

Rational adaptation for ERM in a changing environment

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2 Understanding the four seasons of risk management



Using skating on frozen lakes as the starting point for a four-level categorisation of risk, Dave Ingram argues that we need to plan for all four stages in the future, having skipped a stage in the recent crisis.

4 Finding the right risk rituals to appease regulators and rating agencies



The anthropologist Mary Douglas's ideas about cultural bias have been developed to identify at least four distinct approaches to risk. Dave Ingram, Alice Underwood and Michael Thompson explain how these approaches can be represented by "managers", "conservators", "maximisers" and "pragmatists".

6 ERM: four ways to do God's work



Dave Ingram, Michael Thompson and Alice Underwood previously explained how anthropology has helped identify four distinct approaches to risk. Here, they examine how these strategies manifest themselves in insurers' enterprise risk management programmes.

8 Expect to be SURPRISED: the lessons of plural rationality theory



The plural rationality theory of the interaction between risk and humanity suggests that surprises are inevitable, write Dave Ingram, Michael Thompson and Alice Underwood. So get used to the idea that "black swans" are a fundamental aspect of the world.

12 Why clumsy ERM has prevailed

In this article in their series on the cultural (or plural rationality) theory of risk, Dave Ingram, Michael Thompson and Alice Underwood explain how the four approaches to risk perform in a changing world.

14 A strategy to suit each point in the insurance cycle

Choosing a strategy to cope with the ups and downs of the business cycle has been an enduring quest for insurers. Alice Underwood and Dave Ingram offer a solution.

Understanding the four seasons of risk management

Using skating on frozen lakes as the starting point for a four-level categorisation of risk, Dave Ingram argues that we need to plan for all four stages in the future, having skipped a stage in the recent crisis.

Last winter, the kids were able to skate on the lake for more than five full weeks. About two weeks into that period a new sign appeared beside the lake: HIGH RISK AREA. They all laughed. Any power that the word “risk” might have had was totally diminished in their minds, because over-cautious adults were applying it to ice so strong that one of the teenagers had been able to drive his car on to it the previous night.

By early spring, that ice was melting around the edges and became dangerous. But the sign still read the same: HIGH RISK AREA.

In reaction to the continuing financial crisis, many firms are starting new risk management programmes. They often begin by defining the word “risk.” What follows is usually generic and usually almost totally useless. In some technical sense, there is risk out there in all directions. But is any of that risk really RISKY? Is any of it actually DANGEROUS?

Like the lake, there are times when situations are low risk, times when they are high risk and times when they are absolutely dangerous. Risk management needs to be designed to recognise the different situations and to act accordingly.

THE FOUR STAGES

The environment for any risk can be seen to have four main stages:

Boom – Low-risk environment. It does not seem to matter how much risk is taken on during this stage. Every decision to take an additional risk pays off handsomely. Over and over again the naked, unhedged position beats out the carefully hedged position, the uninsured risk beats the insured risk. During this environment, people slowly drift away from being concerned about risk and risk management because they are looking at others who are not concerned and making lots and lots of money. Capacity for risk-taking does not seem to be an issue and some will take much more risk than could possibly be prudent in any other environment.



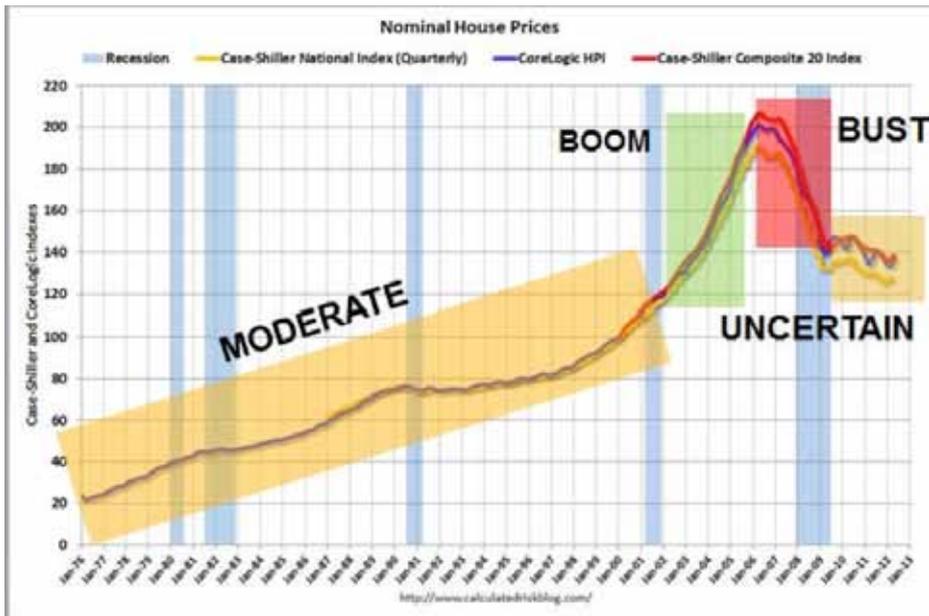
“In some technical sense, there is risk out there in all directions. But is any of that risk really RISKY? Is any of it actually DANGEROUS?”

Moderate – Normal-risk environment. This is when the long-term averages seem to hold up well. Investors and insurers experience mostly gains, but with enough losses to maintain focus on appropriate risk management. Volatility is in the normal range, so hedging and reinsurance programmes have the expected impact. Risk management seems to be designed for this environment – because it was. Capacity for risk-taking is carefully matched up to risks, but taking risks up to capacity is usually seen to be the best course in this environment. Capacity is usually defined in terms of something like a one in 200-year loss, but no one really expects to experience a loss of that size. That just wouldn't be normal.

Uncertain – Unpredictable-risk environment. Suddenly, things get really RISKY. Almost any course of action presents potentially fatal threats. Some unexpected event often triggers a shift from one stage to another. These shifts are also generally tied to system capacities. Economic system capacity seems often to be an elusive quantity. Partly because of the “This Time is Different” thinking pointed out by Reinhart and Rogoff in their book with that title.

Natural or man-made catastrophes or sudden major shifts in markets might be triggers. Individual firm risk taking capacity that during a boom stage was seen as a perpetual, limitless resource now suddenly seems like it may or may not be sufficient. Firms that relied upon the predictability of the moderate stage find that they are much more fragile than is prudent. Suddenly people are extremely concerned with how risks are (and were) managed.

Bust – High-loss environment. Many of those risks have turned into LOSSES. Survival of the institution (and potentially the entire



financial system) is uncertain. The market senses that many previously respected firms will not make it through this period and that suspicion drastically slows business activity. Risk management focus needs to be on helping to find opportunistically the course of action which will save the firm. For the firms that fail, risk management efforts shift to work-out.

The stages are really not quite like seasons. They do not follow in any particular order, and one stage might last for a very long time. Take the graph above of the US home market. The market was in a moderate environment for at least 15 years.

There were fluctuations, but they were moderate and manageable. Then sometime in the early 2000s, the market shifted into boom. No one believed that there was any risk and for several years you could do no wrong investing in that market.

SOMETHING HAD TO GIVE

However, sometime in 2005, the system got very close to capacity. The risk had built up to a point that something had to give. Some financial firms that had been active in the market recognised the bust environment and shifted out of this activity. But too many persisted with a boom approach to the risk (like the famous “We’re still dancing” quote from Citigroup CEO Charles Prince in July 2007, six weeks before the market froze completely.) This failure to recognise the bust environment set the stage for the financial crisis when losses were hitting almost all financial firms. Since the end of the bust, housing (and many other aspects of the economy) have been floundering in an uncertain stage where it is difficult to make any major financial decisions because things seem to be just too

unpredictable. An extended uncertain stage like this is so uncommon that economists generally fail to recognise it as a separate stage. In consequence, they have few recommendations for times like these.

One way of looking at the financial crisis is to recognise that markets reacted to the boom environment and piled up more and more risk, so much so that they far exceeded the capabilities of the Federal Reserve to push things back to a moderate environment as the Fed had been doing for almost 20 years.

And where was risk management? Those who were doing their risk management “by the book” were busy looking for lakes where they could put up HIGH RISK AREA signs. That is because the book version of risk management is written for the moderate environment and uses moderate environment thinking. Risks are expected to fit into neat formulae that represent the historical experience for each risk. Regulatory systems such as Basel II and Solvency II are firmly rooted in moderate environment thinking and experience. Prior episodes of bust and uncertain environments may be incorporated into these views, but not as something unexpected and uncontrollable but as things that in retrospect are completely explainable.

In 2005 and 2006, the markets and business managers noticed that they were in a boom environment; they acted like the kids at the lake and almost completely ignored their risk management folks. They just kept skating. Why not? The ice was strong enough for that car. In fact, they all drove their cars out on the lake and started to build houses there.

CHOICES FOR THE FUTURE

So for future risk management to be effective there are two choices. The first choice is

to hope that the regulators, central banks and any new systemic risk regulators do their jobs better and that henceforth we always stay in a moderate environment. And that is the choice that many seem to be working towards. The second choice is for risk management to recognise that we will have all four stages in the future and make plans for how to manage risk in all four environments.

The first choice, which seems to be the direction that the governments are taking, is just another version of the “it’s different this time” thinking that is common during boom environments. Or maybe it represents a moderate stage type of thinking in that, because in retrospect we can explain the past difficulties, we have tamed risk.

The other choice is going to be more costly and will require much more far-sighted thinking. It requires recognising that the possibility of future shifts from one stage to another for new reasons exists at all times. It means thinking through possible approaches to risk and risk management during all stages instead of working with a moderate stage enterprise risk management (ERM) system that is abandoned or ignored during a boom and inadequate during a bust or an uncertain stage.

It will probably mean ignoring the calls for a fixed set of rules about risk (that can be immediately arbitrated) and creating something that flexes with the environment. During a boom, the system needs to flex to allow more but not unlimited risk-taking. During an uncertain stage, risk-taking needs to shrink but not disappear. But uncertain-stage risk management needs to focus on the possibility that a bust may happen at any time. So the risk-taking needs to be carefully reviewed during uncertain times for liquidity, and illiquid risks need to be avoided and unwound as quickly as possible. Risk management during the bust stage then focuses completely on triage. Which losing situations can benefit from work-out attention? And which liquid positions can be sold with the least damage?

With this new emphasis for risk management, the most important skill becomes outward- and forward-looking to understand where the environment is and where it is moving. Previously, much of risk management attention has been directed inwardly towards evaluation of existing risks and looking backwards to historical experience to do that.

If the role of identifying potential shifts in stages is accepted as a major one for risk managers then, in addition to preparing reports looking inwards about the risks of the firm, the risk managers will be regularly reporting on the strength of the ice and can be ready to put the sign out only when it is actually thinning. ■

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Finding the right risk rituals to appease regulators and rating agencies

The anthropologist Mary Douglas’s ideas about cultural bias have been developed to identify at least four distinct approaches to risk. Dave Ingram, Alice Underwood and Michael Thompson explain how these approaches can be represented by “managers”, “conservators”, “maximisers” and “pragmatists”.

Muttering incantations in a language that we do not understand to a god whom we doubt exists. That’s how one insurance company CEO recently described his company’s ERM programme. Many other companies are struggling to understand what ERM rituals must be performed to appease rating agencies and regulators.

Why does ERM seem to make perfect sense to some people, and absolutely none to others? Why are regulators increasingly calling for ERM regardless of whether insurers want it or think that it makes any sense?

AT LEAST FOUR APPROACHES

The problem is that, as Mary Douglas and others have shown, there are at least four distinct and totally rational approaches to risk¹. Usually, ERM proponents focus on only one of these. When executives and companies who favour a different approach to risk are asked to adopt ERM, they feel the awkwardness of a right-handed person suddenly forced to write with their left.

As it is popularly (and sometimes unpopularly) portrayed, ERM involves constructing a statistical model of all the insurer’s risks – plus implementing decision processes, informed by that model, which keep risks within acceptable levels and achieve desired returns.

This usually requires the engagement of experts in risk modelling and risk

management who can build and operate such a statistical model. Underlying this framework is the idea that risk, while necessary to achieve returns, is potentially dangerous – but can be controlled via careful quantification and management.

WORLD OF RISK

But there are at least three other approaches to risk. Each of these is based on a rational idea of risk that is different from the view of those who rely primarily on models. People who see the “world of risk” from one of those other perspectives are not enthusiastic about spending time and money on statistical models of risk. And even if forced to create

a risk model, they do not want to use it to make their business decisions.

Some people believe the world is much riskier than model proponents do. Nassim Taleb’s “black swan” criticism of risk models comes from this perspective. The constant possibility of a major loss event larger than anything anticipated in any risk model is why these folk – call them conservators – generally reject models.

Conservators favour a “safety engineer” approach to risk management: they prefer to minimize risk as much as possible. Conservators in insurance companies tend to feel vastly more comfortable with risk in areas where the firm has extensive experience,



“Why does ERM seem to make perfect sense to some people, and absolutely none to others? Why are regulators increasingly calling for ERM regardless of whether insurers want it or think that it makes any sense?”

but they are highly uncomfortable with the uncertainty inherent in any new line of business, new territory or new distributor.

Entrepreneurs typically have a more optimistic view. These business leaders see risk as just one of many challenges to be overcome. They tend to classify risks into two categories: risks they can tame and exploit, and risks they want to stay away from. The tameable risks don't seem highly dangerous to these folk: occasional losses are just temporary setbacks. In the long run, they believe, their skills in risk selection and risk pricing will enable them to maximise the profits to be had from risk taking.

A fourth group holds a different view of risk – “unbelief,” so to speak. These people are not convinced that anyone can know whether risk can reliably be said to be moderate, high or low. They are pragmatic in their approach to risk when in a leadership role and fatalistic when in a subordinate position. Given this perspective, their time-frame tends to be shorter than any of the other three groups, and their commitment to any particular course of action may be less intense.

Over many years, studies have identified these four views of risk in individuals and in groups. Let's call the four camps “managers”, “conservators”, “maximisers” and “pragmatists”.

While it's impossible for all four perspectives to be correct simultaneously, each of the four sets of expectations is fulfilled sometimes. In *Understanding the four seasons of risk management*, we described the four risk environments.

The boom stage – low risk environment is what the maximisers expect to find. Managers (and the ERM paradigm) expect the moderate stage – normal risk environment. The uncertainty that pragmatists expect is the uncertain stage – unpredictable environment, and the bust stage – high-loss environment is the recession or depression expected by conservators.

As the environment shifts – moderate for a while, high loss sometimes, uncertain for a period and then lower risk other times – people may shift their risk views accordingly. But people's individual experiences vary. They don't perceive the world in exactly the same way, and their views don't change at

the same rate. So at any given time, there are people holding each of the four perspectives.

MANAGERS

Only the managers, with their expectation of a moderate environment, believe that real-world risk can be accurately modelled and that using information from those models with an ERM system will enable the management of risk. In their statistically-oriented view, a

“Managers tend to be puzzled by the uncertain environment. “Unpredictable” is perhaps the opposite of their world view.”

stochastic model of economic capital is the height of sophistication.

The framework of the standard ERM control cycle, with limit structures and optimisation of return on risk, is totally dependent on managers' expectations of a moderate environment. During that moderate environment, managers will experience growing success, avoiding excess losses in bad quarters and experiencing larger and larger gains in better quarters as they steadily improve their models.

In a boom environment, the managers are sometimes pleasantly surprised by better-than-expected results. They are caught totally off-guard by the large losses of the bust environment.

In fact, companies which most fully trust in the mastery of models over the environment will be highly exposed to those unexpected high loss situations that fall outside their model calibrations. Managers tend to be puzzled by the uncertain environment. “Unpredictable” is perhaps the opposite of their world view.

CONSERVATORS

Conservators, with their expectations of disastrous losses, would prefer to assess their risks using stress tests and worst-case scenarios. They are convinced that whatever happens will be even worse than they imagine. In their view, statistical economic capital models convey a totally false sense of mastery over risk – a mastery that in their minds cannot be achieved. They sometimes feel that risk limits encourage people to ensure they take as much risk as they are

allowed, whether those risks are prudent or not.

Conservators will often miss out on some (or all) of the gains available during the boom environment. They will muddle through the moderate and uncertain environments with their lower risk positions. But they will have much smaller losses in the next bust period. That's what they are always preparing for.

MAXIMISERS

The maximisers, who believe that the world is a benign low risk environment, do not think that they need an economic capital model or a manager-style ERM system. They think that superior talent will identify the risks with the best return. They don't want their judgement overruled by a model. For them, risk limits and control systems are unneeded bureaucracy and “business prevention systems.”

Maximisers tend to be ill-prepared for the adversity that is a normal part of the moderate, uncertain and bust environments. But while the boom environment lasts, they will create massive profits.

PRAGMATISTS

Pragmatists' belief that the future is more or less unpredictable means that they don't see benefit in spending time and money to build an economic capital model that assumes a predictable range of future outcomes. They also strongly prefer to avoid committing to the sorts of predetermined limits that are fundamental to a manager-style ERM system.

We believe that, by drawing on the anthropology-derived notion of “plural rationality”, it is possible to create ERM systems that are compatible with each – or indeed all – the four risk attitudes. However, as the old saying goes, before you can solve a problem you have to recognise that there is a problem to be solved. Perhaps some ERM advocates are perfectly content to have insurance executives mutter incantations that they don't understand – so long as the “right” rituals are performed. But we think it would be healthier for the industry, and for the practice of enterprise risk management, to become multilingual – and to encourage risk management practices in which companies can find meaning. ■

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ERM: four ways to do God's work

Dave Ingram, Michael Thompson and Alice Underwood previously explained how anthropology has helped identify four distinct approaches to risk. Here, they examine how these strategies manifest themselves in insurers' enterprise risk management programmes.

"An impish grin spreads across Blankfein's face. Call him a fat cat who mocks the public. Call him wicked. Call him what you will. He is, he says, just a banker 'doing God's work'."

[From an interview in The Times, 7 November 2009, with Lloyd Blankfein, president and CEO of Goldman Sachs]



Lloyd Blankfein, Goldman Sachs

Blankfein was clear on what he sees God's work as entailing: the "maximiser" strategy, as we call it.

In response to the question, "Is it possible to make too much money, have too much ambition ... be too successful?" he said, "I don't want people in this firm to think they have accomplished as much for themselves as they can, and go on vacation. As the guardian of the interests of the shareholders and, by the way, for the purposes of society, I'd like them to continue to do what they are doing. I don't want a cap on their ambition. It's hard for me to argue for a cap on their compensation".

But there are firms in the same line of business as Goldman Sachs that do not cleave to this maximiser strategy. There are, we will show, four ways of doing God's work, and firms, at any one time, will be distributed among them. Furthermore, any one firm, over time, will quite likely shift (or find itself shifted) between the four strategies. There is never a clear winner: no strategy is good for all seasons.

The theory of risk that copes with (indeed, predicts) this strategic plurality, and the seasonality of the overall risk environment, comes, as we have explained, from anthropology. It was initially applied to environmental and technological risks such as climate change, nuclear radiation, liquefied natural gas terminals, mad cow disease, etc. It is only in the last three or four years that it has been extended to financial risk.

The four risk attitudes – "maximiser", "manager", "conservator" and "pragmatist" – represent archetypes of the actual approaches that insurance organisations all take towards

their risks (see page 5).

In a recent study of ERM practices among insurers, we found that the way that these approaches manifest themselves is highly diverse and robust. Most insurers apply two or three, and sometimes all four, of the distinct approaches that are associated with the four risk attitudes.

The four risk management approaches are "diversification", "loss controlling", "risk trading" and "risk steering".

DIVERSIFICATION

Diversification is the primary risk management strategy of the pragmatists. It is often said to be the oldest risk management strategy, with the Roman Senator Cato reported to have made loans only to consortiums of at least 50 borrowers.

However, many ERM practitioners see diversification as the non-strategy strategy. Those who follow a diversification approach may appear simply to be rejecting organised ERM. But diversification is part of the risk management strategy of many – perhaps most – firms, and it can certainly be applied in an enterprise-wide fashion.

When concentrations of risk are monitored at an enterprise-wide level, this is diversification-based ERM. To moderate its risk profile, the firm seeks to undertake a broad range of activities whose risks are unrelated, and to maintain an appropriate balance among these activities. The key limit applied is a concentration limit. The best practitioners of this approach constantly monitor their risks, staying alert for any change that would markedly increase the risk of one of their ventures and thereby skew the spread of risk.

The popular investment strategy of periodic rebalancing is, at its core, a diversification strategy. Buying and selling the losers and gainers is intended to keep the risk of the portfolio in a pre-determined balance. Rebalancers are not making any statement about the desirability of different investments; they are instead making a certain level of diversification their most important investment rule.

Diversification is the fundamental idea behind insurance. It is the principle that enables insurers to assume risks from many individuals, whereas those individuals cannot bear the risk alone. Following the law of large numbers, diversification is best achieved with a large pool of independent risks of similar size and risk characteristics. When insurance companies send a fraction of their biggest risks off to a reinsurer, they are motivated by the desire to maximise the benefits of diversification.

LOSS CONTROLLING

Loss controlling is the preferred risk management strategy of the conservators. It is a fundamental risk management activity that seeks to restrict exposure to potential losses or risks. Almost all businesses do this to some degree; the internal audit function and other ways of controlling operational risks typically fit this category.

In banks and insurance companies, the major loss-controlling activities include risk underwriting and the establishment of exposure limits. Exposure limits for non-underwriting risks, such as interest-rate and equity exposures, can be enforced by using asset-liability matching and hedging.

In non-financial firms, loss controlling adds a physical dimension. This is addressed by safety and industrial engineering programmes – as well as by insuring physical property risks to set a limit on potential exposure. Supply-chain and raw-materials risks are managed by a variety of techniques, including hedging. And, in all types of firms, loss-controlling strategies help to manage foreign exchange and liquidity risks.

In a loss-controlling approach to ERM, risk models are most often used to conduct stress tests that help prepare the firm for the worst-case situation.

RISK TRADING

Modern ERM can be traced back to the trading businesses of banks. Hard lessons from uncontrolled trading led to the development of improved management processes and standards. A major element in these systems is the valuation – in other words pricing – of risks. Management of risk by risk trading can be applied on a transaction-by-transaction basis. A risk-trading focus is common among those firms with the maximiser risk attitude.

Many property and casualty insurance and reinsurance companies are pure risk-trading firms. They focus on their combined ratio. Health insurers often have the same risk-trading focus. They consider premium inadequacy to be their main risk and, indeed, many firms in these sectors have failed to maintain adequate premium levels over a number of years.

When these firms shift to an enterprise focus for their risk management programmes, they start to think about using economic capital and a cost-of-capital approach to standardise their pricing risk margins. They may also establish risk limits that relate to the amount by which prices may deviate from the “standard” by-the-book rates.

Life insurers often use a risk-trading ERM strategy if universal life or deferred fixed-annuity products comprise a significant portion of their portfolio. For such products, there is a target interest-rate margin and a regular discretionary process for setting the interest rates that are credited to their customers. These firms sought a comprehensive approach for managing interest-rate risk when they began to vary the required margin between investments and liabilities based on the credit quality of the investments.

RISK STEERING

The activities most commonly described as ERM today are those that incorporate risk considerations into a comprehensive process for firm-wide risk capital budgeting and strategic resource allocation, with an eye to enhancing risk-adjusted returns and firm value. We call this the risk-steering approach and it is favoured by firms with the manager attitude to risk.

At a macro level, information obtained from ERM systems is thought to enable the firm to optimise its risk portfolio. Proposals to grow or shrink parts of the business, and opportunities to offset or transfer portions of the total risk position, can be viewed in terms of risk-adjusted return. Some firms employ this approach only for major decisions on acquisitions or divestitures; others use it all the time.

This top-down risk management process typically uses an economic capital model as its key reference point, and the key limit applied is the amount of economic capital any one activity is allowed to consume. The planning cycle will therefore include a capital budgeting process that incorporates the capital requirements and expected return on capital associated with planned future business.

Consideration of a business plan involves the evaluation of the potential allocation of capital to support that business activity, and financial results are measured on a risk-adjusted basis. This process includes recognition of the economic capital necessary to support business risks, as well as the risk “The activities most commonly described as ERM today are those that incorporate risk considerations into a comprehensive process for firm-wide risk capital budgeting and strategic resource allocation, with an eye to enhancing risk-adjusted returns and firm value.”

premium, loss reserves, and duration issues for multi-period risks such as credit risk or casualty insurance. Some firms that use a risk-steering ERM process have also created an incentive system tied to the risk-adjusted financial results.

Taken together, these activities can be seen as broadly similar to strategic asset allocation processes that aim to achieve the optimal return for choices along the efficient frontier. Indeed, some insurers that use risk steering do employ the efficient frontier concept and plot their businesses on a risk-versus-reward graph using economic capital instead of standard deviation as the risk axis.

ERM IN PRACTICE

A particular insurance company may well have a predominant risk attitude and a predominant risk approach – but almost all insurers vary their approach on a risk-by-risk basis.

We studied the risk management practices of eight companies headquartered in eight different countries and found quite a variety

of practices.

Insurance risk: half the companies took a risk-steering approach to underwriting and reserving, with careful risk/reward optimisation procedures. Two prioritised a risk-trading-style focus on growth and opportunity. One firm applied a loss-controlling approach with a strong emphasis on risk avoidance. The last company took a different attitude to insurance risk in each of its lines of business, and so was judged to be using a diversification approach in this area.

Investment risk: three firms favoured diversification in their approach to investment risk, seeking to adjust their strategy in response to changes in the short-term environment. Three had a very risk-averse, loss-controlling investment philosophy. One used a highly analytical risk/reward model in following the risk-steering approach to manage its investments, and the remaining company was an aggressive risk taker in the risk-trading style.

Operational risk: six of the firms were pragmatists in this area – in some cases they had no strategy and no particular opinion about their level of operational risk. The other two firms applied a loss-controlling, risk-averse approach, stating clearly that, as they were not being paid to take operational risk, they wanted to minimise it.

Overall enterprise risk strategy: one firm had a loss-controlling approach, one favoured risk trading, one took a diversification path and the other five professed strong leanings towards risk steering. However, three of these five did not yet have a fully functioning economic capital model... and none had adopted the kind of capital allocation process needed to drive the true risk-steering ERM system.

The ERM approach that is expected by regulators and rating agencies is a mixture of the loss-controlling and risk-steering approaches. A top-down attention to macro firm risk as determined via an economic capital model and a “use test” are fairly pure statements of risk steering. This work is then expected to feed a limit system that operates on day-to-day decision making in a loss-controlling approach to micro risk taking.

To achieve compliance with these expectations, major changes will be needed by insurers, given the diversity of risk management approaches that we have observed in practice.

However, the plural rationality theory that underlies this discussion suggests that enforced conformity to one particular blend of risk management approaches is not going to produce the desired result and, in fact, may well seriously weaken the resilience of the insurance sector.

That is because there are four ways to do God's work, not just one. ■

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Expect to be SURPRISED: the lessons of plural rationality theory

The plural rationality theory of the interaction between risk and humanity suggests that surprises are inevitable, write Dave Ingram, Michael Thompson and Alice Underwood. So get used to the idea that “black swans” are a fundamental aspect of the world.

Insurance company risk officers will often say that their objective is to achieve “no surprises” for their firms. That is their charge. All financial economics screams out that surprises can and should be eliminated by the proper approach to identification and hedging of risks. Banks and insurers adopted the best risk management practices in the early 2000s.

And then it happened – everyone was totally surprised by the 2008 financial crisis.

The plural rationality theory of the interaction between risk and humanity suggests that surprises are inevitable. People tend to adhere to groups that have one of four perspectives for future risk. The world cycles through periods of time where the actual riskiness of the world validates one or another of those four views (see page 2.)

Classical economics suggests that exogenous shocks are needed to tip an economy from one stage into another. But there were no exogenous events that coincided with the onset of the global financial crisis.

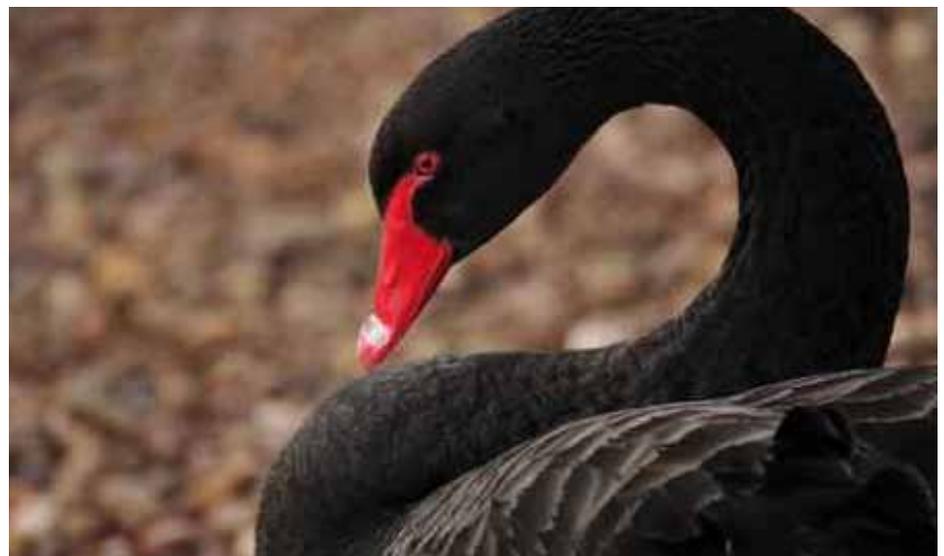
EXOGENOUS SHOCKS NOT NEEDED

Again, the plural rationality theory requires no exogenous shocks. The forces that lead to the drastic shifts in the economic environment can be generated totally from within the economic system, driven by the adaptation of the economic actors to their surprises.

The maths to show how this system behaves is quite complex, for plural rationality describes a complex adaptive system. In this system nearly everything depends upon everything else. One way that is commonly used to illustrate such systems is an agent based model (ABM)¹. The first ABM of plural rationality is called the surprise game². That work has been revived and updated.

SURPRISE GAME

The surprise game is an agent-based model



designed from the tenets of plural rationality theory.

Surprise is the persistent, and very likely growing, mismatch between what we expect to happen, based upon our chosen strategy and what actually happens.

Surprise is the difference between Knightian risk and uncertainty³. If there is no uncertainty, there should never need to be a surprise.

But there clearly is uncertainty because, over and over again, we are surprised.

When we all have the exact same expectations, then we are all surprised at the same time. But in fact, our expectations shift over time.

In market terms, we might expect a normal/moderate market with fluctuations that follow past experiences, an unsettled market with somewhat unpredictable volatility, a market boom when everything seems to be going up or a recession when everything seems to be going down.

Different business strategies are usually chosen because of an expectation of a market in one or the other of those states. This means that surprises, when they come,

“The plural rationality theory of the interaction between risk and humanity suggests that surprises are inevitable. People tend to adhere to groups that have one of four perspectives for future risk.”

		ACTUAL WORLD			
		UNCERTAIN	BUST	BOOM	MODERATE
EXPECTED WORLD	UNCERTAIN (Pragmatist)	NO SURPRISES	Expected windfalls don't happen - only losses	Unexpected runs of good luck	Unexpected runs of good and bad luck
	BUST (Conservator)	Caution does not work	NO SURPRISES	Other prosper (especially Maximizers)	Others prosper (especially Managers)
	BOOM (Maximizer)	Skill is not rewarded	Total collapse	NO SURPRISES	Partial collapse
	UNCERTAIN (Manager)	Unpredictability	Total collapse (when only partial was expected)	Competition	NO SURPRISES

Figure 1: typology of surprises

can arrive in a total of 12 different ways.

Along the surprise matrix's diagonal (see figure 1), the world is indeed the way it is expected to be: there are no surprises. To understand the surprises in the other 12 boxes, we contrast the strategy that seems sensible to each firm with the responses the resulting tactics will provoke in each of the actual worlds.

In the uncertain market there is no discoverable pattern to the responses. This is the world of financial uncertainty, when business activity and markets might turn abruptly. "Maximisers", "conservators" and "managers" are all surprised by the lack of predictability of the uncertain market. Each had their own different idea of what they were predicting and each is disappointed.

In a bust there is a discoverable order: the world is a vast negative-sum game. This is the world of the recession. Of course, maximisers and managers are surprised. The maximisers thought that persistent losses would not happen and managers were surprised by the magnitude of the losses. The "pragmatists" were surprised when "correlations all go to one" and their preferred strategy of diversification failed to protect them.

In a boom the reverse happens: the world is a huge positive-sum game. This is when financial bubbles form. Managers and conservators see the large gains of the maximisers and are surprised that they can get away with that. Pragmatists see their own larger-than-expected gains and are surprised.

In a normal/moderate market there is a discoverable order. This is the "normal/moderate" world of the academic papers. The maximisers will be surprised that they underperform their expectations, while conservators see the careful risk-taking of the managers succeeding. Pragmatists are puzzled and surprised by the success of the orderly bean-counting managers as well.

PAY-OFF MATRIX

To create the surprise game model the typology is then transformed into what game theorists call a "pay-off matrix". Game theorists, however, usually start off

with some game ("Chicken", say, or "The Prisoner's Dilemma"), re-describe it as a set of rules and then triumphantly deduce the pay-off matrix. Here, we have the reverse situation. We already have the pay-off matrix; the challenge is to discover what the game is! Our answer is provided in the form of an "artificial life" model called, unsurprisingly, the surprise game.

TYPOLOGY OF SURPRISES

We start with the typology of surprises (figure 1) and imagine, for the sake of concreteness, that we are the management of some fairly substantial industrial enterprise, with 29 competitors. The entire "world", in other words, consists of just 30 firms, each of which has to find its way to strategies that will enable it to survive (and sometimes to prosper as well) in an environment that is composed of the other 29.

We say strategies, in the plural, because what will work well for firm number 1, say, will depend on what the other 29 have

"Surprise is the difference between Knightian risk and uncertainty. If there is no uncertainty, there should never need to be a surprise."

decided will work well for each of them. And, as they are variously surprised and change their strategies, so firm number 1 is going to have to change its strategy if it is to survive in its now-changed environment. This, of course, will then change the environment in which each of the other 29 is operating, and so on and so on.

STRATEGIC POSSIBILITIES

What, then, at any moment, are the strategic possibilities?

- If we have bound ourselves to the maximiser strategy, we have an expectation of market boom. We are therefore very optimistic about our commercial chances. The main surprise for us is if we don't do very well. Other people's failures don't really worry us (they must lack our heroic

spirit of enterprise) but our own failures, especially if, try as we may, we seem unable to bounce back from them, may shake our convictions.

- If we have bound ourselves to the conservator strategy, and into the certainties that its expectation of recession supplies, we are pessimistic and expect not to prosper. We clearly see that we are playing in a negative-sum game, so we are not at all surprised if we do not win. We will be surprised if we do very well, and also if our competitors do much better than us; both would imply that the outside world is not as inhospitable as we thought.
- As upholders of the pragmatist strategy, we subscribe to the expectation of an uncertain market. We cannot be sure of how well we will do, but we don't expect to be able to do anything to improve our chances, and we don't expect any consistent trends (upwards or downwards). The only thing we claim to know is that we cannot know anything about our environment. If, therefore, we or others do consistently well, or consistently badly, we will begin to suspect that there is something wrong with our certainties: we will be surprised by the new-found predictability.
- As paid-up members of the risk-reward managers association, we are plugged into the myth of normal/moderate markets and therefore expect to do fairly well as long as we are careful. We will be surprised at doing badly, but we will also be surprised if we see competitors doing substantially better without being as careful as ourselves.

These, then, are the agents – automata plus strategies (which, however, when the surprises build up, will become disengaged and then re-formed in some other configuration) – that we put into our computer, with little more in the way of guidance than the injunction, "Get on with it!"

TYPOLOGY OF SURPRISES AND THE REAL WORLD

The world impacts the firms according to

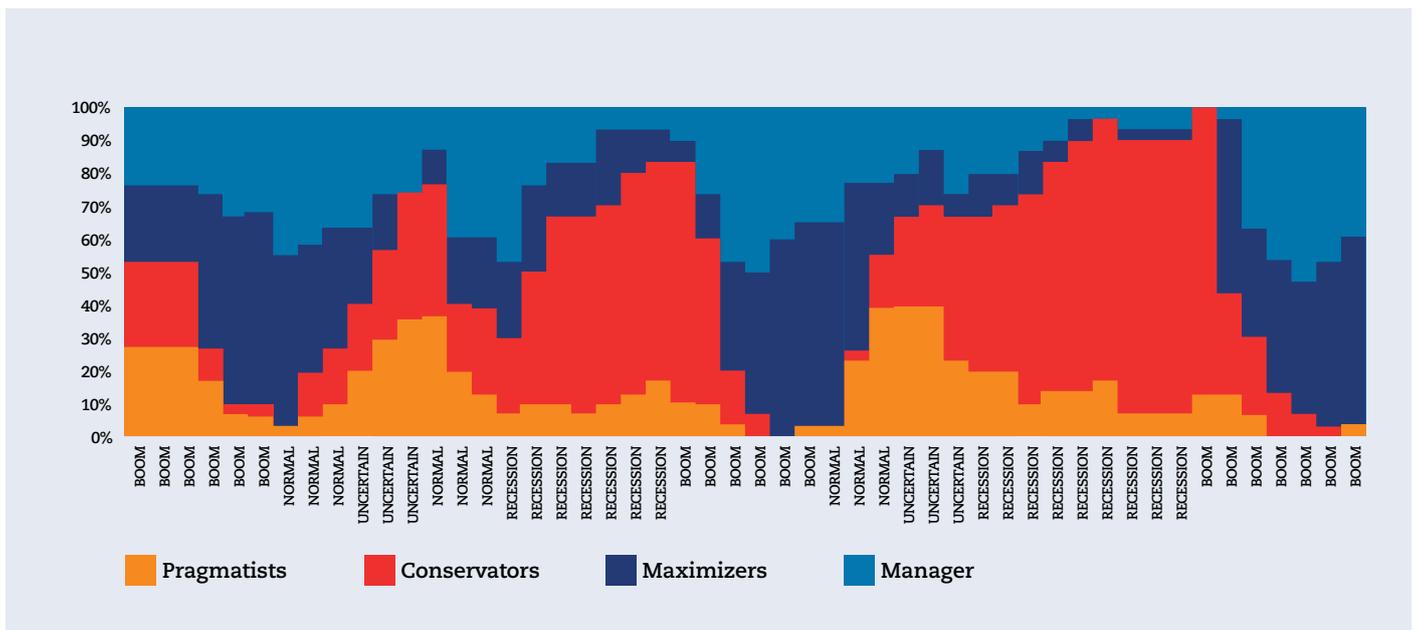


Figure 2: Surprise game: firms by strategy – 50-period simulation

the typology of surprises, and, at the same time, the firms impact the world.

For example, as more firms adopt the maximiser strategy in a boom market, the business activity eventually exceeds the capacity of the world and the boom ends. Things may shift to a bounded, normal/moderate market if the excess is small or a recession if the excess is large.

We find things going in an endless, somewhat erratic, and never-ending cycle (see figure 2.) It is a disequilibrium system in which none of the strategies ever goes into permanent extinction, they never settle down into some stable set of proportions, and the sequences of transitions (we have run the game for thousands of “rounds”) never exactly repeat themselves.

In this cycle, the behaviour in each state is to some extent a product of the events of the preceding phase. Time is entrained in the system, in other words, and path-dependency, far from being a regrettable departure from the equilibrium ideal, is inevitable and essential.

Thus the cycle has to be seen as an unbroken whole. It is convenient to begin the description at the stage when the market is booming, because that is the first state when the game is set in motion.

BOOM MARKET

- When the market enters a boom, all participants begin to get positive returns on their capital stock. Those with matching (i.e. maximiser) beliefs will do especially well, getting very good returns in this situation. Their success induces others to copy them; those with pragmatist and conservator beliefs discover the consistent good trend as “a

surprise” and tend to change their beliefs. Many of the companies adopt maximiser or manager beliefs and the average rate of return becomes high.

Accompanying these maximizer and manager beliefs are tendencies to high rates of investment. The combined result of this and the good returns is that capital stocks are built up quickly as revenue is reinvested.

This has the consequence that the supply of “loose” money in the system becomes more and more rapidly depleted. Inevitably, however, the “ceiling” on growth is reached. There is not room to support unanimous optimism indefinitely.

“The world impacts the firms according to the typology of surprises, and, at the same time, the firms impact the world. For example, as more firms adopt the maximiser strategy in a boom market, the business activity eventually exceeds the capacity of the world and the boom ends.”

NORMAL/MODERATE MARKET

- The ceiling thus triggers the change to a normal/moderate market environment. The maximiser firms get into difficulties at this point and do not all get the same steady profits they have become used to. The manager firms do, however, and their ranks are soon swelled by imitators. The graph of total capital invested, which

has risen steeply through the preceding phase, tends to dip a bit here as some of the maximiser firms lose money; indeed several may go bankrupt, since they tend to run with as little cash to absorb losses as possible.

The risk-reward managers still prosper and they continue to grow. The steady progress of the risk-reward managers means that, overall, industry growth is maintained (at a reduced rate) and the ceiling is regained. This precipitates the transition to the unsettled market (see figure 3.)

UNSETTLED MARKET

- This is the random world of the pragmatists, and indeed there seems to be a degree of unpredictability at this stage of the game. While the recession and normal/moderate market phases do tend to be dominated (at least eventually) by the appropriate beliefs, this phase sees all sorts of attitudes, although the profit-maximiser firms do tend to have a high mortality rate: their high investment depletes cash reserves too quickly for them to stand much chance of survival in an unpredictable environment.

This unsettled phase also sees the largest numbers of bankruptcies. Those who have adjusted to the transition from the normal/moderate market by becoming pragmatists or conservators tend to be immune to failure, because their pessimism (or lack of optimism, to be strictly accurate about the pragmatists) prevents them from over-extending. There is a high casualty rate amongst profit-maximisers and risk-reward managers. The longer this phase (which,

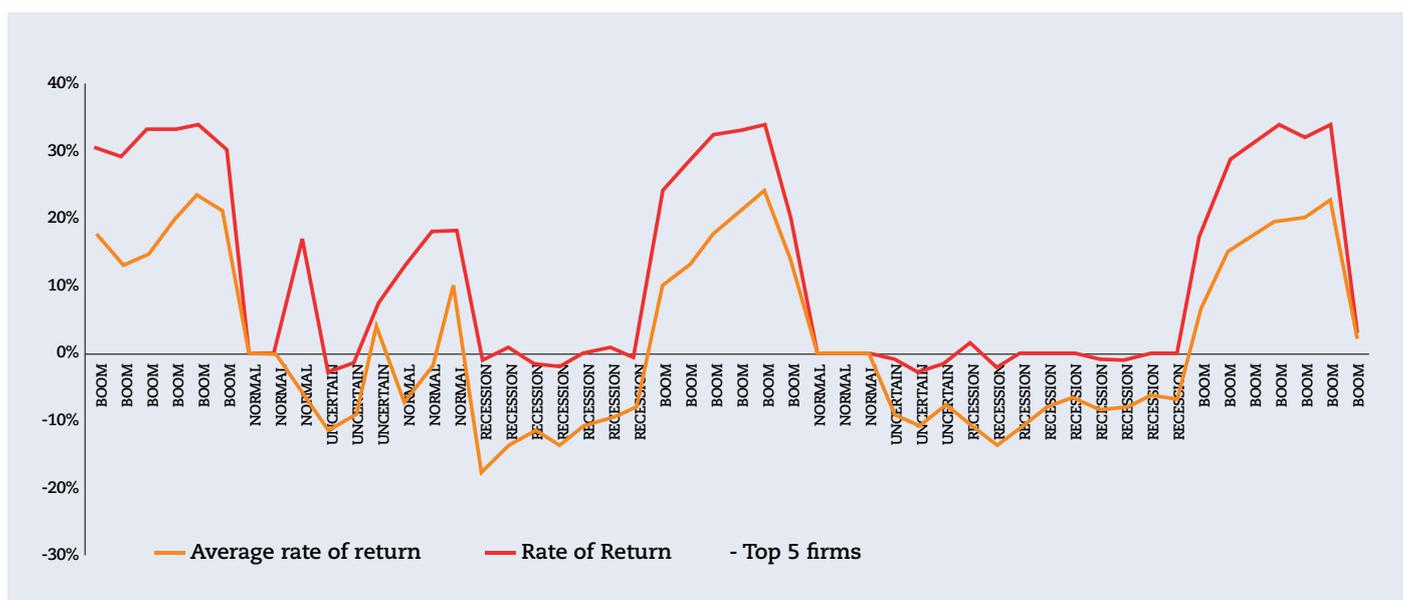


Figure 3: Surprise game: return statistics - 50-period simulation. Source: Willis Re and IIASA

of course, corresponds to Minsky’s Ponzi stage⁴) goes on, the lower the chances of surviving. It is these failures that bring about the switch to a Recession that is the home of the conservators.

CORPORATE FAILURES

- There is often a brief but intense wave of company failures at the beginning of this stage. As a rule the larger companies which still remain bite the dust here, because they tend to have a lower capital-to-cash ratio, and thus lower resistance to adversity, than their smaller brethren. The scale of companies is reduced rapidly, and the best performers are very small. The economic resources of the system

are turned into money rather than capital, usually fairly quickly. A particularly severe phase may result in the demise of almost every participant. Conservator beliefs come to pre-eminence, because holders of other views get rapidly surprised, if not bankrupted. This leads to the point where the market is awash with free cash. The market then reverts to a boom. One or two companies become profit-maximisers and do well (instead of becoming extinct as in preceding phases), and a new upswing is generated as their competitors imitate them.

Finally, we should note that this is not so much “full-circle” as “full-spiral”, in that all kinds of novel technological businesses will

have been introduced while many hitherto relied-upon ones will have been blown away in Schumpeterian gales of destruction.

The world of the surprise game model, built up from the typology of surprises predicted by the theory of plural rationality with only a few additional rules, is itself a surprise. That world is surprisingly like our own experience.

This model is strikingly different, however, from our standard models. With our standard models, we struggle to determine where to put the “Black Swans”. In the surprise game, those are the surprises – a fundamental aspect of the world, not an extreme outlier. ■

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Why clumsy ERM has prevailed

In this article in their series on the cultural (or plural rationality) theory of risk, Dave Ingram, Michael Thompson and Alice Underwood explain how the four approaches to risk perform in a changing world.

You have probably heard of a perfect vacuum, a frictionless surface, a fully liquid and continuous market and a risk-free rate. All are ideal theoretical constructs that help us to understand what to do in the real world. In the world of ERM, an analogous theoretical construct is called rational adaptation. Rational adaptation is the ideal theoretical construct of the best response to the changing risk environment.

In *Expect to be Surprised* (see page 8), we suggest that there is a recurring clash between the favoured strategies of risk managers and the constantly changing world. One reaction of risk managers to the problems that firms experienced in the recent/current financial crisis has been to place the blame for a lack of discipline on the ERM regime. To frame that idea in plural rationality terms, what they are saying is that firms need to avoid the changes in risk attitude that result from surprises, and to “stay the course” with their original risk management strategy in good times and bad.

SHOULD RISK MANAGERS “STAY THE COURSE”?

We can look at the surprise game (described in *Expect to be Surprised*, page 8) outcomes to see whether more discipline might be the answer. To do that, we looked at the result of one company in the 30-company model keeping their initial strategy no matter what. Averaged over a very large number of model runs and repeated for each of the four strategies, the “stay the course” results are shown in table 1.

Pragmatists, who make sporadic but low commitments of their resources in all environments, end up being underinvested in the boom and moderate environments but overinvested in the bust. Their diversification strategy produces the best relative results in the uncertain environment

but the possibilities for excess return in that environment are low. Through all times in the surprise game, the returns to the pragmatists average zero with considerable volatility and a 10% chance of failure.

Conservators follow a strategy of avoiding over-commitment at all costs to avoid ruin; the “stay the course” strategy can help meet their objective of avoiding failure in the surprise game. However, they mostly achieve that goal by keeping their returns very near to zero at all times.

Maximisers’ optimism will result in almost full commitment of resources at all times. This means that they get the most benefit out of the boom environment, but experience a very high level of volatility overall along with a very high likelihood of failure. In fact, rampant failures of maximisers often trigger a bust. In the surprise game, these maximiser firms rarely lasted throughout the entire run of the simulation. But with their success in the boom environment, they are able to achieve the highest average return during their short runs for any of the “stay the course” companies.

Managers who “stay the course” are able to achieve two-thirds of the average returns with two-thirds of the volatility but less than half the failure rate of the maximisers. Managers do well in the moderate environment and perform adequately in the boom and uncertain environments but are often totally ruined by the bust. This result is consistent with arguments that manager-type strategies overuse a Gaussian assumption for potential gains and losses.

The surprise game, as mentioned above, presumes that rather than “staying the course”, firms will follow the natural surprise process – changing strategy at some point in time after the environment changes and starts to give them signals that are disappointments. We suggest that Stay the Course and the natural surprise process are

not the only two options. Another approach is what we call rational adaptation.

THE RATIONAL ADAPTATION APPROACH

Rational adaptation looks at the complex four-state world described in *Four Seasons of Risk Management* (see page 2) and suggests how a frictionless ERM program would best operate. *The Four Ways to Do God’s Work* (see page 6) are the choices of the frictionless risk managers. Their plan is to align the risk strategy with the risk environment as the environment changes (see table 2.)

In the efficient market hypothesis (another of these theoretical constructs), there are three scenarios:

Strong – in which not even those with non-public information can obtain an advantage for trading.

Semistrong – in which all publicly available information is assumed to be fully discounted in current stock prices.

Weak – in which historical price data are efficiently incorporated into stock prices and, therefore, are useless for predicting future stock price changes.

So it is with rational adaptation – there are the same three scenarios:

Strong – in which the organisation is able to immediately identify the change in the risk environment and immediately identify the new risk environment. Risk management strategy is shifted immediately and seamlessly with no transition costs.

Semistrong – in which the organisation is surprised (see typology of surprises on page 10) but is able to quickly determine from the nature of the surprise the actual risk environment. Risk management strategy is shifted gradually to avoid onerous real transition costs.

Weak – in which the organisation is surprised and changes its risk attitudes and eventually its risk strategies in a natural process, without a clear idea of the underlying dynamics of the risk environment or the range of possibilities for risk management strategies.

Under the strong form of rational adaptation, the organisation would be in alignment with the risk environment at all times. Under the semistrong form, the organisation would be able to be in alignment with the risk environment most of the time and under the weak form their alignment with the environment would be primarily a matter of chance.

Table 1: Stay the course – outcomes from the surprise game

	AVERAGE RETURN	STANDARD DEVIATION OF RETURNS	FAILURE RATE
PRAGMATISTS	0	15.3	10.6%
CONSERVATORS	0	5.4	0.01%
MAXIMISERS	4.3	32.1	27.0%
MANAGERS	2.9	18.0	12.9%

RISK ENVIRONMENT	BOOM	BUST	UNCERTAIN	MODERATE
Risk attitude	Maximiser	Conservator	Pragmatist	Manager
Risk management Strategy	Risk trading	Loss controlling	Diversification	Risk Steering

Table 2: Rational adaptation

The strong form of rational adaptation is considered to be a theoretical ideal because the conditions required to achieve it are impossible in real life. Those conditions would include the ability to discern the changes in the environment at exactly the same time as the environment changes. That would require the ability to see perfectly the “signal” from the environment and to be able to completely filter out the “noise” that constitutes a large fraction of the volume of financial information.

In addition, it requires the organisational authority to force an immediate change in risk management strategy along with the ability of the organisation to correctly execute a completely different strategy from the moment it is required.

Finally, the strong form of rational adaptation may well require the fully continuous and liquid environments that were mentioned in the lead sentence as another theoretical construct. Strong rational adaptation may require the organisation to execute transactions at exactly the point when the change in environment causes the markets to cease being continuous and fully liquid.

The semistrong form of rational adaptation seems to be at least possible. It is in fact the strategy that many insurers seek to apply with regard to the non-life insurance pricing strategy¹.

The surprise game can be used to illustrate potential results for these three versions of rational adaptation (see table 3.)

Weak results range from much worse than any of the “stay the course” results to almost as favourable as those achieved by the managers under “stay the course.” Said another way, if a firm can achieve an adaptation success rate of 25%, or the expected result from random guessing about the environment, then their outcomes are expected to be about as favourable as the managers who maintain long-run discipline. Firms that are able to achieve some significant improvement over random guessing, in terms of identifying the environment as it changes and changing their risk management strategy, are able to achieve significantly better results in terms of returns and failure rates than any of the “stay the course” results. And, as predicted, the strong form of rational adaptation achieves a much higher return with lower failure rate.

It is important to note that the volatility

of results is fairly steady over seven of the nine strategies shown on the two tables, ranging between 15 and 20. This is because the volatility comes from the environment, not from the strategy. An important lesson to consider from that observation is that efforts to avoid volatility may be futile.

CLUMSY SOLUTIONS

Cultural anthropology offers one more potential response to the dynamically changing risk environment. The name for this alternative is “clumsy solutions”. A clumsy solution is a collaborative compromise between two or more of the four risk attitudes. A collaborative compromise requires a different approach than usual to risk. Usually, one group that favours a single risk attitude will achieve dominance through one means or another, and therefore be the ones who call the shots regarding risk decisions. To achieve collaborative compromises, the firm must acknowledge the validity of all four risk attitudes, the decision makers must not only listen to each of the other three perspectives, but they must also find solutions that incorporate some of the ideas from another risk perspective.

In the run-up to the financial crisis, the banks that had the most extreme version of the maximiser risk attitude were the ones that were leveraged 30-to-1 or more and fully exposed to the most profitable mortgage-backed securities. A few other banks, not willing to be quite so exposed, “left something on the table.” That is a pragmatist compromise with maximiser strategy. Those banks were seeking a “clumsy” solution and, as a result, their losses were not

quite so extreme. In the abrupt shift of the environment from boom to bust they were not able to fully apply a rational adaptation strategy, but their risk clumsiness saved their banks.

COLLABORATIVE COMPROMISES ARE WITHIN REACH

Rational adaptation in its strong form is an ideal: one that can be chased by those who believe that they have the transcendental talent, discernment and control to achieve it.

For the rest of us mere mortals, collaborative compromises are within our reach. All that is needed is the humility to recognise that those who disagree with the predominant view of risk just might be right.

Looking back at the financial crisis, we see that some of the firms who had the most aggressive maximiser cultures were the firms that had the most trouble when the environment shifted from boom to bust. Few, if any, insurers fell into that category, but several of the largest banks did.

A few insurers were at the extreme of the manager culture; they calculated their risk using sophisticated models and optimised their risk-adjusted return. They were usually as fully invested as the maximiser firms, though often more diversified. Some of these insurers suffered large losses in the crisis.

The banks and insurers that came through the crisis with less damage were usually those who were not fully maximised or fully optimised manager-style. They were the “clumsy” firms who did not fully trust that the environment would stay favourable and who did not trust the models to predict the exact correct path. They were making the collaborative compromise with the conservators and pragmatists in their firms.

The clumsy firms came through the crisis best. ■

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Table 3: Rational adaptation: results from the surprise game

VERSION OF RATIONAL ADAPTATION	ADAPTATION SUCCESS RATE	AVERAGE RETURN	STANDARD DEVIATION OF RETURN	FAILURE RATE
Weak	0%	-1.69	19.35	19.97%
Weak	25%	1.94	20.12	16.09%
Semistrong	50%	5.56	20.21	12.19%
Semistrong	75%	9.19	19.64	8.32%
Strong	100%	12.81	18.46	4.76%

A strategy to suit each point in the insurance cycle

Choosing a strategy to cope with the ups and downs of the business cycle has been an enduring quest for insurers. Alice Underwood and Dave Ingram offer a solution.



Looking backwards, it's so, so easy to be smart. For example, many insurance analysts are quick to point out that the business goes through waves of collective insanity where the entire sector underprices our product and then – when there's an exogenous shock, or when losses from inadequate pricing reach an unacceptable level of pain – insurers shift to over-charging. This is called the insurance cycle, or the underwriting cycle.

But if you admit that there are no “facts” available about the future and that all views about the future, no matter how widely or ardently held, are opinions, then it's possible to construct a story of what may be happening with the insurance cycle that allows all of the actors to be deemed rational. Since views of the future are opinions, we suggest that more than one opinion about the future may be considered rational. Which allows us to bring in the theory of plural rationality, which suggests four opinions, or four rationalities (see page 4.)

Most large groups of people, including insurance companies, will be dominated by one of these rationalities; but there are almost certain to be sub-groups inside the organisation with the other three beliefs. The interplay between these groups and their shifting power to drive insurer decisions can explain what we see with the insurance cycle.

THE INSURANCE CYCLE

For the purpose of this discussion, we describe the phases of the insurance cycle as follows:

Stage 1: Here Comes the Flood – capital floods into the insurance sector, increasing capacity.

Stage 2: Relax – premiums fall and underwriting standards loosen as insurers seek to deploy capacity.

Stage 3: Slip Sliding Away – profits erode and turn into losses.

Stage 4: Gloom Despair and Agony – severe underwriting losses are realised.

Stage 5: Tighten Up – insurers tighten underwriting standards and raise premiums.

Stage 6: Happy Days – dramatic increase in profits.

And back to stage 1.

Quite often, an insurer's recent performance tends to cause a shift of power, influence and even membership among factions within the company. Proponents of strategies that have recently been successful will gain greater influence, while advocates of strategies that have lately proven unsuccessful will lose influence.

Over the course of the insurance cycle, power tends to shift from maximisers to conservators to managers to pragmatists. At each stage, proponents of all four strategies still exist within the insurer; each will have a different reaction, a different suggestion

for company tactics, and a different level of influence on the actual decisions. This dynamic, played out across many firms, also fuels the cycle for the market as a whole; at each point in time, firms following a particular strategy will tend to dominate and drive market behavior.

STAGE 1. HERE COMES THE FLOOD

As capital floods into the insurance industry, maximisers (the eternal proponents of growth) are ascendant. They always have plenty of ideas for how to put that capital to good use.

Conservators are still focused on the losses of the last down cycle, remembering the mistakes that led to the worst business written then. Since they see no need for growth, they are usually marginalised in the decision-making process during this stage. Meanwhile, pragmatists worry about the firm's ability to handle the increasing volume of business properly. Managers keep churning out studies and reports, but these are not as popular as they once were. The carefully constructed rules that they promulgated in the bad old days of the prior cycle are starting to be ignored as much as they are followed.

STAGE 2. RELAX

Maximisers still rule the roost during this phase. They are happy to point out that profit

margins are still healthy, even if somewhat down from the heights that they reached in Stage 6 of the last cycle. Growth is still the maximisers' preferred strategy, though the insurer may need to stretch further and further away from the best business to achieve that growth.

Pragmatists are now coming around to the growth idea. They have mastered the procedures necessary to accommodate growth, and have received significant rewards for their newfound ability to support the strategy. At this point in the cycle, the market is dominated by firms in which the coalition of profit-maximising sales staff and back-office pragmatists works to successfully grow the company.

Conservators and managers are marginalised during this phase. Their messages of caution and analysis of the weaknesses of the business being written are not welcome.

STAGE 3. SLIP SLIDING AWAY

As the cycle shifts into losing territory, the pragmatist voice takes the lead, and many maximisers adopt pragmatist talking points. "Take things one day at a time, it's too soon to tell whether things are really all that bad." The very worst business is shed; reserves may be incrementally strengthened. Managers aid the pragmatists by suggesting carefully selected tightening of underwriting standards.

The conservators and maximisers fall out of favour. Conservators are screaming about the impending doom of the bottom of the cycle while die-hard maximisers claim that things will turn around if the firm stays with an aggressive growth programme; neither of these messages suits the cautious and uncertain mood of this portion of the cycle.

STAGE 4. GLOOM DESPAIR AND AGONY

But results continue to slip. More and more of the business written during the boom turns out to be unprofitable, and the initial reserves are recognised to be woefully inadequate. In this pessimistic environment, conservators are given control and they start to cut business right and left. They massively strengthen reserves and buy reinsurance at peak cost. Although pragmatists and managers may believe that a more moderate approach might work better, they support the conservators' efforts.

Maximisers are still in the doghouse. They argue that there are pockets of good business to be had, if those conservators would just let them write it.

STAGE 5. TIGHTEN UP

Following the review of underwriting, standards are tight and rates are much higher. The managers, the balancers of risk and reward with their models and reports, are now ascendant. They cite experts' theories of how to improve business through more scientific management. The company starts to grow, slowly, within carefully constructed guidelines.

Maximisers are now working with the managers to find ways to exploit opportunities. Pragmatists also favour growth, since they have seen expense ratios balloon alarmingly.

Conservators are still shouting about the unhealthy business being written, but they are not invited to as many meetings now that things are starting to turn around.

STAGE 6. HAPPY DAYS

With strict underwriting and increased premiums, profits soar. Managers remain in charge, but face pressure from the maximisers who complain that they are getting killed by the competition. Rates are too high, and too many good risks are being rejected.

Pragmatists are happy with things the way that they are, and generally support the managers. Not only are profits good, but also the carefully selected volume of business and low number of exceptions simplify processing.

The conservators find their group shrinking. Fewer and fewer people show up at their lunch table to complain about how the firm is going wrong. Their call for counter-cyclical reserve strengthening might find some traction with the dominant managers, but their influence is much diminished overall.

During each stage, the group in control picks up followers and the other groups shed followers. The natural human tendency to "go with a winner" reinforces the current power structure, at least until conditions change. Meanwhile, the same thing is happening in other firms, not wholly in lockstep, but the timing is close enough that the ups and downs of the market as a whole are reinforced and magnified.

For anyone who has experienced the whole insurance cycle, this may seem like a retelling of the obvious. But the new insight here is that these four risk strategies were identified over 25 years ago by anthropologists who were seeking to explain completely different situations. In the intervening years, these four groupings have been found over and over in many

different contexts.

Can the insurance industry learn something useful from this framework?

CONCLUSIONS

The first temptation might be to say that sticking to one strategy throughout the cycle would be best. However, there are two problems with that. First, a single strategy would be difficult to maintain. One of the key reasons for strategy change is loss of confidence in the old strategy. Second, any single strategy faces a point in the cycle when it offers a complete mismatch with the realities of the market.

Might a better timing of transitions among the four strategies produce the best results? With perfect foreknowledge, certainly it would! However, timing the insurance market is no easier than timing the stock market. While the framework of plural rationality theory offers many insights, judging how and when everyone else in the market will move and predicting the inflection points remains exceedingly difficult.

Those who have been using plural rationality theory to help with public policy disputes have found that the best solutions follow neither of those two routes. Instead, they have found strategies that incorporate all four viewpoints create the most reliable solutions. They call these "clumsy solutions" because they do not appear optimal to any of the four viewpoints, but they are acceptable to all. These solutions embody the maxim that a true compromise leaves all parties equally unhappy (see page 13.)

Therefore, a plural rationality theory analysis suggests that the best strategy for managing the insurance cycle would be one formed by a clumsy compromise agreement among the maximisers, pragmatists, conservators and managers. And, since the situation is extremely fluid, tactics at any point in time would also be clumsy adjustment to the strategy.

This discussion also provides a microcosm of the broad dynamics that play out on a larger scale for the entire economy. Proponents of each rationality, even when perfectly paired with the environment that they expect, will sow the seeds of their own destruction by the pursuit of what seems to them to be the best strategy.

In the insurance industry, we feel these effects particularly acutely because our business is risk. But it may be a relief to understand that temporary insanity is not required to explain the dynamics of the insurance cycle. ■

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