burden of social expenditures and more broadly the crisis of the welfare state have spread across countries through various transnational channels to ‘become staple items on the political agenda’ (Leimgruber, 2013: 293).² Governments have repeatedly attempted to push through vast reforms to close the funding gap between contributions and benefits.

In the post-crisis environment of low interest rates and risk-based regulation, the life insurance industry can surely play its own game in the reforms of pension systems swiping countries with an ageing

¹ In an environment marked by a long-term prospect of low interest rates, the price of life insurance premiums goes up as a lower share of the benefit sold by the policy is expected to be funded by compound interest rates. For instance, at 0 per cent interest rate, a benefit of \$100,000 in twenty years would require payment of a yearly \$5,000 premium, whereas with a 5 per cent investment return this would only require an annual payment of \$2,880, with 42 per cent of the benefit paid out of interest rate income. Low interest rates thus make life insurance products either more expensive or their benefits lower, and this clearly affects the demand for insurance policies. As insurers invest most of their premiums in high-quality bonds, low interest rates also reduce their investment returns. Finally, lower interest rates increase the value of their liabilities. Following the previous example of an insurer with a liability to pay someone \$100,000 in twenty years’ time, the value of that liability today must be discounted by the expected amount derived from compound interests over those next twenty years. The present value of the future amount is thus reduced in proportion to the average interest rate expected for that duration. The smaller the interest rate, the higher the value of the future sum in today’s money – that is, the higher the liability weighs on their balance sheet. For further details, see: Swiss Re (2012a).

² For insights on the role of international organisations such as the OECD and the World Bank and other transnational policy actors on the privatisation of pension policies and the shift towards transferring risks to policy holders, see, among others: Orenstein (2008) and Mandin and Palier (2009).

population. Not only does it guarantee against the cost of dying (i.e. paying an indemnity to a beneficiary in case of death of the insured), it also sells policies to hedge the cost of not dying (i.e. providing pay-outs to the insured for an agreed period of time, sometimes as long as the time s/he stays alive). The cost of not dying hedged by life insurers is thus closely related to the annuity market (Inkmann et al., 2011: 281). Annuities are generally defined as contracts that provide periodic payments for an agreed-upon span of time. With substantial variations in length-of-life across populations, a life annuity allows a retiree to exchange either an accumulated capital or a lump-sum for a guaranteed stream of income that will be paid as long as she is alive (Brown et al., 2001). The development of standardised instruments for creating a new global market of securitised pension-related policies thus rests on a proper understanding of the risk borne by not dying, how to price it, and of course, in which market to expect most revenues.

While the United States remains by far the biggest country in terms of pension funds' assets under management (with close to 60 per cent of the estimated \$25trillion in OECD countries), the United Kingdom is by far the largest market for annuities. This is so since the accumulated capital of occupational plans and personal pensions must be used to purchase an annuity at retirement. Until the conservative Chancellor George Osborne ended compulsory annuitisation in 2014 – a reform labelled as the biggest of the century by asset managers at JP Morgan (Berens, 2015) – life insurance companies operating in the UK not only benefited from the world's largest market but led in product innovation and ways of developing risk differentiation (Rusconi, 2008; Marschallek, 2011).

Longevity Risk and the Design of Lifemetrics

In the profession, the risk hedged by financial instruments that pass the securitised solutions imagined by insurers to offload their ageing and pension-related risk over to capital markets is known as longevity risk. The notion was forged around the turn of the century to deal with the birth of those risk transfer markets. Longevity risk is thus related to the 'uncertainty surrounding the increases in life expectancy— as a result of unanticipated changes in mortality rates' (Blake et al., 2013: 5). Accordingly, it does not seek to address the viability of pension systems or solvency of insurers per se, but rather the complicated issues that arise when insurers, pension funds, pension schemes, and investment bankers seek to hedge the risk associated with the fact of guaranteeing continued streams of revenue to different populations that will experience different longevity outcomes. For all those actors involved in this new 'life market'

(Blake et al., 2013), the cost of not dying is so difficult to price that it needs standards against which to define the market. According to one leading expert who helped to give major currency to the notion, longevity risk is ‘the most important risk that pension funds and insurers face, because it is the only one you can’t hedge – in contrast to credit or interest risks using well-known financial models – and it is the most unfair towards future generation that would take the burden of it if not properly addressed now’.³

Over the last decade, insurance services were part and parcel of the surge of buy-out arrangements, annuity contracts, and securitised solutions sold to pension funds and pension schemes to offload the longevity risk borne on their balance sheet.⁴ It remains difficult to have reliable estimates in the five leading markets (UK, United States, Netherlands, Canada, and Ireland) due to a lack of transparency and comparability in the information released by large consulting firms advising and tracking those deals. The last few years typically saw some jumbo deals of over £1 billion in each country, with many smaller deals. Figure 6.1 presents an overall picture of the growing market of longevity risk transfers in the United Kingdom since the outburst of the global financial crisis. The peak of 2014 can be largely explained by the large deals done prior to Solvency II coming into force.

Despite such recent developments, life insurance and reinsurance companies have experienced difficulties in creating bold new markets in relation to an ageing population and current reforms of pension policies. The lack of standards for pricing the cost of not dying was from the outset the main difficulty faced by the industry. Why? A first response is to consider that what is true for financialised capitalism is also true for the securitisation of insurance. Without uniform contract and pricing standards, capital markets cannot expect to attain the depth and liquidity

³ Interview with David Blake, Director of the Pension Institute, Cass Business School, London, 20 April 2015.

⁴ In a pension buy-out, a pension fund and/or plan sponsor hands over all the assets and liabilities of the fund to an external provider, typically an insurer or reinsurer, who then has the sole responsibility for making payments to the members of the pension plan or fund. As emphasised by an OECD report, ‘while the plan sponsor offloads all risk, this arrangement exposes plan members to counterparty risk, or the risk that the insurer becomes insolvent, as the structure no longer has the same benefit protection mechanisms in place as the pension plan’ (OECD, 2014a: 177). The situation is different with a pension buy-in, in which the pension fund or plan sponsor buys an annuity contract to rely on (re)insurers to fully or partially insure its liabilities, while retaining them and remaining responsible for the payment of pension benefits to its members. In both cases, the use of capital market to furthermore hedge those contracts has dramatically surged in the aftermath of the financial crisis and the prospect of long-term, super low interest rates.

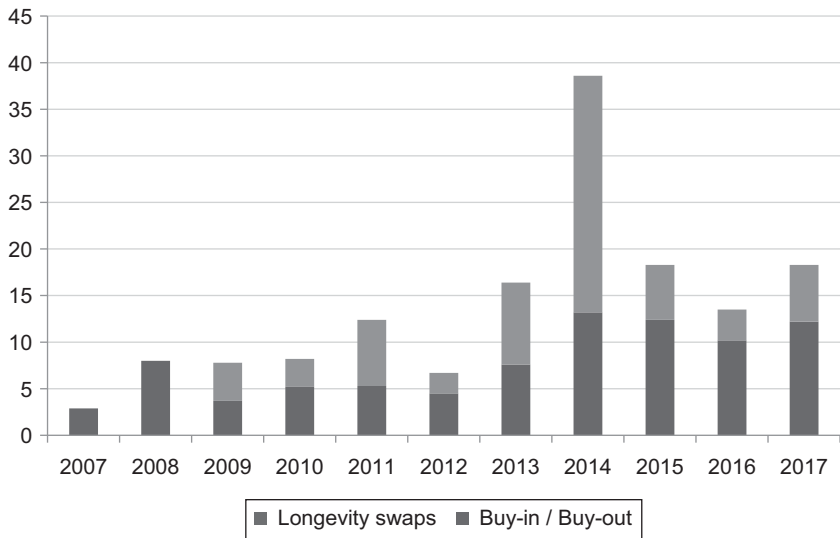


Figure 6.1 Volume of longevity risk transfer deals in the United Kingdom (2007–2017; £bn).

Source Hymans Robertson (2018).

required to scale up from a niche financial innovation (Lysandrou, 2016). Standardised forms of provision are requested whenever a financial market grows in scale; they assist asset managers' demands for systematic comparisons of securities in determining their suitability for inclusion in a particular portfolio. While life insurers have over centuries developed sophisticated products using mortality tables, the securitisation of those products generates additional requirements in terms of standardised bases of reference. A second answer – more specific to the insurance industry – is thus required to reconstruct the origins and developments of standards supporting the securitisation of longevity risk and so-called life markets.

In the early 2000s, the idea of developing a standardised longevity risk index had been in the air for a few years. Longevity capital markets were seen as potentially relevant for the banking industry working more and more closely with pension funds in order to develop packaged investments and hedging instruments. Swiss Re (then, the largest reinsurer of the world) inaugurated the first generation of capital markets instruments in December 2003 with the issuance of a so-called mortality bond known as Vita 1 (i.e. the name of the special purpose vehicle created for that). But the instrument merely transferred the model previously used for

natural catastrophe bonds: it only reduced exposure to catastrophic mortality events such as a severe outbreak of influenza, a major terrorist attack using weapons of mass destruction, or a natural catastrophe (Blake et al., 2013: 15–16).⁵ Together with experts from Heriot-Watt University in Edinburgh, the Cass Business School Pension Institute founded by David Blake had bigger plans for scaling up the market. In 2005 it organised the First International Conference on Longevity Risk and Capital Market Solutions, which would hereafter take place annually. Together with colleagues, the objective was to ensure not only the hugely complicated maths of the new market but also to understand how to design standardised contracts that would respond to the difficulties identified in the first issuance of bonds.

The creation of new capital market instruments cannot expect long-term viability without meeting the needs of both the hedgers (those buying financial instruments that cover the risk; e.g. an insurer, a pension fund, or a pension scheme with too high a liability related to current or future annuities) and the speculators (those selling the instrument; e.g. an investment bank, usually with the support of a large insurance consultant firm). Whilst the former look for hedge effectiveness, the latter seek liquidity like any other financial actor. Yet, a liquid market in which hedging instruments can be easily exchanged depends on standardised contracts whose form and substance are intelligible and comparable to all actual and potential market actors. As Blake and colleagues emphasise, ‘the fewer the number of standardized contracts traded, the greater the potential liquidity in each contract, but the lower the potential hedge effectiveness. There is therefore an important trade-off to be made, such that the number of standardized contracts traded provides both adequate hedge effectiveness and adequate liquidity’ (Blake et al., 2013: 12). The standardisation of longevity risk indices is thus caught in that tension between standardised index-based hedges and customised hedges. Standardised contracts have the advantages of simplicity, cost, and liquidity. In their simplest form, they support an index-based longevity swap (a derivative) involving a payment to the pension scheme or insurer based on the longevity experience of a reference index. Yet, understanding ‘how good’ the risk reduction is remains a difficult problem as the referred index will never exactly match the actual annuity payments being made by the insurer or pension scheme (Cass Business School and Hymans Robertson LLP, 2014: 8). Guy Coughlan, then newly

⁵ For an analysis of this longevity bond market from a poststructuralist approach focused on the particular understandings of time that it enshrines to produce truth-base insurable events, see: Lobo-Guerrero (2014: 54–71).

appointed head of the asset liability management (ALM) risk team of JP Morgan in London, was also present at the creation and shared the understanding that ‘an essential requirement for creating any new liquid market is standardization’.⁶ The creation of a liquid market would thus require ‘a standardized index ... as an unbiased reference by all participants [and] a limited number of standardized contracts in which liquidity can be concentrated’ (Coughlan et al., 2007: 4). In his view, in its early stage, the market could be built around just eight standardised contracts with a specific maturity (e.g. ten years), two genders (male, female), and four age groups (50–59, 60–69, 70–79, 80–89).

It is within this mind-set that the Lifemetrics initiative began at JP Morgan London in early 2007 to provide an effective long-term hedge of the longevity risk of a pension plan or annuity portfolio.⁷ The rationale from the start was that standardisation was necessary to reach scale, support liquidity, and expect growth of the market with proper intermediation between buyers and sellers. Coughlan approached Swiss Re to set up a joint association bringing the major players among insurers, banks, pension funds, and investors together. In April 2011 JP Morgan thought that a critical mass was reached and deemed it worthy of transferring the Lifemetrics initiative and related longevity standards to the Life and Longevity Markets Association (LLMA), a not-for-profit venture established for that purpose. Interestingly, the establishment of suitable and consistent standards, conventions, and best practices are an integral part of its objectives in the promotion of a liquid traded market in longevity and mortality-related risk. In August 2018, LLMA membership included Aviva, Axa, Deutsche Bank, JP Morgan, Morgan Stanley, Prudential Plc, and Swiss Re, to whom it provides historic and current indexes of mortality rates and period life expectancy levels across various ages for the four largest markets that are the United States, England and Wales, the Netherlands, and Germany. It furthermore provides standardised valuation models for longevity and templates for standardised derivatives such as so-called q and s forwards. According to experts close to the field, Lifemetrics standards developed by LLMA are

⁶ Interview with Guy Coughlan, Chief Financial Risk Officer, USS Ltd, and former head of the asset liability management (ALM) risk team of JP Morgan, London, 30 April 2015.

⁷ Interview with Guy Coughlan, Chief Financial Risk Officer, USS Ltd, and former head of the asset liability management (ALM) risk team of JP Morgan, London, 30 April 2015; interview with Pretty Sagoo, Director, European Insurance Risk and Capital Solutions, Deutsche Bank, and Director Board LLMA & Chair LLMA and IFoA Joint Longevity Basis Risk Working Group, London, 28 April 2015.

considered to have no competitors on the market even if new refined methodologies are developed by practitioners elsewhere.⁸

Although slow to take off and having not yet gathered pace to reach the full cruising speed of mature markets, standards supporting the issuance of securities on longevity risk have nevertheless accomplished a long journey since their early days of discussion in the academic circles of Heriot-Watt University in Edinburgh and the Cass Business School Pension Institute in London, as well as among large insurance and pension consultants in the United Kingdom, such as Aon Hewitt, Mercer, and Hymans Robertson. It is particularly worth noting that it has now gained a highly coveted prominence in OECD publications. In 2014 the OECD Working Party on Private Pensions – well known for its role in promoting the three pillar system – released a comprehensive report on longevity risk. The report emphasises in particular that ‘Index-based instruments offer a solution to the constraints of capital markets investors in supplying longevity protection ... further development of these instruments could be facilitated by additional standardization and transparency in the market’ (OECD, 2014a: 183). What is more, the 2014 issue of the OECD flagship publication on pensions put longevity risk in its first chapter. In this finely tuned analysis of far-reaching challenges of pension systems in the low returns, low interest rates, and low growth environment of the post-crisis era, standardisation is portrayed as a key tool of longevity risk management: ‘Capital markets may have the potential to provide additional capacity if standardised instruments to hedge longevity risk via longevity bonds, swaps and other derivative contracts were available. For purposes of standardisation, these instruments may need to use longevity indices based on the general population’ (OECD, 2014b: 39).

In the previous chapter, we saw that the private insurance industry expresses interest in a regulation-light approach and opportunities for expanding access to a European-wide market in the making. Lifemetrics is undoubtedly a market standard far away from any form of regulatory standards. It is situated on the private, technical, and transnational poles of my standardisation topology. Yet, the authority of the standard remains ambiguous. States are not necessarily excluded from the creation of such a new market. The potential role of governments in supporting the standard

⁸ So far, the only competitor on the market is the Xpect - Club Vita Indice, a more detailed series of longevity indices tailored for England and Wales by Club Vita, Deutsche Börse, and Hymans Robertson’s longevity analytics arm. Cf. aforementioned interviews; www.llma.org, accessed on 21 April 2015; ‘Deutsche Börse and Club Vita to launch new indices for pension schemes pursuing index-based longevity swaps’, Deutsche Börse Press Release, 15 March 2012.

remains, indeed, a disputed issue. According to Blake, governments have an important role to play and should take an active part in it: only they have access to the information needed to help with the construction of sophisticated national longevity indices; moreover, as longevity risk is not actively traded in the capital markets, governments are trusted as important enablers of capital market development if they issued themselves longevity bonds that would facilitate price discovery (Blake et al., 2014: 264). In the same vein, Swiss Re (which was associated with the project right from the beginning) views the viability of the instrument as possible only through massive state involvement that would help define a still-lacking reference price. State issuance of such bonds, the argument goes, would ‘encourage the development of the market ... and facilitate private companies offering similar products’ (Swiss Re, 2011: 6). Others, on the contrary, share a more fundamentalist view of the market and do not see why governments would have any role, especially when they have their own longevity risks to solve in the first place, with massive defined benefits pensions schemes harder than ever to fund, let alone quantify their liabilities.⁹ Moving to the second dimension of my analytical framework, we can appreciate how standards setting longevity indices stand at the technical end of the material continuum, even without entering the sophisticated maths of Lifemetrics. However, this is not unambiguous in terms of conveyed social values. All sorts of assumptions are made on how detailed a differentiation can be set among groups of population. The whole exercise is also posited on the political economy assumption that liquid capital markets instruments are the best guarantor of long-term revenues to an ageing population. Finally, regarding the spatial spectrum of standards’ recognition, the longevity standard was developed against the backdrop of the specificity of the annuity market for life insurance companies in the United Kingdom. From the outset, it was developed as an instrument ready for tapping the other major annuities market around the world, in particular those of the United States and the Netherlands, together with the rising German market resulting from the early 2000s so-called Riester reforms. More generally, an important lesson to draw is that the standardisation of an atypical service industry such as life insurance is paved with difficulties, despite the fact that it does not face the usual challenges resulting from highly relational and immaterial activities generally seen in the literature as enabling standardisation and internationalisation rather than the contrary. From this point of view, there is no sector-specific

⁹ Interview with Pretty Sagoo, Director, European Insurance Risk and Capital Solutions, Deutsche Bank, and Director of the Board of LLMA & Chair of LLMA and IFoA Joint Longevity Basis Risk Working Group, London, 28 April 2015.

explanation in the lack or prospects of standardisation likely to support or hinder the expansion of the tertiary sector on an international, let alone global, scale. First of all, standards support distinct, and sometimes opposing, conceptions of the market. In the life market for longevity risk, standardised contracts and pricing support a securitisation of the insurance and pension industry with the development of derivatives on the capital market, in contrast to more customised and hedging techniques defined on a national basis and used for centuries by actuaries hired by insurance companies.

At the Heart of (Re)Insurance Standards

On 11 March 2011, an earthquake with a magnitude of 9.0 struck Japan and triggered a powerful tsunami that caused the death of around 20,000 people and widespread damage to infrastructure and property, including the nuclear power station of Fukushima Daiichi, with a meltdown of three of its six reactors. According to industry experts, this was the most costly natural catastrophe of all times, with the highest insured losses ever recorded for an earthquake (Swiss Re, 2012b). Although reinsurers were still cautious with estimates almost a year after the catastrophe, a remarkable thing behind the headlines is that, within days, the world's largest catastrophe risk modelling companies were able to put forward detailed and reliable figures of incurred losses.¹⁰ Estimates did vary in a proportion of one to three, with the highest figures reaching US\$300 billion or around 5 per cent of the GDP of what still was the world's second largest economy. Since then, those figures have not changed dramatically, with economic losses estimated between US\$210 and US\$300 billion. In view of the far-induced paralysis in which the country was at the time, how was it ever possible to provide numbers so quickly and precisely? Moreover, with the ability to provide such reliable figures so quickly, how can we explain a relatively high proportion of one to three in their variation? As we will see in this section, natural catastrophe risk exposure data exchange standards played a prominent role in this regard. Similarly, divergent methodologies and assumptions (such as exclusion clauses of nuclear risks) used by risk modellers go a long way towards explaining some discrepancy in the figures. The section begins with some background on generic data exchange formats. The unprecedented history of a global standard for natural catastrophe risk exposure set by large reinsurers will follow. After that, my focus will widen again to data

¹⁰ 'Cost to Insurers forecast to rival hurricane Katrina', *Financial Times*, 20 March 2011.

exchange standards not limited to a defined branch of the insurance industry with a study of the extra-financial reporting guidelines used by the largest (re)insurance companies of the world. The evidence gathered suggests that although standards supporting insurance market creation and intermediation predominantly rest on the private, physical, and transnational segments of our typology, some of them can nevertheless include a slightly more societal dimension, such as with the case of the comprehensive sustainability information reported with the use of the Global Reporting Initiative (GRI) guidelines.

Exchange Data

The insurance and reinsurance industry relies on data exchange formats used in many other information-based service activities (e.g. in the domain of finance as well as auction-driven markets and IT services). A set of internationally agreed standards, directories, and guidelines for the electronic interchange of structured data has been defined to facilitate business practices between independent, computerised information systems. Most of these standards are based on the universal Extensible Markup Language, better known as XML. This set of rules for encoding documents in a computerised form was developed in the late 1990s and early 2000s by the World Wide Web Consortium (W3C), the institutional platform which includes more than three hundred firms, computing departments from universities, and publicly funded research centres, ministries, and community representatives working together for promoting open source and open standards for the Web. The development of this language in the 1990s marked a shift in computer science as its extensibility made it possible to store and share any kind of data. Many office suites software rely on it.¹¹ While the W3C epitomises the significance of transnational

¹¹ I analysed in detail elsewhere with colleagues how the XML provides an outstanding case study of commodification of service standards with broad implications for the global computer services market. The study highlights how the largest multinational corporations pay special attention to gain a recognised international standard for such a major technological innovation. It shows how the XML standardisation processes affected market structure and led to market capture, in particular through the strategic use that Microsoft made of negotiation arenas. While the ISO had already adopted an open source standard set by IBM and Sun Microsystems, Microsoft was successful in making its own technical solution a recognised ISO standard as well (ISO/IEC 29500-1:2008. Information technology – Document description and processing languages – Office Open XML File Formats – Part 1: Fundamentals and Markup Language Reference). A broader lesson to be drawn from the case is that XML standardisation also helped to establish a distinct model of information technology services at the very expense of the monopoly on proprietary software defended by Microsoft and successfully sanctioned by the ISO. For further detail, see: Vion et al. (2013).

private technical governance platforms including a relatively broad array of civil society stakeholders on diverse issues pertaining to ICT and the use of the Internet, the use of standardised formats of data exchange in numerous industries is also supported by a body that is a priori more strictly public. It is indeed within the framework of the Economic Commission for Europe (ECE) of the United Nations that the Centre for Trade Facilitation and Electronic Business (UN/CEFACT) developed a first set of interchange rules in the form of 'Guidelines for Trade Data Interchange' (GTDI) that were subsequently published in 1981. The next stage in the work towards a common universal set of interchange rules for trade data was the development of the United Nations Electronic Data Interchange for Administration, Commerce and Transport (UN/EDIFACT) syntax rules.¹² This syntax has not only been taken over in the international standard ISO 9735, but has also become an integral part of the United Nations Trade Data Interchange Directory (UNTDID), which establishes how messages must be structured on a set of functional modules. Similar procedures are used in the banking industry and are better known to the public. Anyone who has wired some money abroad has at least heard of BIC codes, i.e. the business identifier code used by financial and non-financial institutions to facilitate automated processing of information for financial services. If not, they may instead have heard of SWIFT codes, those same codes handled by the Society for Worldwide Interbank Financial Telecommunication (SWIFT) based in Belgium. Few of us know, however, that those tools used for addressing messages, routing business transactions, and identifying business parties are all part of the international standard ISO 9362.

Although formally located within a UN body, the input for those technical specifications is for the most part driven by the private sector. Insurance data exchange formats elaborated within the UN/CEFACT rely heavily upon the expertise provided by the eEG7, the European forum for the development of e-business standards for electronic communication in the insurance sector. More recently, ACORD (Association for Cooperative Operations Research and Development) has provided further input to the UN/CEFACT agenda.¹³ In contrast to

¹² United Nations Centre for Trade Facilitation and Electronic Business, UN/EDIFACT Draft Directory, www.unece.org/trade/untdid/texts/d1100_d.htm, accessed 31 August 2010; for further detail, see the following UN/EDIFACT main webpage: www.unece.org/cefact/edifact/welcome.html accessed 30 July 2015.

¹³ ACORD regularly organises joint events with UN/CEFACT. I took part as an observer to the one organised on 31 August 2010, called Insurance Vision Day, during the 17th Forum of the United Nations Centre for Trade Facilitation and Electronic Business (UN/CEFACT).

eEG7, ACORD's membership is closer to the American and, increasingly, the London market. It therefore pushes for a more global reach in the elaboration of specifications likely to facilitate the development of data and format standards in the insurance industry. One of its major achievements so far is the development of an Insurance Core Component Library as a subset of the global UN/CEFACT Core Component Library. The standards published target various business lines, such as individual and commercial property claims, and commercial. They provide the necessary requirements for a proper transfer of information between policyholders, professional intermediaries, insurers, and other involved parties; they support the establishment and management of insurance contracts, the handling of claims, and accounting practices.¹⁴ Data exchange formats undertaken by eEG7 and ACORD under the UN/CEFACT are clearly positioned in the most private, technical, and exogenous subdivision of the framework of conceivable international standards. Since its creation in 1970, ACORD has successfully positioned itself as a prominent actor of generic data exchange format standards for the insurance industry, first in the United States and now increasingly on the global scale. We will soon see that it has recently become an important actor as well of data exchange standards in the distinct field of reinsurance for natural hazards.

Reinsuring NatCat

Putting aside generic data exchange formats, the few standards specifically dedicated to the insurance industry remain strictly private and oligopolistic, and defined on a narrowly technical basis. Standards developed to make a realistic assessment of risks relating to natural hazards are a good case in point. Insurance losses caused by natural catastrophes have risen dramatically over the last thirty years. According to extensive data collected by Swiss Re, the ten-year average total economic losses are a multiple of five of what they were in 1990. In addition to the impact of global warming, economic development, and population growth, a higher concentration of assets in exposed areas keep increasing the economic cost of natural disasters (Swiss Re, 2015: 6). In 2017 alone, natural catastrophe-related economic losses were around \$330 billion, with claims close to \$138 billion, significantly above the previous ten-year annual average (\$50 billion). With the quick succession of hurricanes Harvey, Irma, and Maria counting for two-thirds of insured

¹⁴ Interview with Jürgen Heck, Program Director for Europe, ACORD, Zurich, 4 June 2010. For further detail, see the following website: www.eeg7.org.

losses worldwide, this was the highest level ever recorded in a single year (Swiss Re, 2018a: 3–5). The insurance and reinsurance industry is therefore well advised to use agreed methods in collecting the information on which to base the evaluation of the financial fallout that such events can have on their portfolio.

The uncertainty surrounding the occurrence of natural catastrophes, in particular earthquakes, their infrequency, and the great fluctuation of events, whose consequences can be devastating but not necessarily insured, are among the factors that make insurance in the field of natural catastrophes extremely complex. Indeed, how could it ever be possible to evaluate risks and hedge them with a reliable level of precision under such circumstances? Unpredictability, high amplitude, and geographical concentration may indeed make the calculation difficult, but not impossible. That is precisely the job of insurers! They usually build their natural hazard models by classifying four different sets of data (Swiss Re, 2003: 11–37). First, information regarding the *hazards* themselves, i.e. where, how often, and with what intensity do events occur? Second, insurers collect material on *vulnerability*, i.e. what is the extent of damage at a given event intensity? Third, they need data on the *value distribution*, which will determinate the geographical localisation, the nature, and the value of insured objects. Last but not least, detailed *insurance conditions* included in policies fix the proportion at which the loss is insured. Those four factors are combined in the process of estimating potential losses resulting from natural catastrophes, whose cost is assumed in varied proportions by the policy holders through the premium paid, the insurer guaranteeing the risk, the reinsurer to whom this risk is (partially) ceded, and, in certain cases, even the state, which can act as a security provider of last resort for a risk too high to be covered by reinsurers (as is the case in Japan or New Zealand).

Natural catastrophe risks confer a particular role to reinsurers. Apart from states, they are the only ones solid enough to hedge the risks that result from hazards as rare as they are extreme. In contrast, insurers are usually unable to hedge enough capital and their portfolio is insufficiently diversified to cover such risks, which accordingly are in part or totally ceded to reinsurers. For his part, the reinsurer goes beyond a simple evaluation in matching risk with the highest possible accuracy, diversifying his portfolio, and using additional securitised products available in global financial markets. He must also control the accumulation of risks included in his portfolio of reinsured policies and thus avoid too big a concentration on one type of hazard, geographical localisation, vulnerability, or insured objects. The recording of data on loss-exposed values in the reinsurance of natural hazards is known as ‘accumulation control’. According to

Swiss Re, the world's second largest reinsurer that, together with Munich Re, controls more than a third of the world market, accurate accumulation control is an essential precondition for arriving at a meaningful assessment of the financial risk involved in insuring natural hazards (Swiss Re, 2003: 13). The inventory of the whole policy portfolio of a reinsurer will be reliable only if it can count on accessible and relevant data that are reported in the most harmonised and interoperable way.

This is where the use of internationally recognised standards for data exchange of risk exposure to natural catastrophes becomes important. Yet, the insurance industry is well known for its low level of coordination and the limited number of standards set by its major players to better structure the market. For a long time, the only standard available at the international level for data collection and exchange in the domain of accumulation control of risks of natural hazards was based on the geographical classification of so-called Cresta zones.¹⁵

Cresta (Catastrophe Risk Evaluating and Standardizing Target Accumulation) dates back to the late 1970s, when the two giants of the reinsurance industry, Swiss Re and Munich Re, together with four smaller European reinsurance companies, organised several meetings to harmonise the zoning of natural catastrophe risks in order to evaluate the accumulated risk in insurance policy portfolios underwritten in bulk by reinsurers. Heavy losses related to large earthquakes in Managua (Nicaragua) in 1972 and in Guatemala in 1976 came to them as a surprise, as they had no idea whatsoever of the exact location of the risk

¹⁵ The acronym CRESTA has several meanings. It originated in 1976 as the name of the hotel where the first meeting of reinsurers took place on this issue in the little Swiss resort of Savognin in the canton of Grisons. The gathering quickly found the following set of relevant words instead: *Cooperation of Reinsurers for EQ Studies and Tariff Analysis*. However, reference made to tariff analysis turned out to be tricky later on in regard to existing American antitrust laws. The current meaning was defined in the late 1990s and refers to *Catastrophe Risk Evaluating and Standardizing Target Accumulation*. Sources used for the present account of Cresta origins and its more recent evolution come from the following interviews to which (for the purpose of clarity) I will not systematically refer hereafter: Ernst Leffelaar and Thomas Grollmann, GenRe, Köln, Germany, 19 February 2010; Rudolf von Flüe, Swiss Re pensioner, Rüschtikon (Zurich), 11 June 2010; Peter Hausmann and Christina Schlenther, Swiss Re, Zurich, 4 June 2010; Jürgen Heck, ACORD, Zurich, 4 June 2010; Yörn Tatge, AIR, Rüschtikon (Zürich), 10 June 2010; Peter Beresford, EQECAT, Rüschtikon (Zurich), 11 June 2010; David Carttar and Jeff Kilbreth, RMS, Rüschtikon (Zurich), 11 June 2010. Further information results from my own (or my assistants') participatory observations at two consecutive Cresta general meetings with around forty experts under the aegis of the Cresta Secretariat assumed alternatively by Swiss Re and Munich Re (Cresta meetings of 22–23 June 2007 and 10–11 June 2010 at the Swiss Re Centre for Global Dialogue, Rüschtikon (Zurich)). Relevant websites and professional magazines provide further subsidiary sources (for instance: Gusman, 2010).

exposure included in their contracts. As emphasised by a participant to the first meeting that took place in 1976, 'The reason was to gather standardized earthquake data. And this was a common interest for the whole insurance and reinsurance industry, including local insurance bodies.'¹⁶ Over the next twenty-five years Cresta became the most important zoning format for reporting natural catastrophe exposures in the insurance and reinsurance industry. While the standard was first focused on earthquakes and contracts pertaining to Latin American countries, it reached the European market in the early 1990s in the aftermath of disastrous floods across the continent. Soon afterwards, the increased losses from tropical storms in the United States and elsewhere drove an increasingly global reach of the private zoning standard set by Cresta. At the end of the 1990s, relevant data were collected in more than 70 countries; 326 insurance and reinsurance companies subscribed to the standard in Europe, 76 in the United States, 13 in Canada, 40 in Asia, and a few dozen elsewhere.¹⁷

Although mainly focused on the definition of harmonised geographical zoning – and thus, according to my analytical framework, situated at the physical end of the material continuum of standardisation – Cresta codes also used this spatial expansion to broaden the catalogue of collected data, some of which clearly included greater societal concerns. Thus, data collected would not simply be about the location, the number, and the value of the insured objects but also on the quality of the building material, the type of their occupancy, their content, and so forth. At the same time, risk exposure data exchange formats provided by Cresta expanded to natural hazard risks other than earthquakes, in particular those that predominantly concerned the new areas included in codes (such as floods and storms for Europe as early as the mid-1990s). In 2003, Swiss Re could claim with confidence that Cresta zones were 'widely recognised as the global standard for the geographical breakdown of insurance data throughout the insurance sector' (Swiss Re, 2003: 22). Yet, in spite of such successful developments, Cresta still remained largely a standard of geographical zoning that lacked detail and was poorly adapted to the largest market in the world, the policies that include the risk of windstorms along the Eastern and Southern coasts of the United States. With a level of aggregation still very high – approximately that of a French department – it was of little help for modelling on a reliable basis potential losses incurred from insurance policies included in portfolios in dozens of millions.

¹⁶ Interview with Rudolf von Flüe, Swiss Re pensioner, 11 June 2010, Rüschtikon (Zürich).

¹⁷ Interview with Ernst Leffelaar, Gen Re, Köln, 19 February 2010.

Since then, the evolution of Cresta has largely remained in the hands of its duopolistic founding fathers, Swiss Re and Munich Re. It has, however, faced increasing competition from new entrants. Beginning in the early 1990s, three highly innovative companies of risk modelling software and consulting services (RMS, AIR, and Eqecat) created a new niche market. Known as model providers, they developed catastrophe risk management models based upon innovative applications of mathematic, computing, and geographical methods. Even now, the world market of catastrophe model providers is mostly shared between the trio of RMS (leading the market), Eqecat, and AIR Worldwide. While data gathered by Cresta were based on paper forms up to 1998, those models were from the outset highly computerised and provided detailed and dynamic zoning information.

Without any doubt, model providers are the new players that have challenged a market previously in the hands of the two giants of the reinsurance industry. Each of them developed their own format. While the EDM format provided by RMS is registered as a patented technology (like the Eqecat format) with closely monitored licenced usage, it has become so common throughout the world that it is often considered a *de facto* standard. The Universal Cession Electronic Data Exchange (UNICEDE) format developed by AIR Worldwide is also proprietary, but in contrast to EDM it is freely available. Continuous progress in modelling technologies constantly seeks access to more data, ever more detailed and diverse. According to Jeff Kilbreth, Senior Vice President for Software Product Management at the market leader RMS, around 95–98 per cent of risk analyses are undertaken at a detailed level in the United States, with figures reaching 60–65 per cent in Europe and 20–25 per cent in developing countries. In his view, this looks like ‘a worldwide journey towards getting better at mastering detailed data’.¹⁸

For fifteen years, Cresta competed fiercely with this much more effective method for building harmonised databases of risk exposure to natural catastrophes. The modellers provided cheaper, highly computerised, and more detailed information. As one director of the trio of model providers points out, ‘with the cat modellers coming to the market, there was definitely the need to have more high resolution Cresta zones; and that’s exactly what’s happening’.¹⁹ Less detailed data at a higher level of aggregation remain relevant for reinsurers’ basic ‘accumulation control’ and

¹⁸ Interview with David Carttar and Jeff Kilbreth, RMS, Rüsclikon (Zurich), 11 June 2010.

¹⁹ Interview with Yörn Tatge, Managing Director, AIR Worldwide, Rüsclikon (Zürich), 10 June 2010.

for developing countries, where detailed data are available for not much more than 20 per cent of risks covered. Yet, access to interoperable and detailed data has become part and parcel of the analytical work carried out for industrialised and emerging countries by model providers, as their specialised services are used and aggregated by insurance brokers, as well as more complex tasks undertaken by reinsurers. The following account of one the pioneers of the first Cresta zoning is clear evidence of the shift that has taken place: “At the beginning of the Cresta standard, we wanted to have the sum of sums insured per zone; so it was aggregated on a very high level. Nowadays, and because many policies are very sophisticated ... this is not enough; so now we want to get the information on a much more detailed basis; we drill down, we go much more to the original policy information”.²⁰ Here the standardisation of accumulation control of risks related to natural catastrophes encounters once again ACORD (Association for Cooperative Operations Research and Development) – the consortium of (re)insurers that supports the development of data and format standards in the insurance industry.

In the early 2000s, the three leading international model providers, RMS, Egecat, and AIR, reached a size that placed them in a position to negate the previously undisputed market power of Swiss Re and Munich Re. The challenge is to develop new zoning standards with uniform and detailed risk exposure data on natural hazards for the whole industry. Against this backdrop, ACORD established a working group on catastrophe exposure data standards. After more than a decade of fierce competition among data formats and online input templates, a focused and collective action of standardisation has taken place. The first two versions of the standard were published in 2003 and 2006, albeit without much success. A new working group was established in 2009, this time with all prominent actors of the industry, in particular the world’s major (re)insurers and the trio of model providers around the same table (Davis and Garda, 2009). But before that, it took a little while to persuade RMS to join in. As market leader, it thought it had no reason to join this collective endeavour. According to an expert who took part in this new working group, ‘typically they were absent; we invited them a couple of times and it was tough to bring them on board’.²¹ Eventually, the project to develop the standard in relation to the creation of an innovative IT platform supporting highly value-added consultancy services convinced them to join forces. The agenda of this new NatCat working group is

²⁰ Interview with Ernst Leffelaar, Gen Re, Köln, 19 February 2010.

²¹ Interview with a senior expert of Swiss Re, Zurich, 4 June 2010.

clear: develop two new global, generic, non-proprietary and public standards, i.e. a simple aggregated data spreadsheet standard on the one hand, and a detailed exposure standard that can also be used, for instance, for the binding procedures on exposure reporting in the United States. Both standards deal with the format and the content of data exchanged; they include Cresta codes, which now, however, represent only a very small portion of the specifications included.²² Following a presentation by ACORD people on their plans during a 2007 Cresta meeting, a senior expert in charge of reinsurance information management did not mince his words: ‘ACORD has emerged as the winning organisation for standardisation in the world, even if it remains largely American with around 50 out of 60 people based in the US. Cresta is really small and limited in comparison.’²³ This time, standards-setting developments have clearly been more successful. Both standards for an XML structured representation and a formalised spreadsheet of catastrophic exposure data used in the global reinsurance industry were published in November 2013. While Cresta codes are still used for the geographic entity of the aggregated exposure data, ACORD offers the guidelines for the format in which to exchange data.²⁴

This successful outcome results not only from an evolution of the market of risk modelling that has become more mature and in which the largest reinsurers took back the initiative. The intrinsic nature of the standards under development also explains to a large extent why the move was more successful this time. While set within a strict private framework, the standard partially distances itself from the private extremity of the institutional continuum of standard-setting processes. It uses, indeed, a non-proprietary open source format. The standard is thus publicly available and provides a solution to convert multiple formats into a single interoperable instrument within the reach of all players of the value chain (risk modellers, (re)insurers, brokers, regulators). Regarding the material continuum targeted by the new standard, it does not merely set physical specifications for geographical zoning on a more detailed basis. It also includes more sophisticated data, whose content

²² Interview with Juergen Heck, ACORD, Zurich, 4 June 2010. See also: ‘ACORD Standards Working Group Ext. Request [for Catastrophe Exposure Data Standards]’, internal document, n.d. [2009].

²³ Address by a senior expert, Cresta meeting, Rüsclikon (Zürich), 23 June 2007.

²⁴ See ACORD’s and Cresta’s webpages for further detail. Additional projects to develop standards for accounting and settlement communication processes are taking place within a new platform for eAccounting for the Global Insurance Market, the so-called Rüsclikon Initiative, named after the town on the outskirts of Zurich where Swiss Re has its large conference facilities. See the following LinkedIn page: www.linkedin.com/grp/home?gid=8129297.

regarding the nature and the value of insured objects is more substantial and of higher quality (such as the material used for the construction of an insured building, whether it is residential, commercial, or industrial, the type of its contents, the policy coverage terms, etc.). The standard thus addresses a slightly larger segment of the material continuum, with some extension towards the societal pole. To use the previously quoted wording of du Tertre (Du Tertre, 2008: 70–71), this new standard must factor in – even sketchily – the ‘social relation of accessibility’, i.e. the socio-historic and institutional constructs without which those batches of information remain meaningless and useless for any prospective unification of the natural catastrophe reinsurance market. Finally, as far as the spatial plane is concerned, the new standard is set in such a way as to have a global scope. To this end, however, it must take local and national specificities into account. This is why, for instance, it allows for reporting all necessary details for US property risks according to ACORD’s ER3001 and ER3003 standards whose certification is required for delegated authority procedures concerning natural catastrophes in the United States. As Peter Hausmann, Head Cat Perils Europe Hub at Swiss Re and Co-Chair for data standards for the joint ACORD/Cresta NatCat working group, points out, ‘detailed and accurate data is really required in the United States for the reason that there is a higher risk of litigation than in Europe, where a lower aggregated level is sufficient’.²⁵ This provides a genuine opportunity for non-American reinsurers (except US so-called captives in Bermuda) to improve their access to the United States, which for long remained at the margin of their standardisation’s efforts.

Our journey so far has provided evidence that the internationalisation of insurance services relies only marginally on technical standards. This substantiates our argument that conditions for standardisation and internationalisation of service activities should not be viewed too restrictively as dependent on sectorial and institutional specificity. Should that be the case, the (re)insurance industry would be much more at ease with standardisation, as it is far from the ideal type of relational, non-material services oriented towards end consumers and relying on high-intensity labour – those so-called typical services resisting standardisation according to a restrictive sector-specific hypothesis. In contrast, cases studied here suggest that setting market standards for the insurance industry remains very difficult, and the few successful outcomes took place only after several abortive attempts. Established standards remain

²⁵ Interview with Peter Hausman, Swiss Re, Zurich, 4 June 2010.

essentially private and oligopolistic, narrowly technical, and deeply enmeshed in the logic of transnational markets. Some of the most recent developments suggest, however, some repositioning towards the centre of the standardisation axes of my topology, if only to include some public, societal, and endogenous dimensions of territorial sovereignty at the margins. Another type of standardised data exchange that is not limited to a defined branch of the insurance industry provides further evidence in this regard. My enquiry continues with those standardised guidelines for extra-financial reporting used by the largest listed insurance and reinsurance companies around the world.

Reporting Sustainably

While the history and current developments of exposure data exchange standards for natural hazards clearly belong to a larger trend supporting the globalisation of narrowly defined market-based instruments, insurers and re-insurers also use other tools, less strictly oriented towards the physical attributes of insured risks, and based more on historically and socially constructed values of how the risks are insured. Above all, insurers and reinsurers, as in other industries, make increasing use of reporting guidelines that aim to make large enterprises' social and environmental impact more transparent. The following analysis first provides some background on the emergence of sustainable reporting standards. Then, it presents the results of a systematic inventory of their use in the insurance industry, with particular focus on reinsurance and the Global Reporting Initiative (GRI) guidelines. The significance of exposure data exchange for the reinsurance industry (in particular for natural hazards) as compared to simple insurance and the fact that GRI is largely considered to be the leading sustainable reporting tool at the global level explain this specific focus.

The expansion of financial capitalism has prompted investors to ask for ever more detailed information regarding the financial health of companies in which they decide to invest. The spread of corporate social responsibility and environmental concerns has, however, encouraged companies to report information beyond narrowly defined financial performances. Social, environmental, and economic activities and related mitigating measures are increasingly conceived as integral to the information a company is expected to provide. Sustainable, societal, or extra-financial reporting describes an ordered publication of information on how a company appraises the economic, environmental, and societal impacts of its activities (Capron and Quairel-Lanoizelée, 2007). Beside ethical charters, codes of conduct, social certifications, and other

evaluations by specialised rating agencies, sustainable reporting belongs to the new generation of management instruments in corporate social responsibility, whose origin goes back to the early 1970s and related struggles on profit distribution between employees, managers, and shareholders (Aggeri and Acquier, 2008). At the time, sustainable reporting lacked standardised formats and was focused on a limited number of issues. The growing importance of environmental issues in the 1980s and the rise of labour and human rights concerns in global value chains, has called for a much larger scope of sustainable reporting, together with the first environmental reports published separately from the yearly financial reports. While sustainable reporting has expanded to near normalcy, its concrete practices vary to a great extent and still remain largely voluntary. A number of benchmarks compete on the market and try to match a variety of institutional environments. Legislation differs widely both in the nature and meaning of sustainable or societal reporting; it can be more or less constraining (for instance, more for companies listed in Europe and Japan, less for those listed in the United States or elsewhere). The law can support and lead to legal action, particularly in the liability-based system of American common law. Moreover, the need for large listed companies to be accountable towards investors and civil society varies between countries and regions. More generally, the way corporate social responsibility is rooted in culture makes their practices differ greatly between the United States and Europe (Allouche et al., 2004; Acquier and Aggeri, 2008; Tsutsui and Lim, 2015).

Although we should avoid over-generalisations, differences between the United States and Europe are basically the following. In the United States, religious underpinnings make corporate social responsibility close to a moral charity exercise, rather than an institutional embedding of corporate conduct, as is the case in the European Union. The importance given to individual responsibility and freedom in the United States also leads to the view that it is up to the individual himself to act ethically, without legal strings that could impinge on his freedom. In contrast, Europe places more emphasis on collective and legal responsibility, with the individual regarded as an integral factor of the social fabric. Finally, the perception of the common good in the United States results from the ability of individuals to form a community by themselves, whereas, on the other side of the Atlantic, it explicitly results from a political construct. This in turn leads to an approach targeted at mitigating individual faults by charitable action in the United States, in contrast to a European approach focused on preventing potentially negative impacts of all sorts of corporate activities, in other words, by encouraging responsible action conceived directly at the core of the production processes of the enterprise.

Against the backdrop of such variations among existing practices, the development of a global standard can easily be seen as a handy way to reinforce the credibility of social and environmental reporting procedures and their comparison among companies – and even an absolute prerequisite for the benchmarking that supports funding and sales deals for companies. In less than a decade after their launch in 1997, the guidelines of the Global Reporting Initiative (GRI) became the gold standard for sustainable reporting. Although initially formed by two USA-based non-governmental organisations (CERES – *Coalition for Environmentally Responsible Economies* – and the Tellus Institute), with additional support from the United Nations Environment Program (UNEP), GRI has been an independent organisation since 2001, the year before it relocated its headquarters to Amsterdam. The initial aim focused on environmental reporting, but the scope quickly expanded to social reporting. GRI draws up guidelines that companies can follow for their social reports, using a harmonised format and an array of quantifiable social, economic, and environmental indicators. After several initial versions (G1, G2, G3, G4), it released so-called GRI Standards in 2016 as a consolidated set including all the main concepts and disclosures from the previous guideline, enhanced with a more flexible structure, clearer requirements, and simpler language. Specific supplements target certain sectors, such as finance or occupational health and safety.

GRI is the world's leading voluntary corporate non-financial reporting scheme. It is not only what KPMG describes as 'the most widely used voluntary reporting framework, far exceeding the use of national standards and other guidelines', with over three-quarters of the 100 largest companies in the world using it in one way or another (KPMG International, 2013: 31). GRI also greatly benefits from the importance of corporate sustainable reporting being explicitly referred to in multi-lateral diplomacy, official documents of the United Nations, new Directives of the European Union, and more or less constraining mandatory use at domestic and state level. For instance, GRI successfully launched an intense lobbying campaign before and during the Rio +20 Conference in 2012. This led to the inclusion of the following statement in paragraph 47 of the *Future We Want* Resolution adopted by the UN General Assembly: 'We acknowledge the importance of corporate sustainability reporting ... encourage industry, interested governments and relevant stakeholders, with the support of the United Nations system, as appropriate, to develop models for best practice and facilitate action for the integration of sustainability

reporting, taking into account experiences from already existing frameworks.²⁶ As the most widely used existing framework remains the GRI guidelines, GRI clearly has much to gain from such high profile inter-governmental recognition. Similarly, non-financial reporting is mandatory in the European Union for large companies (over 500 employees) both at the single and consolidated level, with GRI explicitly referred to among the various methodologies to be used to provide this information.²⁷ I will not discuss the effectiveness of GRI in general, as it lies beyond the scope of our enquiry focused on reference made to the instrument among insurance and reinsurance companies. Suffice it here to note conclusions drawn by scholars having studied in depth compliance issues in implementing GRI guidelines. According to Lim and Tsutsui, the use of GRI guidelines clearly follow a North–South divide; while developing countries are generally constrained to a substantive commitment, ‘ceremonial’ commitment drives the pack in developed countries, where by far most large listed companies are located and report their non-financial information (Lim and Tsutsui, 2012). In the same vein, Dingwerth and Eichinger point out that the relationship between transparency and empowerment supposedly reinforced by GRI disclosure approach is more conflictual than usually believed (Dingwerth and Eichinger, 2010).

The following analysis presents the results of a systematic inventory of the use of GRI guidelines in the (re)insurance industry by its largest multinational companies.²⁸ The results are summarised in Table 6.1.

²⁶ UN General Assembly, Sixty-Sixth Session, Resolution adopted by the General Assembly on 27 July 2012, A/RES/66/288.

²⁷ European Union, Directive 2014/95/EU of the European Parliament and of the Council of 22 October 2014 amending Directive 2013/34/EU as regards disclosure of non-financial and diversity information by certain large undertakings and groups. GRI is mentioned at paragraph 9 of the Directive.

²⁸ The analysis is based on data included in annual reports published by companies for the year 2014 (or 2013 if unavailable). For detailed results based on data collected in 2009–2010, see the following document prepared by Maude Gex, whom I warmly thank here for her extensive research: *The Use of the Global Reporting Initiative (GRI) Guidelines for Social Reporting: The Case of the Insurance/Reinsurance Sector* (mimeo, University of Lausanne, February 2010). Data update for 2013 and 2014 was undertaken in July 2015 with the help of Lucien Pamingle and Pierre-Alain Blanc, whom I thank here too. The empirical research was carried out on the social responsibility reporting of 34 of the largest multinational insurance and reinsurance companies: 24 insurance companies and the 10 reinsurance companies, located in 11 countries – USA (8 companies), United Kingdom (5), Bermuda (4), Germany (3), France (3), Switzerland (3), Canada (2), Netherlands (2), Japan (1), Italy (1), and China (1). The sampling of these companies is based on the ‘diversified insurance’ and ‘life & health insurance’ sections of the Forbes ranking of the 2000 world’s biggest companies (April 2015 figures, based on sales, profits, assets, and market value).

Table 6.1 Reporting practices of 34 amongst the biggest insurance and reinsurance multinational companies

Rank	Forbes rank	Company	Type	Head	Separate	Gri	Version	Sector	Index	Level	External	Other
1	21	Allianz	a	de	Yes	Yes	g31	fs	Yes	a+	Yes	ungc, oecd
2	29	AXA	a	fr	Yes	Yes	ref	fs	No	Undeclared	Yes	ungc, iso, ifc
3	37	China life insurance	a	cn	Yes	Yes	g31	Not Used		Undeclared	No	No
4	42	AIG	a	us	Yes	No						No
5	50	MetLife	a	us	Yes	Yes	g4	fs	Yes	Core	No	No
6	56	Prudential	a	gb	Yes	No					No	Own
7	78	Zurich Insurance Group	a	ch	Yes	No					No	ungc
8	92	ING	a	nl	Yes	Yes	g4	fs	Yes	Comprehensive	Yes	ungc, iso, oecd, ifc
9	101	Munich Re	r	de	Yes	Yes	g4	fs	Yes	Core	Yes	ungc
10	128	Manulife Financial	a	ca	Yes	No						No
11	129	Generali	a	it	Yes	Yes	g4	fs	Yes	Core	Yes	ungc, iso, oecd
12	146	Swiss Re	r	ch	Yes	Yes	g31	fs	Yes		Yes	ungc
13	157	Prudential Financial	a	us	Yes	Yes	ref				No	No
14	162	Aviva	a	gb	Yes	No						ungc
15	175	Legal & General Group	a	gb	Yes	Yes	g4	fs	Yes	Core	No	ungc
16	179	Travelers Cos	a	us		No						No
17	181	Tokio Marine Holdings	a	jp	Yes	Yes	g31	No	Yes	b+	Yes	ungc, iso, oecd
18	194	Allstate	a	us	Yes	Yes	g4	Not Used		Core	Yes	
19	210	Lowe's	a	us	Yes	Yes	g4	No		Undeclared	No	No
20	216	AGE Group	a	ch	Yes	No						No
21	230	Aegon	a	nl	Yes	Yes	g4	fs	Yes	Comprehensive	Yes	No
22	276	Sun Life Financial	a	ca	Yes	Yes	g31	fs	No	c	No	No
23	286	CNP Assurances	a	fr	Yes	Yes	ref	No	No		No	No
24	328	Old Mutual	a	za	Yes	Yes	g31	No	Yes	c	No	No
25	372	Hartford Financial Services	a	us	Yes	Yes	g31	fs		c	No	No

26	461	Aon	a	gb	Yes	No				No
27	755	SCOR	r	fr	Yes	No				ungc
28	947	Everest Re	r	bm	Yes	No				No
29	1056	Partner Re	r	bm	Yes	No				No
30	1081	XL Group	r	ie	Yes	No				No
31	1164	Arch Capital Group	r	bm	Yes	No				No
32	1403	Axis Capital Holdings	r	bm	Yes	No				No
33		White Mountains Insurance Group	r	us	Yes	No				No
34		Hannover Re	r	de	Yes	Yes	g31	fs	b	No

Sources: GRI's Sustainability Disclosure Database; 2014 (or 2013 if unavailable) annual and separate CSR reports, websites, and other relevant documents pertaining to the CSR reporting of companies.

Explanatory notes:

- Insurance (a) and reinsurance (r) companies are ranked in the order of the Forbes 2000 ranking for the 'diversified insurance' and 'life & health insurance' sections combined (April 2015 figures, based on sales, profits, assets, and market value). The last eight companies are included in order to have a minimum of ten reinsurance companies in the sample and therefore have a base of comparison between insurance and reinsurance companies; their Forbes rankings are therefore non-consecutive.
- Head: headquarters' country according to ISO 3166-1 alpha-2 code.
- Separate: indicates whether the company publishes a separate report devoted to sustainable reporting. In the case of reporting included in the annual report, data is coded 'no'. Data is coded – in the case of no or minimal reporting.
- GRI-related information: A column indicates whether the company uses GRI guidelines; other columns indicate the version used (version of GRI (g3; g3.1; g4), whether they make use of their tailored sectorial supplement for financial services (sector); fs) required for a declaration at the highest application level, as well as of the index provided for communicating which items of the GRI disclosure have been reported (index). It furthermore indicates the application level, with levels ranging from C to A+ (highest) for versions 3.1. of the guidelines to determine the type and number of indicators reported and the new distinction between 'core' and 'comprehensive' for the G4 version (the 'core' option designates a report in accordance to essential elements of sustainability and the 'comprehensive' one designates additional disclosure and complete compliance with the guidelines). 'Ref' indicates sustainability/integrated reports that make explicit reference to being based on the GRI Guidelines, but for which there is no indication of the level used and no GRI Content Index. The column 'external' indicates whether the sustainability report is audited by an external third-party aggregated firm.
- Other: this column provides information regarding explicit use of other sustainability tools or standards in the annual or separate CSR report, with particular focus on the Global Compact of the United Nations (ungc), the Guidelines for Multinational Enterprises of the Organisation for Economic Cooperation and Development (oecd), the environmental management system ISO 14001 of the International Organization for Standardization (iso), and the Performance standards of the International Finance Corporation – the funding arm for the private sector of the World Bank group (ifc).

All thirty-four companies in the top layer of the global ranking publish separate reports with more or less detailed information on corporate social responsibility, even the reinsurance companies at the bottom of the ranking located in Bermuda, the specialised offshore financial centre for insurance. There are, of course, variations in the form of sustainable reporting, its content, and its methodology. But at least nineteen companies explicitly use the GRI guidelines, generally the latest version (G3.1 or G4, depending of the reporting year). Other tools used for social reporting include the UN Global Compact ten principles in the areas of human rights, labour, environment, and anti-corruption, the OECD Guidelines for Multinational Enterprises, the ISO 26000 guidance on social responsibility, and the International Finance Corporation's Environmental and Social Performance Standards. But these are far less commonly used than the GRI guidelines, and when they are, it is usually in conjunction with them. The GRI guidelines are thus a standard used by more than half of the companies included in the sample and by most of those who publish substantial social responsibility reporting. It stands out clearly as the most used standard compared to all others. Moreover, most of those using the GRI guidelines do it at the highest level, with the index provided for communicating which items of the GRI disclosure have been reported, and making use of the tailored supplement for financial services required for a declaration at the highest application level. Among those companies who do not have recourse to the GRI guidelines, we find a much greater proportion of reinsurers, in particular, all except one of those located in an offshore financial centre. Besides Bermuda, most of the companies that do not use the GRI guidelines are located in North America or the United Kingdom. Moreover, except for AIG, Prudential, and Zurich, none of them belong to the top 100 biggest companies, over three-quarters of which use GRI guidelines across all industries.²⁹

It should be noted, however, that the transnational plane on which the largest (re)insurance companies make use of the standardised sustainable reporting practices of the GRI guidelines should not be seen as an undeviating social force. There are significant national and regional differences in companies' reporting practices. Companies with their head office in North America are less likely to produce such reports than those based in Europe and, if they do, do so differently. Moreover, Bermuda stands apart as the main offshore financial centre used by reinsurance

²⁹ In the aftermath of the crisis that saw AIG bailed out for the highest amount ever paid by the American taxpayer, AIG has been identified as the worst CSR company in the last five years by Corporate Governance and Sustainability International Group. See: http://cgsig.net/live_reports/aig-the-worst-company-in-csr-in-the-last-five-years/, accessed 27 July 2015.

companies. A continuum can thus be discerned from Bermuda and the United States, through Canada and the United Kingdom, to mainland Europe and Japan, with a marked difference between the United States and Europe. Roughly, the tendency in Bermuda and United States is for minimal, informal reporting, centring on local community involvement, charity, equality of opportunity, and sometimes the environment, all without using the GRI, in short, documents with few hard figures and little formal structure, perhaps even reduced to a list of contributions to charity. At the other end of the spectrum, the tendency in mainland Europe and Japan is towards more comprehensive and structured reporting, addressing the three pillars of sustainable development (economic, social, and environmental), providing both quantitative and qualitative information on the social and environmental impact of the company's activities and on measures planned or already in place to reduce their negative impact, with much more frequent and precise use of the GRI. Of the ten companies using GRI directly, seven are European and one Japanese. Canada seems to sit in between the two extremes, while UK companies adopt the same approach as mainland European companies, but without using GRI.

Among the factors explaining the regional and national variations in the use of standards for social reporting practices, national regulatory and socio-economic environments, together with differences in approach to CSR and to climate change, are among the most significant. While evidence gathered so far has led us to question too sector-specific an explanation of the role played by standards in the internationalisation of services, this suggests that – at least in the domain of sustainable reporting – an institution-specific explanation is likely to make sense. In fact, this inventory suggests that standards used by insurers and reinsurers are not strictly limited to a small number of private and oligopolistic, narrowly defined technical specifications sought for accessing markets in an exogenous logic, supposedly valid on a worldwide basis. The extensive use of GRI guidelines suggests that – as for many other large listed companies that are sensitive to their social and environmental reputation – they also include standards less tightly confined to physical attributes and the private sphere. The information supposedly guaranteed by the standard makes the socio-historical underpinning of the quality and security requirements more visible. The regulatory and broader socio-economic environments, together with opposing approaches of corporate social responsibility, go a long way towards explaining regional and national variations in the use of standardised instruments of sustainable reporting.

★ ★ ★

The story advanced in this chapter contributes to building the case made throughout this book. Insurance standards, as for other service industries, should be explained from an extensive understanding of the power plays and conflicting political economy objectives set in motion by designing quality and security attributes required in the economic transaction. Such an extensive hypothesis posits that standards, if and when set, link national economies to global markets by fixing quality and security uncertainty in various ways. With an in-depth study of how the (re)insurance industry relies on standards to create new markets and preside over changes in their performance, this chapter has provided some ground to engage this argument. As my examination has shown, the (re)insurance industry fiercely struggled to set standards, with many abortive attempts and finally a few successful ones. This finding clearly differs from conventional views that consider standardisation in a non-typical service industry such as (re) insurance rather likely, since it is non-relational and tangible, strongly oriented towards a business clientele, and more capital- than labour-intensive. The development of standards that help to shape new (re)insurance markets does not reflect this restrictive sector-specific hypothesis. Indeed, it appears to be less dependent on intrinsic attributes of the industry.

Among the few established standards or those under development, the ones for calculating longevity risks traded in highly securitised life markets, for generic data exchange formats, and for accumulation controls of risk exposure to natural catastrophes are essentially private and oligopolistic, narrowly technical, and reliant on an exogenous compliance system associated to a transnational market logic. Interestingly, more recent initiatives show some evolution along larger segments of my standardisation typology, and therefore away from mere private, physical, and transnational extremities of the framework.

In the field of life insurance and the standardisation of securitised longevity risk, the potential role of governments in longevity bonds, the continuing relevance of individual judgement and customised contract, and the lack of really global markets for such niche securitised instruments suggest indeed some distantiation from those extremities. While standardised contracts and pricing provide liquidity as for any other financial market, they also provide substantial means for an effective hedge of the risk borne by bonds issued on the new 'life market'. As hedge effectiveness competes with liquidity requirements, those actors most likely to win on the new 'life market' agreed that standardisation was not only essential but should also be set within this trade-off. A similar configuration characterises the evolution of standardised formats used in data exchange at the core of a proper functioning of the

reinsurance industry. While still overly private, narrowly technical, and fairly transnationalised, we are beginning to see a more complex picture. Standards in some way embrace a public dimension, if only because discussions on the overall architecture for generic data exchange take place within the framework of the Centre for Trade Facilitation and Electronic Business (UN/CEFACT), itself an instance of the United Nations Economic Commission for Europe (ECE). Moreover, the new ACORD standard for accumulation control of risks of natural hazards successfully managed to bring the trio of model providers on-board for an open source and non-proprietary format. Furthermore, not content with an enhanced granularity of Cresta geographical zoning, the standard now includes more information directly related to societal values, such as the content of the insured object or the coverage terms of the insurance policy. In a different domain but with a similar logic, the rapid surge of sustainable reporting among (re)insurers, as with other large companies, offers compelling evidence about how standardised information and data exchange move away from narrow financial reporting to include a number of calibrated social and environmental values (non-financial reporting). Finally, as far as the recognition of authority of standards is concerned, the development of standards for accumulation control of risks of natural hazards since its heroic beginnings in the 1970s can also be seen as the loosening of the quasi-imperial domination of the Munich Re/Swiss Re duopoly. Whereas the two giant reinsurers largely imposed their views on the matter, first in Latin America, and later on in Europe, the global reach of the new model providers and the weight of the United States in the experience acquired by ACORD compelled the duopoly to design a format that would include the certification procedures in place in the United States and more equitably recognise worldwide natural catastrophes' specificities and insurance policies' coverage terms. We saw for instance that that the ACORD standard is fully compatible with US ER3001 and ER3003 standards whose certification is required for delegated authority procedures concerning natural catastrophes in the United States.

In all these domains, the international standardisation of insurance services faces significant obstacles. Although far from easy and yet applicable to small numbers, it brings into play an ambiguous form of authority that is neither private nor public. The way in which it expects to lower the uncertainty of market transactions rests on quality and security requirements that are neither completely physical nor exclusively societal. And last but not least, we have seen throughout this chapter that the compliance expected to those standards is primarily based on the market logic of an ever more transnationalised and financialised capitalism, exogenous

to the territorial space of state sovereignty. Be that as it may, the authority of those standards is recognised on the endogenous basis of the exclusive conception of territorial sovereignty. If only at the marginal level, the standard itself includes provisions in conformity with certification and accreditation procedures of some of the most important national jurisdictions. In sum, insurance standards reflect a truly transnational hybrid authority. Far from being set only by powerful actors in order to homogenise narrowly defined technical specifications that would support a higher level of market convergence across countries, the common understanding of the quality and security of insurance services encapsulates a public dimension that tends to blur the distinction between the private and public spheres, and their scope cannot ignore societal values as well as overlapping with the supposedly exclusive sovereign spaces of territorial states.