

The Attractions of
Risk-based Regulation:
accounting for the emergence
of risk ideas in regulation

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The Attractions of Risk-based Regulation: accounting for the emergence of risk ideas in regulation¹

Bridget M. Hutter

Introduction

Recent decades have witnessed a massive growth in academic studies of risk and the rapid development of a risk industry (Gabe, 1995). In many respects risk has become a new lens through which to view the world. This can be seen in business, government and also in academic studies where conversations about risk grow ever popular. Regulation is no exception and during the 1980s/ 1990s regulatory discussions in a number of countries incorporated an imperative to adopt risk-based strategies and tools, in some cases heightened by the state's co-option of corporate risk management systems (Hutter, 2001; Power, 1999). This discussion paper will draw on the British experience as its main exemplar but in the expectation that this case can provide insights which help us to understand and explain the emergence or absence of risk-based ideas elsewhere. We will focus on some prominent examples of risk-based regulation, and critically examine why risk approaches, tools and language appear to have gained currency and the related issue of their merits and limitations.

The Emergence of Risk-based Regulation: setting the scene

Central to our understanding of the popularity of risk based regulation is an appreciation of the wider governmental and regulatory contexts which appear to have been conducive to the emergence and development of risk-based approaches. The importance of these factors is apparent in the British case, particularly in the 1980s/ 1990s, the period when risk-based approaches first emerged as particularly important in Britain.

In the 1980s/ 1990s a number of advanced industrial societies experienced a so-called 'regulatory crisis' overlapping with the emergence of what some term the 'regulatory state'. There was a strong deregulatory rhetoric, centring on alleged over-regulation, legalism, inflexibility and an alleged absence of attention being paid to the costs of regulation. Regulatory officials, policies, agencies and rules were all subject to criticism and political attack. They were accused of 'burdening industry' and inefficiency and ineffectiveness in their own operations. During the mid 1980s Britain witnessed waves of deregulatory initiatives concerned with the costs of compliance, the over-regulation of business and

¹ A version of this paper was presented at the Policy Research Initiative Conference on Instrument Choice in Global Democracies, 26- 28 September 2002, McGill University, Montreal and is published in Eliadis, P, Hill, M. and Howlett M. (2005), *Designing Government: From Instruments to Governance*. Montreal, McGill-Queen's University Press. I am indebted to Sarah Amsler, Gwynne Hawkins and Jim Ottaway for their assistance in collecting data and also to Michael Spackman and the anonymous referees of this paper for their helpful comments.

institutional reforms to control this. These deregulatory initiatives were re-launched in 1992, culminating in 1994 with the Deregulation and Contracting Out Act and the establishment of a Deregulation Task Office². A further re-launch took place in 1995. Similar measures were taken across Europe, dating from the mid 1980s and with a similar emphasis on costs (Majone, 1990). Meanwhile Reagan's America had a parallel rhetoric of 'regulatory relief' entailing reducing government intervention into economic life (Breyer et al, 1999).

This climate is associated with a number of governmental changes and especially relevant here is the set of changes often termed the 'new public management' (NPM)³. Hood identifies seven doctrinal components of NPM; four of these are of particular relevance to this discussion, namely 'explicit standards and measures of performance'; a 'stress on private sector styles of management practice'; 'hands-on professional management' in the public sector and a 'stress on greater discipline and parsimony in resource use' (Hood, 1991: 4- 5). These components are important in two regards. First, for the pressures they put on regulators in terms of how they conducted their own operations, and second for the pressures they put on the regulators in their dealings with business. In terms of their own operations regulators were forced (along with the rest of the civil service) to legitimate their own activities. So they had to demonstrate that they were 'performing' both efficiently and effectively, that they were not wasting resources and that their activities were making a difference. In short they needed to prove that they were delivering 'more for less' and account for the allocation and prioritisation of their resources. But costs were not just relevant in terms of the regulator's own activities, but in accordance with the deregulatory rhetoric of the time, account also had to be taken of the costs imposed by government on business. In both their own operations and their dealings with others there was also an emphasis upon accountability and the need for public agencies such as regulators to account for their demands on others and be transparent in their own operations.

Generally there was an emphasis upon adopting private sector styles of management and an almost unthinking acceptance that private sector practices were the benchmark against which to assess public sector activities. In Britain the adoption of risk management in government is clearly related in the National Audit Office report on risk in government (2000: 40) to the influence of corporate governance codes, notably the Cadbury Report (1992), the Hampel Report (1998) and the Turnbull Report (1999). The Turnbull Report is identified as especially significant as a voluntary code which adopts a risk based approach to designing, operating and maintaining a sound system of control in business financial management, in particular it supports a top- down, integrated corporate risk management policy. The ideal is that risk is analysed, controlled, communicated and monitored. In other areas risk based models were adopted from industries such as the chemicals industry, many years before the corporate governance codes which informed the NPM and modernisation initiatives.

Such a climate arguably created and sustained an environment which favoured the adoption of approaches which incorporated costs benefit analysis, were apparently 'objective' and apparently transparent. Risk based approaches appear to satisfy these criteria with the added bonus of coming from the business sector. Risk based tools came to be seen as efficient instruments for making policy choices and aiding in decision- making. They were well regarded as particularly helpful in resolving any 'conflict' between differing interests groups when determining appropriate levels of risk management. Their apparent objectivity and

2 Froud et al (1998) report that the failure of the 1985 wave to effect cultural change led to the 1992 re-launch.

3 Some scholars dispute the relevance of the term NPM. See for example, Rhodes, 1997.

transparency could be used to explain the allocation of resources, in a way which was well tested and trusted by the business community.

The potential for risk models to legitimate regulation is particularly heightened in an environment where government is less direct and less visible (Howlett, 1999; Salamon, 2002). And from the mid-1990s onwards government did become less direct and less visible. This period has witnessed what some commentators refer to as the rise of the regulatory state. The regulatory state has a number of characteristics, prominent amongst these is the decentring of the state. This involves a move from public ownership and centralised control to privatised institutions and new forms of state regulation. Market competition is encouraged and regulation becomes fragmented, involving the existing specialist regulatory agencies of state and also self-regulating organisations, regimes of enforced self-regulation (Braithwaite, 1999) and American style independent regulatory agencies (Majone, 1994; 1996).

Accompanying these changes is a new regulatory role for the state focused on oversight of private and state regulatory provision (Osborne and Gaebeler, 1992; Scott, 2000). Indeed the state has become both the object and subject of regulation (Braithwaite, 1999). This has involved increased systematisation of governmental approaches to regulation, which is itself furtherance of a broader societal/ governmental trend to 'modernise' government by running the administration as a business and increasing the accountability of the administration to both government and the people (Hood and Jones, 1996; Power, 1997). In Britain this has included a call for evidence based policy- making. It has also involved a systematic attempt by government to introduce business risk management practices across the public sector. In 1999 for example the government white paper *Modernizing Government* emphasised the importance of improving the way in which risk is managed in government. As part of the modernising government programme the National Audit Office undertook a survey and report about the application of risk management techniques in government (NAO, 2000), a report which offered guidance about promoting risk management approaches. This work was further supported by the Regulatory Impact Unit which is based in the Cabinet office and demands that proposals for new regulations are subject to a regulatory impact assessment which assesses the impact of policy options in terms of the costs, benefits and risks of the proposal. In 2002 the Cabinet Office Strategy Unit published a report setting out a programme of action for improving government handling of risks. Its concerns were twofold, first to address business risk management in government and second, to propose principles to guide handling and communicating risk to the public, an essentially regulatory role. All of these initiatives have furthered the prominence of risk discourses and the promotion of risk-based thinking in government. However, the emergence of ideas about risk in the regulatory arena is more one of drift than domination and as we will see the connections between the two vary widely.

Risk and Regulation

The term risk-based regulation embraces a very broad range of approaches. In some cases regulatory agencies seem to talk of risk-based regulation as if it represents an entire perspective or framework of governance, in other cases it is used much more loosely to refer to an ad hoc scenario involving the piecemeal adoption of risk based tools and an uneven use of the language and rhetoric of risk. The elements of risk-based approaches are various. At a minimum they entail the use of technical *risk-based tools*, emerging out of economics (cost-benefit approaches), and science (risk assessment techniques). Hood et al (2001) refer to this as a move to a 'cost benefit analysis culture' that is a move away from informal qualitatively

based standard setting towards a more calculative and formalised approach. Integrated and more holistic approaches to regulating risks may be involved, this involves co-ordinated approaches to risk management which conceptualise risks as interrelated to each other and as having potential consequences for broader economic, natural, social and political environments. These features may be reflected in the institutional geography of regulatory agencies, for example a move from sector related regulation to domain related regulation. This might involve the existence of umbrella agencies which take a broader more integrated view of risk management, which co-ordinates across and between sectors and where knowledge is cross fertilised and shared. Another possible element is the use of risk based templates as animating ideas which organise institutional geography, regulatory approaches and even the expectations that regulators place on those they regulate. The extent to which regulators are characterised by some or all of these elements undoubtedly varies.

We do not have data which reveal the extent to which regulators have actually bought into the various elements of risk based regulation but we can give the subject of the emergence and development of notions of risk in regulation preliminary consideration through analyses of regulators' websites and written documentation. Agency websites reflect the ways in which they wish to portray themselves. Often this may be an ideal portrayal, which does not match up precisely with what they actually do, but such data sources do offer opportunities for some preliminary appraisals to be made. At the most simplistic level we can examine the extent to which regulators purport to frame their activities in terms of risk. This can be gauged by the use of risk concepts and language on the website, by references to the use of risk based tools and in some cases by explanations of a move to risk based approaches. In other cases these references and explanations will be absent suggesting that in these cases regulators are not so wedded to risk based regulation, although it must be re-emphasised that this is an inference which needs following through with other research methods, including interviews and ethnographic work.

Risk-based Initiatives

A website review of regulatory initiatives suggests that agencies which appear to have taken on a much more total and systematic risk-based approach are noticeable in the UK, US and increasingly in Australia and Canada. Here there has been a self-conscious shift to risk management strategies as ways of orienting regulatory activities and organising governance structures and philosophies. In other cases a partial buy-in to the risk philosophy is in evidence, sometimes this is manifested simply by the use of the language of risk, in others this is supported by the use of risk-based tools of assessment. Some Scandinavian and European regulators exemplify agencies adopting risk-based tools on an ad hoc basis or exhibiting a partial buy-in to broader risk philosophies. It is possible that in some cases we need to look for a proxy to the word risk; for instance, notions of sustainable development and the precautionary principle may be relevant. Germany is a case in point. German agencies' websites rarely use the language of risk, yet there is evidence of a move - for example, in environmental and occupational health-and-safety regulation - to develop more systematic quality targets and evaluation techniques (German Berufsgenossenschaften 2002). Moreover, the precautionary principle is prominently on the agenda in German regulation. But while this principle has affinities with risk-based regulation, it does not on its own constitute evidence of such regulation.

Variations in commitment to risk approaches are not simply national but vary between domains and over time. Environmental regulation in Britain was until recently an illustrative

case of a partial buy-in to some aspects of risk-based regulation rather than a full commitment to the approach. The Environment Agency (EA), which is responsible for environmental regulation in Britain, employs a range of quantitative and qualitative risk assessments, distribution modelling and hazard identification techniques and impact assessments across the full range of agency functions⁴. But until recently there was little sense emanating from the Agency's website and documentary sources that these tools were being used in a context where risk-based philosophies and attitudes were at all prominent. Indeed a website survey in 2000- 2001 found very little reference to the term risk in Agency publications and little evidence of an adherence to risk based philosophies. However there was discernible change in late 2004 when the Agency published its discussion paper *Principles of Modern Regulation* which was interestingly described as a 'contribution to the modernisation debate'. This document contrasted traditional and modern regulation identifying the latter as outcome focused, risk-based and cost effective. While the document is not as completely risk based as some other UK regulators (see below) it is significantly different from earlier EA documents. Indeed, in contrast to 2000 the 2005 website does have a section on risk which outlines its approach to 'risk science' and identifies a 'Risk team' which, among other things, '.. will ensure that sound risk science underpins decision making across the Agency and that risk-based approaches are firmly embedded, wherever appropriate' (<http://www.environment-agency.gov.uk/science/>).

Examination of the available material indicates that some regulators have for some time regarded risk-based regulation as a new form of governance. In these cases regulators frame their whole structure and approach around an overall commitment to a risk based approach typically in a very self-conscious way. Australia's environmental, financial and occupational health and safety regulators have incorporated elements of risk theory and management onto their online publications and strategic plans. The Australian environmental agency self-consciously explains that their risk management approach has evolved from 'a prescriptive regulatory approach' to more 'sophisticated, performance-based approaches' (Environment Australia, 1999). The Canadian government explains the transition in terms of its modernisation programme (Treasury Board of Canada, 2001) and the Environmental Protection Agency (EPA) in the US explicitly announced its intention to transform from a 'reactive agency' to a more proactive and preventative one (US EPA, 1990)⁵.

A prominent example of an agency which self-consciously signalled its intention to adopt a risk based approach from the moment of its establishment is the UK's Financial Services Authority (FSA). In their document *A new regulator for the new millennium* FSA explains that their operating framework '... is founded on a risk-based approach to the regulation of all financial businesses..' (FSA: 2000). In a later document they repeat their 'intention to move to a new risk-based regulatory approach' and set a timetable for so doing (FSA, 2001: 1). It further explains that implementation would involve 'developing a single risk-based approach for use across all sectors, markets and firms which the FSA will regulate' (FSA, 2000: 33). The FSA's discussion of its risk-based approach is interesting for it applies to its own operations the model it advocates for others, thus simultaneously attempting to be transparent in its own operations and offering an ideal typical example for others to follow. The Canadian financial regulator, the Office of the Superintendent of Financial Institutions

4 See Pollard (2001) for a comprehensive discussion of current approaches to risk assessment being used in British environmental control.

(OFSI), introduced a similar framework, rationale and tools in the late 1990s (Department of Finance, 1996).

Another UK agency was one of the earliest and most prominent examples of a regulatory agency adopting a risk-based approach to regulation, namely the Health and Safety Executive (HSE), which is responsible for occupational health and safety in the UK. HSE started to develop a more systematic risk based approach to its work in the 1980s, symbolised in 1988 by the publication of a landmark document *The Tolerability of Risk from Nuclear Power Stations*⁶, in which it attempted for the first time to outline its approach and philosophy for regulating industrial risks. The document outlines an approach which focuses on determining the tolerability of risk⁷. Accordingly a framework of assessment is proposed which applies the principle of reasonable practicability so that ‘... the higher or more unacceptable a risk is, the more, proportionately, employers are expected to spend to reduce it... . Where the risks are less significant, the less, proportionately, it is worth spending to reduce them and at the lower end of the zone it may not be worth spending anything at all (1992: 10). This document, like its 2001 HSE successor *Reducing risks, protecting people*, stressed the commitment of the agency to risk based approaches to regulation and self-consciously sets out a framework for reaching decisions about the acceptability of risks.

Risk-based Tools

In the more self-consciously risk-based systems the use of technical risk-based tools derived from economics and science are portrayed as an integral part of the broader systematisation of regulation. This is well explained by the Australian mining series on environmental risk management (ERM) (Environment Australia, 1999):

... just as risk management has been an inherent form of mining activities over the years, so has some implicit form of risk assessment. What is new is the formalisation of risk assessment and management processes, the increased and increasing emphasis on environment protection and management and regulatory requirements being developed for ERM.

The two British examples illustrate the incorporation of these tools within the broader risk-based framework. The FSA’s approach incorporates a range of risk assessment procedures developed by some of its predecessor bodies. For example, the banking supervisors at the Bank of England had developed the RATE (Risk Assessment, Tools of Supervision and Evaluation) approach and the Securities and Futures Authority had developed a broadly similar approach known as FIBSPAM (Financial Stability, Quality of Systems and Internal Control Quality of Business Supervisory Complexity, Quality of Personnel and Management). An interesting aspect of the approach is that the FSA attempts to objectify its approach through quantification:

6 This document was partly a consequence of the Sizewell B inquiry in which the Agency was challenged to define its regulatory position with reference to the building of a nuclear power station.

7 Tolerability ‘... refers to a willingness to live with a risk so as to secure certain benefits and in the confidence that it is being properly controlled. To tolerate a risk means that we do not regard it as negligible or something we might ignore, but rather as something we need to keep under review and reduce still further if and as we can.’ (HSE, 1992).

It involves scoring the risk against a number of probability and impact factors. The probability factors relate to the likelihood of the event happening and the impact factors indicate the scale and significance of the problem were it to occur. A combination of the probability and impact factors gives a measure of the overall risk posed to the FSA's objectives. This will be used to prioritise risks, inform decisions on the regulatory response and, together with an assessment of the costs and benefits of using alternative regulatory tools, help determine resource allocation (2000: 15).

More generally the risk approach centres on determining probability and impact factors, deciding on regulatory response, the development of regulatory tools and most importantly informing allocative decisions in deploying limited resources.

Likewise HSE employs a number of risk-based tools. The 1988 approach involved risk assessments about such matters as plant reliability and risk of plant failures; quality of the plant and its operational procedures; individual risk; and societal risk. In addition an array of other risk-based tools were used. In the 1990s these included, for example, total quality management (TQM) and safety cases were also introduced as a basis for risk regulation in occupational health and safety (Dalton, 1998). The safety case approach to health and safety was advocated by the Cullen Inquiry into the Piper Alpha explosion in 1988 (Department of Energy, 1990). Since then it has been promoted by HSE as a major tool of inspection and self-regulation. This approach requires companies to carry out formal safety assessments of serious hazards and risks in the workplace and to explain how these are being managed. They include consideration of safety policy, risk assessment, safety management systems, safety standards, accident investigation, the design of premises and plant, and provision for audit. The importance of risk based tools and perspectives in the area of occupational health and safety area is further evidenced by the creation in 1996 of the UK Interdepartmental Liaison Group on Risk Assessment (ILGRA) which was set up so that senior policy makers could consider 'more efficient and effective ways for regulating and managing risks' (1998: 2). The Committee was chaired by HSE's Chief Scientist and it published a number of influential guidance papers on risk assessment before it was closed and its work taken over by the Treasury's Risk Support Team.

The precise ways in which ideas of risk have permeated regulatory debates and approaches is presently unclear. What is apparent is that the emergence and adoption of risk-based ideas varies both across countries and across domains. In the UK two significant reports (NAO, 2000; Cabinet Office, 2002) evidence that attempts to introduce risk management templates into public administration has met with a very uneven response across government. Likewise Hood et al's detailed comparative analysis of regulation finds broad variation in the ways in which different risks are regulated (2001). As these authors indicate the interesting question is 'is there any logic to the techniques we use in risk regulation?' Undoubtedly we need systematic empirical investigation of the extent to which risk management philosophies, templates, tools and rhetoric have actually entered regulatory regimes. And this needs to involve examining how much website claims translate into action and how well the risk language, tools and perspectives are understood throughout regulatory organisations. An important part of this is understanding the limitations of risk based approaches to regulation.

The Limitations of Risk-based Approaches

Discussion of the limits of risk based regulation are inextricably related to larger debates about assessing the efficacy of regulation and more particularly about the role of cost benefit analyses in regulation. Governments and regulators do acknowledge many of the limitations of risk-based regulation. In the US the Office of Safety and Health Administration (OSHA) does not claim its approach to preventing injury at work is fool-proof, and that even its measurements of the possible external factors which could affect its success are subject to re-evaluation and revision (US Department of Labor, 1998). A National Audit Office report on *Supporting Innovation: managing risk in government departments* in Britain outlined nine different risk management tools which could be used to manage risks in government departments and in each case identified the disadvantages of the risk management tools it discussed. Essentially these centre on the simplification inherent in the tools and the consequent dangers of not recognising the full complexity of problems. As a European Environment Agency Report explains:

There is no credible way of reducing the pros and cons of alternative courses of action to a single figure, economic or otherwise, not least because of the problem of comparing incommensurables and because the pros and cons are unlikely to be spread evenly across all interest groups (2001: 168).

But while this document urges caution in the use of these techniques, it adds that there are ‘constructive ways of dealing with these complications’.

Cost Benefit Analyses

We should be in no doubt that at the heart of risk regulation is the very difficult issue, of determining what is an acceptable risk or acceptable cost? From whose point of view should one view risk, cost and benefit? There is a long tradition in the environmental field, for example, which suggests that such analyses favour business as the costs are always much easier to calculate than the benefits (Bugler, 1972; Gunningham, 1974; Owens, 1990; Yeager, 1991). This is partly because indirect costs and benefits are rarely considered. Moreover, we need to decide how to choose between competing analyses and how much weight to give to public fears and complacency. None of these are fixed since they are shifting calculations which depend upon time, place and perspective. HSE’s approach tries to build this dynamic in through consideration of individual risks and societal concerns (see above). But these are of course essentially qualitative criteria and arguably immeasurable. Similarly the apparently ‘objective’ probability factors incorporated in the FSA’s approach to risk are subjective and there are no developed measures presently available which could give a shared objective quantity.

There is a large and often emotive literature on the subject of cost-benefit analysis. At the one end of the spectrum are authors who basically object to the pricing of costs and benefits and reject that risks to the environment, financial markets and especially human life should be tolerated at all. At the other end are those who are concerned that these techniques may be misused. An example of this is Froud et al’s (1998) examination of cost benefit analyses and compliance costs assessments (CCA) both of which gained currency in Europe and the US during the late 1980s/ 1990s. These techniques are part of the changes associated with the NPM and they form the basis of much risk-based regulation. Their concern is to appraise the

merits and demerits of new regulatory proposals and also to control law-making processes. Froud et al find these techniques lacking in achieving either of these goals. They argue for instance that CCA in practice embraces a variety of methods which due to the unreliability of the information presented cannot offer the authoritative information upon which to appraise nor protect the law making process from the influence of particular interest groups. They note that there is great variation between businesses in their access to the regulatory policy process:

Our conclusion is that CAA has neither the potential in theory not the capacity in practice to be regarded as an authoritative device for appraisal. In this context the most one might usefully expect of it is to expose cases of excessive and, perhaps more importantly, unexpected regulatory compliance costs. However, without allowance for countervailing estimates of benefit or more knowledge of the distribution of expected costs between different kinds of business, even these cases may provide misleading information and result in mistaken action (1998: 184- 5).

Quantitative risk Assessments (QRA) have been the subject of a deal of academic criticism. For instance, the mathematical basis of the QRAs is disputed, especially where there are small numbers involved or where there are no reliable data to work from (Cohen, 1996; Toft, 1996). The interpretation of the data may prove difficult in a variety of ways. For example, the causes of a risk may not be clear and even where they are clear the decision about what is an acceptable risk needs to be taken and that is essentially a political decision. Indeed some claim that the procedures themselves are value laden (Hood and Jones, 1996). A more extreme position negates the whole attempt to produce an objective measure of risk, arguing that all assessments are inherently subjective (Slovic, 1992).

Recent experiences in Britain's railway industry highlight the limitations of QRA. Unease with the risk management techniques used by the railway industry was apparent in two major accident inquiries. The Southall Inquiry into one of these accidents is blunt in its criticism '... risk assessment procedures have been shown to produce variable results, which are seldom rigorous and sometimes questionable. No primary or secondary paper-based system is a substitute for common sense and commitment to the job' (Uff, 2000: 208). The evidence given by the Director of HSE to the Ladbroke Grove Inquiry into the second accident concentrates more specifically on problems in the methods and perspectives used:

The industry culture appears to look at *outcomes*, with insufficient attention to *potential for harm*, and at *frequencies* rather than *consequences*: the approach of SPADS (Signals Passed at Danger) is an example of this. Assessment of risks is also dominated by 'hardware' issues and a rigid use of quantified appreciation of human factors: risk assessment of signalling systems exemplifies this incomplete perspective. (HSE, 2000d, para. 18).

Just as the objectivity and reliability of technical risk assessment and economic tools may be contested so too is the status of scientific and other forms of expert knowledge. Generally the public and media seem less willing to accept the advice of experts, there is also a suspicion that there is a growing number of risks about which there is a great deal of ignorance and insufficient knowledge. Partially because of this public trust in regulatory models is being

undermined. In many respects this is one rationale for the adoption of the precautionary principle. This is explained by a European Environment Agency document ‘society’s growing commitment to the precautionary principle is essentially a response to a growing tension between two aspects of science: its growing innovative powers were increasingly outrunning its capacity to anticipate the consequences’ (2001: 185).

Quantitative Tools in Social Context

Research evidence demonstrates that risk-based tools may be differentially interpreted according to cultural and other factors. The precautionary principle, for example, means different things in different countries (European Environmental Agency, 2001: 1; Wiener and Rogers, 2002). Similarly, Radaelli’s (2002) examination of the introduction of Regulatory Impact Analysis (RIA) in nine countries and the EU found that RIA is a form of benchmarking which has become a ‘standard policy instrument in most countries’ (2002: 11). But although there are some similarities across nations he found that RIA’s intent and use in each varied. There are also variations in the impact of trends between domains within the same country. Hood et al (2001: 151), for example, found that accounts of pressures to openness in risk regulation regimes were possibly over generalised. They rather discerned differences in the degree of openness demanded between areas and over time.

These uncertainties and points of contestability around the more technical aspects of risk-based regulation can of course be exploited by interested parties. Indeed the very tools used by state regulators may be used to challenge their decision-making and authority. The case of Britain’s railways is illustrative. New systematic and rigorous approaches to health and safety regulation were introduced by the Railways Inspectorate (part of HSE) in the 1990s. This was reinforced by management consultants hired by the industry, in the wake of accidents and the privatisation of British Railways, the nationalised industry then responsible for the rail network in Britain. Risk management figured prominently in the new regime, both in the privatised companies’ plans and practices but also in those of the regulator (Hutter, 2001: Chapter 11). But over time interaction between the industry and regulators reveals the contentious and negotiable nature of these measures. For example, the Railway Inspectorate’s Annual Safety Report 1996/ 1997 emphasised that quantified risk assessment (QRA) and cost-benefit analyses should be seen as ‘aids to decision-making’ and it criticised some employers for, ‘... tending to present QRAs as a precise justification for their position either for taking no action to improve safety or, worse still, *as a justification for reducing the level of safety already provided* (HSE, 1997: ix, my emphasis). Similarly in his Foreword to the Annual Report the Chief Inspector of Railways commented ‘I will expect operators to go that extra step in the pursuit of safety rather than stop as soon as the figures indicate that they appear justified in doing so. When in doubt decisions should, in my opinion, always be on the safe side’ (ibid). The 1997/ 1998 Annual Report followed up on these criticisms. In particular it supported the QRA Forum, a cross industry body, and drawing upon the experiences of the Forum commented upon the disparities in the values different companies gave to common risks (HSE, 1998: 105).

The systematisation of approaches to occupational health and safety led to a greater readiness to challenge regulatory demands and the tools of systematisation have emerged as tools of adversarial relations. The systematic approach to health and safety has proved to be double-edged. On the one hand it forces a much more serious and sustained focus on health and safety through such things as audits and performance indicators. But on the other hand it also

leads to resistance to accept some regulatory demands. Certainly there is a danger that too much faith can be placed in the success of audits (Power, 1997).

Depending upon circumstances audits and cost-benefit analyses can become as much a form of mystification as an analytical tool. Indeed one American study into safety performance of the American railroads found a counter-intuitive negative correlation between safety performance and audits and inspections (Bailey and Peterson, 1989).

Questions might be asked about the transferability of risk management practices from one domain to another and from business to government (James: 2001). An NAO survey in managing risks in government departments (2000) found variable success amongst civil servants, especially in understandings of how to implement risk management approaches in practice. Hood and Rothstein, in an appendix to the NAO Report, accede the potential benefits in using business risk management practices in government but they are also sensitive to its limitations and dangers. The merits of the approach, argue these authors, are that such practices can encourage systematic debate about the contradictory pressures on regulators. But the dangers lie in mechanistic and tokenistic application of these practices, their potential undermining of other public sector values and the real danger that they may be used to augment blame prevention strategies.

The much bigger issue at stake here is how the efficacy of regulation itself can be assessed. Pressures for public agencies, regulators included, to prove their efficiency and efficacy have been prominent in the UK since the NPM reforms. These pressures have not diminished with changes in government and regulators now find it as difficult as their 1980s and 1990s predecessors to demonstrate their effectiveness. Evaluating enforcement bureaucracies through indices such as the number of prosecutions initiated, the number of inspections conducted are problematic as one might argue that the very essence of success maybe invisibility, that is the number or risks averted and prevented. And disentangling the variety of factors which may have caused any apparent improvement or decline is likely to lead to very spurious claims. The limitations of risk based regulation are thus intertwined with the broader difficulties of establishing such evaluations and this needs to be taken into account as we move onto our discussion.

Discussion

Taking the UK as our key example we have seen that while the 1980s saw a political environment conducive to the emergence of risk based approaches, the 1990s and beyond have witnessed an environment favourable to the development of them. The UK in the 1990s and onwards has witnessed a reframing of the deregulatory rhetoric and a repackaging of ideas prominent in the period of so-called 'regulatory crisis' and once again the 'virtues' of private business, transparency and accountability were extolled⁸. More broadly, these new collaborative arrangements represented a move from government to governance. In essence we see a strengthening of the imperatives to increase accountability and a renewed call to adopt business practices in government. Most importantly for this discussion, this involved increased systematisation of governmental approaches to regulation which was itself furtherance of a broader governmental call to 'modernise' government by running the administration as a business.

⁸ For discussion of the regulatory state see Braithwaite, 1999; Osborne and Gaebeler, 1992; Scott, 2000.

These changes are indeed part of a bricolage of explanations offered by official regulatory websites in a number of countries to account for the move to risk based regulation. Canadian documents for example link risk based regulation to a more general modernisation of public administration and more specifically the Government's Integrated Risk Management Framework (2001). This modernisation is aimed at redefining science to meet new 'modern' conditions and accommodating increasing public awareness and demands for transparency. The Australian Mining (Environment Australia, 1999) website also reiterates these points, adding a further observation that such an approach is encouraged by the popularity of performance based regulation and also by the European trend to hold managers, directors and workers more accountable for accidents. Australian and Canadian financial regulatory reforms are explained with reference to sustaining public confidence and accountability (OSFI: 1999 Annual Report; APLA website). Thus risk-based models may be regarded as a means of 'objectively' demonstrating that reasonable steps were taken to reduce and manage risks.

Embedded in the above account are a number of bureaucratic/ organisational reasons why regulators might adopt risk-based discourses and strategies. Indeed, in many respects the merits of risk-based regulation centre on the risk management strategies of regulatory agencies and governments as they manage their own political and legal risks and respond to potential assaults on their legitimacy which might be associated with increased accountability and transparency. Arguably such a response is especially necessary where broader governance structures operate and government delegates or co-opts other sources of regulation into its broad embrace. The approach also plays an important role in financial risk management as it simultaneously aids and supports governmental and agency decisions about their deployment of limited resources (see in particular the discussion of the FSA above). How useful these models really are as a legitimisation of how resources are deployed would be best tested in the wake of a major risk event when, one suspects, their limitations would be seriously questioned. Their use is most probably prospective than retrospective.

Another important role of risk-based approaches may be to serve as an integrative template for new regulatory organisations. It is perhaps notable that many of the agencies adopting these approaches are newly created super regulators. These are large, centralised agencies which are responsible for a domain of risk management across all relevant sectors. These agencies represent a move from sector related regulation to domain related regulation, from particular inspectorates to umbrella agencies which take a broader more integrated view of risk management, which co-ordinate across and between sectors and where knowledge is cross fertilised and shared. Agencies such as these face the difficult task of bringing together regulators who maybe very different in terms of their histories, perspectives and ways of regulating. Risk approaches potentially offer a new template which can be used across the board and help forge a common purpose, language and approach.

One reason super agencies are created is as a response to changing working practices and environments. Interestingly many official publications on risk policy present the move to risk-based regulation as a *natural* response to changing social and economic conditions. These include changes in the nature of work (US Department of Labor, 1998), the evolution of scientific knowledge (see, for example, the Australian Environmental Protection Agency's *Environmental Best Practice: Environmental Management in Mining*, 1999), rapid technological changes which are also held responsible for creating new risks (*A Canadian Perspective on the Precautionary Approach/ Principle*, 2001) and changing financial

markets. Indeed the establishment of the Australian Prudential Regulation Authority (APRA) is explained ‘... as part of the Federal Government’s drive to establish a stronger regulatory regime – one that could respond better to financial innovation, globalisation, and the needs of businesses and consumers’ (<http://apra.gov.au/AboutAPRA/>)⁹. Change also derives from shifting attitudes to risk. The views of mass publics are increasingly seen as a distinct regulatory force which can demand attention in just the same way as the demands on business. Interestingly the pressures of these two groups are often in contest with each other with business generally arguing in favour of reducing the burdens of regulation, especially financial burdens, and public groups most noted for risk aversion, sometimes with little regard for cost. In such circumstances risk-based models may be seen to serve as a seemingly objective means of adjudication between increasingly vocal interest groups.

In summary there are a number of reasons why risk discourses, tools and philosophies have proved attractive to regulators and why they might want to appear to have adopted risk based approaches. Such approaches have emerged at a time when government has been urging modernisation of its bureaucracy and has been enamoured with business models as a means of achieving this. In such a climate tools and approaches, which appeared to derive from – or at least have their parallels in – business practice, were appealing. Moreover, they might have the added benefit of distancing any blame shifting should a crisis emerge, that is they might allow regulators to appeal to seemingly objective models against which they made their allocative decisions. The symbolism of the new risk management techniques is not wasted on either industry or regulators. They both understand that it is one way of publicly demonstrating that they are addressing risk (Clarke, 1999; Hood and Jones, 1996: 86). Moreover the approach should force a much more serious and sustained focus on regulatory problems and have the potential to help governments, regulatory agencies and companies manage risks more effectively and prioritise actions and resources accordingly. Bureaucratically they may offer a common approach for newly created super agencies, a new template which stamps a new identity on a sometimes disparate collection of regulators brought together to act as ‘one’.

At the level of the broader picture risk-based regulation has much to offer, the devil is in the detail of technical, legal and political implementation and the risks that tools will be too literally and slavishly believed in. It is important that those using risk-based approaches fully understand their limitations. There are some very real dangers attaching to the models and risk-based approaches, most particularly in ensuring that everyone within any organisation using them is aware of the limitations of such approaches – notably the simplification often involved and the political decisions which are made around the risk deliberations. However robust the tools used in risk-based regulation much depends at the end of the day on the political will to act. The European Environment Agency document *Late lessons from early warnings* offers prescient reading. Based upon a detailed examination of twelve case studies it noted that in many cases adequate information about potential hazards did not result in action as it was either not used or ignored. And most worrying ‘it is also true that in some of the case studies, early warnings – and even ‘loud and late’ warnings were effectively ignored by decision- makers because of short- term economic and political interactions’ (2001: 168). So the best information and regulatory approach possible is limited in its effects if there is no political resolve to act.

⁹ Changes to UK and Canadian financial regulatory authorities are explained in similar terms, that is as a response to market changes and innovation.

A Research Agenda

This paper does set out a number of issues and key research questions which might form a research agenda. First to triangulate website data with other forms of data and thus address the important task of investigating in detail the extent to which the rhetoric and ideas translate into action: for some there may be full policy buy-in to risk-based initiatives but for others it will be more of a rhetorical than substantive change. Indeed it may be that some areas out rightly reject the pressure. Second, we need a much more systematic examination of the ways in which these ideas have spread, tracking comparative data across national and transnational regulatory bodies and across domains. And here we must take into account those domains and countries where risk ideas and approaches have not proved attractive and have not been adopted. Indeed, a third and related task is to understand how different organisations understand risk as the indications are that these understandings vary between regulators, domains and countries. And, these differences relate to particular environments within which risk approaches to regulation emerge and evolve. Closer analysis of the social and political contexts of regulation is necessary as well as broader social and cultural; understandings of different risks.

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