Risk-adjusted forecasting and planning
Navigating the ‘new normal’ of increased volatility

Helping CFOs to protect and enhance value in volatile times, through an integrated approach to finance, risk, and strategy
The recent turmoil in financial markets and the resulting disruption to operating environments has forced many companies to reassess how they incorporate risk into decision-making. With increased volatility and uncertainty becoming an expected part of doing business, it is a top priority to build a balanced approach to risk and return.

This timely paper from Deloitte outlines how risk-adjusted forecasting and planning capabilities should be a key component in the strategic toolkit for CFOs. It is clear that enhanced analytics can generate a better understanding of potential risk and return, and hence enable faster and more robust decision-making. Risk-adjusted planning helps finance executives to better demonstrate to boards and investors how the company is taking an integrated approach to managing the business in challenging times. This paper also provides useful, hands-on advice on how executives can think about the practical application of these concepts – through case studies and suggested first steps to implementation.

My personal experience as a CFO in a broad range of companies across a number industries, is that risk-adjusted planning should be an important tool in every CFO’s armoury.

Improving the reliability of financial and strategic planning against an evolving risk profile, is something which CFOs should carefully consider to support value protection and creation – and to enhance communications with investors about key risks and how companies are managing them.

Andrew Bonfield
CFO
National Grid plc
Contents

The ‘new normal’: incorporating continued volatility in planning 2
How the CFO can lead the response 3
Targeting an integrated approach to finance, risk and strategy 4
Risk-adjusted forecasting and planning: equipping the CFO for the ’new normal’ 5
Driving value through enhanced risk-return capabilities 9
Making it work in practice: embedding the capabilities 10
Five essential questions for the CFO to consider for successful implementation 11
Summary: time to act 12
UK contacts
The ‘new normal’: incorporating continued volatility in planning

Volatility has increasingly become the ‘new normal’. This is most starkly demonstrated by the recent and ongoing turbulence in the global economy, coupled with continued, rapid globalisation across many industries. In some cases, structural changes in markets and economies mean that companies are having to ask more fundamental questions about their business models, and questioning how to gain competitive advantage within continually-changing operating environments. In the aftermath of the Global Financial Crisis, an associated deleveraging has taken place within many companies, with corporate CFOs remaining cautious around the transition from increased cash balances into next generation investment programmes and growth ambitions.

Alongside these macro-economic challenges, organisations are also under ever-increasing pressure from:

- New consumer and multichannel strategies
- Shifting demand drivers from fast-growing developing markets
- Increasing digitalisation and technological shifts
- Higher levels of stakeholder/investor scrutiny

In the face of this complexity and volatility, the ability of CFOs and finance functions to interpret, quantify, manage and leverage risk is more important now than perhaps ever before (see Exhibit 1). And yet, many organisations are still seeking to find practical solutions for the incorporation of risk into planning and decision-making.

### Exhibit 1. Taking the pulse of corporate viewpoints on managing volatility

Recent Deloitte survey results indicate that a high percentage of companies have changed their approach to managing and responding to risk due to recent volatility, and results also suggest that many risk categories are expected to become more volatile in the near future.

#### How volatile do you think each of the following risk areas will be over the next three years?

<table>
<thead>
<tr>
<th>Risk Area</th>
<th>More volatile</th>
<th>No change</th>
<th>Less volatile</th>
<th>Don’t know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Financial risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strategic risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operational risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regulatory/Compliance risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Political/Geopolitical risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technology risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate Responsibility/Environmental/Sustainability risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reputational risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reputational risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value and Supply Chain risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Talent/Human Capital risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tax risk</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1  Deloitte survey of 192 US corporate executives, across industries, 2012
2  ‘CFO in Transition: Four faces of the CFO’, Deloitte, 2010

(Note: Numbers may not add up to 100% due to rounding.)
How the CFO can lead the response

The role of the CFO and the finance function is evolving in response to this challenging environment. Deloitte’s ‘four faces’ model identifies the strategic leadership and catalyst roles that CFOs and Finance Directors are increasingly required to fulfil, alongside the more ‘traditional’ finance roles of steward and operator.

The change in the focus of the CFO role, and hence a growing responsibility for playing a direct part in the determination and execution of strategy will require fresh and innovative ways of thinking by many CFOs. There is also the more immediate need for them to be accountable for marshalling the business within this ‘new normal’ environment of increased volatility. We are seeing a number of companies (notably in the energy, resources and manufacturing industries) already developing enhanced risk-return capabilities to position themselves to respond effectively to these challenges.

Moving forward, therefore, there are several areas of enhancement which organisations are targeting to help position themselves for future growth. We outline these in Exhibit 2.

Exhibit 2. Potential areas of enhancement for organisations in response to volatile operating environments
CFOs and FDs are playing a more direct role in the determination and execution of strategy and, with the CEO, lead transparent communication with investors and the optimisation of risk and return in planning and decision-making

<table>
<thead>
<tr>
<th>Enhancement of capabilities</th>
<th>Reliability of financial and strategic planning</th>
<th>Internal and external transparency</th>
<th>Risk-return optimisation</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Improving the reliability of financial and strategic planning, both at group level, and within the business units and segments of the organisation</td>
<td>• Building transparency, within the organisation and when facing off to the investor community</td>
<td>• Developing stronger approaches to risk-return management to enable optimal capital allocation</td>
<td></td>
</tr>
<tr>
<td>Key questions for executive leadership</td>
<td>• How much confidence can we place in the budgets and plans of the business units?</td>
<td>• What profit forecast should we commit to and communicate to our investor community?</td>
<td>• Do we have sufficient understanding of the strategic risks and opportunities across business units?</td>
</tr>
<tr>
<td></td>
<td>• How can we build an understanding of the volatility of key cash-flow and earnings elements within the businesses?</td>
<td>• What level of external disclosure is optimal and appropriate across the businesses?</td>
<td>• What are the key emerging risks we should be analysing and managing?</td>
</tr>
<tr>
<td></td>
<td>• Are we sufficiently prepared to manage the corporate portfolio and respond to capital allocation challenges in a changing environment?</td>
<td>• How can we build transparency across the business units to ensure common assumptions and inputs?</td>
<td>• Do we have a strong and practical risk appetite approach, which is understood and respected across the organisation?</td>
</tr>
</tbody>
</table>

**Snapshot case study**

Building practical risk-adjusted diagnostic tools to drive improved profitability

This Aerospace & Defence Company’s aftermarket maintenance program was experiencing poor profitability performance. To identify the major drivers of low profitability, a risk-adjusted diagnostic tool was built to evaluate key drivers of volatility in top-line revenue (e.g. pricing, contractual penalties) and bottom-line costs (e.g. labour, parts, other costs). As part of this, a comprehensive Monte Carlo model was generated using historical cost distributions, future pricing models, and contractual inputs to forecast risk-adjusted program profitability. Using the tool, significant bottom-line savings from implementing the selected high-priority initiatives were identified. To track and monitor future program profitability, supporting infrastructure was designed to enable metrics and reports to be delivered by SAP to manage profitability going forward, including functional specs for eleven reports and two dashboards.
Targeting an integrated approach to finance, risk and strategy

Traditionally, organisational capabilities to respond to these various challenges can often be found in silos – be it within the finance community, the strategy function, the risk management group, or the investor relations team. Increasingly, however, more integrated approaches are becoming essential to help drive sustainable and profitable growth in the face of a challenging and volatile environment. Indeed, in order to improve reliability of financial planning and build transparency for communication with investors and other stakeholders, improved coordination of strategy, risk and finance is becoming a need-to-have, not a nice-to-have (see Exhibit 3).

Exhibit 3. Value-enablers within the organisation
Stronger integration of finance, strategy and risk is essential as organisations respond to challenging external environment

CFOs and Finance Directors, therefore, should be targeting the implementation of specific new capabilities to support them as the scope and role of the finance function evolves to become more strategic, forward-looking, and value-focused. The leading-edge CFO will require a more flexible and analytical toolkit to ensure that the business is equipped to manage the increased volatility of the ‘new normal’. Our research with some of the largest corporates in the UK3 indicates that many organisations consider enhanced risk-return evaluation capabilities to be increasingly essential in strategic and financial planning.

3 ‘The myth and reality of the corporate CRO’, Deloitte and Hedley May, 2011
More advanced quantitative approaches can support CFOs in their risk-return oversight role and provide greater responsiveness in the face of increased complexity and interconnectivity (see Exhibit 4). Next generation financial forecasting and planning will include a far greater awareness and quantification of risk and uncertainty within the processes and the outputs.

Exhibit 4. Financial forecasting and planning for the ‘new normal’
Enhanced, quantitative approaches to building uncertainty into financial forecasting will be essential to equip the modern CFO to prepare robust and reliable plans.

Current approaches to financial forecasting and planning are characterised by:

- Forecasts based largely on single-point estimates and metrics
- Sensitivity analysis focused on single variables
- Strong variability in assumptions and inputs across business units
- Inadequate application of formal stress testing approaches
- Limited integration between strategic planning, financial forecasting and budgeting, and risk analysis
- Single sourcing of inputs

Next generation financial planning is likely to include the following enhanced capabilities:

- Migrate from single point forecasting and single input sensitivity to multi-factor perspectives
- Build in the use of quantitative distributions and aggregation of individual volatilities to evaluate ranges of possible outcomes
- Shock the financial forecasts with major risk drivers to get a cash flow or earnings distribution for each period
- Better linkage between the uncertainty in cash flow and earnings and the impact on key balance sheet metrics and financial ratios

Snapshot case study
Strategic risk management in capital projects

A Global Mining Company delivered tangible value by improving the management of its investment portfolio by aligning it against group strategy – with a key focus on risk-return management. The principal risk areas associated with the capital investment process were mapped, analysed, and aligned into a prioritisation framework. This technique helped the company to optimise and implement the massive capital project pipeline over a 3-5 year period, resulting in a stronger execution of corporate strategy.
Approach

Risk-adjusted forecasting and planning involves shocking the financial forecasts with major risk drivers in an integrated and flexible manner (see Exhibit 5). The approach allows a more robust and transparent evaluation of volatility and risk within current plans – helping to build a better understanding of the potential upside and downside inherent in the future of the business. The key elements are a set of inputs, a quantitative modelling ‘engine’, and a suite of outputs. The inputs consist of consolidated financial planning data together with macro and micro risk drivers. The modelling engine uses quantitative techniques to combine the risk drivers with the relevant components of the ‘base-case’ financial forecasts.

Exhibit 5. The basics of risk-adjusted forecasting and planning
Integrated financial forecasts are stressed with key risk drivers to produce cash-flow-at-risk and earnings-at-risk outputs

- Key inputs are required to enable structured and transparent evaluation of risk-return of financial planning
- The modelling engine utilises quantitative techniques to analyse risk-return across the application areas
- The outputs produced by the model allow assessment of uncertainty in forecasts and plans

Exhibit 5. The basics of risk-adjusted forecasting and planning
Integrated financial forecasts are stressed with key risk drivers to produce cash-flow-at-risk and earnings-at-risk outputs

Snapshot case study

Risk-adjusted techniques to support corporate portfolio management

An Electricity Generation Company was investing significant amounts on innovation and business development to stay competitive and secure future profitability. The company developed a risk-based portfolio management model to facilitate efficient assessment, prioritisation, selection, and monitoring of ideas and projects. The risk-adjusted techniques helped create an overview of the R&D portfolio and create metrics for measuring R&D performance and efficiency. This enabled the strategic management of the R&D portfolio to be based on well-founded decisions. This was supported by a governance structure for reporting, portfolio reviews and decision-making in R&D.
Outputs

Risk-adjusted outputs allow the organisation to identify and understand key areas of volatility and exposure from a value enhancement and protection perspective (for example, Exhibit 6). The techniques focus on underlying factors rather than simply impact, meaning that multiple driver contributions to volatility can be analysed simultaneously rather than looking at single variables.

This allows stress tests and risk analysis with a common set of risk metrics and assumptions to shock the aggregated cash-flows. The outputs also facilitate segmentation of ‘cash-flows at risk’ by product, business unit, market segment, or any other functional slice.

Exhibit 6. Cash-flow-at-risk and earnings-at-risk outputs

The modelling approach produces cash-flow-at-risk and earnings-at-risk forecasts, allowing assessment of uncertainty and providing insights into opportunity for capturing upside as well as managing downside risk.
To start a new section, hold down the apple+shift keys and click to release this object and type the section title in the box below.

Exhibit 7. Risk driver analysis
Risk driver analysis allows a quantitative understanding of which factors contribute most to earnings exposure, enabling organisations to evaluate risk mitigants (cost vs. risk reduction) in a targeted and cost-effective fashion and to capture upside opportunity.

Hence, key areas of volatility and exposure can be targeted for action (see Exhibit 7). For example, elements with largest contribution to downside earnings exposure and those which could help capture upside.

The approach will aid the development of practical approaches to determining and managing risk appetite, focusing the organisational response to specific areas of high exposure and helping drive cost effective risk management decision-making. The outputs can also build insight into how target financial ratios are affected by volatility within forecasts.

Snapshot case study
Risk-adjusted forecasting and scenario modelling to optimise asset performance

The main operating sites of this Global Metals and Mining Company frequently failed to meet planned production targets and budgets. The underlying planning process relied on averaged values based on historical performance, and did not take process variance into account during the limited scenario modelling that was conducted. By identifying and analysing key input variables, quantitative distributions were able to be developed for each risk driver, and risk-adjusted forecasting models were generated for each the sites. This resulted in an improved understanding of how the underlying volatility was impacting production performance. On the back of this, more effective decision-making was enabled through enhanced scenario modelling, increasing confidence in plans and budgets – and ultimately improving profitability.
Driving value through enhanced risk-return capabilities

Enhanced risk-return capabilities can significantly improve planning and enhance decision-making at a group level by building a quantified understanding of uncertainty in the plans. Furthermore, the practical application of risk-adjusted approaches within the businesses can help integrate strategic planning with risk and finance – driving more value at BU level. Whilst the benefit of these enhanced capabilities can be realised in numerous ways, there are four main areas of value which we identify in Exhibit 8.

Exhibit 8. Core benefits across the organisation
Risk-adjusted approaches allow a more robust and transparent evaluation of volatility and risk within plans

**Forecasting and planning**
- Current approaches: Forecasts based largely on single-point estimates and metrics
- Enhanced risk-return capabilities:
  - Dynamic models allow assessment of uncertainty in cash-flow and earnings forecasts
  - Outputs provide insights into opportunity for capturing upside
  - Diverse input types (e.g. cyclical trends and event risks) can be included in the same models

**Risk return optimisation**
- Current approaches: Basic sensitivity analysis carried out, using single variable approaches
- Enhanced risk-return capabilities:
  - The techniques focus on underlying factors rather than simply impact, which builds understanding of how to capture upside
  - Evaluation of risk mitigants (cost vs. risk reduction) possible
  - Multiple risk driver contributions to volatility can be analysed – rather than using single variable approaches

**Decision-making**
- Current approaches: Limited integration between strategic planning, financial forecasting, and risk analysis
- Enhanced risk-return capabilities:
  - Identifies cash-flow elements with largest contribution to downside earnings exposure
  - Allows stress tests and risk analysis with a common set of risk metrics and assumptions
  - Facilitates segmentation of cash-flows at risk by product, BU, market segment, etc

**Transparency**
- Current approaches: Strong variability in assumptions and inputs across business units
- Enhanced risk-return capabilities:
  - Builds stronger communication and interaction between business units and group
  - Improves cross-functional working and internal transparency through consistency of assumptions and data across business units
  - Facilitates stronger dialogue with markets and external stakeholders
Making it work in practice: embedding the capabilities

Embedding the approaches within the existing performance management framework is essential to generate maximum benefit. A performance management framework ensures that the key value drivers of the business are understood, owned, and measured, and a fully-integrated performance management process drives target-setting, decision-making and execution. An effective performance management framework is enabled by the right technology, capabilities, governance and data. Exhibit 9 highlights how this can support the successful implementation of risk-adjusted capabilities.

Exhibit 9. Performance management considerations
Embedding the approaches within the company’s existing performance management framework can help generate maximum benefits

Key characteristics of an effective performance management framework

- Focussed and aligned management information across functions
- A common data warehouse with harmonised financial and non-financial data sets and common global hierarchies
- The right tools for consolidation, planning, reporting, analytics and master data management, integrated with the data warehouse
- A global, cross-functional governance model for processes, data and systems
- Integrated planning, reporting and performance analysis processes
- Development of business partners and business analytics capabilities focused on key value creation opportunities across the value chain

How a performance management framework can support building risk-adjusted capabilities

- Makes the process more effective and efficient
- Drives faster and more reliable decision-making at various levels within the organisation
- Helps target the best ‘intervention points’ for the different outputs
- Enables scenario modelling and stress testing to understand the likely range of outcomes and thus make better decisions
- Focuses senior management efforts on the key strategic questions and drivers
- Builds stronger confidence in delivery of plans and budgets
- Facilitates transparent challenge and review and improves communication with the investor community

Snapshot case study

Risk-adjusted forecasting to support strategic decisions

A Pharmaceutical Preparation Manufacturer’s hospital and urology franchises were the cornerstones of its portfolio. The company developed risk-adjusted forecasts to better understand, assess and prioritise disease areas based on commercial attractiveness and strategic fit. In this way, the company identified high-potential assets and M&A targets. The risk-adjusted forecasts indicated that over the next ten years the hospital franchise would face declining revenue, while the urology franchise would grow at a moderate rate. Each franchise forecasted growth rate was below the organisation’s targeted growth rate, highlighting the need to explore inorganic growth opportunities.
CFOs in many organisations struggle to clearly identify the best way in which to approach the ‘proof-of-concept’ and implementation of these new capabilities. Common pitfalls include: focusing too quickly on the underlying techniques rather than what the value objectives are; moving too quickly to one specific application area, rather than considering how the approaches can enhance multiple areas (e.g. planning, decision-making, market communication); and not identifying the most suitable part of the business for a pilot or proof-of-concept project.

It is therefore clear that implementation considerations are vital when exploring how to successfully build risk-adjusted approaches. What is encouraging for CFOs who aspire to build more enhanced capabilities to optimise risk and return is that there are some achievable quick-wins and progress areas, regardless of the current capabilities and/or complexity within the organisation.

We highlight five essential questions for CFOs to consider to help identify the key considerations on the journey to building risk-adjusted forecasting capabilities (see Exhibit 10). The answers summarise our insights into how to best position the initial pilot project to succeed and get embedded. Getting these right will improve the chances of building sustained value via risk-adjusted approaches.

**Exhibit 10. Five essential questions**
CFOs should consider drilling down into the detail behind these questions as they target the protection and enhancement of value via risk-adjusted approaches.
Summary: time to act

The ‘new normal’ of increased volatility, complexity and interconnectivity means that existing approaches in place to reflect uncertainty in business planning are no longer sufficient. There is increased pressure on CFOs from boards, investors, and financiers to manage and optimise the risk-return balance of the company, and to reliably reflect the volatility in forecasts and plans.

CFOs have a need and a responsibility to act decisively to build new capabilities in order to fulfil the strategist and business-partner role, and to target more value from strategic risk-return management. Risk-adjusted forecasting and planning is a powerful and pragmatic response that allows organisations to respond to these pressures and to build lasting capabilities – focused on value protection and creation. The approach allows a more robust and transparent evaluation of volatility and risk within current plans – helping to build a better understanding of the potential upside and downside inherent in the future of the business.

For CFOs who aspire to take action and enhance the organisational risk-return capabilities, it need not require a major new initiative. The route to implementation is through a flexible and targeted pilot rather than a firm-wide reengineering project – acting on specific problems or areas, making significant quick wins, and contributing tangibly to the competitive positioning of the business.

Snapshot case study

Economic forecast modelling using risk-adjusted techniques

This Energy Utility Company was frustrated with the deterministic nature of the organisation’s long range economic forecasting. The organisation targeted the development of advanced, stochastic economic forecasting models that could effectively analyse the business in such a way that the organisation could understand their business issues from a risk-weighted probabilistic perspective. The company developed an economic forecasting engine that utilised Monte Carlo simulation and linear programming techniques to simulate the behaviour of commodity markets (power, natural gas, coal), interest rates (treasury rates, credit spreads etc.), customer demand, power generation dispatch and other uncertainty factors in order to generate a set of defined probabilistic key performance indicators.
UK contacts

Hans-Kristian Bryn  
*Partner*  
+44 (0) 20 7007 2054  
hbryn@deloitte.co.uk

Malcolm Wilkinson  
*Partner*  
+44 (0) 20 7007 1862  
amalcolmwilkinson@deloitte.co.uk

Nick Pope  
*Director*  
+44 (0) 20 7007 3632  
nipope@deloitte.co.uk