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Note from the editor

Insurance after markets

For all its interest in risk, the sociology of finance has curiously steered away from insurance, which is closely linked to the concept. When economic sociology did pay more attention to risk, it was mostly on financial markets it focused, on the devices and epistemic cultures of measuring, packaging and trading risk. One way of accounting for this emphasis is to say that the field's questions grew out of a preoccupation with markets, credit and expertise – for example, how commodities, calculability and equivalence are created, how economic theory realizes markets, and how debt financing weaves throughout the economy. The need to understand how the world of financial trading generates and obliterates value through the mechanics of transacting gained urgency with the financial crisis. The insurance sector was little implicated in the financial crisis and hence, less studied, although the insurer AIG was deeply exposed to securitized subprime mortgages and underwent one of the largest bailouts (Lewis 2010). At the same time, these research interests have overlapped with, and traced, the rise of financial economics, which has been slowly eclipsing traditional, actuarial calculation as a universal toolkit to price and manage risk.

Consequently, the characters of financialized capitalism we have mostly put in the empirical spotlight are the exchanges and investment banks, analysts and hedge funds, and their archipelago of partners and competitors. Meanwhile, insurance companies are typically the “other” of our known financial world: they tend to be rather among the large institutional investors, the banks' clients, the players with regulatory constraints to keep their investments conservative, the stock exchange participants potentially vulnerable to innovative hedge fund strategies or brute-force computing by High Frequency Traders.

Risk was also theorized, before sociologists of finance and the economy took interest in it, as the all-encompassing trope of modern capitalism (e.g., Beck's “risk society”, 1992), a new moral system of attributing blame and responsibility (Douglas 1992). These important theories, however, again transcended insurance on their way to arguments of sweeping change.

In the meantime, the insurance business did not stop gaining ground. It underpins as well as absorbs a large share of global capital, despite the apparently competing presence of financial derivatives, and precisely because risk has come to organize, feed on and threaten global capitalism at large (Jarzabkowski/Bednarek/Spee 2015). As the world's third largest, the UK insurance sector alone for instance manages £1.8 trillion (\$2.7 trillion) of investments (ABI 2014).

Insurance is not only everywhere, it is changing in important ways, ways that are consequential but easily overlooked for being merely technical tinkering, whereas they reconfigure social relations at large, as several authors in this issue explain.

How can sociology decipher insurance's continued significance, and assess the stakes of its sometimes slow-paced shifts? To be sure, there were early contributions to the economic sociology of insurance, often influencing sociology broadly. For instance, Carol Heimer (1985) showed that risk is neither externally given nor fixed, but endogenous to its measurement, and that, to control their moving target, insurance companies develop new strategies of contracting. Meanwhile, Viviana Zelizer (1979) argued that markets are inherently moral, and the lack of public legitimacy for the way insurance related death, money and rightful gain prevented its expansion, despite a novel technology – risk calculation – and cunning sales technique. Foucauldian scholars (e.g. Ewald 1991) argued that the moral, legal and calculative aspects of insurance have emerged as the quintessential form of neoliberal governmental rationality or *governmentality*. The insurance technique created not only a new form of financial solidarity but also of sociability. It replaced worker solidarity and class struggle with centrally managed individuals, although relieving them from individual blame assigned in law, explaining events from accident patterns and probability. It not only localized the abnormal but also controlled everyone, by describing populations statistically and ascribing values to individuals. Together with the regularity of its operations, insurance had triumphed over both worker- and state-organized provision for damages in many areas (Defert 1991), and served as the model for modern government (e.g. 1998, Knights/Vurdubakis 1993). Nonetheless, liberalism should not be equated with ever-expanding

risk calculation – uncertainty has been a key governing concept, too, and shaped insurance itself (O'Malley 2000). Finally, management historians studied the material technologies used by this information-intensive industry, and found that business machines went hand-in-hand with actuarial calculation, to an extent that the development of postwar computer technology was shaped by its continuities with tabulating tasks (Yates 2008).

While we can build on this earlier wave of research, the question of insurance today calls for mobilizing the newer developments in economic sociology, and often taking an interdisciplinary perspective (for a recent initiative see *Journal of Cultural Economy* 2014, in law Baker/Simon 2002, in history Bouk 2015). A novelty is the recognition that the story of insurance is not only a story of risk. Indeed, many articles presented in this issue focus on insurance as commercial organizations and market actors, rather than as a technology of risk and governance. Although risk production remains the bread and butter of insurance, the sheer availability of calculative tools does not in itself explain market formation and reproduction, as the sociology of markets has resoundingly demonstrated, from Zelizer to institutionalism to actor-network theory. Theories of insurance must accommodate this. Similarly, the continued survival and the viability of the insurance business model itself is largely unexplored. In the face of financial crises and digital disruption, such inquiry is imperative. The “market work” (Cochoy/Dubuisson-Quellier 2013) of selling insurance also comes into view again (cf., Leidner 1993, Chan 2009) alongside, and as part of, sorting populations and cultivating customers.

The articles in this issue venture in some of these new directions, while they recast a range of theories from recent economic sociology and adjacent fields such as the sociologies of risk, regulation, or accounting, as well as political economy and history, in light of rich empirical cases.

José Ossandón's article *Insurance and the sociologies of markets* takes the formation of health insurance in Chile as its object of study. While most studies of insurance focus on its origins and development in “the West,” here we encounter the now classic Chicago School economics laboratory under a dictatorship, where health coverage was designed from scratch as an entirely private service. But this is only one way to narrate this market, and Ossandón illustrates how we arrive at vastly different accounts of how health insurance took shape, depending on our

choice of theory. Instead of adjudicating between or synthesizing these theories, Ossandón suggests we sustain a “multi-perspective” theory of markets, as each theory's explanatory power is irreducible to the others.

Hilgartner (1992) argued that every causal claim of risk has its idiosyncratic trajectory of becoming a “risk object.” Similarly, insurance cannot be seen generically as a continuous movement to ever-finer risk classification. In their article *Insuring biofinance: Alcohol, risk and the limits of life*, Shaun French and James Kneale argue that insurance has grappled with monitoring and turning alcohol into a causal factor. They trace the origins of the now common health assessment measure (alcohol units) to insurance companies' reports, but reveal large discontinuities of these companies' preoccupation with alcohol as a meaningful factor in health outcomes and financial ability. All the while that specific measures have been institutionalized by state policy, alcohol has stayed elusive to financial governance.

That defining feature of insurance, risk classification, has had a complicated relationship with legal discrimination. In her article *Polanyi in the European Single Market: The re-regulation of insurance*, Deborah Mabbett points to the paradoxes of embeddedness, analyzing the recent European Court of Justice decision to ban gender discrimination in insurance across the European Union. Adopted from equality measures across labor markets, as an act of both embedding markets into social concerns and disembedding them from national conventions in favor of a single market, the regulation's ability to foster gender equality has been hotly contested. Mabbett shows the dilemma among EU institutions between “moral economy” versus “social policy,” locating equity either in risk calculation itself or in outcomes such as insurance premiums. Banned categorical discrimination may, however, be approximated by legitimate categorical or behavioral variables (e.g. age, driving pattern), yet fine-grained risk classification is not evidently in insurers' interest.

Despite traditional actors' reluctance to adopt new techniques of slicing and dicing data, others who do might nonetheless redefine insurance, considers Liz McFall in her article *Is digital disruption the end of health insurance? Some thoughts on the devising of risk*. Big Health Data are potentially changing the foundations of insurance calculation, McFall suggests, exemplified by the emerging practice of incentives for “healthy behavior” (according to wearable devices), which dovetails with recent healthcare policy

changes worldwide. To put the digital hype in perspective, however, the article draws on the novel concept of “devising” in markets, and on a historical case. It reveals the long-standing involvement of insurance in health policy, and the salience of “commercial judgment” which de-centers actuarial calculation. One lesson is that conventional comparison of “social” versus “private” insurance regimes overlooks their fundamentally hybrid composition. Digital insurance calls forth the analysis of these hybrid systems, to theorize the ways in which it may upturn their entrenched institutions.

Whether insurers will survive is not only a poetic question but something routinely scrutinized by regulators. In the article *Building the behavioural balance sheet: an essay on Solvency 2*, Mike Power brings into view a major overhaul of how the “financial health” of insurance companies is measured and thereby regulated. Transnational EU governance targets the economic *entity* doing transactions, whether by discrimination or digitally. Systemic safeguarding looks not at profitability; accounting ratios are designed to indicate how vulnerable the organization is to paying out insurance claims. But the timing and amount of future claims are contested, and involve risk analysis where estimates can use different principles of valuation. Akin to liquidity, solvency is even more of a construct, yet slight changes in its ratio have vast consequences as they constitute radical change in regulatory philosophy, overflowing to accounting and integrating with risk management, the business model, and corporate governance.

Overall, bringing insurance back into focus can in fact invigorate research on some of today’s key sociological questions, notably the production of economic stability and inequality, the practices of valuation (Antal/Hutter/Stark 2015, Beckert/Aspers 2011), the processes of financialization (Krippner 2011, Langley/Leyshon 2012), and the consequences of big data and economic classifications (Fourcade/Healy 2013).

I hope you will enjoy reading this issue.

With best wishes,

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Insurance and the Sociologies of Markets

By **José Ossandón**

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In 2010, the Constitutional Tribunal of Chile dictated that “the risk table”, which was used to differentiate premiums of insurance policies within the health insurance industry in that country, violated the constitutional right to an equal access to healthcare.¹ The table was not strictly an invention of the insurers. It had been in use since a previous controversy, when regulators and insurance companies agreed that while the price of a similar policy could not change depending on the health condition of the potential user, it could vary depending on socio-demographic variables such as sex and age. The case of 2010, in turn, was based on the claim that charging a higher premium to young children, old people and women was discriminatory. More generally, what the table and the heated controversy initiated after the decision of the Constitutional Court illustrate is that “price” in this particular financial service is not only a matter of supply and demand, but rather the product of the interaction of a much wider range of actors, including regulators, lawyers, policy makers, members of parliament, consumer associations and representatives of the industry.

Economic sociologists are no longer surprised by this kind of story. Since White (1981) declared that markets are social formations and therefore open to the scrutiny of sociologists, sociological research has importantly expanded the range of actors considered in the empirical study of markets. Unlike the traditional neo-classical image of an abstract encounter between isolated suppliers and consumers, markets analyzed by sociologists are populated by a wide array of entities including “interpersonal networks,” “regulators and industry associations,” and even “socio-technical devices and economists.” These different agents, however, rarely feature together in the same stories. The sociology of markets is not an integrated sub-discipline (McFall & Ossandón 2014) and, from each of the main sub-disciplinary perspectives, different kinds of actors tend to be highlighted. Institutional sociologists tell stories of symbolic struggles in inter-organizational fields, analysts of social networks focus on interpersonal relations and signaling, and those inspired by science and technology studies

pay more attention to socio-technical instruments and economic knowledge.

This article, instead of choosing one of the main conceptual perspectives of the recent sociology of markets, simultaneously uses three of them in order to observe recent developments in Chile’s health insurance industry. The first section finds inspiration in the work of Harrison White, where special attention is paid to quality and niche differentiation. The second follows the institutional sociology of markets, exemplified by the work of Neil Fligstein, where the focus is on political struggles over market regulation. The third part uses concepts developed by Michel Callon where markets are analyzed as performative accomplishments. The final outcome of this exercise is neither a full picture of insurance in Chile nor an abstract conceptual synthesis that integrates the different sociologies of markets.

The multi-perspective adopted here responds to the particularity of insurance as an empirical object. Insurance is a type of economic good that is normally enacted at very different empirical sites- including sales and marketing, actuarial calculation, regulation and parliamentary debates (Ossandón 2015) – mixing multiple types of agents and logics of actions (Ericson et al. 2003, Zelizer 1978). Available sociologies of markets are well equipped to deal with actions happening in some, but not in all, of these sites. If different sociologies of markets are used together, we gain a multi-perspective observation of insurance open to the different sites and scales where it is practically produced. Certainly, like any panorama or scientific visualization, the general view produced with the superposition of the stories presented here is an artifact (Latour 2005). Following Max Weber’s (1946 [1917]) almost hundred-year-old advice, this academic artefact will be useful only if it makes our understanding of health insurance in Chile clearer.

1 A social and symbolic story

Markets as social formations

Harrison White is probably the most influential author in the sociology of markets. White combines concepts from the sociology of organizations with elements taken from economics, particularly the centrality given to uncertainty

by Frank H. Knight, the notion of “monopolistic competition” developed by Edward Chamberlain, and the role assigned to “signals” by Michael Spence. For White, markets are interfaces where flows circulate upstream and downstream from suppliers to buyers (White 2002). With “interface” White refers to a particular kind of social formation arising from agents which, instead of observing their immediate environment, compare themselves to others in a similar situation (White 2008). Markets are a way of dealing with the inherent uncertainty of any economic activity. A market emerges when producers begin to make decisions according to their observation of how other producers of similar goods are acting. Thus, despite being one of the founders of social network analysis, the work of White differs from the foundational call of the New Economic Sociology (Granovetter 1985) to focus on the social embeddedness of economic life. For White, instead, markets may be surrounded by social networks, but their emergence as new social formation happens when the involved actors actually decouple from their immediate social environment (White 2002).

White (1981) questions the assumption that the action of suppliers follows demand, suggesting instead that producers act from the observation of traces – such as volume or price – left by the action of their competitors. This continuous observation is consolidated into symbolically delimited quality arrays, or niches, which, in turn, appear as an organized reality against which the different economic agents make decisions. The differentiation of niches has been studied in greater depth by authors of the French “Economy of Conventions,” who analyzed them as delimited spaces of comparison which that are associated with particular competition and valuation principles (Favereau et al. 2002). This emphasis on markets as outcomes of a process whereby actors produce symbolically delimited niches under conditions of uncertainty, in turn, has been expanded by Joel Podolny (2001). Podolny emphasized the need to study how the organization of firms in scales of quality limit or facilitate trade relations.

So, to put it more generally, from this first perspective, markets are conceived as a particular type of social formation that emerges out economic actors that deal with uncertainty by observing and comparing each other. In this context, besides understanding self-referential interactions between producers, it becomes central to study the social process that connects multiple agents under a common horizon that makes them comparable, and how from this process further subdivisions, or market sub-niches,

occur. A market can be understood as a one-way mirror where the mutual observation between producers is reflected, but at the same time it becomes a screen when it is observed by consumers and providers.

Imitation and niches in private health insurance

It is easy to apply the idea of upstream and downstream flows highlighted by White while observing Chile’s health insurance industry. *Providers* are all the institutions that supply health care: hospitals, clinics, and so on. Potential patients of these providers are the customers. Customers “buy” an insurance policy that establish a set of potential medical events and the type of coverage they will receive should these events happen. Suppliers, on the other hand deliver infrastructure and medical services. Health insurers, known in Chile as *Isapres*, mediate between patients and providers by negotiating with health care institutions the conditions of future medical provisions and controlling and managing the actuarial cost of their pool of users. In traditional economics terms, this scheme would imply two supply / demand relationships: between insurers and users on the one hand and between insurers and medical providers on the other, all of them acting as atomized agents reacting to market prices. However, a number of elements make this situation slightly more complex.

When you talk with actors involved in this industry, it quickly becomes clear that there is a fierce competition aiming to add users to each insurer’s pool. This transaction involves potential customers and the “sale force” of insurance companies. Both usually meet at the work place of the potential user, where a salesman or saleswoman will try to convince new customers about one of the policies that their company provides. The sale becomes difficult when potential customers are already insured and the sales person cannot offer a better alternative of what they already have. Sellers cannot simply create a better insurance policy *in situ*, however, the information they collect may become important for the production of new policies. Indeed, a key concern for marketing departments of firms in this industry is to always be aware (for example, through the information their sales force collect or more directly using “fictitious consumers”) of the policies currently offered by their competitors. The collected information is used to design new policies that will be offered to new customers.

The imitation practice in the insurance industry has to do with the practical process needed to “manufacture” a new

policy. A “health plan”, the name for insurance policies in Chile, is a contract that guarantees a specific combination of conditions for potential medical provisions of each insured. Generally, policies include a particular type of coverage, for instance 70% for outpatient events and 90% for events requiring hospitalization; special coverage for catastrophic illness; and a series of specific conditions (such as limits or co-payments) depending on the medical provider where the medical attention will be carried out. Each “plan” has a proper name, for example the name of a mountain, which cannot be copied by another insurer. However, the contract itself and its conditions are not copyrighted and are freely imitated. The specific challenge in this process is to make the final price of the imitated product competitive, which implies a balance between the calculation of the new policy’s actuarial risk and a good negotiation of the future costs associated with the new policy with potential medical providers. In other words, insurers deal with the uncertainty associated with the potential demand not necessarily trying to “understand” their consumers, but rather, as White pointed out, by observing what other firms do. However, observation here is not concentrated only on what White (1981) calls “observables”, traces such as volume of sales and profits of other firms, but on the available information regarding the product structure (premium schedule, benefits attached and so on) of the goods offered by competitors which is directly imitated.

A consequence of the imitation dynamic just described is that the health insurance industry in Chile has become immensely complex. It has been estimated that there are more than 16.000 types of insurance policies for sale. The situation becomes even more difficult to grasp because the regulation of this industry prohibits the existence of insurance brokers that could simplify the information available for final consumers. Consumers, however, do not face this complexity directly. What usually happens with insurance (Chan 2009; McFall 2009), sales persons are key mediators. As one of them explained to me, their mission is precisely to avoid making consumers “dizzy” with too many options. Based on the new customer’s profile they try to limit the amount of alternatives they display. For instance: they only offer policies that are close to the one potential users already have or by guessing the medical providers customers would like to be attended by.

The complexity at the level of the insurance policies contrasts with how simple the industry is at the level of companies. After a volatile start (see next section), the health

insurance industry in Chile stabilized itself around a small number of big companies that concentrate a large percentage of users. Furthermore, some of these companies have specialized in socioeconomically defined niches. Industry actors recognize a clear cut between the following: two companies mostly oriented toward a high-income population, a firm that targets the population of relatively fewer resources, and finally, two insurers with a socioeconomically spread pool. At this level, a very complex market in terms of the thousands of available goods becomes an interface, closer to the industries studied by White (1981) in his seminal piece, with a clearly delimited amount of actors demarcated in niches that are identified by both industry insiders and consumers.

The situation, nevertheless, is complicated again if the particular relationship between insurers and health care providers is considered. At least in densely populated areas, private clinics have varied levels of medical, technological, and accommodation infrastructures and are located in different socio-economic areas of cities. Like the universities in the US – used as example by Podolny (2001) – medical institutions are clearly organized in terms of status hierarchies, which not only limit possible trade among them, but also the way in which they are observed by potential consumers. In order to ensure competition between health providers, existing regulation prohibits vertical integration between health insurers and medical institutions. This regulation, however, has not prevented insurers to become part of wider business conglomerates that also include health care providers. This dynamic, besides opening question marks about the particular way in which the regulation has been interpreted (Superintendencia de Salud 2013), has produced a strong integration in terms of brands between insurance and health providers.

Not unlike the way in which airports and airlines are sometimes associated, it is easy to relate most of the private medical infrastructure in Chile with the “colors” of certain insurers. At the level of sales, this relationship becomes particularly relevant because consumers, as seen from the point of view of the sellers interviewed for this research project, orient their choice of insurance according to the type of medical institution where they would like to be attended. In this sense, one of the key characteristics that distinguish different health plans is the medical provider with who they have a “preferential deal” (normally defined in terms of pre-delimited co-payments associated to particular kinds of events). Thus, the insurance industry in Chile is not only a complex social formation, but it works

at the juncture between two different interfaces, health care providers and insurers, both – perhaps like the fashion industry studied by White et al. (2007) – segmented in terms of status and connected through business holdings.

2 A political story

Markets as political fields

A second very influential stream in the sociology of markets arises from the neo-institutionalist approach to organizations (DiMaggio / Powell 1991). As in White's work, in this literature attention is paid to the tools used by social economic agents to deal with uncertainty. Two factors have been particularly emphasized: organizations act according to socially constructed myths and institutions (Meyer / Rowan 1977), and their action is guided by the observation of the "social field" in which they are inserted (DiMaggio / Powell 1983). Firms' development should not be understood, therefore, only as a process of increasing efficiency but rather as an increasing "isomorphism" between organizations and the multiple institutions that populate their fields, including regulators, standards, professions and experts (Meyer / Rowan 1977, DiMaggio / Powell 1983).

In relation to markets, the formulation of Neil Fligstein (1996) has become particularly influential. As in the work of Podolny, Fligstein conceives markets as fields composed by hierarchically organized actors. More specifically, Fligstein analyzes the ways in which market stabilization is the outcome of *political* processes. Not only political because institutions that can be identified with the political world – such as regulatory bodies – play a central role in shaping the particular characteristic of markets, but political also because economic actors, such as entrepreneurs or business associations, frequently become political agents themselves in trying to influence regulation and the definition of the entry barriers to participate in their industries. Thus, markets can be understood as the crystallization of "regulatory styles" (Dobbin, quoted by Fligstein, 1996), which in turn result from the particular history of struggle in each field.

More specifically, Fligstein (1996) suggests that markets can be characterized by the particular ways in which "property rights", "governance structures" (in particular anti-trust regulation), and "exchange roles" (who can exchange with whom) are delimited. In temporal terms, Fligstein distinguishes three stages in the stabilization of

markets as fields: "emergence" (characterized by high uncertainty and volatility), "stability" (where the role of agents and their status are defined and known), and "crisis" (which can be triggered by a radical legal change or the disruptive cross-field action of firms). Special attention in this context should be paid to the institutional means used by economic agents to avoid the uncertainty associated with open competition. Particularly, Fligstein (see also Dobbin / Dowd 2000), has studied how agents develop, at the level of the firm, strategies such as vertical integration and diversification, and, at the field level organized collective actors impose a particular "conception of control" to evaluate and regulate what happens in the industry in which they participate.

The politics of insurance

The health insurance industry in Chile has a precise historical origin: it was made possible when the Political Constitution enacted in 1980 declared that the part of the salary withheld monthly for pension and health care was going to be understood as each worker's private property. Workers started to be seen as investors that could freely choose among competing organizations to manage *their* resources (Ossandón 2014a). Like in many welfare systems, the new regulation established that a fixed percentage of each worker's salary (originally 4%, later 7%) had to be compulsorily spent on health insurance. But, consistently with the set of social and economic reforms initiated in the context of the military dictatorship that ruled the country between 1973 and 1990, it was assumed that consumer choice and competition among different providers would increase the quality and efficiency of the whole health care system. In the particular case of health, users could choose whether to spend their fixed monthly contribution on either the existing public insurance or on some of the new for profit insurance companies created since 1981. In Fligstein's terms, the new market was made possible with the delimitation of a new property right (monthly contribution) and an institutionally defined context of competition and exchange. However, the political and institutional history of the health insurance industry in Chile does not stop in its constitutive moment. Continuing with Fligstein's terms, this story can be organized in moments of "emergence" and "stabilization".

Isapres (health insurers in Chile, see above) were created in the early eighties. Around the same time, the Chilean economy experienced one of its worst crises, so the newly created industry faced a very unfavorable economic envi-

ronment, worsened by the fact that several of the first firms entering this industry were part of business groups organized around banks fully in crisis. In this context, as if they were protecting an underweight newborn, the government authorities implemented a series of measures – such as increasing the percentage of compulsory contribution, subsidies, and state coverage of costs associated with maternity leave (González- Rossetti et al. 2000) – in order to support the development of the newly created industry. Thus, the private health insurance sector, whose growth has since then been highly correlated to variation in GDP, expanded even during the years of economic recession (1981-1985). As explained by an industry insider:

“The second year (1982) we broke even, but we also experimented adverse selection with pregnant women. We went to knock the door of the government to have the maternity leave payments funded by the State. The main interlocutors were at the Ministry of Finance. We had access to Kast, Büchi, and De Castro [all economists that occupied very influential governmental posts during the military dictatorship]. Also at the seminars we met economists who were part of the team. They were technocrats so they understood the problem immediately. We discussed the issues and arrived at quick solutions” (interview quoted in González-Rossetti et al. 2000: 54).

The landscape markedly changed with the phase of “stabilization,” which coincided with the change of government, from the military dictatorship to a center-left coalition elected in the first presidential elections held in the country since 1970. By 1990, the private health insurance industry was no longer in its infancy. It was a profitable business based on the administration of monthly contributions by more than 1.5 million users. Most of them came from the richer segments of the Chilean population. It was in this context, too, that regulators and experts started to question whether private companies were effectively protecting their beneficiaries (Celedón / Oyarzo 1998; Oyarzo et al. 1998; Quesney 2000). Accordingly, a regulatory agency was created (The Superintendence of Isapres, which would later become the Superintendence of Health) tasked with ensuring the “correct” operation of this industry. Subsequently, during the next governments of the same coalition, a series of reforms were adopted. The reforms did not change the basic principle on which the sector’s creation was based, namely, that private and public insurers compete to attract users who choose where to *invest* their compulsory monthly health contribution. But they have significantly changed the characteristics of the market. Insurance policies became increasingly standardized

through regulations, defining some of their key features (for instance, terms under which contracts can be terminated, common conditions and prices for the treatment of a pre-defined list of medical events, ban of policies that exclude women in childbearing age, and so on). The industry is, at large, still highly profitable.

The political history of private health insurance in Chile has taken place in different institutional contexts. Particularly important are the national parliament, where most of the regulatory reforms have been discussed, but also the Superintendence (which is in charge of both steering the normal functioning of the industry and of implementing new regulations); the Court in charge of antitrust cases; and, as mentioned at the beginning of this article, the Constitutional Court, which in 2010 declared the “risk table” discriminatory. Each of these fora and its discussions makes insurance a service that could easily be assumed as a very opaque and technical, eminently controversial and political issue. Political in the sense that the positions regarding insurance have tended to reflect the different ideological visions present in the spectrum of parties represented in the Chilean political system. Politicians from the center-left critically associate Isapres with the privatization reforms initiated during the dictatorship, centrist liberals and Christian democrats aimed a “balance” between a strong private sector and better-funded public hospitals, and more openly “pro-market” right wing politicians would have liked to extend the private system even further (Boeninger 2005).

But political also because the business association, the Asociación de Isapres, founded in 1984 – through many different initiatives such as conferences and workshops, letters to newspapers, or more directly hiring companies to lobby – has become a very active player in the discussion of every big controversy in this industry. Indeed, as if they were advised by institutionalist sociologists, leaders in this industry seem to know that when competition at the level of sales is fierce but relatively established around a small set of consolidated actors, profitability is found mostly in regulatory struggles. In insurance, business means politics.

3 A performative story

Markets as calculative devices

A third sociology of markets has been driven by work conducted by researchers coming from Science and Technology Studies. From this perspective, as in the work of White,

it is central to understand the practical decoupling from where markets arise, but instead of on networks of producers, attention is focused on the production of “calculability” (Callon / Muniesa 2005). As in Fligstein’s approach, stable markets are not only seen as the product of social interactions but as the outcome of active work. But, from this perspective, market creation does not only consist of institutional struggles, rather it is primarily socio-technical. Central in this context is the work needed to turn things into economic objects, or goods (Callon et al. 2002), which is accomplished through “socio-technical frames” (Callon 1998). These may be material like grocery aisles (Cochoy 2007) or virtual, such as formulae that enable the valuation of sophisticated financial assets (MacKenzie / Millo 2003). Calculability therefore is not an inherent property of agents interacting in markets, but it is made possible as they are equipped with calculative devices (Callon / Law 2005).

The studies inspired by Callon’s conceptual framework have focused especially on analyzing technical devices (such as formulas, rankings, algorithms, or screens), which enable the emergence of exchange as a situation composed of calculable goods and calculative agents (Çalışkan / Callon 2010). Of the many possible devices affecting market creation, the one that has received the most attention is “economic knowledge” itself. This especially since Callon argued in his very influential 1998 piece that economics is not only confined to the academic world, but it is a key tool in building practical markets. Economics works not like an ideology that is disseminated among economic agents, but rather as knowledge that is inscribed in tools used by economic actors to produce a calculable environment. Famously, Callon borrowed the term “performativity” from the philosophy of language to name this particular phenomenon. Economics does not describe what it observes but performs it (Callon 1998, 2007).

In what became the paradigmatic empirical study of the performativity of economics, Donald MacKenzie (2007) distinguished between two types of performativity: “generic performativity,” where economic knowledge does not only observe a given market but changes it, and, a stronger version, or “Barnesian performativity,” where the observed economic situation gets closer to the reality described by the model used to observe it. Timothy Mitchell, finally, has argued that economics is performative when it helps to constitute the border between what counts as economic and what does not. In his words:

“To argue that the power of economics is performative is not to argue that its power necessarily lies in getting people to adopt its (mis) representations; rather, in helping, to constitute the apparent border between the market and the non-market, economics contributes to the work of socio-technical mechanism that reorganize how people live, the political claims they can make, and the assets they can control” (Mitchell 2007:248).

The economics of insurance

The idea that markets are more than just the object of analysis of economics suggested by Callon is also easily applicable to the case of health insurance in Chile. Economists and economics are key ingredients in the development of this industry. As in the previous section, the story can be divided into two main moments (Ossandón 2011): “prehistory and birth” and “critical evaluation.”

It is difficult to say where the idea originated that a public problem such as the population’s health care could be solved with the introduction of an insurance market. Overall, however, it is clear that this has to do with the impact of a group of economists, generally known as the Chicago Boys, on the social and economic policies initiated during the military dictatorship (Valdés 1995). El Ladrillo [The Brick] was the name of the document prepared in the early 70s by the Chicago economists, and it became the main antecedent in the reforms carried out during the military dictatorship. The Brick already highlighted the need to increase the role of private actors in public health. In practical terms, the introduction of a new market in health care was part of the second wave of socio-economic reforms conducted during the dictatorships, which were oriented to “modernize” the social services of the country.

The dissemination of the reforms travelled together with the placement of young economists (Huneus 2000) into key positions in each of the policy sectors (such as pension, health care, education and so on) which were subsequently heavily reformed. But neither in El Ladrillo nor in later documents has it been possible to find records of research analyzing the ways in which privatized health care would produce a more efficient and better health care system. In other words, despite the “technical” character usually associated with the social reforms of the eighties in Chile, they don’t seem to be the product of “scientific research” (at least in the sense of a process of prior experimentation or academic deliberation). On the contrary, these reforms were guided by a more general assumption, which a minis-

ter of that time called “basic economic theory,” namely that competition and consumer choice would necessarily outperform the inefficient and non-competitive state system (Ossandón 2014b).

It would not be until several years later, in particular during the regulatory controversies of the nineties mentioned in the previous section, that a properly academic discussion about the operation of the health insurance industry was developed (Ossandón / Ureta unpublished manuscript). In this context, economists reconstructed ex-post the assumption of the radical policy experiment conducted since the early 80s. The assumption had been that this industry would work properly if three conditions were fulfilled: consumers rationally choose among available insurance policies; insurers reduce prices of health care by making medical providers compete; and insurers themselves are in competition. Economic research conducted since the 90s, however, found problems in each of these areas: the large number of insurance policies available in the market makes an informed decision difficult and a large proportion of insurance users are “captive” (they cannot really choose because they have pre-existing medical conditions that won’t be covered by new insurers) (Fischer 2008); insurers and medical providers are integrated (Superintendencia de Salud 2013); and insurance companies would, at least on certain occasions, act as cartels (Agostini et al. 2008).

In terms of performativity, it is relevant to mention that the economic assessment of the health insurance market has not been strictly confined to academia. In fact, it has influenced the way the sector is evaluated and regulated. For instance, the Health Superintendent announced, in 1997, the introduction of a particular market device called “Selección de Prestaciones Valorizadas,” a table that should help to organize health plans in terms of their coverage. Each plan would be summarized in a table composed of three columns: medical events (for instance “normal birth” “or cesarean”), co-payments (i.e. 20% or 30% of the total coverage), and “tope” (ceiling or limit of coverage in terms of Chilean pesos) for each event. In the words of the superintendent:

“Higher transparency and comparability between the alternatives in this system will improve a rational and informed choice among its users and it will redefine competition orienting it towards better quality. It is our intention that the newly released Selección Valorizada de Prestaciones significantly contributes toward this aim” (Ferreiro 1998, 270).

The influence of economists’ academic discussion in the industry is no coincidence, as the same economists who wrote academic papers were often involved in think tanks, were invited as experts at industry conventions and discussions in parliament, or they directly worked as regulators (Ossandón 2011). Indeed, most of the reforms initiated in this area during the last four governments have directly been oriented to solve the problems identified in discussions led by economists. Remarkably, these reforms have changed the shape of the insurance market. It moved from an arrangement funded on the idea that competition would produce or find the most efficient good, to the current one where firms compete in a market continuously evaluated and managed by economic expertise (Ossandón and Ureta Unpublished Manuscript). Not unlike the ideas that inspired the reforms initiated during the dictatorship, today it is still assumed that a competitive arrangement is the most efficient way to organize health protection in Chile. But competition and choice are no longer seen as natural; they have turned them into a political goal that is technically steered with the help of economic knowledge. Health policy in this context is increasingly oriented to produce the conditions that will enable the desired well-functioning market which, like the horizon, always seems to be moving away.

4 Conclusion: a multi-perspective sociology of markets and insurance

The three previous sections used conceptual tools provided by different sociologies of markets to construct three stories of private health insurance in Chile. This article does not aim to advance a new theory. Instead, it uses conceptual frameworks that are already well known by readers of this newsletter. Neither does it aim to build a new conceptual synthesis or to add a new comparison between the different sociologies of markets (Fourcade 2007, Fligstein / Dauter 2007, McFall / Ossandón 2014). The piece has two different goals.

For those interested in the recent history of health insurance in Chile, the exercise here attempted can be useful in at least two directions. First, each story can be read in search of *hypotheses* to be tested in future research. For instance: the interaction of medical providers and health insurance in Chile combines dynamics studied by Podolny and White – or, as in issues studied by Fligstein (or Dobbin / Dowd 2000) the business model of health insurers was re-oriented toward regulation, following change in the political landscape since 1990. Second, the three stories

provide three different ways of challenging the view of experts in social sciences currently in charge of regulating and steering this industry, namely economists. The first story pays attention to social dynamics, such as imitation and niche differentiation, not included in existing economic evaluations of this industry. In the second, economic knowledge becomes an active player in the sets of discourses used to stabilize the field, or what Fligstein (1996) calls “conception of control”. In the third story, economics is not only part of regulation, but it is a source of devices and theories that actively transform this market.

For economic sociologists at large, this short article could be seen as an illustration of the value of a “multi-perspective” sociology of markets. One of the most difficult challenges economic sociologists face is that empirical markets are defined in many ways and by many actors (Frankel 2015). However, existing sociologies tend to limit their focus to single definitions and their associated set of actors (i.e. “markets are self-enforcing observation cliques,” “markets are fields,” or “markets are calculable economic encounters”). What this article has tried to illustrate is that different theoretical approaches do not need to be seen as perspectives in competition, but they can be used together. The variety of conceptions of markets and market actors assumed by different sociologies of markets can be turned into an advantage, if they are taken together as a methodological device in which different conceptual perspectives are iteratively used, in order to widen the angles of observation of the same empirical case.

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Endnotes

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usos de las Ciencias Sociales en el Chile Reciente, Santiago de Chile: Ediciones Universidad Diego Portales, 285-310. The chapter, in turn, contains more extensive empirical material (in-depth interviews with experts, industry insiders and regulators and an analysis of secondary sources such as press, regulation reports and parliamentary controversies) collected for the author’s PhD dissertation (Ossandón 2009). I would like to thank to Tomás Ariztia, Felipe González, Keith Hart, Scott Lash, Celia Lury, David Stark and Zsuzsanna Vargha for their help and criticism.

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Insuring Biofinance: Alcohol, Risk and the Limits of Life

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1 Introduction

Life insurance and alcohol share a long and complex history; in Britain in the early nineteenth century friendly societies met in, and were strongly associated with public houses, for instance. This may not seem all that remarkable given the significant role that spaces of sociality have played in the history of finance – take for example the origins of Lloyds global marine insurance market in Edward Lloyd's coffee house in London in the late 1600s or the part played by the Tontines coffee house in the establishment of the New York stock exchange. But for an industry whose purpose is to protect and safeguard life, the public house might now seem an odd choice of meeting place, because alcohol was redefined as a harmful rather than healthy substance over the course of the nineteenth century.

Alcohol has ever since constituted a significant problem for life insurance. A problem, however, that has moved in and out of focus as knowledge and perceptions of rates of alcohol consumption and problem drinking have changed, and as the industry has developed different strategies for securing life in the face of alcohol. The history of the insurantal capitalisation of alcohol-life – the extraction of value in the form of insurance premiums from the complex interrelations between human life, alcohol and drink(ing), and the translation of such “biovalue” into capital to be thrown into circulation in financial markets (cf. Lobo-Guerrero, 2014) – is one marked by discontinuities, breaks and ruptures. In the first half of the nineteenth century the temperance movement encouraged the establishment of teetotal friendly societies like the Rechabites, and abstainers' insurance companies like the UK Temperance and General Provident Institution, the eighth largest British life office by 1890 (Alborn, 2009: 27). Associations like these did more than just provide insurance for abstainers; their

mortality data seemed to show that abstainers lived longer than moderate drinkers, promoting the virtues of sobriety. At the same time, many mainstream offices adopted the practice of rating up or even turning down applicants who worked in the drink trade (Kneale and French, 2013). The practice of offering lower premiums or larger bonuses for abstainers waned with the fortunes of the temperance movement itself in the middle of the twentieth century. Concern with the drinking habits of applicants never entirely disappeared, but it wasn't until the 1980s that alcohol was to once more figure so prominently in life insurance practice¹. A renewed attention that, in the UK at least, owes a great deal to the transformation of drink into a key object of government health policy. The UK government's championing of the alcohol unit as a cornerstone of its contemporary risk minimisation drinking strategy has played an important role in making alcohol insurantly productive once again, this is despite the fact that the medical scientific basis for alcohol units is highly uncertain.

Alcohol has, however, proved to be remarkably resilient to endeavours at pacification by insurers and the medical profession alike. As a result, insurers have had to rely on a range of proxies in an attempt to stabilise and frame alcohol as a risk factor, with varying degrees of success and sophistication. These include the use of occupation as a means by which to identify applicants who might be more likely to drink to excess, with workers in the drink trade still experiencing high levels of alcohol-related mortality (Romeri et al., 2007), the self-reporting of drinking levels as part of the application process, the use of medical examiners' reports, and the exclusion of claims for alcohol-related illnesses.

Taking as a point of departure the elusive nature of drink – the ways in which alcohol overflows endeavours to frame its relation, both physiologically and psychologically, to the body and subject (Çalışkan and Callon, 2010, Callon, 2007) – the paper examines the contemporary insurantal framing of alcohol, one that has been fabricated from historical precursors. Elsewhere we have argued that a distinctive feature of the present has been the emergence of new modalities of biofinancial power in the context of a deepening privatisation of social welfare and the concomitant financialisation of everyday life in the UK. Or, to put it

another way new intensities in the ways in which the circuits of financial capital and of biological life interfere, are co-constituted and mutually governed (French and Kneale, 2009). In the context of the long-term insurance market, this has found expression in a search for new forms of morbidity, mortality and vitality capitalisation running the gamut from the proliferation of lifestyle insurance products (French and Kneale, 2012), through to the securitisation of life on global financial markets (Lobo-Guerrero, 2013). The case of alcohol helps to shed critical light on some of the contestations and uncertainties of present efforts to realise biovalue through the insurantal capitalisation of life and death, not least because the securing of a vital ontology (Lobo-Guerrero, 2014) and epistemology of life in respect to alcohol has, as we shall discuss, proved so taxing. As such, drink provides a critical lens on the specificities and uncertainties of the economisation of uncertainty (O'Malley and Roberts, 2014); of the efforts to manufacture and discriminate between "good" and "bad" insurantal subjects.

In interrogating the relationship between alcohol and life assurance, the paper focuses on two key moments when drink and drinking have featured prominently in the insurance imaginary. We begin by examining the role that *Anstie's Limit* played in the insurantal framing of alcohol as risk during the late nineteenth and early twentieth century. By developing one of the first systematic, bio-medical metrics for quantifying alcohol consumption and distinguishing between moderate and immoderate drinking, the work of Anstie proved of significant value for making the alcohol-life relation amenable to capitalisation. In part three, attention turns to contemporary UK insurantal strategies to secure life in the face of drink, strategies that have been assembled as part of a wider economisation of lifestyle. The paper explores the ways in which the alcohol unit has provided a new ontological basis, one prefigured in important respects by Anstie's Limit, for the present capitalisation of alcohol-life. However the history and determinants of the unit's use by insurers remains unclear, as do its exact origins, which poses important questions about the relationship between medical science and underwriting. Part four considers the implications of this history of biofinancialisation for an economic sociology of insurance. We argue that not only does the case of alcohol illustrate the need for greater attention to be paid to the broader governmental conditions and spatial and temporal contingencies of the insurantal capitalisation of life, as O'Malley and Roberts (2014) contend, but it also reveals the bricolage qualities of life insurance. In part five the paper concludes by briefly considering the politics of the insurantal

alcohol-life relation and in particular processes of subjectification. Alcohol constantly threatens to overflow its framing as unit, and in response alcohol is being performed and enacted in new ways by the industry, the politics of which require urgent consideration.

2 Anstie's Limit

During the nineteenth and early twentieth centuries alcohol was the focus of a great deal of attention in the industry. While questions about drinking appeared on life assurance forms in Britain, the US, Finland and elsewhere from the 1850s onwards, the British physician Francis Edmund Anstie (1833–1874) seems to have been the first doctor to offer life assurance a useful measure of moderate alcohol consumption (Murphy, 2010, Kneale and French, 2015, Jauho, 2015). Anstie was a well-established, reformist physician, and his ideas would prove to be influential. Conducting a series of careful experiments to explore the relationship between consumption and consequences, he concluded that the body could only cope with a certain amount of alcohol, and that drinking more than this caused drunkenness as well as physiological harm. By 1870 he had fixed this amount at one to one-and-a-half ounces of pure alcohol, which was sufficient for a daily dose for a healthy man; desk-bound or infirm men, or women and children could drink less. Anstie died young, but his work was championed by influential figures like Edmund Alexander Parkes and Benjamin Ward Richardson in the UK, by the Committee of Fifty in the US – which cited Anstie in its definitive 1905 statement on alcohol – with *the limit* also circulating in newspaper discussions of moderation across the British Empire.

Quantifying risky drinking appealed to the life assurance industry, too. As business grew in the second half of the nineteenth century offices began to employ local medical practitioners to examine applicants for policies. Handbooks, often written by the company's medical officer, trained doctors how to assess these lives, and almost all of the books we have seen encouraged them to examine the applicant's drinking habits. At first, this evidence was indirect and qualitative, but as the century progressed medical referees were asked to record exact quantities and types of drinks. This would have allowed offices to work out if Anstie's Limit had been reached, but the first definite evidence for its use in life assurance comes from the US (in the 1890s), and South Africa (in 1908).

In the early twentieth century, the US life assurance industry employed Anstie's Limit to review its own exposure to alcohol-related risk. The Medico-Actuarial Investigation of 1908-14, headed by Arthur Hunter of New York Life, reviewed two million policies, and concluded that offices that did not rate up applicants who drank more than Anstie's Limit every day were taking just as big a risk as their policyholders were. However, the mortality rates were higher than expected in both categories, and in fact were worse for those who said they were drinking below the limit. One commentator noted that while firms had thought that "only when Anstie's amount was exceeded did they see a risk to health," after the investigation even moderate drinking seemed "decidedly unsafe"; the Limit "belongs to the dark ages of medical science" (Thompson, 1915: 48, 51). The collapse of the American Temperance Life Assurance Association of New York in 1915 may have confirmed this sense of a hidden iceberg of dangerous drinking, with the *New York Times* headline claiming that "Moderate Drinkers Caused Insolvency" only five years after the firm began admitting them. By 1922 Hunter and his Medical Officer, Oscar Rodgers, were describing the Limit as "far too liberal" – alcohol was dangerous in any quantity (1922: 167).

These doubts reflected different methodologies and epistemologies of alcohol research. Actuarial investigations like Hunter's were simply the latest in a long line of studies that sought to use firms' experience to assess the impact of alcohol on the body. This approach, which prefigured the population-level quantitative analyses of contemporary public health studies of alcohol, was rather different from the experimental physiology of Anstie's research. It engaged with different materials – rows of figures instead of alcohol, blood, and the waste products of the body – and produced different conclusions. These were not different ideas of alcohol, in fact, but different practices within which the substance was "enacted into being" in particular ways (Law and Singleton, 2005: 334).

By the end of the First World War these enactments took on new forms as doubts about the value of life assurance records as indicators of alcohol-related mortality emerged in a British government review (Central Control Board (Liquor Traffic) (1918)), and Raymond Pearl's statistical critique *Alcohol and Longevity* (1926). Medical definitions of problem drinking also changed, emphasising psychiatric problems of "addiction" rather than what we would now call "alcohol harms" (i.e. physiological damage). At the same time, Prohibition made excessive drinking difficult in

North America and elsewhere in the 1920s. Between the wars medicine seems to have turned away from questions of quantity, and – apart from a general nervousness about how to appraise risks – life assurance's interest in drink waned.

3 The alcohol unit and the "free user" limit

Since the 1980s the problem of drink has again come to feature with increasing prominence in the life assurance imaginary. The global reinsurer Munich Re (2005: 12), in the preamble to a detailed report on testing for alcohol consumption, has warned that the "costs arising from alcohol abuse are enormous, greater even than those of tobacco or illegal drugs. And not only is there damage to the liver to consider, the costs of road traffic accidents or early occupational disability are huge." While alcohol abuse is cited as a problem in many insurance markets, the economic and social costs are considered to be particularly high in the UK. According to the Head of Underwriting at AIG Life, alcohol now constitutes

"one of the three biggest lifestyle factors responsible for death and disease within the UK. The impact of alcohol misuse is growing – a recent study showed that deaths from liver disease attributable to alcohol have risen 40% in the last 12 years. Indeed, the UK is the only country in Western Europe (except Finland) where liver disease has increased in the last 30 years – it is now the third most common cause of premature death in the UK." (Downes, 2015)

It is not only the part alcohol plays in increasing the chances of premature death and disease that constitutes a problem for insurers. Consumption of alcohol is also one of the conditions that has long been associated with high levels of non-disclosure by applicants (Goodliffe, 2007, 2015a). However, since Pearl's investigation of alcohol consumption and mortality (1922), attempts to quantify the medical and insurantal risk of drinking have been bedevilled by an apparently "J" shaped curve in graphs of alcohol harms against alcohol consumed, where abstinence and excessive alcohol consumption are detrimental and drinking in moderation is believed to have a positive impact on health – for heart disease, at least. The liberal tensions that emerge from the complexities of the effects of ethanol on both the mind and body are compounded in an era of neo-liberalism, by tensions between a "presumptive right to pleasure and a duty [of the self] to govern risks," which underpins the ascendance of harm minimisation strategies

to drinking (O'Malley and Valverde, 2004: 39). A "felicity calculus" (O'Malley and Valverde, 2004) complicated by the fact that the process of generating and extracting value now occurs throughout the whole of the life course. In the "social factory," sociality has itself become the object of capitalisation (Gill and Pratt, 2008).

Faced with such uncertainty, how has insurance sought to calibrate risk? What are the insurantal strategies used to pacify alcohol and thus render the relation between bodies, subjects, populations and drink amenable to calculation? In order to answer this question we will focus our attention on the life assurance industry in the UK and North America. Alcohol plays a significant role in the framing of contracts and of agencies, and in encounters between insurers and the insured (Çalışkan and Callon, 2010) at a number of different stages. Just as in the case of many other forms of insurance, the contractual relation (O'Malley and Roberts, 2014) is a cornerstone of the capitalisation of alcohol-life. In order to avoid and minimise liability for drink-related losses, the design of life insurance contracts has evolved in such a way as to distinguish between acceptable and unacceptable use and consumption, between alcohol risks that are deemed manageable and controllable, on the one hand, and uninsurable uncertainty, on the other hand (cf. Lobo-Guerrero, 2014).

In a series of interventions the insurance lawyer Jonathan Goodliffe (2007, 2015a, 2015b) has identified three legal mechanisms by which insurers seek to discriminate between "good" and "bad" risks in relation to alcohol consumption. First, the decision whether to offer or withhold cover; the drawing of a distinction at the point of application between the insurable and uninsurable citizen. Second, determination of the specific terms of contract and price that an insurer is willing to provide cover. In turn, this will involve a decision about whether the alcohol-related risks are such that an applicant should be "rated up" or considered a "sub-preferred" risk, and whether specific declarations of health and sobriety are required. Third, the common use of clauses in contracts that exclude liability for alcohol-related losses and therefore invalidate particular types of claim. As Goodliffe makes apparent, such exclusions can be

"... either specific to alcohol problems or to problems which are often (although not invariably) alcohol related. So life assurance may exclude cover for suicide either entirely or during the initial years of the policy. Critical illness cover may exclude treatment for self-harm, or mental illness or for alco-

hol dependence. It may also more widely exclude treatment for any condition arising directly or indirectly from 'inappropriate' alcohol consumption." (Goodliffe, 2007: 5)

The power of such exclusions is amplified by the *uberrimae fides* (utmost good faith) legal principle on which insurance operates.

One of the principal means by which UK life offices seek to draw a boundary between moderate and immoderate alcohol consumption is through the use of the *alcohol unit*. As Jayne et al (2012: 830) make clear, in the UK "units emerged as the accepted standard method for measuring individual consumption and assessing problematic drinking." The UK government defines the unit as 8g of pure ethanol (for comparison, the equivalent US "standard drink" contains the equivalent of 14g of pure ethanol). The unit operates within a framework of surveillance medicine and a corresponding "localization of illness outside the corporeal space of the body" (Jayne et al., 2012: 832). It helps constitute insurantal socio-technologies such as health questionnaires that are completed by applicants, and General Practitioner Reports (GPRs). When completing a proposal or application form for life, critical illness or private health insurance cover applicants are now asked a range of lifestyle questions which commonly includes questions about the number of units of alcohol consumed per week (Goodliffe, 2007, 2015a).

However, the precise historical circumstances of the adoption of alcohol units as the primary tool for self-reporting alcohol consumption and drinking behaviour for insurance purposes are opaque. The earliest reference within the industry that we can find is in a review of underwriting practice in the UK undertaken by Leigh in 1990. In discussing strategies for managing the risk of heavy drinking, Leigh (1990: 463) suggests that a "precautionary rating of 50% extra mortality is reasonable for a proposer who has a daily consumption of more than 4 double-gins, 4 pints of beer or a bottle of wine (i.e. 8 or more units a day) and yet has no physical or mental signs of alcoholism." This is suggestive of an industry still in the process of transiting from "standard drinks" to the alcoholic unit. By the middle of the 1990s, however, underwriting discourse and practice were explicitly couched in the bio-medical language of units, and framed in the context of harm minimisation health policy. This likely reflects the influence of the "Sensible Drinking" report (Inter-Departmental Working Group, 1995). Analysing the role that alcohol consumption could play in the development of a much more highly segmented

approach to the pricing and underwriting of life risks, Martin Werth writing in 1995, stressed that drink

“be used as a negative risk factor [in preferred lives underwriting], where consumption exceeds, say, 40 units per week ... At this level it would reinforce the Government’s message of 21 units per week for men and 14 units per week for women” (Werth, 1995: 14)

A survey of industry attitudes and underwriting approaches to smoking, alcohol intake and obesity a year later reveals that by the mid-1990s not only had units become the commonly accepted method of measuring alcohol consumption, but also the emergence of a consensus that the distinction between healthy and risky drinking be drawn at roughly 40-42 units per week. Of the sixty-three UK and Irish life offices that responded to Ormondroyd’s (1996) survey, some two-thirds would consider the self-reported consumption of 5-6 units of alcohol per day, or 35-42 units per week, equivalent to twice the government’s maximum for men, as the threshold for a person to be considered a “heavy drinker,” and thus requiring further tests and/ or a corresponding increase in premiums. And there is evidence to suggest that what Jo Storey of the UK’s Financial Ombudsman Service (FOS) recently described as a “free user” limit of 42 units of alcohol per week remains a common threshold in the industry (Goodliffe, 2015a: 15, see also Downes, 2015).

Despite its pivotal role in the manufacture of alcohol-life risk, the medical or insurantal basis for the adoption of a 40-42 unit limit in the early 1990s remains unclear. It is possible that the “free user” limit has its origins in the findings of a 1994 study of the relationship between alcohol consumption and the mortality of 12,321 male doctors, comparing observed and expected mortality much as an actuary might (Doll et al., 1994). The study divided drinkers into eight categories depending on their weekly alcohol consumption in units: “none, undefined, 1-7, 8-14, 15-21, 22-28, 29-42, or ≥ 43 .” The recommended weekly limit for men (21) marked the halfway point of reported consumption and 42 represented the upper limit of the penultimate category. Although we can find no explicit references to this research, underwriters would no doubt have found its conclusions interesting, as doctors drinking 29-42 units and more than 42 units a week had about 20% and about 40% higher mortality than those who drank 28 units or less a week, respectively. This paper is still cited within public health, though more recent studies are likely to follow the NHS definition of “harmful drink-

ing” as the regular weekly consumption of 50 units (for men) or 35 units (for women) (NHS Choices, no date).² At the very least the example of the “free user” limit draws attention to the uncertainties and discontinuities of the practice of devising life insurance (McFall, 2014).

4 Producing biofinance

The brief account offered here of the employment of Anstie’s Limit by the Anglophone life insurance industry at the turn of the twentieth century, and of the contemporary mobilisation of the alcohol unit by UK life offices, illustrates the productive role that alcohol has played at particular times and in particular places in the insurantal economisation of biosocial uncertainty. Both *Anstie’s Limit* and the *alcohol unit* provide an ontological and epistemological basis for the demarcation and categorisation of moderate/ safe and heavy/ risky drinking respectively (Kneale and French, 2015). Both act as forms of metrology, allowing for the ordering of the “complexity of the effects of alcohol on our brains and bodies” (Jayne et al., 2012: 843) and its translation into a quantitative and thus calculable measure; be that number of units or volume of pure alcohol consumed. In the case of the modern unit this also allows, as Jayne et al (2012) suggest, for subjects to be located along a numbered continuum.

But, what can analysis of this history of biofinancialisation tell us about the economic sociology of insurance? There are three points we want to make. First, is that the insurance- alcohol relation highlights the importance of attending, as O’Malley and Roberts (2014) stress, to the broader governmental conditions that enable the insurantal economisation of uncertainty, not least the role played by the state. As well as providing further evidence of the importance of the legal principal of *uberrimae fides*, the alcohol unit is a good example of the multiple ways in which the state provides the conditions for particular modalities of insurance, in this instance the capitalisation of lifestyle. The legitimacy and intelligibility of unit-based risk assessment and market devising can only be understood in the context of the UK government’s championing of the alcohol unit as a cornerstone of its risk-minimisation alcohol strategy since the mid-1980s (O’Malley and Valverde, 2004), and of the related dominance of a new framework of surveillance medicine and its associated spatialities, which provide the unit’s regime of truth (Jayne et al., 2012). For as O’Malley and Roberts assert, it is “only when uncertainties have been stabilised and bracketed can they be colonised by risk techniques” (2014: 265). This is not of

course to suggest that insurance and actuarialism are passively constituted within broader governmental environs, quite the reverse, but that the power relations (material, ontological, epistemological) between life insurance, the state, and medicine is as much an empirical as a theoretical question. There is some evidence to suggest that the quantification of consumption by insurance medical examiners in line with Anstie's Limit may have influenced wider medical practice, in the same way that the development of the medical examination has been argued to be the result of insurance demands (Jureidini and White, 2000). Similarly the use of the Body Mass Index as a medical and public health technology has its origins in the work during the 1940s of Louis Dublin, chief actuary at the Metropolitan Life insurance company in New York to translate the Quetelet Index into a risk device (French and Kneale, 2009). Nonetheless, in the case of the early history of the unit the role of insurance appears to have been more a response to developments in social health. Insurance is thus better conceptualised as a heterogeneous assemblage of human and non-human things, that is contingent in time and space, and of which actuarialism and actuaries are but one, albeit important, element.

Second, taking seriously the specificities of the insurantal economisation of risk (O'Malley and Roberts, 2014) demands that we recognise the spatial and temporal contingencies of life capitalisation. One of the most notable aspects of the story of the employment of Anstie's Limit by the life insurance industry is precisely that despite the clear parallels with the drinking limits measured by the contemporary unit, the practice of taking into account measures of the volume of pure alcohol consumed by applicants dropped out of industry use by the 1930s. As discussed earlier, a number of reasons might help explain the disappearance of Anstie's Limit, not least the falling per capita consumption of alcohol. As a result of such changes, the productivity of alcohol for enabling the insurantal capitalisation of life diminished during the middle part of the twentieth century. Significantly, the waning of alcohol during this period appears to have more to do with a destabilisation of the broader governmental conditions on which the uncertainties of the alcohol-life relation were anchored, than of any problematisation of the underpinning vital ontology of life. In the case of the UK, as far as we can discover, it wasn't until the 1980s that the governmental conditions were to be re-established such that alcohol, just like the Body Mass Index, could once again become insurantly productive. Thus, while it is tempting to present insurance history as one of the remorseless and

irreversible colonisation of lifeworlds by actuarial logic, the case of alcohol reminds us that this history is discontinuous and fragmented, and illustrates the fragilities of specific modalities of life insurance and of the promise of securing a liberal way of life (cf. Lobo-Guerrero, 2013).

Third, our exploration of the life insurance/ alcohol relation also adds weight to a growing body of critical work that has cautioned against reductive conceptualisations of insurance; that is, as the straightforward application of actuarial risk calculation. McFall (2014) has provided a rich and detailed account of the critical role that agents, agent handbooks and assorted promotional devices have played in constituting industrial life insurance, and O'Malley and Roberts have made an analogous argument in relation to technologies of everyday foresight and the history of fire insurance, for example (see also Van Hoyweghen, 2013). The present insurantal capitalisation of alcohol-life should similarly be understood more as a process of bricolage, of improvisation and the creative re-use of existing resources (MacKenzie and Pablo Pardo-Guerra, 2014), than the application of statistically driven actuarial techniques. The early discussions of the veracity of the unit and of the setting of a "free user" limit by the likes of Leigh (1990) and Werth (1995) are certainly suggestive of an *ad hoc* and improvised approach to alcohol, and it is telling that such debates were dominated by underwriters rather than actuaries. Endeavours by actuaries to estimate and model alcohol-related mortality have made use of aggregate data for death rates from alcohol-related disorders such as cancers of the oesophagus and larynx, chronic liver disease and cirrhosis, alcohol psychosis and dependence syndrome (see for example McCartney et al. 2011, cited in Institute & Faculty of Actuaries, 2014). Just as in the case of the "free user" limit, these accounts have been notably silent on the question of the relation between such disorders and unit thresholds. A silence that might be explained by the fact that the scientific basis for the use of the unit as a measure of the effects of alcohol consumption on the body is highly uncertain, as Jayne et al. (2012) have made clear. And more fundamental questions have been raised in the industry about the efficacy of self-reported measures of consumption

"It is virtually impossible to assess accurately how much alcohol someone really drinks. Questionnaires tend to be useless in this respect as the information people give on their alcohol intake is unreliable."

Notwithstanding the fact that underwriting individual applicants and the aggregate modelling of insured populations are clearly not one and the same thing, this suggests that just as at the turn of the twentieth century alcohol is performed and ordered in heterogeneous ways in the contemporary life insurance industry – ways that aren't necessarily easily commensurable.

5 Conclusion: Subject to insurance

“... alcoholics take out insurance at a time when their life is falling apart. They have lost their job. They have remortgaged their house. They are being divorced. Their mental and physical health is breaking down. The insurance policy may be the only family asset of any significance. The alcoholic may have been contemplating suicide when he [sic] took it out.” (Goodliffe, 2015a: 15)

Having examined ways in which devices for the calculation of moderate drinking have enabled the capitalisation of life, we want to conclude by briefly reflecting on some of the attendant politics. One of the principal insights of Foucault's work on subjectification has been that power can be creative and productive, as well as repressive. Indeed, according to Foucault, repression or prevention is something that modern power does only in extremis (May, 2014). Alcohol is not only economically productive in the sense of enabling the manufacture and extraction of biovalue – value captured from the vital properties of living processes (Rose, 2007) – by way of the insurance of lives, but also productive in the inculcation of a biofinancial subject; a political subject responsabilised to secure its own financial and biosocial being (French and Kneale, 2012). The prospect, for example, of having to pay a higher premium is likely to encourage the insured to “avoid alcohol problems” as Goodliffe (2007: 3) notes, and for applicants the very anticipation of difficulties in securing life insurance can act as a catalyst for an intervention to work on the self

“If there is an alcohol problem, the doctor may say to his patient: ‘perhaps you should do something about your drinking before applying for insurance’. Such ‘brief interventions’ are an established and often successful way of encouraging people to stop or reduce their drinking.” (Goodliffe, 2007: 12)

In extremis, insurance claims from “alcoholics” are of course frequently rejected. For as one insurer succinctly put it “... it is always fair to apply exclusions to someone who wilfully harms themselves” (Goodliffe, 2015a: 2). And the stakes are particularly high for heavy drinkers and their

dependents, for the financialisation of biovalue is in a very real sense their last hope for security. In rejecting such claims, the lives of those who are unable or unwilling to refashion their biosocial selves are devalued, excluded from the liberal way of life, and deemed uninsurable; that is, unworthy of securing. However, it is precisely this insurantal paradox of security (Lobo-Guerrero, 2014), the excess of life that cannot be rendered insurable risk, which makes alcohol so productive economically and politically. The elusiveness of drink, its uncertainty – the difficulties of stabilising the alcohol-body and in turn the alcohol-lifestyle relation – is at once both a recurring problem for life insurance, as well as the very foundation on which the insurance of lives continues to operate. As Lobo-Guerrero (2014: 316) reminds us, it is the “excess of the life to be protected that makes insurance possible”.

At the same time, the uncertainties of alcohol and more generally, of present insurantal endeavours to economise lifestyle, also opens up space for politics. On the one hand, the contemporary intensification of biofinancialisation and its associated strategies for capitalising life produce new forms of subjectification. On the other hand, the deepening marketization of biosocial life is leading to a proliferation of the social, of “matters of concern” (Callon, 2007). In the case of drinking and insurance, alcohol overflows its insurantal framing as unit, and this is manifest in at least two ways. First, the contestation of rejected claims through agencies such as the Financial Ombudsman Service. In such contested cases not only are the limitations of the alcohol unit's effectiveness at capturing the drinking behaviour of lives assured revealed, not least the limits of the synchronic logic of time (cf. Lobo-Guerrero, 2013) underpinning lifestyle insurance, but also the limits of the principal of *uber-rimae fides* in enabling the insurantal economisation of lifestyle (see Goodliffe, 2015a). Second, in an effort to access the “body memory” of alcohol (Munich Re, 2005), there has been a growing deployment of alternative apparatus for the (re)framing of alcohol-life by the industry. To supplement and address the limitations of long-established alcohol framing devices, such as the self-completed application form and the General Practitioner Report (GPR), life offices especially in the US have made increasing use of biomarker testing to identify alcohol abuse and calibrate drinking behaviour, pathology, morbidity and disease. A growing battery of alcohol biomarker tests are now regularly utilised by the industry. While there isn't scope here to provide a detailed genealogy it is suffice to say that the growing scale and scope of biomarker testing (in the US close to 1.5 million life insurance applicants have been

tested specifically for alcohol biomarkers, for example (Dolan et al., 2011) is founded on a medical ontology that is quite distinct from the surveillance medicine of the alcohol unit. Alcohol is being performed and enacted in new ways by the industry, not only in biomarker testing but also in relation to biomonitoring devices (see Greenfield et al., 2014) and the digitisation of health (McFall, this issue); insurantal practices that pose new political questions and challenges, and thus require urgent consideration.

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Endnotes

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1It is notable that the period when interest in alcohol in the life insurance industry waned coincides, in the UK at least, with the high point of socialised insurance. However, a full explanation for the diminished importance of alcohol during the middle of the twentieth century requires further research.

2Alternatively the 42 unit figure may simply represent a doubling of the weekly figure for men, much as binge drinking is defined as double the daily limit, but there does not seem to be any good reason for this doubling in terms of weekly limits.

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Polanyi in the European Single Market: The Re-Regulation of Insurance

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At first sight, European integration does not seem to be promising territory for the evolution of institutions to embed markets in social relations. The standardisation of rules across the member states is inherently likely to strip away the specific national practices that have evolved to render market relationships legitimate and sustainable. Resistance has appeared in the form of protectionist defence of national welfare states against the onslaught of technocratic pressures to pursue market efficiency by maximising openness and competition. This is the image of conflict between European institutions and national welfare states portrayed by influential commentators in the social democratic tradition such as Fritz Scharpf (2010), Martin Hoepfner and Armin Schaefer (2012).

Yet the EU has developed a surprisingly strong set of norms that form the basis for re-regulating markets, around the principle of non-discrimination. Non-discrimination on grounds of nationality is foundational for the project of market integration: governments procuring and providing services should, according to this norm, choose and deliver without regard to the national identities of their counterparts. From this perspective, non-discrimination appears as a stripping-away of practices, a removal of context, a rule that imposes indifference in the guise of neutrality. But non-discrimination has been extended to other grounds and become formulated in ways which embed markets in social norms, albeit with a distinctive flavour that bears little relationship to national practices. This is exemplified by the decision of the Court of Justice of the European Union (CJEU) that insurers may not discriminate on grounds of sex in identifying and classifying risks. Since January 2013, insurers in the EU have been obliged to apply unisex tariffs in all types of insurance. Elsewhere in the world, sex discrimination is widely used in private insurance, although sometimes prohibited in specific areas such as pensions and annuities.

The Court's decision and the circumstances leading up to it illustrate several important points about "always embed-

ded markets" (Block 2003). First, Polanyi advanced an argument targeted at three "fictitious commodities": labour, land and money, for which supply and demand could not be equilibrated by the price mechanism. Market self-regulation would produce crises and social disruption: "the demolition of society" (Polanyi 2001 [1944]: 76). Insurance markets are also not equilibrated by the price mechanism, for reasons explained below. This "market failure" is less catastrophic than the deflationary spiral which may arise when unemployment pushes wages down (to take the example of labour), but it is important enough to mean that regulation is constitutive for insurance markets. These markets could not thrive without collectively-enforced rules to sustain their operation.

Second, "the state" is central to the process of stabilising insurance markets through regulation, but it is easy to miss this, as the tasks of stabilising risk classification and sharing data to inform pricing decisions are often delegated to insurance associations. There is private regulation of a kind which nowadays is often called "self-regulation," although it has the shadow of state authority behind it.

Third, different arms of the state approach market regulation with different orientations. Technical bureaucracies tend to be instrumental in their pursuit of social and industrial policy objectives, while courts may be more inclined to defend norms without instrumentalising them. This distinction is one to which E P Thompson (1971) was particularly alert: he distinguished between the norms of justice and fairness that constituted a "moral economy" and the idea that social order required at least the security of subsistence. In rejecting the claim that social disorder could be explained by empty stomachs, Thompson came down on the side of a non-instrumental approach to norms. Polanyi's account of embedding has often been interpreted as requiring the development of the welfare state: in other words, as supporting an instrumental approach by achieving a minimum standard of security. Whether this is an accurate reading of Polanyi need not detain us here: rather, I will use the insurance case to demonstrate the difference between a *social policy* approach to the regulatory embedding of a market, and a *moral economy* approach. These are rather big arguments to draw out of the small

case of European insurance regulation, but insurance is rich territory for economic sociology, as is the project of creating a European single market.

Insurance and the price mechanism

The price of insurance should broadly equal the magnitude of the possible loss times the probability of the loss-making event. It is possible to work out a single probability for the whole pool of potential customers and make an offer of insurance to "all comers." However, the insurer faces a risk of adverse selection: instead of being drawn from throughout the pool, customers with higher risk profiles may take up the product, so losses are higher than expected. The difficulty for the insurer is that, if it responds by raising the price (the premium), adverse selection may intensify, with low-risk customers choosing to self-insure. The problem resembles that found in credit markets, where high interest rates may leave only the riskiest borrowers in the market. In both cases, the price mechanism does not work reliably or efficiently, whether to provide insurance or to allocate credit.

Insurers, like lenders, respond by gathering information about those seeking insurance. In doing this, they depart from a basic norm of the self-regulating market: that it is anonymous, indifferent to the personal identities of its participants (Anderson 1993). Insurers often demand disclosure of information about age, sex, place of residence and household circumstances. They use this to segment the pool of insureds and charge different premiums to different groups.

Generally, customers do not question this process. The "loadings" (increases in price) for different attributes are hard to find out, and the insurance industry has been successful in putting across the idea that it is engaged in "pricing risks," which legitimates the differentiation of premiums. But this legitimacy is precarious, for several reasons. The choice of indicators for forming risk groups is somewhat arbitrary. The industry favours indicators for which accurate information can be obtained at modest cost, and where the correlation with claims is known. This creates a strong "path dependency," whereby insurers will rely on information that has been collected over a long period. Furthermore, indicators are merely indicative: in other words, an attribute may be correlated with higher or lower risk without any evidence of causation. For the seller interested in accurate pricing, this does not matter, but it may matter to perceptions of whether use of the indicator

is fair or not. For example, young men are more likely than any other group to have car accidents, but careful young men may resent this category and advocate that a heavier weight is put on other indicators, such as the type of car. More generally, customers may reject the use of indicators that they can do nothing to improve (such as age or sex) but accept those that relate to whether they have chosen to do something more risky (such as buying a high-powered car). These issues tend to emerge when insurance practices change: for example there was a controversy about premium loadings on car insurance for young men when the market was deregulated in Belgium (BEUC 2002: 3-4).

Customers may also notice that the use of information to create risk categories effectively reduces the amount of insurance they can get. This is true generally: the use of any loading denies the customer insurance against having the loaded characteristic. Customers attuned to the practices of the industry shrug this off, until they seek medical insurance when they have a pre-existing medical condition, or buildings insurance when they live on a flood plain. Of course there may be good public policy reasons to prevent people obtaining insurance (or to make the price extremely high) under some circumstances, but the industry's decisions about loadings do not necessarily accord with public policy.

The need to gather and interpret information about customers and their claims supports a variety of noncompetitive, or pre-competitive, practices in the insurance industry. Information on the relationship between indicators and claims probability can be made more statistically reliable by pooling across the industry. Furthermore, the industry has strong incentives to restrain the use of risk differentiation by constituent firms. Insurers face a collective action problem in risk classification. Say a new entrant into an insurance market finds a new criterion for identifying a low-risk group, and offers attractive terms to those who meet the criterion. At first, the entrant will be profitable as it extracts some low risks from other insurers' pools. Conversely, the other insurers will experience adverse selection: their pools will get riskier and their pricing models will prove inadequate. They are likely to respond by adopting the new criterion, stemming the loss of customers. Good times will come to an end for the entrant: now the whole market offers products based on a refined classification, and no-one makes any excess profit in the process. Whether the industry as a whole benefits depends on how sensitive the low-risk group was to the price of insurance. It is not hard to see that the proliferation of criteria for risk classification

may not be good for the industry (for a technical proof, see Wilson 1977). Industry associations promote classification on the basis of limited criteria for which robust information is available. Firms do vary these criteria and the prices associated with them, but often for marketing rather than risk-based reasons.

Regulation by market actors and the state

Because the price mechanism alone does not work, discrimination, in the guise of risk classification, is fundamental to insurance. Practices for classifying risks may be regulated by national associations, with the tacit backing of the state, or by public regulators. Only occasionally are they the subject of public discussion. New technologies may disrupt established settlements: for example there was a flurry of debate about the use of genetic information when the technology of DNA testing became available. Various legal and self-regulatory agreements to limit the use of genetic information were reached by insurance associations and governments in Europe, and the subject was debated in the European Parliament (Mattheissen-Guyader 2005).

Because of the path-dependent, conventional aspects of insurance pricing, the opening-up of European insurance markets inevitably had considerable disruptive potential. In highlighting divergent practices in member states, European integration required the industry to engage in an unsettling process of “arguing and resisting,” perturbing the taken-for-grantedness of its practices (Moran 2010: 396). Insurers that had developed successful classification practices in one market were interested in bringing them into others. One area of divergent practice was in the use of sex discrimination. Member states of the EU varied widely in their use of sex as a risk factor. Sometimes, it was prohibited in some areas (eg in pricing annuities, which provide insurance against the risk of a long life) and not others (eg motor insurance). Complicating the legal framework was the fact that sex discrimination in employment was prohibited, and this extended to remuneration relating to employment such as defined-benefit pensions. Confusingly, nondiscrimination required employers to make equal contributions to their male and female employees’ defined-contribution pension funds, but nondiscrimination did not reach as far as requiring that sex-neutral rates were used in converting those pension funds into annuities.

It might have been possible to resolve these issues incrementally. For examples, countries which prohibited sex

discrimination in insurance could have been permitted to apply that rule to insurers from other countries seeking to enter their market. The scope of the prohibition on discrimination in employment could have been extended to include specific pension schemes, as it had been, for example, in Germany when a state-subsidised defined-contribution pension scheme (the Riestert pension) was introduced (Leisering and Vitic 2009). But the European Commission instead went for a bolder alternative, proposing that the reach of the prohibition on sex discrimination be extended beyond labour law to take in all areas of goods and services provision.

This itself is an interesting move from the perspective of “always embedded markets.” Regulatory social policy in the EU has accorded a special place to employment, and member states also generally treat labour law as a unique area of law in which freedom of contract is particularly constrained for social reasons. In other words, “embedding” has been seen as more imperative in employment than in other markets. With its proposal, the Commission moved away from according a special place to the “fictitious commodity” of labour.

The Commission framed its proposal in legal, social and market-integrative terms, arguing that they all pointed in the same direction, towards the desirability and appropriateness of eliminating sex discrimination in insurance. Lawyers supporting the proposal emphasised that discrimination contravened “the essence of anti-discrimination laws which require that workers be regarded on the basis of their individual characteristics and not on the basis of gender stereotypes” (Barnard 2006: 531). However, legal challenges to insurance discrimination before the courts of EU Member States had generally failed, so long as insurers could show that differences in premiums were proportionate in the light of differences in risk.

Furthermore, relevant legal doctrines differed between member states. For example, in German law, differential treatment of men and women can be based on “biological” determining factors, while discrimination arising from “social” factors is prohibited (Kopischke 2006: 79-80). This distinction produced a debate about whether women’s longer life expectancy was due to social factors around lifestyle, working patterns and nutrition, or due to biological differences between the sexes. If the difference was really biological or genetic, then sex really was the relevant determinant and not just a proxy for other factors, so its use could be justified. However, others rejected this logic

of justification. The Committee on Women's Rights in the European Parliament argued that "the use of the 'gender' factor [...] constitutes discrimination since [this factor is] beyond the control of the individual concerned" (EP 2004, p.26). Lifestyle factors ("e.g. smoking, alcohol consumption, stress factors, health awareness") are "more objective criteria" and should be used instead.

Social policy arguments suggested a different line of attack. The Commission drew attention to the trend in member states towards the privatisation of social insurance, particularly pensions, and argued that privatisation was tending to magnify income inequality between men and women. The Commission noted that, while equal treatment was established in statutory social insurance, "the move towards private provision is undermining this principle" (CEC 2003, p.8). One concrete way to counter this trend was to end the use of actuarial factors related to sex. This would change insurance industry practices to protect the pensions of women, who constituted a group at high risk of having inadequate incomes in old age.

However, the general application of non-discrimination rights was not well-suited to being instrumentalised to pursue this social policy objective, for two reasons. First, it only addressed discrimination on grounds of sex, allowing (even encouraging) insurers to find other discriminators, such as lifestyle factors. Allowing discrimination on the basis of lifestyle factors may be fair, but it will not help women's pensions, as women are more likely to have the lifestyle markers for a long life. A better policy, if the goal was to combat old age income inadequacy, would be to put everyone in the same risk pool, as compulsory social insurance does.

Second, while the social policy goal pertained specifically to pensions, the fundamental right extended to all insurance. Arguments that were convincing in the pensions context lost force when applied across the board. For example, motor insurance had to be included as well as pensions, meaning that women could lose as well as win from a unisex reform. The British Equal Opportunities Commission (EOC) undertook a cost-benefit analysis of unisex tariffs, in effect rejecting the principled application of rights in favour of an instrumental approach. It found that elimination of gender factors "would bring a complicated mixture of gains and losses to both sexes." Even the effect on women of unisex annuities was mixed, as many women depended on the annuity of a male partner (EOC 2004). As a result, the EOC refrained from taking a stand against the

use of sex as a factor in insurance. The wide scope of the measure was, in short, an obstacle to instrumentalising non-discrimination to achieve social policy goals.

Finally, the Commission argued that non-discrimination was an efficient basis on which to harmonise practices in the European single market. It claimed that the technical basis for the use of sex factors was not well established, and was being undermined by social change. It is true that the gap in longevity between men and women has tended to close in recent years, and also that actuaries have not been terribly successful in forecasting increases in longevity. Thus there was some scope to claim that the industry needed to change its practices (Hudson 2007). The Commission argued that "progressive insurance companies are in the process of developing new and more accurate means of predicting risk. As they do so, and as a consequence of competition, they will be able to reduce the importance of sex in their calculations and base their prices on sex-neutral criteria" (CEC 2003: 6-7).

One difficulty with this argument was that advocates of free and open competition, including some within the Commission itself, did not see any reason to harmonise risk classification practices. They argued that open competition would produce efficient risk-rating. As one of the standard accounts put it: "[t]he liberalization and deregulation of the insurance business in Europe aimed ultimately at creating an integrated European insurance market with companies providing consumers with the widest choice of innovative insurance products on offer at the best price." (van der Ende et al. 2006: 7-8) This opens the way to an increase in discrimination through finer classifications of risk, but this is a good thing, as it "allows premiums to be set at a level which is more commensurate to real risk."

These arguments presented the insurance industry with something of a dilemma. On one hand, many firms did not want to change their long-established conventions, which often included sex discrimination. On the other hand, they did not necessarily want free and open competition either. As argued above, the suppression of competitively-inspired risk differentiation was often in the interests of the industry as a whole. As it turned out, industry lobbyists succeeded in negotiating a compromise with the Commission which resolved this dilemma. They agreed that sex discrimination could continue, but that the industry would have to publish information on differences in risk according to sex, to show that differences in premiums were justified. This data publication requirement was invoked by some indus-

try associations to support the continuation of the non-competitive practice of sharing data among insurers.¹

Not all firms and national industry associations were happy with this compromise: some saw reporting requirements and ongoing public scrutiny as a slippery slope that would eventually lead to further regulation (MacDonnell 2005). The outcomes of such scrutiny could be uncomfortable: statistical analyses did not always endorse insurers' practices. For example, Rothgang et al (2005) examined sex differentials in health insurance premiums in Germany and argued that they were inadequately justified by the available statistics. Nonetheless, the compromise of continuing sex discrimination supported by the publication of data would probably have been sustained, had it not been for the decision of the Belgian consumer association Test Achats to launch a legal challenge.

Courts, moral economy and social policy

In March 2011, the Court of Justice of the European Union (CJEU) ruled in *Test-Achats* that the ongoing practice of sex discrimination in insurance was a derogation from the principle of equal treatment between men and women that could not be permitted indefinitely. It ruled that the compromise allowing discrimination with publication of supporting data would cease to be valid from December 2012, effectively restoring the Commission's original draft of the Directive which envisaged a move to unisex tariffs with an extended transition phase.

One of the frustrating features of the CJEU is that its judgments are often extremely terse. Dissenting views are not published, so the text of the judgment represents a "lowest common denominator" of what the panel of judges can agree to. The *Test Achats* decision is highly legalistic: it simply states that non-discrimination is a fundamental right and that it is not possible to derogate from that right indefinitely. The question of whether discrimination in insurance might be justifiable is not addressed. However, the Court is advised by an Advocate General (AG), who writes an Opinion which is generally more extensive than the judgment, which is published. The judges do not have to follow the AG, so the Opinion does not represent settled law, but it does give a sense of how the Court might see the issues.

Three points are of particular interest in light of the "disembedding" and "re-embedding" processes involved in creating a single European market. First, the AG was in-

sistent on the imperative of standardisation. She highlighted inconsistency across member states in the application of unisex tariffs, and noted: "In some Member States it is possible for men and women to be treated differently with regard to an insurance product whereas in other Member States they must be treated in the same way with regard to the same insurance product. It is difficult to understand how such a legal situation could be the expression of the principle of equal treatment under European Union law." (para 23). In other words, a market that was genuinely integrated could not maintain different norms in different parts of the territory regarding such a fundamental matter as sex discrimination.

Second, the AG regarded non-discrimination as a matter of moral economy, not social policy. While her approach suggests that the Court should be a progressive force, modernising as well as unifying the legal code governing the single market, the task of re-regulating the single market was not to be governed by instrumental objectives, whether based on efficiency or on distributional concerns. The AG was dismissive of the community of expertise that sought to justify special treatment of the insurance sector with economic and statistical analysis, given the availability of a clear legal norm. She was also unwilling to take on the tasks of a social policy maker, weighing up the gains and losses for distributional equality between men and women. It is striking that the AG was uninterested in whether unisex tariffs would benefit or disadvantage women: she noted that some tariffs will go up but there would be lower premiums for "the other sex" (para 68).

Third, the AG was keen to iron out the anomalies that had arisen from applying non-discrimination to employment but exempting insurance not linked to the employment relationship. This meant setting aside the long-established view that employment relationships are a special case in the construction and stabilisation of markets. The Court has been criticised in other contexts for failing to recognise the special nature of labour markets and thereby arriving at excessively "liberalising" judgments (Kilpatrick 2009). In this case, however, the spillover went the other way, with a principle that has become firmly established in employment relationships being applied to contracts for services.

Conclusion

The insurance example suggests that "embedding" is an ambiguous term. It can refer to the acceptance of established market practices as fair (or fair enough), or to the

achievement of certain outcomes: specifically security and subsistence for the mass of the population. The former comes under the umbrella of moral economy; the latter of social policy. While I have shown that the Commission tried to address both moral economy and social policy issues with the principle of non-discrimination, we can see that it is a more powerful principle when seen as constitutive of a moral economy, which is how it was interpreted by the Court. It provides a rigorous norm to govern market transactions but has rather unpredictable outcomes. Non-discrimination on one ground (sex) does not create solidarity in insurance when separation of risk pools can freely be done on other grounds, and the CJEU has made it clear that insurers may discriminate between insureds on other grounds than sex. If insurers can find the "lifestyle" correlates of women's longer life expectancy in their occupations, family histories and other indicators, then the effect on annuity rates for many women will not be great.

The significant differences between European countries in the organisation of their insurance markets suggests that these markets are embedded in specific social contexts, reflected in their turn in legal norms and regulatory practices. Market integration might be expected to cause "disembedding," especially if open competition leads firms to set aside established practices in the pursuit of profit. Furthermore, the European Commission is often unsympathetic to restrictions on competition in the guise of social regulation, which it suspects of providing cover for national protectionism. But the prohibition on sex discrimination in insurance shows that this is only half the story, as the European institutions (led by the Court rather than the Commission) have sought to ensure that market integration is subject to the protection of fundamental rights.

Furthermore, it is important not to reify national conventions and practices. Generally, these were not the outcome of a contested political process; nor did they necessarily reflect robust social norms. The national regulation of private insurance is conventional, opaque and industry-dominated, not solidaristic or democratic. Market integration has engendered politicisation, rather than displacing national democratic control. The preference of insurers for avoiding public scrutiny and debate is reflected in their subdued responses to the Court's decision, suggesting that they would like nothing better than to exit the public gaze and return to a position in which their expertise is uncontested and their classification decisions are silently accepted.

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Endnotes

*This article is based on "Polanyi in Brussels or Luxembourg? Social rights and market regulation in European insurance," In: *Regulation and Governance* 8(2): 186–202. Fuller references and more of the intricacies of the argument can be found there.

¹Industry arguments in defence of existing practices can be found in the associations' responses to a European Commission consultation on the 'block exemption' of insurance from certain provisions of EU competition law. The responses can be found at http://ec.europa.eu/competition/consultations/2008_insurance_be/index.html (last accessed 30 July 2015). See in particular the submissions of the main European insurance association: the Comité Européen des Assurances, CEA, and the Pan-European Insurance Forum (PEIF), a group of CEOs of major insurance companies.

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Is Digital Disruption the End of Health Insurance? Some Thoughts on the Devising of Risk

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Big data is at the insurance industry's door. (Swedloff, 2015: 340)

In April 2015, the New York Times reported that Oscar, a New York based health insurance company usually located in the compound adjective category “hipster start-up,”¹ had joined another elite group, that of the “unicorn start-up”, just sixteen months after going live. Oscar was valued at \$1.5 billion after raising \$145 million to enable it to expand outside of New York and New Jersey where by Spring 2015 it had around 40,000 customers. Start-ups are relatively rare in health insurance – the field is dominated by companies like Anthem, Cigna, United Health and Humana, giants that are nonetheless in the process of a chain of mega consolidations. Compared to the competition, Oscar’s valuation figures and customer numbers are small, but the company has been generating attention disproportionate with its size. One of the reasons for this is that Oscar stands as a bellwether marking the disruption that the combined effects of digital technology and legislative change are bringing to the insurance and healthcare industries and to the people they serve.

Oscar is a digital company, started by entrepreneurs whose backgrounds in industries like social gaming and hedge funds provide the platform for its particular mode of integrating technology, data and design. Together with freedom from the interoperability challenges of the legacy infrastructures within traditional insurance companies, this has given Oscar an advantage in presenting a more “human” user experience for people buying individual policies on Obamacare’s new exchanges. Oscar offers a number of key “digital healthcare” signals including remote access to primary care and downloadable health records, but it is their Misfit fitness tracker scheme in particular that drives attention. In promising policyholders financial rewards for achieving fitness goals, the Misfit scheme is not only a textbook behavioural ‘nudge’ but also an emblematic case of the digital individualisation and gamification of value.²

It is this that makes the company almost a real time case study in what might happen to insurance in a digital world. This paper considers how technological disruptions are acting together with recent legislative interventions in the US and the UK to devise new systems and practices of risk within both private and social health insurance. These disruptions could go to the very heart of what insurance means.

Gamifying health insurance costs: Oscar’s Misfit fitness tracker

See appendix, Figure 1

Healthcare systems globally are confronted by three major challenges: costs outpacing growth in GDP; uneven quality in outcomes and patient experience; and inadequate access to care (WHO 2014; Halvorson et al. 2012). Digital transformations hold out the promise of addressing these through initiatives ranging from digitized health records to remote consultations to self-care managed through apps and wearable devices. Insurance systems, whether nominally public or private, are central to how such digital initiatives are being orchestrated to meet these challenges and to incentivize improved care and healthy behaviour. Globally, insurance is the key infrastructure underpinning healthcare financing.³ While private, multi-payer systems such as that in the US are sometimes described as an insurance model; single-payer, welfare-based systems like the National Health Service (NHS) also employ risk-spreading, insurance-like techniques and retain a contributory element through national insurance. General taxation is the main source of NHS funding with national insurance contributing a much smaller portion.⁴ Changes to the NHS over the last 25 years have expanded the ways private finance is involved in healthcare financing. The public/private distinction is significant but it obfuscates the fact that both healthcare systems feature a hybrid mixture of public subsidy and private finance.⁵ Recent reforms further this hybridity by increasing the scope for competition and private provision in the UK while extending public subsidy in the US. This context of legislative and technological disruption, in combination with changes to international trade regulations like TTIP, the global circulation of

healthcare finance reform experts between government and industry, and the emergence of new providers from outside of the insurance sector, has already begun to alter how risks are devised in healthcare insurance and funding.

In the US, the effort to reshape the social and health insurance landscape through the 2010 Patient Protection and Affordable Care Act⁶ (ACA) has served for years now as a national proxy for debates about the proper role and limits of government action. Through the ACA's enactment and implementation, the way many people encounter health insurance has dramatically altered. Digital media and technologies play a prominent role in this encounter. They are mobilised in the first instance as part of the multichannel recruitment and marketing strategies launched by state and federal government, by pro and anti ACA advocacy groups and by insurance and healthcare plan providers. But digital marketing reaches beyond recruitment into attempts to motivate and shape healthier behaviour. These attempts blur at their edges into a more diffuse, potentially much more significant enterprise in exploring the capacity of digital technologies to measure, value, price and monetise risk on the basis of individual behaviour. Insurance providers offering qualified health plans (QHPs) on the state and federal marketplaces (the exchanges) established by the ACA, are prohibited from discriminating according to orthodox, "actuarially fair" means of pricing the risk posed by pre-existing health conditions. Combined with the ACA enshrined responsibility to "be as healthy as you can," incentives for the development of new means of devising risk linked to behaviour shaped by big health data and the "internet of things" (IoT) are starting to emerge.

In the UK, the 2012 Health and Social Care Act continues the longer trend for increasing the scope for markets, competition and private provision in the NHS. Over the last twenty-five years, a succession of governments have pursued a more or less consistent programme of commercialising the NHS introducing, for example, internal markets, foundation trusts empowered to borrow money and go bankrupt, "choose and book" services for patients and the use of specialist private clinics (ISTCs) to treat NHS patients.⁷ These changes are vast, complicated and almost continuous – as James Meek puts it "you can't step in the same NHS river twice" (2014: xx). What is already clear though is that the broad canvas of changes – markets, competition, choice, patients as consumers – means that the UK and the US healthcare systems are becoming steadily less unlike one another. Controlling costs, reducing waste, increasing efficiency are the overriding goals in both

systems and in both the newest weapon is somewhere in digital, uber-personalised, connected, mobile health. Underneath the hype of big data analytics and algorithms, digital garages, incubators and accelerators, there is the prospect of deep transformation in the logic and structure of insurance and the devising of risk that is taking place across global networks of practice. These transformations involve figures from formerly distinct fields such that insurance innovation is being driven not from within the sector but by systems, technologies and practice developed outside in consumer electronics, data science, venture capital and the big four Apple, Amazon, Facebook, and Google.

This paper sets some recent changes to the devising of risk in health and life insurance in historical context. It begins with an attempt to clarify what I mean by "devising." This forms the background to an explanation in the following section of the *practical* character of risk measurement, valuation, pricing and marketing – collectively "devising" – in insurance historically. Risk in insurance has always been a matter of calculation and judgement, a matter of integrating technical and commercial practice in ways that the market will bear and to which it will respond. The paper closes with a review of some broader claims together with some concrete instances of how digitization is currently shaping health insurance practice.

On Devising

The term "device" has gained far more traction in recent years than the idea of devising. They are closely related but "devising" fits better with the adaptable, pliable, sometimes capricious, character of risk practices. In *Market Devices*, Muniesa et al. (2007) explained that "devices" act, they have agency, but cautioned that this does not imply a machine/human division. Instead, Muniesa et al. advocate treating the person as part of and enacted through, the device. A device is therefore meant to be a hybrid thing, a notion conveyed more readily in the French word "agencement" which combines both arrangement and action. Agencements, as Michel Callon explained in this newsletter some years ago now, assemble humans, prostheses, tools, equipment, formulae, algorithms, etc. and things happen just as a consequence of the way these elements are connected (Callon 2005). Connections are productive because they give identity (or definition) to particular forms of action. This matters because connections are the key to how human practices and equipment come to bear on market action through particular forms of ranking, valuation, calculation, measurement, pricing etc.⁸

As provocative as it is, there are a lot of problems with the idea of devices/agencements.⁹ Among the most significant relates to whether and how boundaries are to be defined. If market devices are defined as those socio-technical, material and discursive assemblages that intervene in the constructing of markets, then they can be almost anything and everything connected with market activity. This level of generality is not all that helpful in practical or analytical terms. The boundaries and relations between one market device and another are left open, as too are questions about the scale and level of their operation. Silence on questions of scale and level is not entirely an accident. Just as MacKenzie (2006) noted the difficulties of establishing a causal relationship between the use of a mathematical pricing model and a change in market conditions, the formulation of market devices understands events as having multiple causes that cannot be traced to fluid, dynamic-boundaried devices. This does not counter the claim that devices configure markets, it just means that the manner in which they do so is fraught, partial, open to debate and prone to failure (c.f. Callon, 2010). In Law and Ruppert's (2013: 229) discussion devices are "more or less patterned teleological arrangements" with function and purpose – they do things – though not necessarily the things they are supposed to. The latent, implicit or unintended functions of devices are for the competent analyst to dig up.

Another problem is that no matter how clearly the incorporation of human action within devices is articulated, as the term has been taken up, it almost inevitably connotes the concrete, material machine, THE TECHNOLOGY! Technologies may simply be "ways of doing" but in the literature they almost always become the thing – the shiny, barely familiar, brand new thing. This is just a bit too materially, too technologically observant. In the darker English vernacular, devices are not just material, mechanical contraptions. They are also, sometimes simultaneously, tricks, disguises and deceptions. This is the sense in the confessional prayer of the Anglican church:

we have folowed to much the devises and desires of our owne hartes. We have offended against thy holy lawes: We have left undone those thinges whiche we ought to have done, and we have done those thinges which we ought not to have done, and there is no health in us.

Here the sense is of "devises" working almost behind the backs of their owners. Devises that might backfire or not fire at all, or sometimes work far better, or in ways other than anticipated.

This combination of unruly and instrumental effects, techniques, practices and tricks is what is at work – and in play – in the "devising" of risk. Devising is a collective term: like "constructing," it connotes the practical "doing" of risk, the practices at stake in transforming risk into a measurable, priceable, tradeable category. More than devices, *devising* points at the summoning, the conjuring, of risk and this works for thinking about the consumer market "appeal"¹⁰ that life and health insurance have to make. Making stable markets for insurance historically did come to depend on the development of technical forms of reasoning, of actuarial calculation and valuation, but never without the simultaneous orchestration of sentiment. Sentiment, as Oliver Wendell Homes (1872: 159) noted, "is the fulcrum and the place to stand on if you want to move the world." The bubbling, global enterprise in following, shaping, measuring, valuing, pricing, monetising and gamifying human behaviour and its big data trails, that is currently underway in contemporary health insurance, still depends on this orchestration in order to devise risk.

Devising risks in life and health insurance: a quick history

To explain why this combination of reason and sentiment is so important to the devising of risk it is worth considering life insurance practices historically. The history of how nineteenth century commercial insurance came to offer the first practical and market test of statistical and probabilistic models in part through the relentless promotion of the idea that large numbers behaved in accordance with discoverable laws, is by now well known (Gigerenzer et al. 1989, Hacking, 1990, Porter, 1996). At the same time, establishing a market for life insurance meant selling it as a solution to loss and change, to fortune and accident, to life and death. Probability, statistics and actuarial science in this context were seized upon as much as a rhetorical as a technical solution. What interested insurance companies, was not simply what emerging techniques could actually do, but what they could be claimed to do.

By the middle of the century references to the certainties offered by statistical laws were standard fare in promotional matter. Companies were by then using mortality statistics to price their premiums and probabilistic and actuarial calculations to forecast their liabilities. Even so mortality statistics could not have offered the kind of financial guarantees that were being promised. Insurance companies wilfully glossed the salient distinction between the populations they insured and the population from

which mortality tables were drawn. They relied primarily on Price's eighteenth century Northampton tables, which overestimated mortality but even if they had drawn upon more accurate tables this would not have altered the fact that their local insured population was distinct from that of the mortality tables. As the Institute of Actuaries had it in 1852, mortality rates would characteristically differ in every insurance association (Porter, 1996).

For this reason, companies needed good rules to inform the selection of lives as well as competent management as much as they needed mortality statistics. In order to secure admission to a life assurance company, the life "proposed" had to be deemed of sufficient quality. The method of selection took a variety of forms, from an appearance before the board in the early part of the century to a medical examination in the later decades. As the century progressed, insurance companies played an increasing role in measuring, valuing, pricing and mediating the health of the populations they insured. Insurance offices and organisations were involved in the establishment of a range of standards and tests for assessing health, disease and risks medically. With the task of securing the acceptance of the overall logic of collective mortality risk achieved, insurance actuaries increasingly turned to working with doctors to create new tools for assessing individual risks. Insurers worked with health and medical professionals to develop measures, including Quetelet's index, now known as the Body Mass Index (BMI), but also for smoking and alcohol consumption and a range of diseases and medical conditions (Bouk 2015; Jureidini & White 2000; French and Kneale 2009; Kneale and French, 2012). At the same time insurers have been involved, since the early twentieth century, in more diffuse and generalized efforts to promote public health through education and the sponsorship and organisation of sporting and "wellbeing" activities.

One of the most significant sectors in which insurance-driven health promotion took place was that in which a mass market for life assurance was finally established: industrial life assurance (ILA). ILA was a form of life assurance targeted at the industrious working classes. In the UK, it was the preserve of companies like the Prudential, the Refuge and the Pearl, all set up between 1848 and 1864, using a system of agents not only to sell policies but to collect weekly premiums. In contrast to the slow trajectories of "ordinary" life offices, ILA grew spectacularly quickly. Thirty million policies were in force in the UK by 1910 and over 100 million by 1940. This trajectory was in part a consequence of just how well agents were able to

translate a quantitative, statistical product into a form that would engage passionate interests. ILA initially supplied the means for an urgent, practical and deeply sentimental need: funeral expenses. The market for industrial insurance was vast but it was also unstable, controversial and the target of continuous regulation. Larger companies, notably the Prudential, addressed this by enlarging the scope and aspirations of ILA toward greater sums assured, and by developing sufficient agility to shape the changing legislative context to their own advantage. In particular, the company lobbied consistently, as did the sector as a whole, to ensure the admission of industrial assurance companies as "approved societies" under the 1911 National Insurance Act.

Given that the UK National Insurance Act was a field-changing piece of legislation – the Obamacare of its time – enacted to improve public health while at the same time eliminating the colossal market for industrial assurance, being included was quite an achievement. After 1912, many companies, notably the Prudential, benefited from the Act. They became actively involved in the promotion of public health through their separate roles as the "approved societies" that administered medical expenses and sickness benefits (until the establishment of the NHS), and this only bolstered their commercial standing.

By the 1920s, the Prudential was the largest life insurer in the UK by far and was embarked on a drive to expand the range of its business beyond "industrial branch" policies. This expansion involved an ongoing process of measuring company claims experience against pricing expectations to inform decisions about how to balance, expand and promote the product portfolio. There was nothing straightforward about this – as the company's attempt to capitalise on a demographic opportunity opened up by the First World War illustrates. In the early 1920s the Prudential introduced the iconic "Everywoman" endowment policy targeted at the new group of professional working women, who were unlikely to marry given the shortage of available men. Although opportunistic, the company was still tentative about the kind of cover it was willing to offer professional women. Responding to a suggestion from one of its own female employees that the real appetite among professional and single women was not for endowment but for sickness cover, the company remarked:

The question of sickness insurance for women is, except within narrow limits, an exceptionally difficult one. The rate of sickness amongst women is high, so that premiums would appear unduly heavy. Moreover, an assurance company could not

hope to get a fair average amongst those to whom it issued such policies; only those who were nearly certain that they would experience heavy sickness would pay the premium asked. The result is that what is known as “selection against the company” would operate, and the business would involve a loss. (Prudential Bulletin, 1926: 999)

Adverse selection is the hardy perennial in devising risk.¹² Those most motivated to take out cover are likely to be those with reason to fear. This selects risks against the company because customers have information about their health that companies do not. It was to avoid adverse selection that ordinary assurance companies introduced medical examinations. Industrial policies, however, were issued without any medical screening beyond some basic questions on the proposal form. Similarly, while medicals were used for many of the Prudential's ordinary branch policies, the Everywoman policy abandoned them in 1921, calculating that the increased attractiveness of non-medical insurance would offset the loss of any selection benefits. In refusing to offer the sickness cover, the company was in line with the sector's prevailing view at the time that only the state could adequately define a cost for women's sickness cover by compelling contributions.

This was a commercial judgement about a prospective outcome rather than an objective financial “fact” – were such a thing even possible. Financial valuation, as Muniesa (2012) insists, is neither subjective nor objective but *practical*, that is, it involves the practice, the activity, of turning things or people into objects or subjects of valuation. In this instance, women's sickness was an object that industrial companies declined to value. Reckoning the overall commercial value of insurance has always been a practical chore of enormous complexity. No matter how complicated the computation of value was – and even with advances in mechanical and digital computation, the proliferation of product portfolios, funds and investment strategies in the twentieth century always upped the ante – it was never just about the arithmetic. As Ine Van Hoyweghen explains, calculating economic prices on lives

encompasses the absorption of an intermingling of economic, managerial, accountancy, actuarial and medical knowledges, figures and tools. Insurance calculative devices are crucial in linking these distinct actors, considerations and domains in order to frame the life insurance transaction. So even if there are – at the outset – multiple considerations and calculative agencies involved in underwriting, the devices render the en-

actment of particular versions of what ‘sound underwriting’ for the insurance company means. (2014: 347)

Financial valuation is about actively and practically considering value precisely for commercial purposes, and the two are never simply equivalent. One of the things this points to is that no combination of financial valuation figures, whether of new or existing policy numbers, annual premium income, overall surplus figures etc. could determine the commercial value of the branches. That was a judgement that depended on the weight given to the different factors underlying fluctuations in sales and margins. Such a judgement had to interpret, for instance, whether fluctuations were short-term reactions or long-term trends, whether they might be influenced by operational changes, like reductions in the expense ratio, block re-organisation or marketing initiatives. Even then, the value given to the different branches was also a matter of the will to develop, maintain or reduce the corporate emphasis accorded to the different branches. The sheer size, overall profitability and increased diversification of industrial offices throughout the twentieth century went far beyond expanded product portfolios in the branches into overseas enterprises, investment fund management, group and individual pensions, property management etc.

What all this is pointing to is that historically, devising risk in insurance is always a matter of orchestrating practice and technology in line with the broader environment to engineer products priced at levels the market will bear. Practices and technologies for improving the accuracy of health assessment, and for promoting health and wellbeing, have played a major part in this devising. The idea of insurance unmediated by technology, by practice, by environment particularly legislation, makes no sense. As Wajcman (2014) notes, “our experience of human action and the material world is [always] mediated by technology.” This is worth bearing in mind as the hype about what digitization might do to insurance and to healthcare nears fever point.

Devising risk in the context of digitization

Illustrations of how the practices and technologies of risk shift in line with changing legislative environments are currently being sketched out on both sides of the Atlantic as insurance and health care providers in the US and the UK react to the ACA and the ongoing restructuring of the

NHS respectively. This section focuses primarily on the US context before returning to the UK towards the end.

The ACA shows how dramatically a single piece of legislation can alter the environment. The healthcare law offers substantial federal subsidies to try and create a more equitable distribution of healthcare costs. It is an enormously complex piece of legislation but among its main objectives was to provide cover for the roughly 41 million people who were estimated to be uninsured at the end of 2013.¹³ These were people who were not covered by their employers, not poor enough to qualify for Medicaid, which covers people with low income or a disability, and not old enough to be covered by Medicare, the program for the over 65s. In a country where medical bills are responsible for the majority of personal bankruptcies,¹⁴ this might have been expected to be a popular measure. But things have not been quite that simple. After years of debate, political challenges culminating in the federal shutdown of September 2012, legal challenges of which the latest was only resolved in summer 2015, and the completion of two enrolment periods resulting in a substantial reduction in the uninsured, the Act is only now looking stable enough to survive.¹⁵

The heat surrounding the ACA is partly a function of the extent to which it turns the spotlight on the ways ideas about freedom, fairness and the allocation of responsibility between individuals and the state are enshrined in insurance practice. The ACA reconfigures that settlement to expand and collectivise ideas about fairness beyond the individual and at the same time introduces challenges to “actuarially fair” means of valuation. Insurantly, the ACA is actually a much less dramatic break than the intensity of this debate implies. The US healthcare system can be described as a four-legged stool in which three legs, Medicare, Medicaid, and the large-group insurance market (contracting typically with large employers), had been functioning fairly well and will change only moderately under the Act. The other leg, the individual and small-group market, is the ACA’s main target. Eligible people can now access subsidized healthcare through newly-created state exchanges/marketplaces, in which providers have to offer defined benefits, guaranteed access and identical premiums for all, *irrespective of pre-existing conditions*. This creates a single insurance pool in each state and introduces significant new challenges, notably ensuring that sufficient healthy “young invincibles” register to balance adverse selection. Under the ACA, the individual mandate requiring all eligible Americans to have basic health coverage is too

weak to ensure universal compliance, and since those under 26 can stay on their parent’s plans, concerns about the quality of the pool remain.

The requirement that providers accept everyone replaces the “actuarially fair” model of pricing risk with one that relies on people paying a “fair share” of the costs of their pool and “being as healthy as they can.” As legal scholar Tom Baker (2010) has pointed out, neither “fair share” nor “be as healthy as you can” are explicitly addressed in the Act. This leaves a space for interested parties – among whom insurance companies and healthcare providers certainly number – as so do some new “digital” entrants to the market – to elaborate in practical terms what “fair share” and “healthiness” mean.

As Baker (2010) also observed, the Act continues a long trend in U.S. healthcare financing away from an ordinary market approach in which people pay for their own care at the point of consumption, towards paying a fair share of the overall cost mainly through insurance premiums and taxes. Insurance systems, by definition, distribute risk and responsibility, and it has been clear for a long time that the “fairness” or “justice” of that distribution is in the eye of the beholder.¹⁶ While privatised actuarial systems of the type that have prevailed in the US place more of the burden on individuals than the socialised systems that were developed in Europe in the twentieth century, that divide has never been anything like water-tight in practice. Even the exemplary post-war welfare state settlements of the UK and Scandinavia left plenty of scope for privatised risk management, and for states to “reconstitute market relationships in the course of formulating regulations to promote efficiency and manage risk” (Mabbett, 2010: 16; c.f. Baldwin, 1990; Lehtonen & Liukko, 2010). This mixed economy has always preserved enough space for arguments that socialising risk was “unfair” to some contributors, leaving open the possibility of dismantling or re-engineering parts of the settlement. In a post-ACA US, Baker maintains, judgements about what is fair are still likely to remain more closely linked to the consumption of health care than in places less preoccupied with freedom and choice. But the new responsibility to be as healthy as you can will tighten the link between fairness and current lifestyle and wellness factors because of the new responsibility to be as healthy as you can.

The ACA represents a major move in the reconfiguration and redistribution of risk and responsibility. This is due to the fact that prohibition of discrimination against individu-

als based on their health status is a prohibition of perhaps the fundamental characteristic of actuarial fairness, that is; “individuals pay according to the expected value that insurance has for them and insurance companies compete by identifying new ways to exclude the highest-risk individuals from their pools” (Baker 2010: 1601). It is such a significant move that it necessitates the introduction of a number of new actuarial and marketing practices. These practices employ digital means to recruit and persuade new “young invincible” customers, means that blur at their edges into a broader project to cultivate responsibility for individual health and wellness.

An example of the new actuarial¹⁷ and marketing practices is the wave of pro and anti-ACA recruitment and advocacy advertisements that have appeared over the last few years. Some of this material was pitched feverishly high and target specific younger audiences. The Koch brothers-funded “creepy gynaecologist” YouTube video, for example, depicted Uncle Sam ready with a speculum as a warning against the excesses of state intrusion enacted in the ACA. In return, the Obama administration and a number of pro-ACA advocacy groups used targeted ads to tackle adverse selection by enlisting younger sign-ups. In one example, three young men are shown accomplishing a keg stand with the legend “Brosurance. Keg stands are crazy. Not having health insurance is crazier. Don’t tap into your beer money to cover those medical bills. We got it covered. Now you can, too. Thanks Obamacare!” The ad was one of a series by the Colorado Consumer Health Initiative (CCHI) and Progress Now Colorado Education in Autumn 2013. The *Got Insurance* series provoked outrage in some quarters by seeming to endorse behaviour out of line with public health messages.

Some of the ads in the series also demonstrate how easy it is to get the language of a younger demographic wrong. Instead of relying too heavily on crafting content with clear youth appeal, the Obama administration applied the multi-channel networked campaigning techniques used in the 2008 election to inform ACA advocacy and outreach strategy. This meant targeting, tailoring and personalising messages across platforms such as YouTube, Facebook, Twitter, Instagram etc. For example, in the final weeks of the 2014-15 Open Enrolment period for insurance, Barack and Michelle Obama, and Joe Biden were tweeting childhood photos of themselves under the banner “no one stays young and invincible forever,” to coincide with national youth enrolment day on January 29.

Direct advocacy and recruitment is not the only way in which the ACA has boosted the already vast health care marketing spend in the US.¹⁸ There are other, more diffuse, messages circulating in the post-ACA context, sponsored by a whole range of government, insurers and health care provider organisations. The “What Would You Do” series, part of the American Academy of Orthopedic Surgeons’ “nation in motion” campaign, pushes strong messages about the individual’s responsibility to fight for health, whatever the circumstances, that sit well within a “be as healthy as you can” framework.¹⁹ One example shows a determined-looking mountain biker under the heading “What would you do if a serious sport injury almost took your leg? Merline Love refused to backpedal. A severe injury in a pickup game left Merline facing a possible amputation. Through her own determination – and a resourceful orthopaedic surgeon – she’s back to full speed. Way to fight back Merline.” This persuasive project, moreover, can now draw on a set of digital devices for measuring and monitoring just how seriously people are taking the responsibility to be healthy. This in turn creates opportunities for devising risk digitally that may challenge the structure, and perhaps the logic, of insurance markets.

Devising individual behaviour

This link between advertising content and health policy may seem like a stretch, but the attempt to induce people to take more responsibility for their health is not just being orchestrated through marketing channels. Nor are digital transformations being set to work on insurance only by revamping multi-channel distribution strategies. Instead, in national health policy, in industry “grey literature,” through online and offline platforms and in a number of pilot schemes and incremental innovations, attention is focusing on the ways that the convergence of IoT innovation, big health data and the explosion of health and well-being apps can offer solutions to the new forms insurance problems are taking.

The changing calculative base of insurance has created a global climate in which more traditional, employer or insurer-sponsored “wellness” programs are expanding and being augmented by “self-health,” monitored and enacted with digital tracking technologies that provide data to be fed back to insurance providers’ calculative apparatus.²⁰ The ACA pushes further in this direction through the “be as healthy as you can” edict, and through the associated broadening of incentives employers can give their staff for participation in wellness programs, for example by boost-

ing cash rewards on premiums or deductibles from 20% to 30%. There is also a pot of \$200 million in grants, to which small businesses can apply, to set up such programs (Olson and Tilley, 2014). In the UK, healthier behaviour, monitored by wearable devices, is currently rewarded in private insurance schemes like VitalityUK and BUPA Boost. In November 2014, the Department for Health's framework for action for the NHS described how

better use of data and technology has the power to improve health, transforming the quality and reducing the cost of health and care services. It can give patients and citizens more control over their health and wellbeing, empower carers, reduce the administrative burden for care professionals, and support the development of new medicines and treatments. (NIB, 2014: 3)

The NHS has endorsed the use of apps for behaviour change in fitness, smoking cessation and alcohol consumption and is investigating the possibility of "kitemarking" health apps in 2015.²¹ Pilot digital health schemes, such as myhealthlockerTM, which allows data from wearable devices to be integrated into Patient Health Records (Chana, 2013), are proliferating across the NHS system. The expressed policy aim on both sides of the Atlantic is to "personalize" health care through the use of data and technology. The lesson in "mass personalization" is explicitly being taken from consumer markets in industries like online retail, electronics, travel and banking which are frequently cited as models by organisations like the NIB in the UK and the private insurance sector.²²

There is clearly bubbling interest in these areas. A deal between health insurer Humana and Apple that permits the insurer to share data collected through Apple's proprietary Health app was announced in October 2014. The scheme works by bringing together all of a person's fitness data from different wearable devices and apps into one hub, consolidating existing connections between wearable manufacturers and insurers.²³ This was followed with the release in March 2015 of Apple's ResearchKit, an open-source platform for creating apps that will collect health care research data from a significant portion of the population. This, according to Fortune, "is a crucial step in tying big data, connected sensors and medicine together for advancing both public health goals (i.e., anticipating how a disease like the flu might spread) and personal health goals (i.e., improving outcomes for diseases like diabetes)."²⁴ Wearable devices themselves have gone from nowhere 5 years ago to being heavily touted as the area where the

most significant expansion is expected.²⁵ The potential benefits of collaboration between companies and insurers are clear for companies like Fitbit.

Today Fitbit sells its trackers in bulk to "thousands" of employers at a discount, along with sophisticated tracking software that can, for instance, get one office competing against another or see how active certain employees are ... Amy McDonough, who oversees Fitbit's employer program, wouldn't comment on how Fitbit data would affect pricing negotiations between employers and health care providers, though health insurer Cigna said fitness trackers "may" have an impact on future group insurance pricing. (Olson and Tilley, 2014)

These developments are nevertheless unprecedented. As described above, the insurance industry has a long history of monitoring health and offering differential premiums accordingly. The use of specific rewards and incentives for healthy behaviour however can be traced to South African insurance company Discovery Health, which began offering them in 1997. The lifestyle approach pioneered by the company enables insurance "to begin to transform itself into a more engaging and potentially efficacious anticipatory technology of the self" (French and Kneale, 2009: 1041). Innovations like PruHealth, established as a joint venture between Discovery and the Prudential in 2004 offered "vitality points" for participation in everyday health activities. These points could be used to save between 25% and 100% on renewal premiums. It has since informed the development of a range of incentive-based insurance and corporate wellness schemes in Europe, Asia and the US. Trading as VitalityHealth and VitalityLife in the UK and majority-owned by Discovery, the current version of the product offers incentives for the use of Garmin and Fitbug trackers, as well as gym membership and other healthy behaviours. In the US, the most celebrated schemes are currently being offered by relatively small companies like Oscar Health, whose Misfit scheme was described at the outset, and John Hancock who offer a Fitbit under the Vitality scheme.

It is the prospective pace and extent of such innovation, rather than their current scale, that is driving attention. The giant insurers are busily funding labs and research in acknowledgement that the industry is on the tipping point for digitisation. Allianz is spending \$500m annually to develop capacities including through the "digital accelerator," an innovation lab and InsureTech business builder, while Aviva recently hired a global insight chief to help set

up a “digital garage.”²⁶ In comparison, Discovery, with just over 4 million customers as against Allianz’s 78 million and Aviva’s 31 million, remains a relatively small player.

At the level of practice, however, the bulk of the insurance sector is moving much more slowly than the hype suggests. Digital in insurance is still most likely to be used in reference to the development and refinement of multi-channel marketing strategies. This may partly reflect the fact that wearable technology is still at an early stage of adoption. Fewer than 1 in 10 Americans wear a tracking device and many discard them after a few months. High-profile wearables like Google Glass failed to find a market, and Apple watch has gone from a high-profile launch to speculation that sales have been much lower than expected.²⁷ Many insurers are currently more interested in gaining access to the data to figure out how it could be used to refine pricing and cost calculation, than in using the devices for behaviour change.²⁸

This leaves the sector in an odd state of complacency and anxiety that is underpinned by some complicated reasoning. As Rick Swedloff (2015) explains, it could turn out to be hugely expensive to use big data effectively to produce more accurate risk classifications, the cost of making even marginal improvements could well exceed any additional revenue generated, especially if companies succumb to the pressure of press coverage extolling the wonders of big data. The largest players are aware that data mining and monitoring could be used not only to price policies more accurately but to modify the behaviour of the riskiest customers at an individual level. But they are also aware of how difficult this will be. A long history in the practice of balancing company experience, external data and market appetite may make them slow to respond to the idea that digital mediation of risk would allow them to operate as “big mother.” If *The Economist*²⁹ is right that these changes question

the basic logic of the insurance industry – that it is impossible to predict who will be hit by what misfortune when, and that people should therefore pool their risks. “Cherry-picking” low-risk customers and spurning those who will prove liabilities is becoming much easier. In the process, insurers may transform themselves from distant, cheque-writing uncles into ever-present and interfering helicopter parents. The prize for the nimblest will be huge: the industry manages more than \$30 trillion, nearly as much as the \$36 trillion held by pension funds; last year it made \$338 billion in profits.

It may turn out that it is not traditional insurers who prove to be the most nimble.

Concluding Comments

There are a number of striking features in this story. One of them is the extent to which key changes that will impact on health care financing on both sides of the Atlantic are being worked out on a global scale. These changes are making the taxonomic distinctions between different health care systems less pronounced. The significant but nevertheless overdrawn distinction between the US’s privately and the UK’s publicly funded systems is blurring further as both systems attempt to develop a new mix of legislative and digital solutions to health care financing. The ACA has significantly increased the scope for public subsidy and cost sharing in the US. While the extent to which successive governments in the UK have succeeded in a deliberate effort to privatize the NHS is hotly contested, the waves of restructuring over the last two decades have undoubtedly been informed by the logic of marketisation. The current digital strategy is expressly to bring the NHS closer to norms of digital provision set in commercial markets (Leys & Player, 2011; Meek, 2014; NIB, 2014; Ham et al. 2015).

This touches on another feature of the story, which concerns the increasing role of players from outside the traditional health care and insurance sectors. Diabetes patients might, in the not too distant future, be able to use their health care budgets to purchase a smart contact lens that can monitor blood sugar patented by Google, in partnership with Novartis. Alongside the fitness trackers, a slew of companies, including 90 new health care start-ups launched in the US since the ACA became law, are developing digital health and medical devices and apps.³⁰ The annual “Health Datapalooza” hosted by the Department of Health and Human Services to encourage entrepreneurs to use its resource to develop digital health solutions, is one instance of a much broader, global enterprise in digital health innovation where key players are coming from systems architecture, data management and consumer electronics, as well of course as Apple, Google and Facebook. Venture capital funds like Rock Health were set up specifically to fund “startups building the next generation of technologies transforming health care”.³¹ This is further blurring the healthcare/lifestyle distinction. As James Park, the CEO of Fitbit put it, “having a consumer product DNA is I think something really difficult for medical device companies to replicate. ... I would say consumer focused com-

panies, whether it's us or Apple, probably have an inherent advantage in the future."³² Older businesses are also taking a share of the market in the US. One of the side effects of the ACA is that people are paying higher deductibles before insurance cover kicks in. This is creating an opportunity for retail pharmacies like CVS, Walgreen and the in-store pharmacies at Walmart to offer walk-in clinic services with clear pricing, cheap care and quick service. The endpoint, digital health advocates argue, is health care "uber-personalised for a market of one."³³

If this proves to be the case, there could be huge disruption to the baseline risk-pooling logic of insurance, which proceeds from the assumption that since, even with robust data, it is impossible to predict exactly who will be hit by what misfortune when, the costs of risk should be distributed, in accordance with certain agreed criteria of fairness, across a given population. These criteria of fairness vary in different systems, but to date they have generally revolved around a measure of contribution – whether through taxation, national or private insurance payments – in combination in private systems with broad actuarial criteria like age, gender and pre-existing conditions, and certain specific lifestyle risks, including for example smoking and dangerous hobbies. Although lifestyle pricing is already present in the extra costs of cover encountered, for example, by smokers and paragliders, this falls far short of the type of individual pricing that may become possible through digital tracking and monitoring devices.

The potential to devise risks digitally leaves insurers in an interesting position. It is not simply that a traditionally conservative industry, populated by huge companies, weighted by cumbersome legacy infrastructures, lacks the nimble responsiveness of a digital technology start-up. Nor is it that the margins to be gained from digital risk classification may be outranked by the costs in the always delicate balancing of financial valuation, commercial judgement and market appeal. It is that charging a bespoke price for the way an individual life, tracked and profiled in all its mundane details, is lived, is not insurance.

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Endnotes

1Valuations in excess of £1billion

2http://www.nytimes.com/2015/04/21/business/dealbook/oscar-a-health-insurance-start-up-valued-at-1-5-billion.html?_r=0 ; <http://linkis.com/wharton.upenn.edu/zglTU>; <http://fortune.com/2014/12/09/oscar-health-insurance/>; <http://www.usatoday.com/story/tech/2015/06/24/oscar-uses-tech-to-make-consumers-less-grouchy-about-health-care/29150055/>; <http://www.wired.com/2015/04/oscar-funding/>; <http://www.latimes.com/business/la-fi-obamacare-exchange-20150724-story.html>

3In the UK, general taxation remains the main source of NHS funding with national insurance contributing a much smaller portion. National insurance played a central role in the quasi public/private health care funding system in the UK until the launch of the NHS in 1948. Changes to the NHS over the last 25 years have expanded the ways private finance is involved in health care financing.

4National insurance played a much larger role in the quasi public/private health care funding system in the UK until the launch of the NHS in 1948.

5See also Deborah Mabbett's (2010) authoritative discussion of the shifting ground between 'market coordinating' and 'redistributing' types of social policies; c.f. Elsässer, Rademacher & Schäfer (2015).

6Popularly but controversially known as 'Obamacare' http://www.huffingtonpost.com/charlene-obernauer/obamacare-vs-affordable-care-act_b_4044579.html

7See Leys & Player, 2011; Meek, 2014;

<http://www.kingsfund.org.uk/projects/verdict/nhs-being-privatised>

8See Kjellberg and Mallard (2013); Muniesa (2012); Caliskan and Callon (2009; 2010) and Callon and Muniesa (2005) for more on these varieties of market action.

9For more on this see McFall (2014) Chapter 1.

10See Clark et al. (2010)

11There were also versions of industrial life insurance in many parts of Europe, United States, Australasia and Africa

12c.f. Stiglitz and Akerlof discussed by Baker (2010: 1576-7) "Some insurance buyers are low-risk 'peaches' and other insurance buyers are high-risk 'lemons.' In many cases the insurance

buyers have at least some sense of whether they are lemons or peaches. If the insurance company can tell the difference between lemons and peaches, it will charge the peaches a peach price and the lemons a lemon price consistent with actuarial fairness, and the market will work efficiently ... If insurance companies are not able to tell the difference between lemons and peaches, however, or if they are prevented from charging different prices, then they will have to charge all of the buyers the same price. This will be a price that will be higher than at least some of the peachy (low-risk) buyers are willing to pay. So the people who choose to buy insurance will be disproportionately high risk, requiring the insurance company to raise the price, driving more of the low-risk buyers out of the pool, and so on. This is the dynamic that nineteenth-century insurance actuaries first called 'adverse selection.'"

- 13 <http://kff.org/report-section/the-uninsured-a-primer-what-was-happening-to-insurance-coverage-leading-up-to-the-aca/>
- 14 <http://www.npaf.org/files/>
- 15 The Department for Health and Human Services estimated "14.1 million adults who gained health insurance coverage since the beginning of open enrollment in October, 2013 (including 3.4 million young adults aged 19-25) through March 4, 2015. Over that period, the uninsured rate dropped from 20.3 percent to 13.2 percent – a 35 percent reduction in the uninsured rate." (160315) See also <http://kff.org/health-reform/issue-brief/adults-who-remained-uninsured-at-the-end-of-2014/> The King vs Burwell challenge was resolved in favour of the ACA on June 25 2015 <http://www.scotusblog.com/case-files/cases/king-v-burwell/>
- 16 See for instance the debate in Ewald (1991); Baker and Simon (2002) and Clark et al. (2010)
- 17 See the discussion of risk adjustment, reinsurance, and risk corridors at <http://kff.org/health-reform/issue-brief/explaining-health-care-reform-risk-adjustment-reinsurance-and-risk-corridors/>
- 18 <http://www.fastcompany.com/3019062/obamacare-means-youre-getting-hit-with-a-tsunami-of-health-care-marketing>
<http://www.forbes.com/sites/brucejapsen/2013/05/11/adspending-on-obamacare-may-make-don-draper-blush/>
- 19 See more at <http://www.anationinmotion.org/>
- 20 http://www.mercurynews.com/health/ci_25639907/wellness-programs-grow-more-popular-employers c.f. Lupton, 2014
- 21 <http://www.england.nhs.uk/2014/11/13/leaders-transform/>
- 22 For more on "mass personalization" see Vargha (2010). See also NIB (2015) and Accenture (2015)
- 23 <http://www.forbes.com/sites/parmyolson/2014/10/01/apple-iphone-healthkit-humana-insurance-partnership/>;
<http://www.forbes.com/sites/parmyolson/2014/06/19/wearable-tech-health-insurance/>
- 24 <http://fortune.com/2015/03/15/apples-researchkit-is-a-big-hit-at-sxsw/>
- 25 <http://www.ft.com/cms/s/0/ba07070a-86fc-11e4-8a51-00144feabdc0.html?siteedition=uk#axzz3OKpX63T0>

- 26 http://www.economist.com/news/finance-and-economics/21646260-data-and-technology-are-starting-up-end-insurance-business-risk-and-reward?fsrc=scr/In_ec/risk_and_reward;
http://www.cmo.com/articles/2015/2/17/the_cmo_com_europe_i.html?scid=social42044126&adbid=578473535607177216&adbpl=tw&adbpr=46768880; Accenture (2013; 2014); Bain and Co. (2014)
- 27 <http://www.forbes.com/sites/quickerbetteertech/2015/07/13/why-the-apple-watch-debut-is-worse-for-apple-than-glass-was-for-google/>
- 28 <http://www.forbes.com/sites/parmyolson/2014/06/19/wearable-tech-health-insurance/>
- 29 http://www.economist.com/news/finance-and-economics/21646260-data-and-technology-are-starting-up-end-insurance-business-risk-and-reward?fsrc=scr/In_ec/risk_and_reward
- 30 <http://www.bloomberg.com/news/articles/2015-03-20/dozens-of-startups-in-obamacare-s-wake-reveal-law-as-job-creator>
- 31 <http://rockhealth.com/>
- 32 <http://time.com/3751693/fitbit-ceo-medical-industry/>
- 33 Comment by Nigel Jones, of *Capgemini*

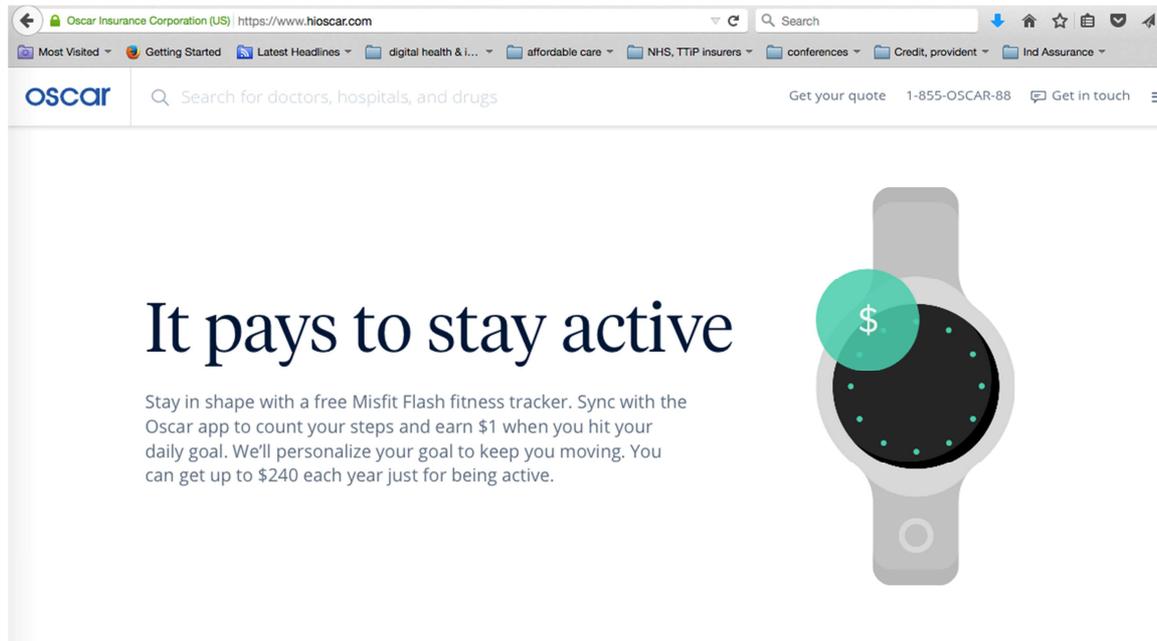
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Appendix

Figure 1



Building the Behavioural Balance Sheet: An Essay on Solvency 2

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Introduction

Solvency, the risk of insolvency and the development of metrics for determining the health and failure of organizations, have a long history (Kurunmaki/Miller 2013). Yet it is liquidity which has tended to capture the attention of economic sociologists.

Carruthers/Stinchcombe (1999) argue that liquidity in the sense of an ability to transact, requires a certain kind of standardization. Liquidity is that which makes markets work, and whose essence is circulation. The financial crisis of 2008 increased institutional attention to liquidity – or liquidity risk more precisely – and provided further impetus to the emerging discipline of the sociology of finance focused on the effects of complex financial instruments, and new kinds of market actions (High Frequency Trading for example). Illiquidity of the kind created in complex credit derivative markets even came to be described as a problem in the “sociology of knowledge” (Mackenzie 2011). From this point of view solvency is at best a matter of background interest, involving the technicalities of accounting balance sheets and the relationship between assets and liabilities. Furthermore, many apparently solvent organizations experienced drastic liquidity issues in the financial crisis; liquidity is therefore the primary concept because it “bites first” as the ability to transact. Accounting based solvency is at best a derived measure of financial health.

Despite this interest in liquidity, the focus of this essay will be primarily on solvency. Solvency conceptualizes a different conception of viability and organizational resilience from liquidity, with different temporal horizons. Furthermore, whereas liquidity and illiquidity reveal themselves at the point of transaction, solvency is a whole-of-organization concept with wider scope. This contrast is even more evident in the specific setting of insurance organizations. While such organizations must pay attention

to liquidity, solvency is the constitutive regulatory principle of their continued existence. Indeed, the specific focus on insurance regulation in what follows – on Solvency 2 – will also reveal close relationships between solvency and organizational governance. Yet the purpose of this essay is not to engage directly and more than is necessary with the technicalities of solvency or with the institutional reasons for the shift from one regulatory regime, “Solvency 1” so-called, to another, Solvency 2. It is rather to explore whether and how it might be possible to think sociologically about Solvency 2, a regulation permeated by actuarial and financial economic science, and to suggest that the transition between the two regulations reveals an important shift in the conceptualization of the organization itself, and of the calculative infrastructure which defines it. Beneath the details which preoccupy actuaries and financial economists, Solvency 2 is driven by an “insurantal model” of organizing as such. At the centre of this model is the re-engineering of the insurance organization balance sheet and its temporal modality.

The essay is organized as follows. It begins with a general account of solvency as a construct and how it applies to insurers. This is followed by an abbreviated overview of Solvency 2 and its points of contrast with its predecessor regulation, Solvency 1. Then the main argument consists of two linked parts. First there is a more detailed discussion of Solvency 2 in terms of both the financialization of, and risk-based approach to, solvency. Second, the argument focuses on the Solvency 2 requirement for insurers to assess their own risks to their solvency, in part by transforming the balance sheet from a static point in time statement into a dynamic, strategy-driven representation of ongoing solvency.

This regulatory project to build a dynamic balance sheet with behavioural traction makes Solvency 2 sociologically interesting. Indeed, accounting theorists have dreamed of dynamic accounting like this but have never managed to institutionalise it (Ijiri 1989). We know of course in general terms that human behaviour drives economic activity. This economic activity is usually recorded in the form of transactions which enter accounting systems. Accounting systems aggregate this information into performance representa-

tions – income statements and balance sheets. Yet the link between behaviour (and hence risk-taking) and balance sheets has always been tenuous: accounting systems have generated their own highly institutionalized ways of representing performance and balance sheets which, despite occasional crises, have remained substantially stable. In essence, Solvency 2 is a requirement for insurance organizations to build a new infrastructure linking their solvency balance sheets dynamically to their risk management systems and business strategy. In doing so, a new integrated representation of the organization as a time-series of balance sheets is created with the solvency construct at its heart. This, at least, is the aspiration.

Constructing solvency

Company law in most jurisdictions seeks to “regulate” solvency but it is rarely defined, even though it is normally an offence to trade while ‘insolvent’ since this misleads, and creates involuntary risk, for creditors. The details of solvency are embedded in practice norms generated by accountants. They have evolved from a combination of “change from below” via institutionally specific processes of disputation for the reconstruction of distressed entities, and pressure from above in the form of statutory prescription and global norms. Indeed, efforts to reform solvency regulation encounter diverse institutional frictions in different national contexts (Halliday/Carruthers 2009).

The technical nature of solvency seems straightforward on the surface, a mere matter of accounting. In essence it is a balance sheet concept. In other words, at any point in time the solvency relevant question is: does an entity (or even an individual) have more assets than liabilities in the form of what might be called “free capital”? If it does, we can say it is technically solvent. If it does not, then it is technically insolvent.

From this base concept it is possible to construct “solvency ratios” to reflect relationships between assets and liabilities, and to define norms of financial health. In simple terms the ratio of assets to liabilities ratio should be greater than 1.

A ideal-typical insurance company balance sheet will consist of assets – property and cash but especially investments of different kinds (equity, bonds). It will not generally have a loan book on the asset side like a bank. On the liability side of the balance sheet things are often more complex. Rather than deposits from customers in the case

of a bank, the numbers for liabilities represent an estimate of the contingent claims associated with different insurance contracts. Banks are essentially structured by, and make money from, the mismatch between the lending, usually long term, on their asset book and borrowing short via retail deposits on demand. In contrast, an insurer receives and invests premiums after costs and seeks to estimate and manage its liabilities on the insurance business which it writes. If it charges too little by way of premiums for the risk it writes, or if claims are greater than expected, then the insurer will run into solvency issues. For this reason this liability estimation process, including risk pricing, is a specialist activity usually done by actuaries who use experience data to estimate the likely claim profile on a book of insurance business. This data is used to support a “technical” process of creating “reserves” to cover the expected liabilities. This reserving is normally a way of ring-fencing or linking specific assets to the insurance risk in question – “matching” as it is called. In the case of insurance, solvency is a relationship between these liabilities, in the form of possible future contingent claims represented by reserves e.g. death or some other major health event for life insurance, and the quality of the assets held to cover them.

Even from this simplified account, it is clear that solvency for both insurers and banks is a constructed product of many underlying elements each with their distinctive institutional characteristics, not least the dependence of the valuation of certain assets and liabilities on assumptions and valuation conventions. History provides plenty of examples of companies which have “failed” because they had understated their “true” liabilities (Equitable Life) or, indeed, had hidden them from view in “off-balance sheet” vehicles (Enron). Similarly, asset values – such as loans and investments – which make an entity look solvent, may turn out to be much lower than first imagined, or even fictitious.

Furthermore, solvency is critically dependent on the underlying conception of the entity. Entities such as corporations may seem straightforward but, as the banking crisis showed, the question of solvency may depend on the attitude of creditors to seek a reconstruction, or indeed on government support. In the case of countries, as we saw with Greece most recently, solvency is more evidently a negotiated outcome between different creditors rather than a technical calculation. And as Kurumaki/Miller (2011) imply in the context of health organization failure, solvency does not have the objectivity that is usually attributed to it. Not only is it fundamentally a function of arbitrary entity boundaries and multiple relationships with claimants (e.g.

shareholders, taxpayers), it is also the product of constructed relationships between constructs in the form of financial ratios. Indeed, far from simply monitoring the health of an organization, these solvency ratios construct and perform that health itself via its representations (Miller/Power 1995; Kurunmaki/Miller, 2013:1108).

As I argue below, Solvency 2 is a radical shift in the basis of these representations and hence in the ratios that define and perform the organizational health of insurers.

Solvency 2: a brief overview

Solvency 2 is the label for a new European Union regime for the regulation of insurers and their solvency. Its birth since the original Directive in 2009 has been controversial with a number of stops and starts, but it is due to go live finally on January 1st 2016. Accordingly, 2014 and 2015 have been exceptionally busy years for European insurers as they prepare to comply with the regulations.

Insurance regulation is simple in principle: the aim is to ensure that insurers have sufficient capital to meet claims and other liabilities as they fall due. Liabilities can relate to many different kinds of risks – life, fire, marine, health, auto and so on – with corresponding actuarial and underwriting specialisms. As insurance businesses shifted from providing pure insurance cover of a general or a life-based nature towards being investment managers in their own right, e.g. providing pensions, the actuarial role has become even more critical. This was famously exposed in the UK case of Equitable Life which had written guaranteed annuity contracts which it was not able to honour, an event which triggered reform of the actuarial profession in the UK (Collins et al. 2009).

Traditionally under the original legislation dating back to 1973 – which came to be known as “Solvency 1” – solvency was conceptualised in terms of a minimum, statutorily determined capital requirement (MCR) in addition to the technical reserves for liabilities calculated on a per policy basis. Solvency 2 is much broader in scope than Solvency 1 and mirrors the structure of the Basel 2 global regulatory framework for banks in terms of three pillars, namely: technical solvency; governance and risk management; disclosure and reporting. The pressures for change from Solvency 1 to Solvency 2 are complex but broadly reflect the increased emphasis on risk management in financial organizations, and the desire to make regulation proportionate, and more sensitive to, risks in regulated

entities, something which was not the case under Solvency 1. This increased risk-sensitivity is why Solvency 2 is popularly regarded as a “Basel regulation” for insurers.

The intention of the new regulation is to articulate a conception of solvency based on a “realistic” assessment of assets and a “best estimate” of liabilities. The free assets would then be calculated after the creation of a Solvency Capital Reserve (SCR) as the aggregate of capitalized risks for various standardized risk categories – market risk, insurance risk etc. The SCR may be calculated using a standard formula or internal model, rather like the Basel regulations for banks. Whereas the MCR under Solvency 1 prescribed a minimum level of solvency capital, the SCR is intended as an economically realistic reflection of the risks in the business, which may change as the business evolves.

It is difficult to find anyone who likes Solvency 2. There are of course some – tucked away in the offices of the European Commission in Brussels and the actuarial offices of insurance firms. And there are those who benefit from the advisory market created by Solvency 2. But ask most insurance practitioners and the story is likely to be the same: costly, bureaucratic, unlikely to achieve its objectives, and even likely to generate risk aversity among underwriters. Anecdotes abound: one story, relayed in an interview with the chief risk officer of a large UK insurer, concerned an executive who offered to take a pay cut provided her new role involved no Solvency 2 work. Another concerned the “burn-out” experienced among Solvency 2 project leaders working to constantly changing regulatory deadlines.

This Solvency 2 “existential strain” is much discussed by practitioners who are close to the process. History tells us that most large scale regulatory initiatives involve frictions and issues of this kind. For example, take the early years of implementation of the so-called Sarbanes-Oxley Act in the United States with the aim of “fixing” financial reporting after a series of scandals (Enron, Worldcom), and the stories and anecdotes are much the same. Casual analysis reveals that much of this experiential friction arises from the need to build a “calculative infrastructure” (Kurunmaki/Miller, 2013) and associated data capture and information flows. Indeed, like Sarbox, Solvency 2 demands the creation of audit trails as an evidential base by which compliance with the regulations can be demonstrated.

Yet, by focusing on the pain and detail of implementation – as much practitioner commentary does – the larger idea behind Solvency 2 can often be lost from view. The next

two sections seek to position the sociological relevance of Solvency 2.

Solvency 2 and financialization: from prudence to risk

Risk and risk-taking, and hence solvency, are constitutive of the business models of insurance companies. As suggested above, at the entity level this boils down to the management of balance sheet quality and the relationship between assets and liabilities as a measure of organization health. Insurance entities have a natural self-interest in staying in business and in their solvency, but their financial viability has also been subject to a shift in the regulatory regimes and with it a change in the calculative basis of solvency.

Under the Solvency 1 regulations, solvency was determined primarily by the application of actuarial prudence. Indeed, actuaries have acquired a pop reputation for excessive prudence. In general terms this means that assets are valued at so-called “book” values or historic entry values, normally regarded as a floor or minimum value with little relation to a market value. Technical provisions for liabilities are also valued prudently, and statute applies a further minimum capital requirement. The net sum of these elements yields a figure for free surplus assets. The ratio between these free surplus assets and the minimum capital requirement became a snapshot measure of health around which regulators could focus their work. In short, all the numbers on a Solvency 1 balance sheet had prudence built into them. This has been called the traditional “accounting” approach to insurer solvency and can be represented as follows:

See Appendix, Figure 1

With Solvency 2, this prudence in creating the reserves and in recognizing the liabilities (most importantly, the potential insurance claims to be paid out) has been replaced and relocated by a risk-based approach. This approach has different measurement bases for different elements of the balance sheet above. First there is a so-called realistic valuation of assets, which equates to what is now called fair value, meaning a market or market-replicating value. This is one of the most important and controversial measurement principles in accounting in recent years, blamed in part for amplifying the financial crisis (Laux and Leuz, 2009; Power, 2010). Though it is uncontentious for valuing assets in liquid, well-functioning markets, it is more prob-

lematic when those markets fail, or for more idiosyncratic assets. Importantly, the application of fair value means that Solvency 2 numbers now correspond more or less to those in the published accounts, which was not the case under Solvency 1.

Second, liabilities are measured on a “best estimate” basis also by reference to market indicators and, for technical reserves, by generally using less pessimistic assumptions about e.g. mortality, morbidity, and other relevant loss data, than Solvency 1. So, having adopted a more “realistic” and less prudent measurement of assets and liabilities, risk is primarily dealt with explicitly by determining risk capital in relation to standard categories and sub-categories of risk e.g. market risk, insurance risk and, indeed, liquidity risk. The assessment of these risks modifies how much risk capital an insurer will need; in essence the higher the risk, the more risk capital is needed.

The different risk elements aggregate to the Solvency Capital Reserve (SCR), subject to an allowance for correlation of risks. An emerging balance sheet ratio is that of free assets as a percentage of the SCR. Finally, a further element of prudence – a risk margin – is applied. This is the cost of transferring the liabilities to another party in the event of insolvency. Insurers may use a standard approach to calculate the SCR or their own models e.g. for market and insurance risk. Capitalization is derived from various prescribed stresses applied to the business. This means that risk capital is a point within a range defined by different possible stresses. Insurers have an option to use different stresses from those prescribed by the regulator if they can justify them. The Solvency 2 balance sheet can now be represented as follows:

See Appendix, Figure 2

For all its technicalities, this transition from Solvency 1 to Solvency 2 is much more than a change in measurement method. In essence, the shift from Solvency 1 to Solvency 2 reflects the broader financialization of the balance sheet (Power 2010), and a change in the underlying conceptualization of “solvency risk” – from one based on prudence to one based on fair value adjusted for risk and subject to stress testing. Because of this fundamental change in the representation of “solvency risk,” the key ratios of health for Solvency 1 and Solvency 2 have little to do with each other.

Under Solvency 1 a ratio in the form of a solvency margin is typically calculated as:

$$\frac{\text{Available Capital (Surplus Capital + MCR)}}{\text{MCR}} \times 100\%$$

The MCR is the statutorily determined minimum capital required. So for example, for the year ended December 31st 2014 the insurer and wealth manager AXA reported a solvency margin ratio like this of 266% – very “healthy”. Under Solvency 2 the “equivalent” solvency margin ratio would be as follows:

$$\frac{\text{Available Capital (Free Surplus + SCR)}}{\text{SCR}} \times 100\%$$

Yet this equivalence is illusory because the numerator and denominators of the ratios are completely different. It is estimated that these margins will be lower in general under Solvency 2 but they cannot be compared with those under Solvency 1. In simple terms the uplift in asset values and lower liabilities under Solvency 2 are offset by a risk based reserve – the SCR. Because of this insurers with very different risk profiles might have similar margins under Solvency 1 but would be very different under Solvency 2. Whether Axa’s Solvency 2 margin increases or decreases will depend on its risk profile, leading commentators to predict that the “transparency” of risk under Solvency 2 may lead insurers to be more risk averse. It should also be noted that regulators will prescribe a minimum level of SCR – an echo of the MCR from Solvency 1.

Finally, the Solvency 2 balance sheet is also regarded as more “economically realistic,” meaning that it is constructed from and is more reflective of, although not identical to, the way the insurance company is actually run and how a market might value it. Solvency requirements now also bear a closer relationship to, and feed off, international standards for insurance accounting, although there are some important differences too. Fundamentally, Solvency 2 requires new infrastructure and data collection requirements – in essence an extensive audit trail (e.g. “look-through” requirements in the case of assets) – in order that solvency can be credibly demonstrated both to regulators and to those who run insurance organizations.

The ORSA and the dream of integration

While the shift to a more “realistic” balance sheet adjusted by explicit risk reserves is the distinguishing feature of Solvency 2 as compared to Solvency 1, in a way both are static point-in-time balance sheet conceptions of solvency. The critical regulatory innovation for Solvency 2 is the requirement for a dynamic integration of the solvency balance sheet within the wider risk management and strategy processes of the insurer. The instrument of this integration is the Own Risk Solvency Assessment or ORSA. The ORSA is a new kind of accounting statement, which encompasses inter alia:

- a narrative account of the business model, namely the products, markets and growth ambitions of the insurer;
- an account of the risk management framework and risk appetite;
- importantly, a statement of the capitalization of solvency risks, including stress tests and scenarios for arriving at such capital amounts in aggregate as the SCR;
- An overall risk profile to include all risks, not just those capitalized.
- Projections of the Solvency 2 balance sheet based on existing business plans.

So, whereas the Solvency Capital Reserve required under Pillar 1 is a specific form of risk capitalization based on prescribed stresses to the balance sheet, the ORSA requires insurers to produce their own representation of their business model, the risk management systems which underlie the production of the SCR and, using assumptions and stress tests which reflect the business, produce their own assessment of their Solvency 2 balance sheet. In addition, this balance sheet must be projected in line with business plans to provide a “forward-looking assessment” of solvency risk.

So while the SCR is the statutorily derived benchmark of periodic solvency, the ORSA requires that this measure be part of a larger organizationally-specific dynamic linking business plan formulation, specific risk identification practices, risk appetite formulation and monitoring, mitigants in the form of controls and, for designated categories of risk, capitalization. The ORSA may also contain company-

specific stress tests and scenarios designed to demonstrate continued solvency under different conditions.

The institutional ambition behind the Own Risk Solvency Assessment is considerable. In effect, the static balance sheet of accounting is being radicalised and made more dynamic by being explicitly combined with risk management. The ORSA is intended as an all-encompassing statement of strategy and related risks both at a point in time and on a projected basis. In essence, it requires the Enterprise Risk Management of the organization to be systemically integrated with the accounting balance sheet. ERM comes in many shapes and sizes but is essentially an organization-wide framework for assessing many different kinds of risks, not only those that are readily quantifiable. Indeed, via ERM, insurance organizations seek to manage risk, which they do not capitalize under Solvency 2, e.g. reputational and strategic risks.

The importance of Solvency 2 is that, via the ORSA, it is the first systematic attempt to blend practices of accounting and integrated Enterprise Risk Management, which have traditionally occupied different intellectual and practical spaces (Mikes 2009). Furthermore, the ORSA embodies a self-regulatory philosophy and places great emphasis on the governance of the dynamic solvency risk process by insurance company boards. The ORSA is intended to be a board-level and “board-owned” living document and, in essence, regulators are seeking evidence that insurance company directors are fully engaged in the process, have substantial control over scenario and stress test design, and essentially use the ORSA report, and are accountable for it as much as they are for the statutory financial accounts. As business plans and strategy changes, the idea is that this feeds automatically through the ORSA and to adjustments to the SCR benchmark.

This governance programme is in effect a dream of behavioural change at the level of the board, which then trickles down into the wider organization. In the 1990s, surveys of insurance companies revealed that Enterprise Risk Management (ERM) was alien to many of them; they did not identify and manage their many risks comprehensively and in an integrated way. Risk – in the sense of insurance risk – was the province of underwriters and actuaries, while specialist “risk managers” found themselves marginalized for many years (Power 2007). Solvency 2, via the ORSA, attempts to cut across these older resistances to ERM and to create an integrated framework. Furthermore, jurisdictional tensions and differences between the calculative

cultures of accountants and ERM specialists are, in theory at least, dissolved in Solvency 2: the balance sheet at the heart of the ORSA process is simultaneously both an accounting and a risk construct and, crucially, defines a core role of the board in an insurance organization.

Discussion: exploring the behavioural balance sheet

Insurance and its risk-taking properties fascinate sociologists for many different reasons. In part, it is because the history of insurance coincides with the history of applied probability theory and the institutional success of actuarial mathematics. It is the history of “taming chance” (Bernstein 1996). In part it is because, the collective security provided by insurance schemes is a model or metaphor of government itself subject to moral hazard (Ewald 1991). Indeed, insurance can be a form of governance of behaviour (Ericson/Doyle 2003). In part, insurance is implicated in the neo-liberal construction of thrift and the prudential saver (O’Malley 1999). And in part there is the fascination with an industry, which takes risks and operates at the limits of insurability (Ericson et al. 2004; Jarzabkowski et al. 2015).

From the point of view of these grand themes, Solvency 2 seems to be a rather sociologically uninteresting window on insurance. Yet for all the pains of its birth, and for all the technically specific requirements, which have generated a data collection and resource challenge for insurers, it may, by virtue of this infrastructural investment achieve something far-reaching. In short, underlying Solvency 2 is a radicalization of the balance sheet as a way of imagining the organization in a more explicitly future-regarding way, guided by fair values moderated by risk, not merely for external investors but also for internal actors. It does this by demanding something that accounting regulators have never managed via a new kind of accounting document – the ORSA – namely, a dynamic linkage between the balance sheet as a statement of assets, liabilities and net worth, and the risks faced by the organization and their management. Importantly, this means that “valuation” is not just a “spot” concept, a point estimate of a discrete valuation process. It is rather a temporary outcome of a broader organizational infrastructure involving stresses and scenarios, governance practices, data collection and monitoring.

From this point of view, Solvency 2 is much more than a technical regulation of solvency. It is a new way of imagining insurers as risk-takers over time. Liquidity risk is ab-

sorbed into the general risk-based conceptualization of the organization and the balance sheet is understood dynamically as a series of projections under assumptions, which must be “owned” and challenged by the most senior members of the organization.

Following Miller/Power (2013), four themes can be proposed as areas for further and more detailed research on Solvency 2. First, via the instrument of the ORSA, the Solvency 2 regime is adjudicative about the health of insurers in terms of new ratios relating the SCR to Free Capital, which can be tracked over time. The regulator can also set trigger points for intervention based on the SCR. But we know little about how the health of insurers is both constructed and evaluated in specific cases. How, for example, do regulators place weight on the technical parameters of the SCR as compared to assessing the quality of organizational governance via the ORSA? What, in short, is the working relation between pillar 1 and pillar 2? And, crucially, might insurers become more risk averse in a more “risk-transparent” regime?

Second, solvency 2 is also territorializing in the sense of delineating new and distinctive calculative spaces for organizational actors via the ORSA and its data requirements. The ORSA is a distinctive whole-of-organization representation of the insurance entity, which subsumes older representations of risk management and accounting. This territorializing role makes the insurance organization even more explicit as a risk-constituted entity. Risk is no longer buried in prudential assumptions; there is a new kind of solvency transparency supported by a new information infrastructure. So, how might this infrastructure change working practices within insurers?

Third, the ORSA is a mediating instrument in at least two senses. Firstly, it links the solvency balance sheet to the business model and its risks as noted before. Secondly, it provides a point of interface and dialogue between regulator and regulated. The ORSA is designed to be highly organization-specific and yet institutional theories suggest that insurers may converge in their business models and copy risk management systems. How might this dynamic between standardization and specificity play out in practice in the insurance world, given its apparent adverse consequences in the banking sector? Will there be enough organizational diversity in the insurance field? How will new ratios of solvency inform regulatory conversations with insurers and enable comparability?

Fourth, we can only speculate about the generation of a new kind of Solvency 2 human “subject.” But the governance requirement for board oversight and the implied personal “responsibilization” of insurance company directors suggests that senior actors, and non-executive directors in particular, will increasingly attend to, and orient themselves towards, the ORSA and its standard elements. So how exactly will the ORSA as a collective representation redefine the roles of directors, accountants, and actuaries in insurers? Might it provide, like ERM, the psychological comfort of the panoptic view (Latour 2005)? Or might the underlying demand for the auditability and transparency of solvency create risk aversity and, as many fear, a bureaucratization of risk-taking?

These are just suggestive points of enquiry. It remains to be seen what exactly the behavioural consequences of building a dynamic balance sheet will be. Solvency as a kind of financial safety is constituted through its representations, and Solvency 2 is a fundamental change to those representations. These changes are consequential for the governance of organizations, and not just for certain kinds of transaction. But far from being a specialised regulation for a specialised industry, I suggest in conclusion that Solvency 2 could even be the point of diffusion of a new model of organizational governance and accounting, which inverts the time-modality of traditional accounting.

The prevailing modality has been that of the point-in-time balance sheet in which the static presentation of history has been regarded as more reliable than the uncertain projected future. As balance sheets have begun to contain more of the so-called “fair” valuations, they have lost their foothold in the past. The underlying conception of reliability has changed (Power 2010) and they are implicitly premised on views of the future. But with Solvency 2 it seems as if this shift undergoes a further radicalisation; the financialised present of the accounting balance sheet is becoming simply a derived outcome of a continuously projected future. This is potentially a very new way of accounting for organizations, and not just insurers.

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the Universities of St Gallen, Switzerland and Uppsala, Sweden and is an honorary fellow of the Institute of Risk Management. His research and teaching focus on regulation, accounting, auditing, internal control, risk management and organisation theory. His major works *The Audit Society: Rituals of Verification (Oxford 1999)* and *Organized Uncertainty: Designing a World of Risk Management (Oxford 2007)* have been translated into Japanese.

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Appendix

Figure 1

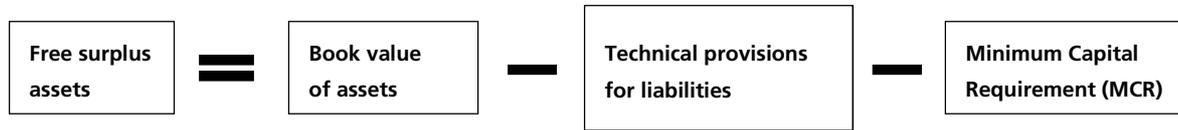


Figure 2



Book Reviews

Book: Abend, Gabriel, 2014: *The Moral Background: An Inquiry into the History of Business Ethics*. Princeton University Press.

Reviewer: Damien Krichewsky, Forum Internationale Wissenschaft, University of Bonn, dkrichew@uni-bonn.de

For over more than a century, business ethicists have formulated moral judgments on economic activity, while offering guidance to businessmen and companies seeking both righteous and profitable lines of conduct. This moral project has triggered faithful enthusiasm, but also skeptical if not scornful reactions – business ethics being for instance described as a disease which is “in principle harmless, certainly not life-threatening, but for the infected one sometime quite painful”.¹ In *The Moral Background*, Gabriel Abend steps out of these controversies by considering business ethics as a social fact. The book is not about which ethics, nor is it about ethics’ (lack of) impacts on business and society. The book examines about the social production of business-related moral normativity, i.e. “business ethicists, their practical work, and the cultural and institutional contexts in which they carry it out” (p.9).

Gabriel Abend grounds his analysis into an original distinction between two orders of morality, which draws in particular on the philosophy of John Searl, Charles Taylor, and Martin Heidegger. While first-order morality consists in formulating moral judgments, a second-order moral background creates the conditions for these moral judgments to be made. More precisely, the moral background underlies, enables, supports, and facilitates moral judgments by providing six types of resources. It offers reasons and explanations that help justify why moral conducts ought to be followed. It supplies semantics with which moral claims can be formulated (e.g. noble, virtuous, cruel, inhuman). It defines which entities can be evaluated according to moral standards, such as persons, institutions, motives, or behaviors. It suggests methods and arguments that can structure moral reasoning. It entails premises about the status of moral norms, which can for instance be considered either as universal or as conventional. Finally, the moral background covers metaphysical assumptions about the world in which moral judgments are formulated – a creation of God, for instance, or a world of soulless individuals endowed with affects, cognition and agency.

Equipped with this analytical framework, Gabriel Abend explores moral backgrounds of American business ethics. While the study’s focus extends from the mid-19th century to the 1930s, brief incursions into antique philosophy as well as contemporary discourses on corporate social responsibility help identify the roots and continuations of modern business ethics. To uncover his – mostly implicit – object, the author analyzes in great details a significant corpus of documentary sources including sermons of 19th century pastors, books and public lectures, codes of ethics, and press articles published for instance by *Nation’s Business* – a magazine from the U.S. Chamber of Commerce. These texts are complemented with parsimonious information about the business ethicists who authored them and the contexts in which they were conceived.

The result is a convincing series of insights into how different elements of moral background underlie the work of early American business ethicists. Pastors witnessing the rise of modern capitalism felt compelled to remind their flock of the villainy of greed, while exhorting businessmen to virtue, not because it pays – on Earth and in Heaven – but out of love for God’s creation. The U.S. Chamber of Commerce was more concerned with preventing costly government interventions and fighting off leftist ideologies. To this end, it used business ethics extensively to convince public opinion that “American business” was moved by a righteous quest to serve the Nation, rather than by the “sordid details of making profits” (p.175). For newly created business schools such as the Wharton School of Finance and Economy, or the Harvard Graduate School of Business Administration, business ethics provided useful resources to ascertain their legitimacy within the university landscape and in American society.

Gabriel Abend systematizes his analysis in a typology that distinguishes two moral background configurations. The background termed “Standards and Practice” (Chapter 6) is primarily positivist and relativist. Societies are characterized by moral conventions, which business ethicists can uncover scientifically in order to help businessmen take them into account. The focus is on behavior rather than essential qualities, technical semantics avoid moralistic tones, and economic success is promoted as an overt motivation for moral deeds. The “Christian merchant” background (Chapter 7) is more ambiguous and twisted. Moral

norms are conceived as absolute laws which permeate God's creation and express His will. Ethicists suggest that moral behavior leads to economic success, while immoral conduct troubles the soul and makes Hell a quite probable afterlife scenario. However, religious doctrine requires moral deeds to flow from moral motives, and moral qualities need to be constant, not opportunistic. Hence, ethicists skillfully slip their pragmatic sales pitch into a discourse that emphasizes general moral duties: God expects businessmen to be good Christians during office hours as much as during the Service, and each economic action must be subordinated to the higher ends of spiritual life.

The Moral Background belongs to the kind of books in which a demonstration is logically unfolded from the introduction to the conclusion. It reads well, and numerous lively examples make up for the slightly didactic overtone. The analytical framework is not only innovative but also productive, as it casts new light upon the social phenomenon of business ethics. Moreover, the historical approach usefully puts the ongoing claims of "newness" of contemporary business ethics and CSR into perspective. One hardly sees any difference between the trendy concept of "shared value"² and the semantics of "service" and "enlightened self-interest" which populated business ethics discourses in the first decades of the 20th century (chapter 2). Nor are codes of ethics and claims of self-regulation a new phenomenon (chapter 4). The author's ability to carefully delineate the limits of his argument conveys another quality to the book. References to patterns and probability avoid deterministic causal claims, and Gabriel Abend resists the temptation to infer statements about institutional and cultural change from his typology (pp. 263-264).

While these two limits are acknowledged, they remain frustrating nonetheless. G. Abend refers to the complex and evolving relationships between business ethics and other dimensions of "business-society" interdependencies in an almost anecdotal way. This is enough to link the floating business ethics discourses with biographic, institutional, and cultural variables. But the properties of these links, their effects, and their underlying mechanisms find little room for systematic analysis in the book. Conversely, the reader might wonder if the level of details with which the analytical framework is related to the work of selected philosophers is really necessary (chapter 1), and perhaps wish there would be less redundant arguments and examples along the way. Finally, while Gabriel Abend concludes his book with an interesting discussion on the new sciences of morality, which come primarily from neuro-science

and psychology, his critic is mostly an expression of disciplinary conflicts. The author highlights short-comings of these approaches, which bracket socio-cultural variables, and which overlook the role of background elements in the production of morality. But the critic falls short of applying the moral background framework to these new sciences of morality, which co-produce moral normativity according to their own background as much as business ethics used – and continues – to do.

Overall, *The Moral Background* is a fine piece of sociology, which combines multiple disciplinary perspectives (philosophy, history, cultural sociology, economic sociology) to craft a solid contribution to the understanding of the social production of morality in general, and of American business ethics in particular. The short-comings listed above are less about internal argumentative flaws than about analytical areas left untouched. In fact, the book opens up multiple horizons for future research, in particular for diachronic cross-national comparisons – European or Asian business ethics are likely to reveal different backgrounds than the U.S. case – and for the study of transnational processes involved in the production and diffusion of first-order and second-order morality.

Endnotes

¹Luhmann, Niklas, 2008: *Die Moral der Gesellschaft*. Frankfurt am Main, Germany: Suhrkamp, page 196, our translation.

²Porter, M. E./M. R. Kramer, 2011: Creating Shared Value. In: *Harvard Business Review* 89 (Number), 62-77.

Book: Beckert, Jens/Christine Musselin (eds.), 2013: *Constructing Quality: The Classification of Goods in Markets*. Oxford University Press.

Reviewer: Sidonie Naulin, Pacte, Sciences Po Grenoble, sidonie.naulin@iepg.fr

Constructing Quality, edited by Jens Beckert and Christine Musselin, is a collection of twelve case studies about quality construction in a wide range of fields. The chapters are distributed into five main sections (investing quality, the quality of labor, the quality of aesthetic goods, the morality of quality, and consuming quality). The main purpose of the book is to show how quality is socially constructed on

specific markets and thus highly dependent on history, institutional context, regulation, and power relationships.

The introduction, written by the two editors, presents quality as “the outcome of a construction process involving producers, consumers and market intermediaries” (p. 1). This introduction reviews the results of sociological investigations concerning quality. It is organized around three core mechanisms involved in the construction of quality: categorization (forming categories to which goods can be allocated), classification (identifying the products that fall within a given category), and qualification (ranking products within a category).

The first section of the book includes chapters dealing with the quality of investments. Zsuzsanna Vargha studies how bankers advise people on mortgages at two different periods in Hungary, and she shows how such advice affects the amount and terms of the final contract. Thus, uncertainty is not one-sided and qualities (of the product on the one hand, and of its consumer on the other hand) are discovered and co-constructed during the face-to-face selling relationship. There are no such things as “preexisting preferences”. Consequently, singularity is not only a property of the product as in Karpik or Callon’s approaches, but also a characteristic of the match.

Patrick Aspers, in his chapter on timber markets in Sweden, questions the way exchanges are realized when the quality of the product is only known after the selling. Indeed the quality of the trees standing in the Swedish forests is obvious only after harvesting. This chapter thus addresses a classical question in economic sociology with quite original fieldwork. It shows the importance of market structures, regulation, history, and ties between actors to explain the market’s existence and the risk distribution between buyers and sellers.

Agnès van Zanten studies judgment construction about schools among middle-class parents in France and their expert justifications. The author draws on pragmatic sociology and distinguishes between four categories of parents (technocrats, intellectuals, mediators, and technicians). Parents face two types of uncertainties: regarding their child (academic potential, maturity) and regarding schools (school mix, performance). What is a “good” school and how the information is gathered differ according to parents’ type.

The second section of *Constructing Quality* comprises two chapters dealing with the question of quality construction in the labor market. Emmanuelle Marchal questions the effect of “anonymous resumes” on recruiters’ judgment. From the analysis of a large-scale experiment conducted in 2010 in France, the author concludes that it “is not a good idea at all” (p. 104). It appears that it makes the recruitment process longer, that it is not always efficient since the hidden qualities can sometimes be guessed, and that the “preformatted” anonymous resume prevents the recruiters from evaluating the applicant’s ability to tell his or her career story. Thus the absence of information leading to a clear identification of individuals is regarded by recruiters as an additional source of uncertainty.

In his chapter, Philipp Gerlach investigates the evaluation practices in internal labor markets for engineers in French and German automotive firms. How do engineers become qualified as potential managers? To answer this question, P. Gerlach observes “critical moments” for the assessment of the engineers’ quality (annual interviews, career committees). He distinguishes between two different ways of dealing with uncertainty: a “technocratic” one which attempts to depersonalize evaluation using formal devices to make predictions; and a “trust based” one which relies on the personal knowledge of the person. HR experts who intend to establish a transparent internal labor market prefer the former whereas current managers favor the latter.

The third section tackles the issue of the quality of aesthetic goods. The work of Elena Bogdanova offers new perspectives on a classical question for sociologists studying quality. She studies how the quality of aesthetic goods (antiques) can be assessed in a context characterized by a temporary lack of institution guaranteeing safety in market transaction (post-soviet Russia), by an asymmetrical distribution of knowledge, and by an ambiguity of experts’ position. She distinguishes different segments of the market (high-end, middle-range, low-end) that differ according to the level of organization of the trade, and consequently to the level of uncertainty of valuation and price-setting. Her main argument is that storytelling (about the market and about antiques) is a core mechanism that reduces uncertainty and confers value in unstable contexts.

The chapter written by Sébastien Dubois and Pierre François aims at explaining how categories emerge as shared institutions by analyzing the structure of the field of French contemporary poetry. The authors examine 18

maps made by poets to describe their professional universe. They use network analysis for testing if people include the same poets within a given category (stability of classifications) and if different categories can designate the same groups of poets (substituability of classifications). Answers to these questions differ according to the location of the poets in the field.

The fourth section of the book deals with the social construction of value under moral constraints. Firstly, Frans van Waarden and Robin van Dalen question the construction of halal product quality. They identify two major sources of uncertainty regarding the quality of halal products: the absence of consensus over what is "halal" and, once a norm is established, the problem of quality assessment (whether or not the final product abides by the norms). In a context of long, global, and complex food chains, information asymmetries are strong for consumers living in Western societies. Since there is no state regulation of religious food standards, private quality certificates allow a market for halal products to exist. Those judgment devices give birth to several submarkets ("aunt-and-uncle", domestic, and export markets) with different levels of control, and thus different price ranges.

The funeral market studied by Dominic Akyel also faces moral issues. Following the perspective of V. Zelizer, the author examines how moral values "contribute to excluding certain information from the process of qualification and how market actors compensate for this" (p. 224). The funeral market is a regulated market where price competition is inappropriate since burial goods are considered as symbolic representations of the deceased. Like in aesthetic markets, one important question is: how to price something considered invaluable? The article shows that quality construction and trust building (through reputation) are closely linked in the death-care business.

The fifth section of the book offers an interesting focus of quality construction in the case of mass consumption goods. Sophie Dubuisson-Quellier argues that "consumer preferences do not exist outside the marketing work that is performed by firms and their partners [...] to build a representation of the demand" (p. 251). Marketing contributes to shaping values and value. According to her, mass consumption markets consist of leading companies that produce demand by shaping consumer preferences and defining products' features, and challengers that either supply cheap me-too products or highly differentiated niche market products.

Another chapter by Frank Wehinger deals with counterfeit goods and the problematic assessment of their quality. In the last chapter, Jörg Rössel and Jens Beckert question the relationship between two competing classification systems on the German wine market and the effects of each system on price formation. They use quantitative analysis to show that the two classification systems (one measuring the "quality in the glass" through chemical analysis of the wine, the other relying on "terroir") function as mutually exclusive strategic options for winemakers. The former is used in the "standard" segment of the market whereas the latter is used in the "status" segment of the market. Only the system based on "terroir" leads to price differentiation.

The various chapters offer different perspectives on the social construction of quality through case-studies of classification, judgment, regulation, competition between devices, pricing, etc. One major interest of the book lies in the variety of the case studies. They concern a wide range of empirical objects and countries, and the authors use different research designs, even if qualitative methods prevail. For the reader, a feeling of eclecticism may be the counterpoint of the empirical richness since theoretical approaches and level of analysis can be very different between chapters.

Book: Reichert, Ramón (ed.), 2014: *Big Data. Analysen zum digitalen Wandel von Wissen, Macht und Ökonomie*. Transcript.

Reviewer: Katharina Manderscheid, University of Lucerne, katharina.manderscheid@unilu.ch

Eight years ago, Mike Savage and Roger Burrows (2007) published a paper which was to initiate major discussions in the English-speaking social sciences (to name a few contributions in *Sociology*: Crompton, 2008; Savage and Burrows, 2009; Tinati, Halford, Carr, and Pope, 2014; Uprichard, 2013). In their paper, Savage and Burrows suggested that sociology was facing a coming crisis by neglecting the field of what they referred to as "transactional data" and "knowing capitalism". According to the authors, these developments and the era of Big Data were going to fundamentally question the role of empirical social research, theory, and causality.

Up until now German-speaking social sciences largely seems to have turned a blind eye towards these issues, in sharp contrast to the media hype around transactional data. But with his edited volume *Big Data. Analysen zum digitalen Wandel von Wissen, Macht und Ökonomie*, Ramón Reichert and his authors have produced an impressive volume and a milestone in the debate. The contributions come mainly from media and cultural studies with the volume ambitiously aiming at “creating a space of reflection for a differentiated dispute on the data based media upheaval of the present” by analysing “Big Data in its entire social, cultural, economic and political spectrum” (9). Correspondingly, and in contrast to the public discussion on Big Data, the contributions explicitly avoid issues on the normativity of the development of late modern societies and the usage of social media. Instead they analyse the impact of digitalisation on knowledge, power, and the economy with the aim of systematically elaborating on digital data practices in order to contribute to the formation of future academic cultures and epistemologies of data production and analysis (10f.).

The book is divided into five main sections: 1. Big Digital Humanities, 2. History and Theory of Data, 3. Digital Methods, 4. Dataveillance: Algorithms, Graphs and Protocols and 5. Digital Technologies and Social Concepts of Order. Contributions in the first section deal with the cultural transformations and medial upheaval of digital media culture which are introduced by a paper from the French media scientist *Bernard Stiegler*. This text, filled with cross-references to philosophical works, traces the epiphylogenetic development of cognition, technology, and knowledge in human evolution and in human memory. A more social science centred focus is presented by *David M. Berry*, who deals with the challenges of the digitalisation of scientific research as commonly described by the digital humanities. Understanding these processes constitutes, according to Berry, the precondition for understanding how computer based forms impact and mediate our experiences of present culture and society (62). Even more focused on research practices is the paper by *Lev Manovich* about the issues and methodological and conceptual challenges related to working with large datasets. Particularly against the background of the optimistic vision of Big Data as reflecting ‘the social’ in total, Manovich’s differentiated reflections on the character and accessibility of Big Data constitute a foundation for further social science discussion on implications for research and methods training. The final contribution to the first section by the media scientist *Frederica Frabetti* concludes that the focus on the mutual

constitution of technology and concepts of being-human should entail a critical reflection on digitality, especially the impact of omnipresent algorithms. She concludes with some political questioning of the instrumentality of technology and knowledge which challenges the view of knowledge as a commodity and universities as demand-oriented service institutions (101).

The second section of the book on the history and theory of Big Data starts with a paper by the US-American anthropologist *Tom Boelstorff* on the construction of Big Data in theory, reflecting on terminologies and concepts. As an outline of a broader theoretical view of the phenomenon, he highlights the principally temporal dimension of data under the term “dated theory” (108); second, he criticises the distinction of metadata and zero order data as a cultural and political distinction; third, he focuses on the tension of volitionally and unintentionally produced data and; fourthly, he draws on Lévi-Strauss’ triangulation of raw, cooked, and rotten in order to question the idea of raw data as pre-interpretative facts (120f.). He concludes, drawing on Geertz, that data is compact in the sense that it always already represents our interpretation of how other humans interpret their own practices and the practices of their fellow humans (124). The historian *Daniel Rosenberg* traces in the following paper the history of the term ‘data’ using Big Data sources (Google Books and Google Ngram as well as the database *Eighteenth-Century Collection Online*) in combination with qualitative case analyses. He thereby argues that data contains no truth or reality beyond the reality we construct on its basis (155). The German media researcher *Theo Röhle* also takes a historic approach by outlining some parallels to the debates around “New Political History” which took place in US-American history in the 1960s and ‘70s. Concluding, and as desiderata of the current debate around Big Data, he highlights the analysis of media technological conditions and the impact of external economic aspects (168f), and also warns of optimism with regard to the new promises and possibilities of Big Data. The final contribution to the history section is written by *Richard Rogers* and focuses on the status of the internet as a data source for social and cultural studies, pointing at the challenges of the chaotic structure of the data.

The third section, entitled *Digital Methods*, discusses the challenges of Big Data for research practices by presenting various empirical analyses. On this topic, *Jean Burgess* and *Axel Bruns*, Australian creative industry researchers, discuss issues around the analysis of Twitter data, thereby direct-

ing attention to the technological and organisational challenges of academic Big Data analyses. These consist of the limited availability and accessibility of social media data on the one hand (197), and of a lack of “code literacy” in media and cultural studies on the other (192f, 200). Also dealing with Twitter as a data producer, *Caroline Gerlitz* and *Bernhard Rieder* discuss sampling strategies, contrasting topic-centred samplings using hashtags with snowball samples starting at a set of user accounts as well as metadata-based marker samples. Their own suggestion consists of a random sampling strategy using the Streaming Application Programming Interface (API) in order to assess the relative meaning of user practices such as the usage of hashtags (217). Yet neither of the two Twitter contributions reflects on the relevance and scope of their research beyond the media itself; on what the practices represent and what kind of population is observed. The third paper of this section, by the two communication researchers *Merja Mahrt* and *Michael Scharkow*, gives an overview of the state of the discussion on methods regarding Big Data, which would have been a good introductory paper for the whole section. Focussing again on Twitter, the GESIS researcher *Katrin Weller* bibliometrically analyses publications with regard to the year of publication, research institutional affiliation of the authors, and data access and analysis strategies, showing that Twitter research does not at all describe a closed field but a highly dispersed and disconnected community of various disciplines. Reflecting once more on the character of social media data, *Johannes Paßmann*, scholar of German studies, states the impossibility of controlling future contexts of data usage at the time of inscription (265) after dealing with general issues on the reflexivity of social media data.

The fourth section of the book on algorithms, graphs and protocols is dedicated to social steering processes and political aspects of power, which are inherent in the production of data-generated research and material-data cultures. The common focus of the papers assembled here consists of the political relevance of software as well as digital media technologies (23). The section opens with a contribution by the media scientists *Alexander R. Galloway* and *Eugene Thacker*, analysing networks on a micro-technical level of non-human machine practices (290). This demanding text aims at differentiating the relations between power, control, and network and, by introducing the idea of a counter-protocol, it suggests a concept of political resistance into the context of networks (308ff.). But for readers with less knowledge of these issues, this last point in particular remains rather vague. The next pa-

per, by the philosopher and activist *Matteo Pasquinelli*, elaborates on the understanding of information with regard to labour, added value, and machines, by drawing on the works of Marx, Alquati, Deleuze and Guattari as well as representatives of Italian Operaismo: Lazzarato, Virno, Marazzi and Vercellone. His central argument is that machines – and thus also information technologies – have to be analysed as part of their social and power-structured context (319, 325, 329). What is more, information contains a specific value-adding dimension which materialises in the “Big Data society” with meta-data as a measure of the value of social relations and the improvement of the design of machine intelligence, as well as the prediction and control of mass behaviour (328). Thus he calls for attention to, and analysis of, the political dimension of these new forms of data (329). The paper following by *Annika Richterich* deals with the well-known analysis of Big Data using Google Flu Trends as a prognosis tool, a usage seemingly in the interest of the public. The problems she identifies consist not only of methodological issues such as the instability of the model (351f), but also of the corporate possession of epidemiological data and issues of data privacy. Next, the media scientist *Christoph Engemann* looks at the link between Big Data and transactionality. His genealogy of transactionality brings a fundamental paradigm shift within databases to the fore, in the sense that under conditions of Big Data, all communication and events are potentially relevant for transactions and thus lose their former voluntarism (377).

The fifth section of the book, entitled “Digital Technologies and Visions of Social Order” focuses on the interrelations between technological infrastructures and concepts of the social. It starts with another historical case, the Community Memory project of the 1970s, which is presented by the media scientist *Stefan Höltingen* in order to show the pre-structuring forces of technologies, hardware, and software interfaces on social practices. *Regine Buschauer*, a researcher on mobile media and information and communication technologies, presents a techno-historical reflection on the networking of social realities by tracing the *topos* of railway lines as a technological nervous system (407ff.) and by sketching a genealogy of forms of mobile sensing within the history of mobile communication (412ff.). Yet, in contrast to a self-image of technology as rigid, fixed and closed, Buschauer argues in favour of a perspective on technology “in all its emergent messiness” (429) which means that “we will always be assembling heterogeneous technologies to achieve individual and collective effects, and they will almost always be messy”

(Bell/Dourish 2011: 26, quoted in Buschauer: 427). *Ramòn Reichert*, the editor of the volume and Professor for New Media Studies at the University of Vienna, focusses in his contribution on the role of technologies of knowledge and power within the process of generating ever more data of the social, distilling through his analysis a performative impact of corporate Big Data analyses on present and future subjectivities and individualities (447). On a similar theme, the final article written by *Martin Doll* addresses the forms of communities and socialities which are constituted and performed by social media practices, drawing on the role of print media practices within the constitution of national imaginaries, as elaborated by Benedict Anderson.

In sum, the contributions to the volume 'Big Data' represent an overdue and tangible landmark within the emerging German debates around digitalisation, the potential and dangers of new forms of data, and the implication of these developments for the social sciences. One of its achievements is to draw attention to the material and technological foundations of data production and resulting forces which tend traditionally to be ignored in social science research (cf. Kleiner, Renschler, Wernli, Farago, & Joye, 2013). Yet, in order to fully define the field of Big Data research and methodology, the volume lacks foundational clarifications of what is new and different other than the size of Big Data in comparison to conventional social science data. Beyond reflections on the character of the data and the interrelations of technology and the social, the implications for social science research, for instance the kinds of research questions and designs the new form of

data allows for, thus remain unaddressed. However, the gap between the public hype and the academic abstinence from Big Data analyses could be connected to the lack of theoretical frames and research problems, which transactional data for example may be able to answer. Furthermore, basic introductions of relevant concepts as a basis for further discussion remain missing. Some of the texts have been published before (and yet, the original publications are not mentioned) and are in parts translated from English into German in a rather doggerel fashion, and although they refer to other authors of the book, there are no cross-references of insights between the papers.

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PhD Projects

Underwater: Floods and the Social Classification, Pricing, and Distribution of the Risks of Climate Change in the United States

Institution: University of California, Berkeley

Author: Rebecca Elliott

Underwater: Floods and the Social Classification, Pricing, and Distribution of the Risks of Climate Change in the United States, shows how, and to what effects, the American welfare state manages the escalating costs of more frequent and severe natural disasters by pricing them into insurance, with an empirical focus on the U.S. National Flood Insurance Program (NFIP). The NFIP, the public insurance program that underwrites virtually all flood insurance for homes and small business in the U.S., is under intense strain, struggling to pay claims and \$25 billion in debt to the U.S. Treasury after Hurricanes Katrina and Sandy. With sea levels rising and storms intensifying, federal reforms to the NFIP in 2012 and 2014 animated debate about the significance of risk pricing as a matter of climate change adaptation. Would individuals be left to bear the full weight of the apparently increasing cost of flood risk? Should the NFIP “price out” homeowners in risky areas, forcing them out of harm’s way? Contestation surrounding these questions – fundamentally about the social contract in the context of natural disaster – took shape on the terrain of the NFIP’s reformed risk classification, calculation, and distribution processes.

Drawing on qualitative and quantitative data, I trace these processes, and argue that they act as channels through which this particular climate change burden, of more frequent and severe flooding, is individualized. Specifically, updated official risk classifications, combined with changes to the calculation of insurance premiums, shifted more financial responsibility from the state to individual policyholders, who had to find ways to mitigate the risk and its cost. Building on political sociology on the risk management institutions and practices of the welfare state, the dissertation analyzes how the state carries out the shift of flood risk in practice, how people and communities experience it on the ground, and how struggles over these public insurance processes interact with more general questions

of welfare state provision and retrenchment. The qualitative data presented in the dissertation derive from archival and documentary materials, 65 interviews, and ethnographic work over the course of October 2013–November 2014. The quantitative data, used to generate a socio-spatial account of the cost burdens of flood insurance in New York City (the first major U.S. metropolitan area to experience the NFIP reforms), come from publicly available flood risk, insurance, and demographic data from the Federal Emergency Management Agency, the City of New York, and the U.S. Census.

In addition to engaging political sociological questions about risk and the welfare state, *Underwater* develops lines of analysis from economic and environmental sociology. I engage scholarship on calculation and economic devices to better understand the conflictedness and ambivalence that calculations of risk and its price generate as actors on the ground implement redistributions of risk. In addition, *Underwater* contributes to environmental sociology on climate change with its account of reactive adaptive responses to climate change. While we now know a great deal about the social contours of vulnerability to climate change hazards themselves, we know less about how the policies and programs that cope with those hazards might also be socially patterned and significant.

Legal Fictions and Economic Realities: an Ethnographic Study of Antitrust Policy in Brazil

Institution: Federal University of Rio de Janeiro, Brazil

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This dissertation is an ethnographic study of the regulatory knowledge practices performed by the Brazilian antitrust agency. This governmental body, linked to the Ministry of Justice, is responsible for the enforcement of Antitrust law, by reviewing mergers and acquisitions between companies and investigating anticompetitive conducts in markets – such as cartels, predatory pricing, tying, among

others. Fieldwork was conducted during two years inside the federal autarchy building in the country's capital, Brasilia, and involved accompanying the civil servants who administer antitrust proceedings.

The research, which takes its theoretical inspiration from the literature of anthropology and sociology of markets and the anthropology of knowledge, aims at describing how economic and legal analyses are performed in an antitrust agency. As pushed forward by recent ethnographic studies of markets, which suggest that markets are constructed by governmental technologies, calculation devices and economic theory itself, I am interested in describing how markets, corporations and competition are continually being redefined in the work of antitrust regulation. The main research questions have to do with the most common problems faced by analysts/regulators when working on antitrust administrative proceedings: (i) the difficulty in defining or framing *markets* in order to specify the geographical area and product being affected by a merger; (ii) the problems faced in identifying "economic groups" or "competitors" – the economic agents involved in a market; and (iii) the investigation undertaken in order to understand consumers' behavior.

The research is also attentive to issues that surround these analytic practices, such as: (i) the epistemological differences regarding the way legal experts and economists define their practices and understand the tools with which they work; (ii) the personal or professional lived experiences of regulators that are used to understand market practices; (iii) the role of documents, worksheets and communication techniques in regulation; and (v) the culture-making aspirations of regulators. The dissertation argues that "competition" is enacted through a series of visual and documentary practices which produce forms of differentiations that can be approximated to "market competition" itself.

Finally, the ethnography also aims at understanding in what sense the practices performed by regulators can be compared to anthropologists' (or sociologists') own ethnographic and investigative practices. This is because a lot of these analysts and regulators pose very similar questions to the ones that sociologists and anthropologists ask when studying markets. This research intends to approximate these two forms of understanding markets (in regulation and social science) in order to consider the possibilities of studying ethnographically markets when our own

research subjects are building and thinking about them simultaneously with us.

Financial Infrastructure and Market Systems: Building Futures Markets on the Chicago Board of Trade and New Orleans Cotton Exchange

Institution: University of California – San Diego

Author: David Pinzur

The social underpinnings of economic markets have been a topic of sociological study since the founding of the discipline. Today, economic sociologists can draw on multiple concepts – including institutional fields, network linkages, socio-technical tools and cultural understandings – to analyze the structures of both primary markets (where physical goods and services are bought and sold) and their derivative financial markets. But, in focusing on the social structure of individual markets, prior research has failed to investigate the foundational linkages formed between spot and financial markets. My research highlights this socio-technical infrastructure (Bowker and Star 2000; Knorr-Cetina 2005; Pinch and Swedberg 2008) and the paired spot – financial market systems it creates. I compare the establishment of futures markets on the Chicago Board of Trade (CBOT) and the New Orleans Cotton Exchange (NOCE) in the decades following the Civil War, focusing on the interfaces linking these new futures markets to extant markets in agricultural commodities. My data come from multiple primary sources, including archival documents and publications from the exchanges, newspapers and trade magazines, congressional testimony, and court proceedings, as well as secondary histories.

I ask three related questions about these connecting infrastructures: (1) How did they differ across the two exchanges? (2) What social features of the exchanges led to their dissimilarity? (3) What effect did their differences have on the behaviors that emerged on each market?

I find, first, that these two exchanges built vastly different infrastructures linking their new future and extant spot markets. This included both material differences, as in the systems for grading and classifying physical commodities,

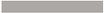
and ideological differences in traders' economic theories about the relationship between financial speculation and spot dealing. Second, I find that these differences were shaped by the economic, political, organizational and cultural environments of the exchanges. For instance, CBOT's infrastructure was greatly impacted by the desires of railroad companies, and shaped by sustained agrarian social movements against futures trading; NOCE's infrastructure reflected the long history and cultural significance of cotton trading in the South, as well as its subordinate position to the New York market. But these infrastructures were not mere reflections of broader social forces. They were also independently affected by the material demands of producing, exchanging and consuming wheat and cotton: differences across commodities in methods of storage and

amenability to processing had distinct effects. Finally, I argue that these divergent infrastructures can explain why, during the years of my study, CBOT's market lurched from one crisis to the next, while NOCE's ran fairly smoothly. The system created in Chicago hurt the spot market and discouraged hedging, promoting an unbalanced speculative market, while the infrastructure in New Orleans privileged the trade in actual cotton and promoted a close connection between spot and future markets.

Focusing on the infrastructural connections between markets is unorthodox. But it enables a powerful new understanding of financial markets as fundamentally linked, socio-technical objects, which reflect and shape the social and material environments they span.

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