The Handbook of Pisk management

Implementing a Post-Crisis Corporate Culture

PHILIPPE CARREL

The Handbook of Risk Management ____

Implementing a Post-Crisis Corporate Culture





This edition first published 2010 © 2010 John Wiley & Sons, Ltd

Registered office

John Wiley & Sons Ltd, The Atrium, Southern Gate, Chichester, West Sussex, PO19 8SQ, United Kingdom

For details of our global editorial offices, for customer services and for information about how to apply for permission to reuse the copyright material in this book please see our website at www.wiley.com.

The right of the author to be identified as the author of this work has been asserted in accordance with the Copyright, Designs and Patents Act 1988.

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording or otherwise, except as permitted by the UK Copyright, Designs and Patents Act 1988, without the prior permission of the publisher.

Wiley also publishes its books in a variety of electronic formats. Some content that appears in print may not be available in electronic books.

Designations used by companies to distinguish their products are often claimed as trademarks. All brand names and product names used in this book are trade names, service marks, trademarks or registered trademarks of their respective owners. The publisher is not associated with any product or vendor mentioned in this book. This publication is designed to provide accurate and authoritative information in regard to the subject matter covered. It is sold on the understanding that the publisher is not engaged in rendering professional services. If professional advice or other expert assistance is required, the services of a competent professional should be sought.

Library of Congress Cataloging-in-Publication Data

Carrel, Philippe.

The handbook of risk management : implementing a post crisis corporate culture / Philippe Carrel.

p. cm.

ISBN 978-0-470-68175-6

1. Risk management. 2. Corporate culture. I. Title.

HD61.C367 2010

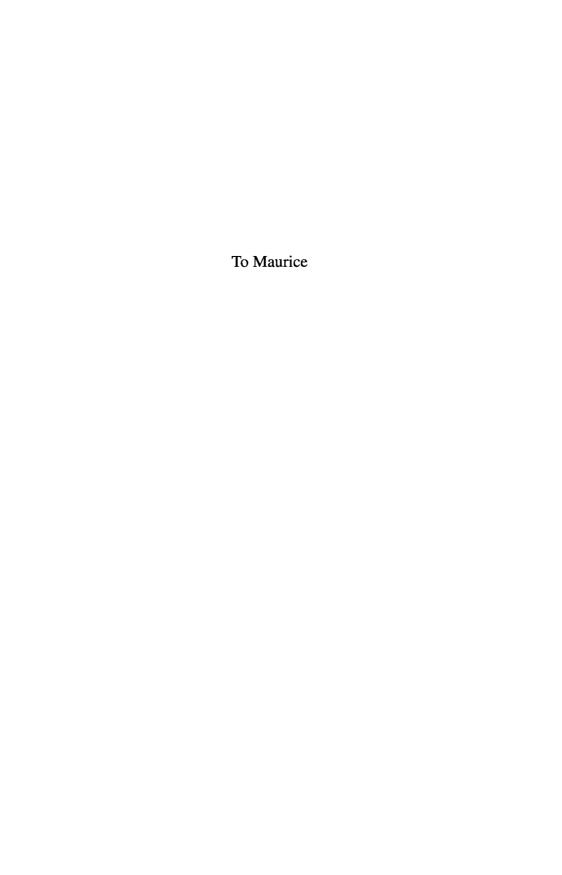
658.15'5-dc22

2009054371

A catalogue record for this book is available from the British Library.

ISBN 978-0-470-68175-6

Typeset in 11/13pt Times by Aptara Inc., New Delhi, India Printed in Great Britain by TJ International Ltd, Padstow, Cornwall, UK



	_ 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.

Acknowledgements	

I would like to extend special thanks to Lim (Asta) Yann Shinq, without whom this project would have remained a project, and to Thomson Reuters for providing me with the necessary exposure and trust to complete it as well as technical and data support.

_____ Contents _____

Pr	Preface		
Ac	knov	wledgements	xix
1	Intr	roduction: Risk is People's Business	1
	1.1	The Essence of Capitalism	1
	1.2	The Move to Models; when Risk Ceased to be	
		Managed	3
	1.3	The Decade of Risk Management	6
	1.4	Risk Intelligence Precedes Risk Management	9
	1.5	Risk Management and the Human Dimension o	\mathbf{f}
		Capitalism	10
		1.5.1 Risk scales and balances	10
		1.5.2 A risk culture is corporate DNA	11
PA	RT 1	DISTRIBUTING RISK EXPOSURE AND	
		SENSITIVITY ACROSS THE ENTERPRISE	13
2	Ide	ntifying Risk Factors	17
	2.1	Specific Risk Factors	17
		2.1.1 The search for risk factors	18
		2.1.2 Root-risk factors	20
		2.1.3 Identifying valuation risk	24
		2.1.4 Identifying liquidity risk	26

	2.2	Systematic Risk Factors	27
		2.2.1 Portfolios of external risks	28
		2.2.2 Systematic risk and factors correlation	29
3	Wor	rking with Risk Factors	33
	3.1	Approaching Risk Through Sensitivity and Scenarios	34
	3.2	•	35
	3.3	Back-Testing and Maintaining the Factors	37
4	Wor	rking with Scenarios	41
	4.1	Scenario Definition	43
	4.2	High-Severity and Worst Case Scenarios	43
	4.3	22 2 Z	45
	4.4	Aggregating Scenarios	47
5	Fro	m Aggregated Risks to Distributed Risks	51
	5.1	The Traditional Approach to Risk Management has	
		Led to the Modelling of Exposure by Business Lines	51
	5.2	Distributing Risk by Risk Factors Leads to Creation	
		of a Culture	53
	5.3	Distributed Risk Implies Data Analysis	54
6	Cre	ating an Adaptive Information Workflow	57
	6.1	Getting the System to Evolve	59
	6.2	Moving on to the Next Step	61
PΑ	RT 2	EMPOWERING BUSINESS AND RISK UNITS	
		WITH RISK MANAGEMENT CAPABILITIES	65
7	Allo	cating Risk Management Capabilities	67
	7.1	Business Managers are Risk Managers	68
	7.2	The Role of Executive Risk Committees	71
	7.3	The Role of Audit and Control Units	73
8	Miti	igation Strategies and Hedging Tactics	75
	8.1	Front-line Business Units	75
	8.2	Operational Units	77
	8.3	Management	78
	8.4	Risk Committees and Audit Controls	80

		Contents	ix		
9	Risk	Independence or Indifference to Risk?	83		
	9.1	Role of the Shareholders and Nonexecutive			
		Directors	83		
	9.2	Responsibility and Accountability	84		
	9.3	Control and Report Hierarchy	85		
10	Risk-	-Weighted Performance	89		
	10.1	Principles of Risk-weighted Measurements	90		
		10.1.1 Mark to time-weighted volatility	91		
		10.1.2 Business resilience and countercyclical			
		approaches	93		
PAI	RT 3	CREATING AN INFORMATION WORKFLOW			
		FOR CONTINUOUS FEEDBACK AND			
		PREVENTIVE DECISION MAKING	95		
11	From	From Risk Appetite to Risk Policies			
	11.1	Risk: The New Bond	99		
	11.2	Dynamic Two-way Information Workflow	100		
	11.3	<u> </u>			
		of Action	101		
	11.4	The Dynamic Assessments of Risk Factor			
		Sensitivities	102		
		11.4.1 Risk factor appropriateness tests	103		
	11.5	•	104		
		11.5.1 Triggers	105		
		11.5.2 Dynamic, swappable mitigation tactics	106		
12	Botto	om-Up Activity Feedback	109		
	12.1	Keeping a Finger on the Pulse	109		
		12.1.1 Continuous efficiency monitoring	110		
		12.1.2 Test and result certification	110		
	12.2	Aggregating Scenarios: The Actual Risk Appetite			
		of the Firm	111		
	12.3	Towards a Risk Information Bus for IT Purposes	112		
13	Ente	rprise-Wide Aggregation	115		
	13.1	Cross-asset Sensitivity Aggregation	115		
	13.2	Cross-division Aggregation Potential Pitfalls	117		

		13.2.1	Cross-market effects and correlations	118
		13.2.2	Of correlation and liquidity	118
		13.2.3	Model and valuation risks	119
		13.2.4	Technology risks	122
14	Top-	Down De	ecisions and Feedback	123
	14.1	Risk Da	ashboards	123
	14.2	Pre-em	ptive Decision Frameworks	124
	14.3	An Inte	eractive and Adaptive Workflow	120
	14.4	Hierarc	chy, Decisions, Overruling	127
15	Deri	ving a Fi	rm's Actual Observed Risk Appetite	131
	15.1	Modell	ing Worst Case Scenarios	132
		15.1.1	Aggregating figures	133
		15.1.2	Aggregating qualitative assessments	134
	15.2	Risk Po	olicies Reconciliation	135
		15.2.1	Quantitative: risk factors, sensitivity,	
			scenarios	136
		15.2.2	Qualitative: implied assumptions,	
			distributions, correlations, market	
			evolutions, back-testing	138
		15.2.3	Solvency and liquidity management	139
		15.2.4	Systematic risks	141
		15.2.5	Regulatory risks	144
PAI	RT 4	ALIGNI	NG FUNDING STRATEGIES AND	
		LIQUID	ITY MANAGEMENT TACTICS	
		WITH C	ORPORATE RISK POLICIES	147
16	Liqu	idity, the	Ultimate Operational Risk	149
	16.1		ning the Internal Balance	149
	16.2	Internal	Sources of Liquidity Risks	150
	16.3	Externa	l Sources of Liquidity Risk	152
17	Anal	ysing and	d Measuring Liquidity Risks	155
			on-driven Liquidity Risks	155
	17.2			156
	173		e-counter Morkets	157

18	Func	ling Risk		159
	18.1	Asset Lia	bility Risks	159
	18.2	Systemati	c Sources of Liquidity Risks	160
	18.3		ation Risks	161
		18.3.1 I	Dynamic concentrations	163
		18.3.2 C	Concentration risk measurements	165
		18.3.3 C	Counterparty interdependence	166
		18.3.4 F	Regulatory-driven liquidity risk	167
19	Man	aging and	Mitigating Liquidity Risks	169
	19.1	Laying D	own the Foundations of a Corporate	
		Strategy	-	170
		19.1.1	Chosen risk factors and appetite for risk	170
	19.2	Monitorin	ng Concentrations	172
	19.3	Working	with Risk Concentrations	172
		19.3.1 F	Reconciliations or risk concentrations and	
		r	isk policies	173
		19.3.2 N	Managing concentrations	174
	19.4	ALM Ana	alyses and Liquidity Management	175
		19.4.1 N	Margin and business risk analysis	176
		19.4.2 S	Sensitivity of duration gaps	178
			Convexity gaps	179
	19.5	Valuation	Risks	181
		19.5.1 N	Market depth	182
		19.5.2	Counterparty-related liquidity risks	183
		19.5.3 C	Corporate governance	184
	19.6			184
	19.7		lity Risk and Correlation	186
	19.8	Funding S	Strategy is a Risk Profile	190
PAI	RT 5	EXTERNA	AL COMMUNICATIONS,	
		DISCLOS	URE POLICIES AND	
		TRANSPA	RENCY	193
20	Exte	rnal Comn	nunications	197
	20.1	Risk, the	New Media	198
	20.2	Disclosur	e Policies	199
		20.2.1 C	Communications directed at regulators	
			and industry representatives	199

		20.2.2	Communications directed at shareholders	205
			and funding partners	207
		20.2.3	Communications directed at the public	210
		20.2.4	Public relations and disclosure policies	212
21	Enha		ransparency	215
	21.1		and Valuations Transparency	215
	21.2		arency of Internal Processes and Procedures	218
	21.3		arency of Corporate Governance Rules and	
		Externa	d Communications	221
22	Infor	mation l	Exchange for Risk Intelligence	223
	22.1	Proposa	al for a Global Credit and Collateral	
			re Surveillance Scheme	223
	22.2		al for a Taxonomy of Path-dependent	
		Derivat	ives and Retail Structured Products	225
	22.3		telligence Ratings	227
		22.3.1	Valuation risk ratings	228
		22.3.2	Risk-based pricing frequency	228
PA]	RT 6	THE RE	GULATORY UPHEAVAL	
		OF THE	22010s	231
23	The	Great Ui	nwind	233
	23.1	Regulat	tory Reshuffle	233
		23.1.1	How risks have evolved	234
		23.1.2	From risk regulation to regulatory risks	237
24	Prop	ositions	for a Regulatory Upheaval	243
	24.1	Proposi	itions Relating to Idiosyncratic Risks	244
		24.1.1	Risk concentration benchmarks	245
		24.1.2	Departure from the generalized	
			assumption of normality	246
		24.1.3	Benchmarks of risk exposure and	
			liquidity concentrations	247
	24.2	Proposi	itions Relating to Systematic Risks	250
		24.2.1	Required Disclosure of Term Structures	
			of Assets and Liabilities in Foreign	
			Currencies	251

		Contents	xiii
	24.2.2	Dynamic capital adequacy requirements	251
	24.2.3	Preserving diversity	254
24.3	Propositions Relating to Systemic Risks		255
	24.3.1	Establish controls for cross-industry	
		transactions and exposure netting	256
	24.3.2	Simulations involving multiple sectors and	
		regulators	257
Index			259

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.