

McKinsey Working Papers on Risk, Number 44



Concrete steps for CFOs to improve strategic risk management

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Concrete steps for CFOs to improve strategic risk management

Introduction

Most major companies have risk-management processes in place to identify, assess, and respond to ongoing and emerging risks to the business. Yet many are finding these processes inadequate for today’s volatile and uncertain environment. One crucial gap is *strategic* risk management—understanding of the critical, enterprise-wide risks affecting the company’s ability to reach all of its strategic aspirations; making deliberate choices as to which risks to take; and having explicit consideration of risk/return trade-offs during major business decisions—as opposed to risk *mitigation* to manage surprises once decisions are made and are being executed.

Good strategic risk management requires a concerted effort by all top decision makers. As stewards of a company’s financial health, CFOs need to play a lead role in orchestrating these efforts. Fortunately, key elements of strategic risk management are natural extensions of several activities CFOs already perform, so it is relatively easy to lead by example.

Conventional risk management

In any company, risk taking is a fact of life, and the first line of defense against undesirable or excessive risk lies in the actions and decisions of line management. Typically, specific risk policies are in place, so these decisions are not arbitrary, but it is line management who is responsible. Exhibit 1 gives a simple view of this approach, which involves a risk register that often runs to hundreds, sometimes thousands, of items.

At the other extreme, overall risk oversight is the ultimate responsibility of the board of directors. Most companies attempt to bridge the chasm between the two by having a small central risk function in place to manage a comprehensive list of risks identified throughout the business, with an assessment of severity, probability, and, ideally, mitigation actions and who is responsible. A description of the synthesis of risk responsibilities is created for top management and the board, often in the form of a dashboard or heat map.

Exhibit 1 A comprehensive risk register is a typical but insufficient practice.

Control

- Select mitigation actions to be reviewed systematically
- Automatically updated with data surfaced from project organization

RISK MITIGATION DASHBOARD								
Risk score		Status of the mitigation						
<input type="checkbox"/> Very high	<input type="checkbox"/> Not started	<input type="checkbox"/> In progress - behind schedule	<input type="checkbox"/> In progress - on schedule					
<input type="checkbox"/> High	<input type="checkbox"/> In progress - on schedule	<input type="checkbox"/> In progress - ahead of schedule	<input type="checkbox"/> Mitigation completed					
<input type="checkbox"/> Medium								
<input type="checkbox"/> Low								
<input type="checkbox"/> Very low								
<input type="button" value="Update risk dashboard"/>								
Category	Risk group	Description of risk item	Score	Owner	Mitigation actions	Status of mitigation	Comments on status	Date for mitigation completion
Execution	Equipment preservation	There is no area for protecting equipments from exposure elements	Very high	Mr. XXX	Build protected warehouse for keeping uninstalled equipment by week WW	Not started	Site design of warehouse, waiting for engineering approval from Mr. AAAA	dd / mm / yy
Execution	Equipment preservation	Fluid in the existing equipment will possibly require replacement of piston pumps	Very high	Mr. XXX	Assess current status of equipment damage, list those requiring replacement, and purchase replacing units	In progress - behind schedule	Set with damaged equipments ready, pending approval from Mr. ZZZZ for purchase	dd / mm / yy
Execution	Equipment preservation	Specialized workers required for refurbishment of damaged equipment is not readily available	High	Mr. XXX	Expedite hiring process - 3 people on site, by month X are required	In progress - on schedule		dd / mm / yy
Execution	Equipment preservation	Warranties do not cover equipment damages after site delivery	Medium	Mr. XXX	Hire insurance or negotiate warranty extensions for new contracts	In progress - ahead of schedule		dd / mm / yy

Risk group

- Risk groups combine related risks to allow for clear owner assignment and effective mitigation tracking

Description of risk item

- Specific risks under each grouping will be the base for:
 - Likelihood and impact evaluation
 - Mitigation action development and tracking

Comments and completion date

- Comments explaining the status or required actions
- Date expected of mitigation completion

This approach, when it stops there, suffers from four deficiencies.

First, the risks considered are usually heavily biased toward current operations and rarely include risks affecting plans related to future growth (for example, what will it take to deliver a megaproject that currently exists only on paper, or to meet an aspirational revenue or profitability target in an uncertain economy?). This bias is more severe for medium- and long-term plans than for the current financial plan.

Second, this approach often misses crucial external factors which people “inside the machine” view as beyond their control (for example, important regulatory change or supplier performance) but which may well be the most important risks the company needs to be ready to deal with.

Third, the whole process feels like a deathly boring review of what everyone already knows, or even an unpleasant, necessary evil, like going to the dentist.

Finally, and perhaps most damningly, risk management done this way kicks in too late to be strategic. Risks bubble up for discussion once plans have been approved and decisions made—it’s all about risk *mitigation* and very little about risk *choices* and *trade-offs* that might inform a company’s strategy.

Role of the CFO

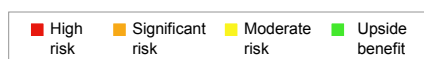
In addition to managing financial-operation risks (such as liquidity and counterparty credit), CFOs can further augment their roles as stewards of their company’s financial health through three concrete steps in strategic risk management. Below, we illustrate each step with examples from capital-intensive companies, which have been at the forefront of adapting them because they tend to face decisions involving very large commitments and associated implied bets. However, these leading practices can equally be applied to companies in other industries.¹

Build a tight link between risk management and business-planning processes

The linkage between risk management and business-planning processes is weak at most companies. Risk analysts focus on today’s issues rather than those they foresee emerging in the future. Quantification is done at a high level for the purposes of prioritization, but it is often unclear exactly what business-performance metrics would be affected. On the other side, business planners conduct ad hoc analysis of upside versus risk, focusing most, if not all, of their attention on a single “center cut” scenario. Any analysis of risk and upside is likely based on assumptions linked to an incomplete set of risk factors. We have seen CFOs improve their business planning—and catalyze strategic-risk-management improvement—with the following specific actions:

Pinpointing exactly where and how risk will affect the business plan. A major basic-materials company has begun to annotate a specific list of top-priority risks on its executive management reports, as shown in Exhibit 2. It even color codes key metrics based on their level of risk exposure. This helps the executive committee to focus on the specific challenges and actions required to meet their performance goals and is much more useful than a typical impact-likelihood risk heat map, which forces risk-centric thinking rather than business-centric thinking about risks.

¹ In this article, we focus on corporates, rather than financial institutions, which have developed specialized risk-management approaches because risk intermediation is an inherent element of their business model.

Exhibit 2 An integrated dashboard pinpoints sources of risk.DISGUISED BASIC-
MATERIALS EXAMPLEHeat-map example
\$ million

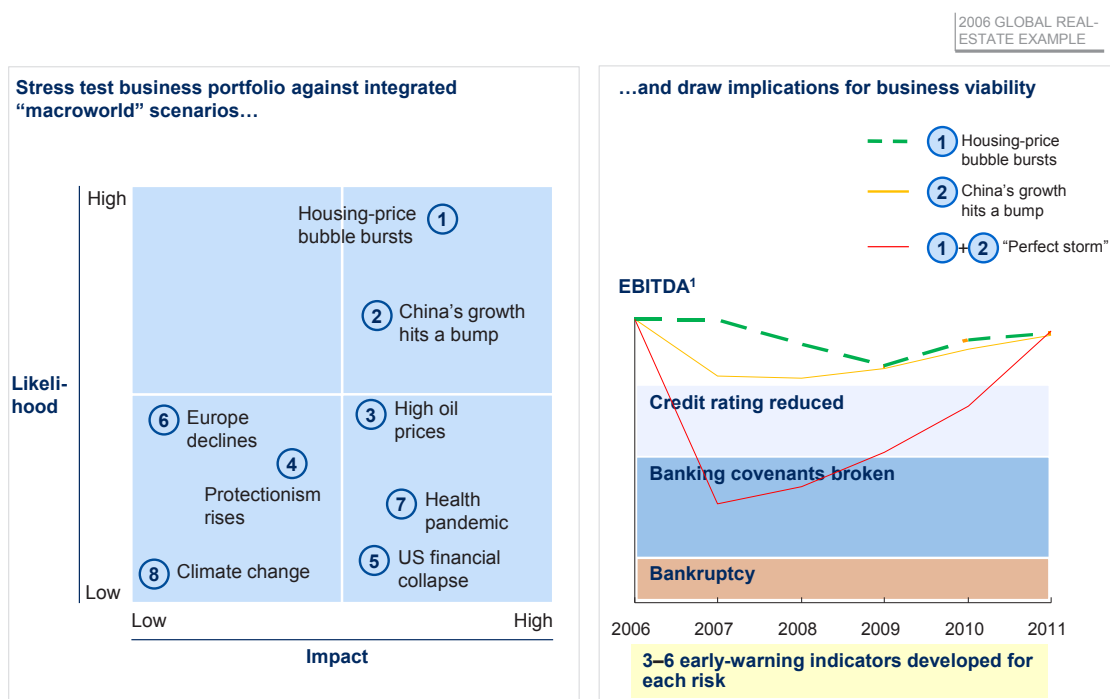
EBITDA ¹ by country	2010	2011	2012	2013	2014	Risk events ²
Latin America	1,000	1,107	1,080	1,120	1,230	1 Unwind fee for JV dissolution
Europe	500	520	648	837	900	
Canada	250	243	210	175	205	2 Change in regulation in United States
US	250	350	720	1,155	1,810	
Asia	200	189	210	105	103	6
Africa	75	81	96	70	82	9
Pacific	25	27	36	39	53	10
Total EBITDA	2,300	2,517	3,000	3,500	4,383	
Working capital	(180)	(25)	(95)	(80)	(70)	
Taxes	(300)	(430)	(400)	(500)	(650)	3 Unfavorable tax negotiation
Cash generation from operations	1,821	2,063	2,506	2,921	3,664	
Maintenance CAPEX	(300)	(400)	(550)	(600)	(650)	4 Failure to secure lender agreements
Strategic CAPEX	(200)	(200)	(250)	(250)	(400)	
Fixed asset sales	100	80	30	10	-	5 Lower-than-predicted growth in US revenues
Net investment in fixed assets	(400)	(520)	(770)	(840)	(1,050)	
Other cash expenses	(80)	(50)	(50)	(50)	(55)	7 (80) (50) (50) (55)
Other uses of free cash flow	(65)	(25)	(30)	(35)	(35)	6 Drop in volumes in Asia
Total free cash flow from operations	1,276	1,468	1,656	1,996	2,524	
Net financial expense	(1,198)	(1,328)	(1,476)	(1,433)	(1,221)	7 Integration failure
Total cash generated	78	140	180	562	1,302	
Financial cash uses						
Equity, convertible	1,000					8 Change in political environment in Africa
Debt conversion	(400)	150	260	150	60	4 (400)
Other	85					
Debt repayment	(478)	(290)	(440)	(712)	(1,362)	9 Delays in capex project
Total Financial cash uses	(78)	(140)	(180)	(562)	(1,302)	
Consolidated total debt						
Initial balance	15,500	15,022	14,732	14,292	13,579	
Debt down payment	(478)	(290)	(440)	(712)	(1,362)	11 Renegotiation of interest expenses
End balance	15,022	14,732	14,292	13,579	12,217	
Debt: EBITDA	6.5	5.9	4.8	3.9	2.8	4 (6.5) (5.9) (4.8) (3.9) (2.8)

1 Earnings before interest, taxes, depreciation, and amortization.

2 Risks classified according to 4 buckets of risks: high, significant, moderate, and opportunities based on estimates of impact (\$) and probability (%).

Incorporating systematic stress testing as part of financial planning. A leading real-estate firm forecasts key financial metrics (for example, interest-coverage ratio) under comprehensive macroeconomic scenarios, with key assumptions developed at the market level. This approach provides management with greater confidence that the business plan is robust under a range of potential macroeconomic scenarios. Exhibit 3 shows an example of the potential impact on the business of various scenarios, including in combination.²

Exhibit 3 Stress testing the business portfolio using integrated macroscenarios reveals possible impact.



Applying probabilistic "financials at risk" modeling for major investment decisions. Instead of focusing on a single scenario, at-risk modeling provides insights on the probability of success. Companies facing numerous correlated, volatile risks are increasingly using such models to evaluate the aggregate impact of these risks on the potential investment return.

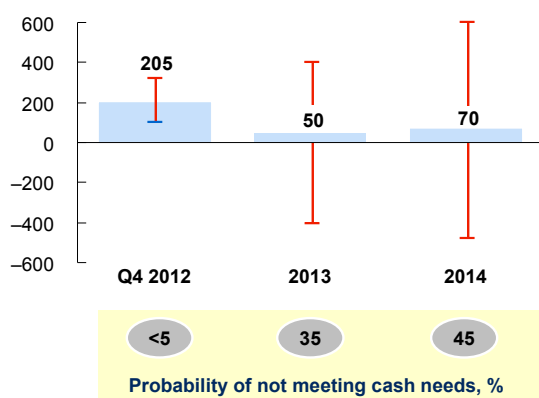
Exhibit 4 shows in simplified form the output of such an exercise, reflecting a company's potential deviations from baseline plan based on volatile commodity prices (a key cost driver), foreign-exchange rates, and demand and price sensitivity. The error bars represent a 5th- and 95th-percentile confidence interval under reasonable assumptions about how these factors would behave together, showing that in spite of an expected performance turnaround, there is still significant risk to be managed. This approach complements rather than replaces stress testing; in fact, in this case the assumptions specifically reflect only random commodity, foreign-exchange, and demand volatility, assuming current macroeconomic fundamentals continue to hold. Radical shifts (with impossible-to-estimate probabilities) were explored using stress testing. Nevertheless, the fact that even unremarkable levels of market volatility might well push company performance to uncomfortable levels was a powerful wake-up call.

² For more information, see *McKinsey Working Papers on Risk*, Number 8: "Shaping strategy in an uncertain macroeconomic environment," December 2008 (mckinsey.com).

Exhibit 4 Simplified output shows potential deviations.**Consolidated fungible cash year-end vs. cash needs**

AIRLINE EXAMPLE

\$ million (5% and 95% error bars)

**Lead a corporate-level discussion of risk preference, focusing on what risk choices will most likely deliver economic profit for the company**

As the principal manager of the company's capital structure, the CFO is the custodian of the company's ultimate risk capital: equity. Risk taking is necessary for growth, so the question becomes which risks provide the most bang for the buck. CFOs cannot answer this question alone, but they can lead the top management (and board) discussion on risk appetite and preference and ground it with facts about implications. For instance, historically the question of fuel hedging by airlines has been addressed as essentially a purchasing issue: how can an airline best try to lock in an advantageous cost position (or at least protect against an unfavorable one)? But the combination of industry overcapacity, increased fuel-cost volatility, and mergers has lifted fuel strategy up to the status of a fundamental corporate-finance question. What level of unhedged fuel (and currency) risk is acceptable given low operating margins and high cash needs? What level of hedging is acceptable given collateral requirements and mark-to-market requirements for hedge positions? How to balance this with the potential windfall opportunity to steal share or capture profits if one is hedged differently than competitors when fuel prices move?

Use risk analytics to inform investment and strategic decisions

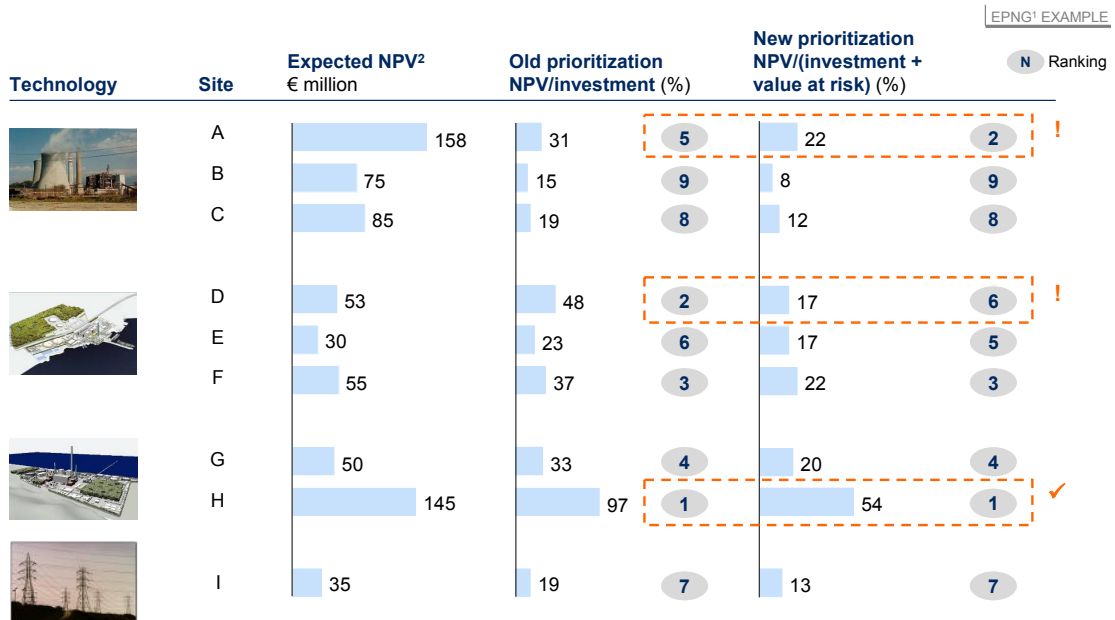
CFOs already play important roles in the financial and strategic aspects of investment and the evaluation of other major decisions. Not only do they typically lead discussion on rival proposals and solutions, they also often have powerful decision rights, not least in choosing what gets presented to top management for debate. They should mandate and support a similar type of risk assessment, as discussed above. Too often, major projects with value at stake comparable to the total risk from current company operations are discussed and decided on with at most a one-page qualitative list of the major risks. The CFO can ensure discipline by defining the right set of core financial and risk analytics to run for each option on the table to ensure this value at stake is brought to light and debated.

For instance, the CFO of a national oil company worked with the portfolio manager to run "what-if" stress tests for several aspirational future strategic portfolios (for example, investment in unconventional production assets versus growing the trading business) before the future-growth strategy was finalized. In the process, they discovered important implications on which strategic directions could put the firm's credit rating at risk.

Another national oil company actually optimized the exact right balance of lower-risk downstream versus upstream growth to match its chosen risk appetite by modeling the implied cash flow at risk of multiple combinations. The CFO of an energy utility contemplating a major generation-capacity new build identified exactly the feasible combinations of project financing and energy price hedging that would make the build attractive, on a standalone basis and for the company as a whole.

Finally, to help improve capital-expenditure decisions, some companies have deployed more analytical risk-adjusted valuation methodologies, such as value at risk and risk-adjusted return on capital to reflect an explicit adjustment for riskiness in capital-expenditure prioritization. However, some of those companies have found these methods to be too much like a “black box” solution. The best results have been obtained from considering risk-adjusted returns in conjunction with other factors, such as strategic fit and risk diversification. For instance, a European energy utility was debating which combination of electrical-generation new-build options offered the most bang for the buck, given limited capital available for investment. Unsurprisingly, new builds subject to technological and regulatory uncertainty (such as nuclear) offered quite attractive returns on investment if rosy base-case assumptions were taken. The CFO required that investments be evaluated not only on an expected value basis, but at a 95 percent level of confidence regarding cost overruns and delays. As Exhibit 5 shows, some new technologies still made the cut, but a number of less-risky, lower-return alternatives ranked much more attractively than before.

Exhibit 5 Reranking potential capital investments by incorporating risk yields a new perspective.



Highly relevant as number of investments approaches capital headroom—what gives the best bang for the buck?

1 Electrical power and natural gas.
2 Net present value.

Together, these concrete steps go a long way to addressing the typical deficiencies in strategic risk management. Focusing on the business plan rather than current operations forces a more forward-looking view. A systematic assessment and analytical approach, and stress testing in particular, highlights the impact of crucial external factors. The focus on supporting investment and strategic decisions is an explicit aim of the process, and that, along with the linkage to the business plan and discussions of risk preference, ensures the overall relevance of, and engagement with, the process.



As companies navigate through today's highly uncertain environment, CFOs can play a bigger role in strategic risk management, in the C-suite and across the organization. This role is particularly value-adding, not least because most nonbanking companies have only a limited formal risk function. Therefore, strategic risk thinking needs to come from more systematic and better-informed dialogue about risk and uncertainty and the resulting mind-set shifts in top management. Given their role, CFOs are naturally positioned to lead by example. By pragmatic concrete steps such as embedding risk in financial planning, setting appropriate risk preferences tailored to their company, and instilling a risk-oriented approach in management decision making, CFOs can help strategically balance risk and return and therefore create significant value for their companies and shareholders.

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