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# The Handbook of Risk management

## *Implementing a Post Crisis Corporate Culture*

PHILIPPE CARREL

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*Implementing a Post-Crisis Corporate Culture*

**Philippe Carrel**

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To Maurice

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# Preface

A journey has begun that leads towards a new economic model where controls of risks rebalance the excesses of the continuous quest for growth and capital efficiency.

During twenty years of economic growth separating the fall of the Berlin wall and the failure of Lehman Brothers, the world has created unprecedented wealth while adding some 3 billion consumers to its economic map. Yet the structures of the financial industry and especially the core values driving its endeavours did not change as deeply. Existing models were merely scaled up and replicated, capital efficiency remained a sole value of corporate culture. Globalization is associated with standardization and uniformity as all regulators abide by the principle of convergence.

The awaking was brutal when the interbank money market ground to a complete standstill in late 2008, which caused national monetary authorities around the world to massively intervene, or seek the assistance of the International Monetary Fund. At that point, everyone would finally recognize that the system was dysfunctional, yet so many warning signals since 2006 had been ignored or dismissed. There is abundant literature on what went wrong, the paths that led to the crisis and the lessons that can be learnt. However, a model mismatch is much deeper a problem than a crisis.

A new model is naturally necessary, which will rebalance the search for capital efficiency with the management of the risk appetite individually expressed by each company's shareholders and funding entities. Diversity, as opposed to convergence, will finally reappear as the way for the finance industry to function again as an ecosystem, a critical condition for enabling an economy of a 6.5 billion population to function.

A handful of global banks featuring standardized balance sheets and capital ratios computed on market-based data are bound to fail at one point when the pressure of repetitive tail events – the severity of which is directly linked to the concentrations of wealth they themselves create during boom times – will grow too high. Their scalability is not unlimited. The lack of diversity in strategies and purposes creates inevitable concentrations that favour the formation and inflation of asset bubbles.

The diversity of risks is unlimited and exponentially multiplied by an unlimited diversity of ways in which those risks might impact and combine. Similar risk exposure does not necessarily translate into identical sensitivity, depending on which firm or system it impacts. The companies' specifics, their traditional funding sources, their privileged customer base, the nature of their assets, their history – in one word their culture – determines the way they should adapt to risks. Each one needs to be able to manage their own balance of value creation versus risk generation, in the context of the ecosystems they operate within. How could Asian banks, for example, financing local industrial developments develop an approach to credit ratings similar to giant retail operations in the UK, mortgage specialists in the US or investment banks of Wall Street? Even if it were at all sensible to do so, the external conditions of credit, liquidity supply, currency volatility and unknown factors that direct the way sensitivity materializes make the approach totally irrelevant.

There is room for regulations imposing guidelines and core principles, but at a higher level, with respect to the spirit in which risk mitigation should be carried out by each individual corporation, within the one or multiple ecosystems they belong to. The recent trend, which consisted of centrally modelling a profile for the entire industry by rigid definitions of business lines, risk classes and uniform methodologies, achieved the opposite of what it aimed for. It impeded firms to adapt to their environment, thus increasing their idiosyncratic risks. This is assuming that tail risks were only idiosyncratic in nature-enhanced systematic risks. The rigidity and complexities of entangled regulatory rules led systematic risks to externalize into systemic risk.

Regulators should not be required to say what should be done or how much is good enough. Even it were at all possible, it could only be achieved in the context of what is known at a given point in time, and thus, by definition, is unsuited to future developments. Instilling a culture for each and everyone to learn how to live with their own risks, adapt to the changing nature of risks and how to align them with their

shareholders' and customers' expectations would be far more beneficial and adaptive.

Since the Glass–Steagall Act was repealed in 1999, many bridges were thrown between the worlds of securities and banking. Financial institutions were able to seek performance through inorganic and horizontal expansion, with the aim to become 'universal', grow value and conquer markets. Simultaneously, the demographics of consumers and savers, investors and funds deeply changed their needs and their behaviour. The quest for financial returns may be unchanged but the factors of risks willingly or unwillingly embarked through alternative investment strategies are entirely new to most. As a result, opaque levels of unwanted risks were transferred across continents, industries and indirectly allocated to investors supposedly averse to those types of risks. How could holders of European pension funds end up indirectly exposed to the US subprime real estate market through funds of funds, for example? A combination of uniform strategies and regulatory limitations incentivized the moves. Firms believed they needed what they thought was a 'low hanging fruit', while regulations compelled them to operate through securities.

Just like banks, all collective investment schemes, asset managers, private wealth management companies and hedge funds need a universal tool to adjust their risk exposure to the appetite of their clients, shareholders and whoever finances their operations. They need risk intelligence.

A financial ecosystem is not necessarily a sector in a country or a region. It is defined by risk profiles, factors of exposure and a community of partners and counterparties. Each financial ecosystem needs to re-learn how to independently adapt to the unpredictability of risk events in distribution and magnitude. Just as firms need to build some 'corporate DNA' whereby their anticipation of risks and sensitivity mitigation rules have become genetic information, so the financial ecosystem communities will also individually need to develop their own code of adaptation based on risk intelligence. This requires a whole culture of communications and transparency, an unlimited body of knowledge to be built, maintained and understood.

Supranational regulators and industry representatives are needed to foster the necessary culture to create an overall understanding of risk and adapt to it. The boundaries would be no longer ratios but ethics. Requirements would not be limited to some regulatory language but extended to multilateral dialogues for the authorities to assess

idiosyncratic risks and compliance while creating risk intelligence to the benefit of the entire industry. The methods would not be limited to 'carrot and stick' but become productive exchanges of information. The rules of engagement and disclosure policies would be adaptive to the overall levels of risk and volatility faced by the system at different times.

This handbook proposes a methodology derived from countless discussions around the world with banks, asset management companies of all sizes, fund managers, regulators, central banks and governments that I have been given to meet through my assignments with Thomson Reuters. In the aftermaths of the 2007–2009 crisis, each of them faces new challenges and develops new ways to rebalance the creation of shareholder or commercial value with the generation of risk exposure. It is also based on a research of only the most recent approaches from scholars and thought leaders, in an effort to picture the looming aspects of post-crisis risk management.

This handbook gathers the spirit of their endeavours, as a set of key principles aiming to inspire the readers and their firms to start codifying their own culture as elements of corporate DNA embedding the core values of risk management.

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# 1

# Introduction: Risk is People's Business

## 1.1 THE ESSENCE OF CAPITALISM

Risk is the essence of free enterprise in liberal economies. The very act of incorporating a firm is an expression of risk appetite by which a number of partners will be holding liabilities to produce value and profit and meet a development objective. Meeting the revenue and profit objectives within the boundaries of the risk appetite is the mission of the executive management team. The Chief Executive Officer is the guardian of that bond between the shareholders and the board of executive directors.

The assets and human resources involved must therefore be utilized to maintain this balance between generating value and controlling risks. As such, one may argue that the discipline of managing risk has always existed. Since the 18th century's Industrial Revolution, firms have invested, created value, survived crisis, adapted to changing technology, competed against each other and weathered many crises and wars. Or have they? Few firms actually last more than 50 years. A minority may last more than 100 years. Others, on the other hand, will most likely cease to have a purpose as their shareholders lose their appetite for risk or operate in unsustainable conditions; some others might fail. In any case, these firms somehow lose the balance between generating value in reward for labour and capital and the risks involved. The very few that survive, expand and thrive usually evolve at a staggering pace, through organic and inorganic growth, continuously adapting and innovating from core business to new market niche, often transfiguring in each decade.

The transformation leading to survival is a demonstration of balance between risk and value management. Seldom a smooth transition, the history of corporations is fraught with crises, failures and restarts. More often than not, change is a painful implementation. It is the evolution of risks, the unexpected ones in particular, that seems to be pushing the boundaries of innovation by changing the conditions for survival.

Corporations and governments are forced to adapt as they face unstable and unsustainable situations – namely crises. Therefore they are periodically compelled to find new balances between risk and value generation, going from crisis to crisis. In other words, no approach to risk management, despite a brilliantly designed one, can be set in stone and dogmatically dictated to future generations of managers. Risk management is a continuous search of equilibrium, just as the balancing pole of a tightrope walker is always in movement. Managing risks requires bringing into question the very hypothesis it relies on, time and again.

In the finance industry, risk management is of even greater importance since the core business is about managing others' money – others being the depositors of a bank, the investors of a fund or clients of an asset management service. It is also about managing others' risks – corporates, retail customers or funds that operate on margin. So there is a double balance between value and risk generation to be maintained when operating in the finance industry – the balance of any corporation between risks and the value extracted from growth and operations and the balance between customers' risks and customers' support.

As the link that holds all business sectors, households, corporations, governments and institutions together, the finance sector plays a central role in every economy. Since the late 1960s, no business, administration or institution would run any operation by funding any part of its activities in cash. Hence the finance industry plays a far more critical role, akin to a heart pumping blood throughout an economy. The modern theories of efficiency in management have led absolutely every agent of a modern economy to operate 'on margin'. Banks lend to corporates to invest, corporates in turn lend to each other to produce, whereas customers and retailers use credit for all they consume. Credit and financial activity is absolutely everywhere, in everything we touch, drive, produce and consume. Since the late 1980s, the fall of the Berlin Wall and the emergence of new economies, the model has become global. As a result, one can say that the whole world economy runs 'on margin', as a gigantic hedge fund. Therefore the balance of risks and value generation is even more crucially necessary for the finance industry. Losing it immediately impacts on other parts of the economy as any imbalance spills over its externalities to other sectors.

## 1.2 THE MOVE TO MODELS; WHEN RISK CEASED TO BE MANAGED

The above reasoning leads to an obvious conclusion that risks somehow existed ever since the very notion of investing for generating some kind of return was born. One can therefore state that from the agriculture of the Romans to the Industrial Revolution, the techniques of financial risk management have slowly evolved and inherited their progress from the growing sophistication of financial instruments, starting with the currencies of the kings and letters of credit they would issue, where the very first forms of securitization appeared in the 17th century.

Yet the term of risk management as an art or a science (at the very least as a discipline) appeared in the late 1990s, when an end-of-day report at JP Morgan that was produced at 4:15 pm became the '4:15 pm report' – a statistical assessment of potential losses in the future based on the volatility and the covariance of assets in a portfolio. Value-at-risk (VaR) was born. JP Morgan later spun off the service into a start-up that became Riskmetrics and further developed risk management software and services. Other methodologies appeared and risk management was better publicized as a new profession when in 1996 a book by Professor Philippe Jorion, *Value-at-Risk*, presented several methodologies to compute VaR and a building block methodology to implement those calculations across the enterprise. Many other publications and variations appeared immediately after but it is a fair assessment to recognize the role of JP Morgan, RiskMetrics and Professor Philippe Jorion in the formal establishment and development of risk management techniques.

Ironically, risks ceased to be managed on the very instance risk management attempted to become a form of science. In fact, from that moment onwards, the finance industry merely managed data and models, and progressively detached the management of risks from the risk management functions.

VaR then proceeded to spread around the world like wildfire. Large banks embarked in education programmes for their clients, lectured the emerging markets and presented the very use of VaR as a management tool as though it was a label of quality. There were few dissenting voices claiming that overreliance on VaR presents a false sense of confidence to the industry as it was, after all, a modelled prediction of exposure and by no means a protection against risks. A few duels over the Web and white papers distinctly opposing Philippe Jorion, and Nassim Taleb, a

long-time specialist of financial derivatives, unfortunately reached only a niche of the financial industry interested in this very specific issue and failed to alert a broader audience such as the regulators.

In addition, the cry from the failure of Long-Term Capital Management (LTCM) could have been heard as a warning against model risk and dependence on modelled exposure, but it was interpreted differently. The emerging market meltdown that followed was instead seen as a lack of risk management techniques, which prompted the regulators to recommend a more formal approach.

This led to the Basel Committee for Banking Supervision (BCBS) consultation of the industry in the late 1990s to set up guidance rules for each central bank to enforce itself to some extent. As the consultations were essentially focused on large banks, which at that time seemed to have all the answers, they were quickly directed to quantitative analysis, VaR-based capital allocations and the building blocks approach. The language of Basel 1 and Basel 2 formally associated risk management sophistication with predictive modelling of market and credit exposure. The roadmap, transitional arrangements to implement risk management frameworks, would typically consist of laying out some foundation followed by refining the approach over time. Be it for market, credit or operational risks, for capital allocation, securitization or liquidity management, fine tuning in risk management was always implicitly associated with more sophisticated statistical analysis and modelling.

The generalization of VaR as a management tool and the fact that the regulators formally endorsed the methodology as the best approach to measure risk exposure and sensitivity would have two major consequences on the finance industry. First, risk management became essentially associated with modelling and statistical analysis. Second, risk management was inappropriately associated with regulatory compliance. In other words, the balance of risk and value generation, which had always been the discretionary practice of each enterprise as they adapted to changing conditions, was now handed over to mathematical models guided by standards defined by regulators. Risk management was thus not only detached from the business activities of the enterprise but was entirely removed from it.

Hordes of business and technology consultants roamed the planet with a two-pronged value proposition: First, model-based risk management dashboards are to be implemented to maintain a competitive edge in derivatives, control the costs of trading operations and monitor credit

exposure. Second, banks can actually reduce the cost of the approach by optimizing their risk-based regulatory economic capital. The complexity of implementing statistical modelling and the magnitude of projects for creating straight-through processes throughout the enterprise remained a blessing for consulting firms, quantitative analysts and IT departments, but further isolated the practice of risk management into ivory towers of science and computing technology, further away from business reality and even from the executive managers.

A third consequence would eventually impact the entire world economy. The regulators embraced the methodology of statistical analysis as a main standard for computing net exposure, and hence risks and mitigations, as well as the capital structure ratio of financial institutions. This led to a worldwide standardization of capital ratios and in unprecedented uniformity of risk mitigation tactics and diversification strategies. For example, by recognizing credit mitigation tools to net out counterparty exposure, the regulators indirectly incentivized the use of credit derivatives. In a deregulated fast pace global economy driven by a relentless search for growth and capital efficiency, banks soon found themselves compelled to use credit derivatives.

When a rigid and uniform set of rules defines the conditions for doing business, it also shows the way by which those rules can be circumvented. In this case, the modelled approach to risk-weighted economic capital, resulted in a massive undercapitalization of the industry since banks were allowed to literally clean up their balance sheets of unwanted credit quality by mean of securitization and off-balance sheet schemes. More capital available would further inflate the lending capabilities, which would result in an even poorer credit quality standard, further fuelling the speculative bubbles and ballooning securitization.

Evidently, the chaos of the 2008–2009 crisis did not wait for the subprime crisis of 2007. It results from a long process in which statistical analysis progressively replaced human judgement, while electronic processing replaced informed decision. Financial institutions gradually lost sight of their internal balance of risk and value generation in respect of corporate policies desired by the shareholders. Externally, a culture of uniformity and convergence progressively replaced the corporate diversity that kept markets in balance. With financial institutions increasingly embracing similar strategies and tactics for business purposes and adopting standardized rigid financial structures, and the world economy operating like a leveraged hedge fund, it was only a matter

of time before the entire structure lost its own balance and brought risk management into question.

## 1.3 THE DECADE OF RISK MANAGEMENT

Risk management brings balance sheets into perspective. Performance and especially overachievements can be perceived negatively. When investment banking divisions, for example, benefited from the exceptional volatility of all markets at the beginning of 2009, they were requested in many firms to bring transparency to their results or they would risk being considered potentially hazardous to their groups.

As the management of risks validates the performance of a firm, it becomes a strategic driver within firms, therefore deserving a new level of consideration. The role of the risk managers is changing accordingly since they now hold the keys of enterprise value. Functions that create value and are essential for firms to grow have a massive impact on corporate hierarchies, on the relative importance of the C-level executives sitting on the boards and on how Chief Executive Officers (CEOs) are selected. In the 1960s, for example, firms could grow through industrial development and technical innovation as the post-war world was accelerating its modernization. Engineers who could invent new products to create wealth and growth were a driving force of corporate strategies and their views would drive strategies. The companies that thrived in this new world were the innovative powerhouses of the automobile and electronic industries. Instilling a culture of innovation within their core structures, they organized their entire operation around the process of inventing, manufacturing and distributing. Then in the 1970s, the consumers' markets of the developed world saturated and it became more critical to sell products than to produce them. It became the decade of marketing, advertising and publicity. Marketing divisions became powerful influencers. The cultural changes led to the appointment of chief officers for 'marketing and innovation' in large organizations who owed their success to their capability to convey their messages before shipping their products. The CEOs of the 1970s were likely to be picked from among them.

In the 1980s, the developed markets were saturated with both products and communications. To maintain growth, firms needed to become international. Firms started to systematically export their products and relocate their productions; the critical size for firms to become multinationals was dramatically reduced. Chief Financial Officers (CFOs)

then replaced the engineers and the marketers as leading influencers of corporate strategy. It was their turn to hold the keys of the true value behind the balance sheet. This trend accelerated so much in the 1990s, with the emergence of the new economies of Asia, Central Europe and Latin America, the NAFTA agreement, the fall of the Berlin Wall and the entry of China to the World Trade Organization (WTO), that firms were no longer challenged to meet the requests of local and international clients but to develop strategies to cover the world. A decade of merger and acquisitions (M&As) followed, where the power shifted from pure finance to financial engineering. Firms would no longer wish to be present in every country. Translating, converting, adapting and communicating their offers would take too much time and effort. Growth and capital efficiency would rather result from mergers, acquisitions and – less publicized – 'unmergers' and division sales. The new generations of CEOs dreamt of becoming one of those visionary heroes who built empires like one manages a portfolio, buying and selling financial, technical and human resources based on return and capital efficiency. Shareholder value was the main focus, as long as it was achieved and rewarded appropriately, the amount achieved did not matter. This is where the disconnect between C-level board executives and the rest of the operations actually happened, leading to the compensation mismatch that later created public outrage. By merely recognizing performance through capital efficiency, the fate of CEOs, senior executives and whoever is incentivized with tools relating to shareholder value is no longer directly linked to the technical, commercial or human achievements of the company.

The early 2000s did not change much from the philosophy of the previous decade apart from, following the repeal of the Glass–Steagall Act in 1999, the fact that the spheres of banking and securities were bridged to create even faster development, higher leverage and unheard of returns on capital.

Clearly, then, the 2010s will be the decade of risk managers. New CEOs of ailing financial groups are increasingly being selected based on their risk management skills and experience, a trend that no doubt is expected to continue. In 2008 and 2009, the worst crisis since the Great Depression highlighted the urgency of restoring the lost balance, which made risk management the top priority of all regulators and most governments. Yet a stronger dose of a medicine that failed – or even made things worse – is unlikely to durably cure the patient. Making the rules even more rigid would not fix their vulnerability. Fixing methodologies