Commentary

# Risk Profiles of Corporate Portfolio Strategies – A Perspective for the Pharmaceutical Executive

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Catenion is a management consulting firm devoted to helping pharmaceutical and medical products companies significantly increase the returns on their R&D and Marketing investments by creating more innovative and effective strategies and organisations.

# Introduction

**The meltdown of some segments of the global banking system in 2008 can be seen as a direct result of three systemic weaknesses in the way that many financial services companies operated in a largely deregulated financial system during the last three decades. Firstly, many global banks focused their portfolios on the highest-margin businesses, namely investment banking and derivatives trading, at the expense of other less glorious and less profitable activities such as retail banking. Secondly, despite large groups of "quants" working in Risk Management and a few lone voices warning of the potentially toxic nature of CDOs *, CSOs * and other MBS-based * derivatives, the risk management systems of many institutions failed.**

The third weakness was the spark that put the whole system on fire: an incentive scheme that stimulated senior management and operators to take on huge risk with little to no downside exposure. Over the decade before the crash it had become standard practice in Wall Street firms for senior executives and top traders to pull in bonuses giving them a percentage of the short-term upside, the downside being limited to receiving their "normal" seven figure salary or, in the worst case, losing their job.

But are these weaknesses really limited to the financial services industry? Or is the financial melt-down just the tip of the iceberg, revealing a systemic crisis of the economy at large – at its base a lop-sided incentive system driving management at all levels and across industries to focus on maximising short-term gain at the expense of sustainability, which requires strong financial and strategic risk management?

## Pharma is a Risky Business

Risk is a major challenge for the pharmaceutical industry which is caught in an ever-repeating cycle of innovation followed by patent expiration. The key characteristic of this industry is that it is much harder to come up with truly novel and useful drugs than to design a new car model, the next generation electronic consumer device or a new financial derivative.

The inherent output volatility of the pharmaceutical R&D engine is very much at odds with the requirements of public firms to grow EPS on a regular basis. In this environment, being shielded from too much short-term pressure can be a clear advantage as the success of Genentech exemplifies. Genentech laid the foundation to their current portfolio of marketed drugs during the early to mid-nineties, when R&D spending was at 50% of sales and profits were marginal. Roche, as a majority shareholder, provided the stability to stay on course and allowed them to nurture their unique culture and portfolio. However, the vast majority of companies in this industry have grown through M&A. This dynamic is not likely to change any time soon as the industry has gone through an unprecedented wave of patent expiration between 2009 and 2013 and the concentration in terms of market share is still small compared to other more mature industries. The situation is further aggravated by an increasingly hostile regulatory and reimbursement environment. To prepare for the hard times to come, companies such as GlaxoSmithKline, Merck & Co., AstraZeneca and Pfizer have recently embarked on major cost-cutting initiatives, including the revamping or downscaling of their R&D activities and Marketing and Sales organisations. They also increasingly rely on partnering, expansion into emerging markets and lifecycle management to strengthen their portfolios. While it is always easy to lay the blame for the difficulties the industry faces at the door of external constituents such as regulators or payers, it is instructive to review those factors that are within full control of senior management.

* CDO = Collateralised Debt Obligation
CSO = Collateralised Synthetic Obligation
MBS = Mortage-backed Securities

In our work with pharmaceutical clients, we have frequently observed three such factors that stand in the way of dealing with risk appropriately – and thus of an independent long-term growth path:

1. On the strategic level, decisions around diversification, focus and growth are dealt with on the basis of simplified frameworks and metrics that under-appreciate risk;

2. R&D-related risks that can make or break a company are not systematically captured and discussed, let alone mitigated – we call it "Sleepwalking into phase III failure";

3. At the level of the operating model, incentives, structures and processes have increasingly focused on short-term process productivity at the expense of long-term value creation. In some cases, incentive schemes at the senior level have come to reward behavior that improves short-term performance but increases long-term risk significantly.

To us, these shortcomings in risk management mirror some of the causes underlying the failure of the financial system. In this commentary, we take a closer look at the first factor, i.e. risk management at the strategic level, and show how a thorough understanding of portfolio risk profiles can help companies design more sustainable strategies.

## The Portfolio Challenge – Focus or Diversify?

At certain points of its development, every company faces the question of how focused its business activities should be. In prosperous times, the question is usually asked in the context of a growth strategy whereas in difficult times it is asked in the context of restructuring or divestment of non-core assets. As with many management topics, there is a strong tendency to follow the latest trends or so-called "best practices". Some business observers believe that strong focus is the Holy Grail to achieving top performance while others stress the importance of portfolio diversity in a risky business environment. Whatever one believes, in the pharmaceutical industry the role model of the last 15 to 20 years has been the "uniquely focused public pharmaceutical firm". "Uniquely focused" means that companies have spun off businesses with lower margins such as diagnostics, generics, OTC or other healthcare or chemicals businesses. Most US companies eventually followed this model, but it also caught on in Europe. The most prominent propagator was Jürgen Dormann, the former CEO of Hoechst AG who deconstructed his chemicals and health- care conglomerate into various independent businesses. The pharmaceutical offspring of Hoechst completely lost its former identity through a merger with Rhône Poulenc that created Aventis. A few years later, Aventis was taken over by Sanofi to create Sanofi-Aventis.

There are a few exceptions to the highly focused model: Novartis, which built up its generics business and recently moved into eye care with the acquisition of Alcon; Daiichi Sankyo which acquired Ranbaxy, or Johnson & Johnson who have always followed a highly diversified and decentralised model. A few years ago, the then new CEO of GlaxoSmithKline, Andrew Witty, has declared diversification to reduce risk and volatility of the core pharmaceutical business to be one of the pillars of the company's revised strategy. In spite of these examples, focusing on the highest margin business continues to be a mantra that resonates well with investors, consultants and other industry observers and has long been synonymous with superior value creation, operational efficiency, leveraging synergies, achieving critical mass and everything that is positive.

But where does the widely-held belief in the benefits of strategic portfolio focus originally come from; what are the benefits and limitations? To answer this, let us take a brief look at the cycles of corporate strategy thinking over the last 50 years.

## The Origin of the Uniquely Focused Pharmaceutical Firm

From the 1950's to the 1970's companies diversified away from their core markets based on the belief that their general management skills were also applicable to other businesses. This was fuelled by management writers such as Peter Drucker, who stated that a good manager masters a set of basic principles that are applicable in any industry. The 1970's saw the rise of corporate strategy and portfolio management as executives required heuristics for the problem of optimal capital allocation. This was the age of the BCG "growth-share" matrix and the GE "industry attractiveness – business position" matrix. The idea of the balanced portfolio to avoid the creation of "cash traps" or too much cash and not enough investment opportunity became a guiding principle for corporate strategy. In the pharmaceutical world, most companies were part of diversified chemical companies or conglomerates.

In the 1980's a new species arrived on the scene – the corporate raiders. The raiders spotted inefficiencies in many companies' highly diversified portfolios or capital structures and exploited them through takeovers, restructuring and selling off bits and pieces, usually with a huge profit. This development was fuelled by the invention of new financial derivatives (i.e. junk bonds) that helped finance these often highly leveraged transactions. While the corporate raiders were only interested in their own short-term gain, they exploited a clear weakness in those diversified companies that had not properly managed their performance. As a result, corporate teams started to evaluate and manage their business based on the same principles as investors. Value management became a new element of corporate strategy and the investment banking and consulting industries readily provided the tools and metrics – discounted cash flow analysis, economic profit, EVA, ROE spreads, hurdle rates, etc. The promise was that, if applied correctly, these tools would allow management to shape their portfolio for maximum value creation. The result would be higher PE ratios that would shield the company from corporate raiders or hostile takeovers and lower its cost of capital. In 1986 Alfred Rappaport coined the term "shareholder value" which spread quickly throughout the US and Western Europe. This philosophy postulated that value creation for shareholders is the primary goal for public companies. Although lip service was paid to the interest of other stakeholders such as employees and local communities, in real decision-making these factors dropped increasingly out of focus.

Around the same time, the notion of "focus leads to better performance" became popular, fuelled by the new "management guru industry". In their enormously successful book "In Search of Excellence", Tom Peters and Roger Waterman established "stick to the knitting" as one of eight principles that differentiated highly performing companies. In 1990 C.K. Prahalad and Gary Hamel published a hugely influential article in the Harvard Business Review arguing that business strategy should be built on "The Core Competencies of the Corporation". A focus on core competencies – and core businesses – was increasingly seen as an indicator of competitive health and value potential.

In the wake of these novel concepts and ideas, pharmaceutical companies divested other businesses or were spun off from their holding companies. The high-margin/high-growth pharmaceutical sector became a star of the stock markets. Supporting this view were business schools and academic institutions which taught, as part of corporate finance, that diversification is not the job of management but of the market, i.e. shareholders who prefer having focused businesses with clear risk/return profiles over less transparent (and often less profitable) conglomerates in their (diversified) portfolios. Supporting this view was the much-debated "conglomerate discount" of anywhere between 5% to 20% that was thought to reflect the belief of the stock markets that some companies are worth less than their "break-up value" due to inefficiencies, corporate overhead and a general lack of strategic rationale for a multi-business portfolio. But while the fear of depressed valuation guided many strategic discussions, the fact base was at best controversial. As of today, no firm relationship between the level of focus and fundamental long-term performance has been established.

## Popular Portfolio Decision Tools Can Misguide Management

Why did focus win the day at the expense of diversification? In our view this simply comes down to the fact that many of the tools that are used to guide these debates are double-edged swords: On the one hand, they allow management to focus on value creation – no doubt an important objective; on the other hand, they can mislead management in their assessment of portfolio risk. How can this be?

Discounted cash flow valuation techniques, often in the form of expected (or risk-adjusted) Net Present Value (eNPV) have become the gold standard in the pharmaceutical field. The NPV is calculated for the R&D portfolio and also for marketed products and then usually summed up to produce the value of a therapy area or a business. Risk is captured by industry averages for attrition, sometimes adjusted by Therapeutic Area. By adding in corporate cash inflows and outflows as well as debt, the Enterprise Value of the company can be calculated.

This is how analysts build their valuation models; this is why management usually wants to look at their business in a very similar way. However, those not trained in decision analysis tend to overlook the significant risks that can hide beneath even a hugely positive eNPV. An eNPV of € 100 million can also read "90% likelihood to lose € 200 million and a 10% likelihood for a € 2.8 billion gain".

Even when the risk of failure is appropriately captured at the level of individual projects, it often disappears when all projects are aggregated to calculate the value of the overall portfolio or company. Summing up positive project eNPVs will also yield a positive portfolio value. This can delude management and lead to a false sense of security. After all, reality is digital and a project or product will either make it to market or not. These are binary outcomes and not probability-weighted "averages".

Bernoulli's St. Petersburg paradox is a nice illustration of the limitation of the classical expected pay-off decision logic. In this famous paradox, the expected payoff for a game, which, based on common sense, is clearly worth only a few Euros, turns out to be infinite when using classical decision analysis. To elucidate this paradox, the concept of "utility" entered into economic reasoning to explain why most people would not act like machines maximising expected payoff. Ever since, economists have struggled with the discrepancy between the theoretical view of rational behaviour and real world chaos and irrationality (see text box on the bottom of this page).

The probability-weighted "average" view of the world, implicit in expected pay-off driven decision making, can have dangerous consequences, as the authors have personally witnessed while closely accompanying the rise and fall of a mid-sized pharma company. This company had a very attractive late-stage pipeline in one Therapy Area when valued

### ST. PETERSBURG PARADOX FORMULATED BY BERNOULLI IN 1738

How much would you be willing to pay to enter a game, for example in a competitive bidding situation in which you toss a coin and a pot of € 1 can be won if heads appears? If tails appears, the pot is doubled with each new toss and you win the pot once heads appears for the first time.

Classical expected value logic would tell us that the value of such a game converges to infinity. However, no person in the right frame of mind would be willing to pay more than a few Euros. Daniel Bernoulli's solution involved two ideas that have since revolutionised economics:

Firstly, that people's utility from wealth, u(w), is not linearly related to wealth (w) but rather increases at a decreasing rate – the famous idea of diminishing marginal utility. In a pharmaceutical context there are many implications – a privately-owned company in the business of long-term sustainability will have a different utility function than a listed company that is under extreme pressure to grow EPS on a quarterly basis. This reasoning also implies that a project with a high eNPV may actually have limited utility depending on the required investment and risk profile of the company.

by eNPV. Although risks were captured through scenarios, swing values and tornado diagrams at the level of individual projects, the resulting scenarios and downside potential disappeared when the portfolio value was aggregated for senior management. The executive team was convinced that focusing resources almost exclusively on a few late-stage assets was a wise move, and for a time they were applauded by the financial markets. In-licensing and partnering opportunities were pursued half-heartedly at best, as they could not compete with the expected return on spending even more money on the internal late-stage pipeline. Then, bad luck struck as all late-stage assets ran into significant issues, resulting in a significant decrease in value. After the smoke had cleared, another aspiring candidate for an independent growth path had disappeared from the landscape because of a fundamental under-appreciation of strategic risk.

This case can also serve to illustrate a second issue with popular decision support tools: Risks can correlate – but most pipeline eNPV models treat projects as being independent in terms of their risk profiles. Risks can correlate across various levels: Drug target, molecule, indication, the people who design clinical trials, and the markets in which the drugs will eventually be sold. This co-variance of success probabilities should have a big impact on portfolio decision making, but it is largely ignored. This can be an issue especially when several projects are based on a novel platform technology. SiRNA, an area that has seen its ups and downs, may serve as an example here. Most R&D people would assign a low probability of success to this new class of molecules. In their eNPV pipeline models, all the individual siRNA projects would be treated as independent, sharing a similarly low probability of success. But adding up several risk-adjusted marginal numbers can still create a nicely positive value (after all, companies have spent billions to access this new technology). In reality these projects are not independent, co-variance can lead to either a better or a poorer performance usually depending on the fate of the most advanced project in the industry pipeline. The result is that the variance around the eNPV on a class level (of siRNA projects) is underestimated. If bad luck strikes, the results will be more devastating than what most pipeline eNPV models would predict. Conversely, upside potential will be higher than assumed in the (less likely) case of success. As a result, using eNPV based on independent success probabilities for the valuation of new technology platforms will always be widely off the mark.

Because of the above-mentioned issues, the benefits of diversification in terms of reducing risk on a portfolio level are not appropriately captured. Using these tools for strategic decision making can lead to poor outcomes.

## Measuring Value and Risk at the Portfolio Level

But how can strategic risk be appropriately captured on a portfolio level? For those executives who are not satisfied with the current status quo of how these essential strategic questions are addressed, we would recommend starting with a few basic questions:

- Do you want to leave corporate strategic risk management and diversification completely to shareholders and markets?
- How much focus should you have in your portfolio?
- How is an independent growth path possible in your high-risk business?
- What role should partnering or M&A play in your strategy and when is the right time to consider this: in a period of strength or when you are about to "hit the wall"?
- Do you have the right tools to address these questions or do you rely on traditional eNPV models?

To answer these questions Catenion has developed a structured approach that helps senior executives better understand the impact of portfolio decisions on risk and value of the corporate or therapy area level portfolios.

Our approach is based on a detailed analysis of likely scenarios for all relevant products and phase II/III projects in a pharmaceutical portfolio. It generates a transparent picture of the risk and value profile of the current strategy and allows a quantitative simulation of alternatives. We call the probability of a portfolio "collapsing" and having no value at all "Catastrophic Risk Probability" (CRP). This metric implies that several key assets fail to materialise and unfavourable market conditions occur. The resulting profiles can be used to compare different business fields or therapy areas as well as entire companies. It can also be used to quantify the likely impact of diversification. (See Exhibit 1)

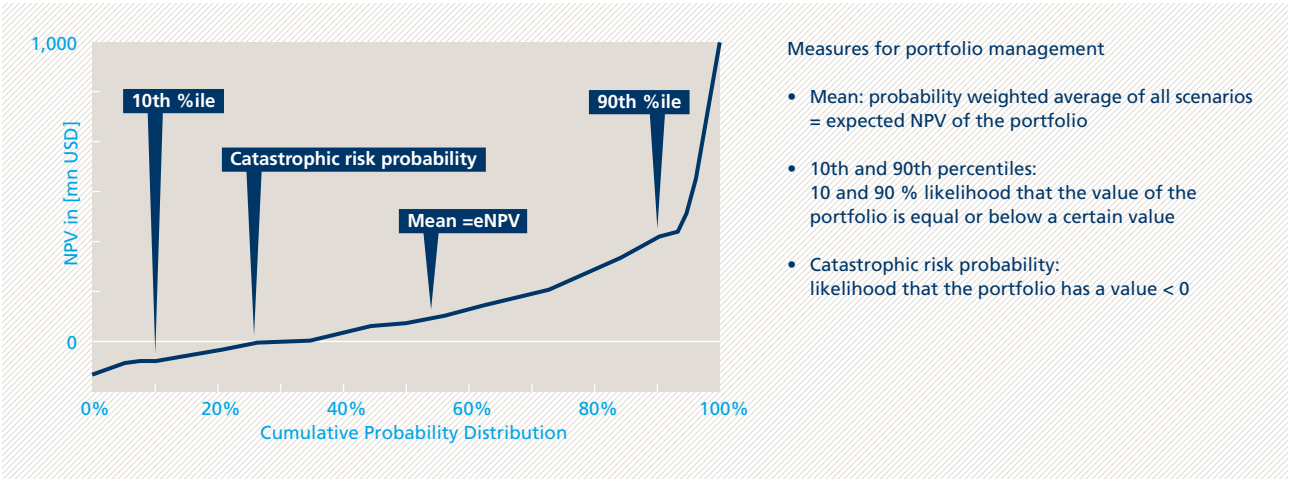
Crucial to the quality of the output of such a simulation is that the inputs capture the best data and thinking of the organisation regarding risk and return of key assets. Usually this can be achieved by creating different market scenarios reflecting uncertainty around the product profile, price, competition, etc. with associated probabilities for each phase II and III project or marketed products. In addition, the failure scenarios (failure after phase II, III, filing) need to be captured. The correlation of risk can be modelled through conditional probabilities, e.g. if an advanced project that shares the same technology with several early stage projects is successful, it increases the likelihood of the successors to be successful in that particular scenario as well. Even if one models a modestly sized portfolio, the number of combinations of different project scenarios at the portfolio level quickly reaches the millions.

The result of such an analysis is a Risk and Value plot at the portfolio level. This can be done for a therapy area, a business field or an entire company. In comparison with classical eNPV models in which project values are added up to generate the portfolio value, this approach provides a much more realistic representation of the real Risk and Value profile of a portfolio. This is so because each portfolio scenario contains projects that are either on the market or not, instead of "weighted averages" in which only a fraction of a project may be on the market. The other benefit is that this approach allows capturing the benefits of diversification both in terms of sheer portfolio size and co-variance of risks in the portfolio.

## To Partner or Not to Partner

To illustrate in more detail what type of question our approach addresses, here is a simple thought experiment: You are the CEO of a small, resource-

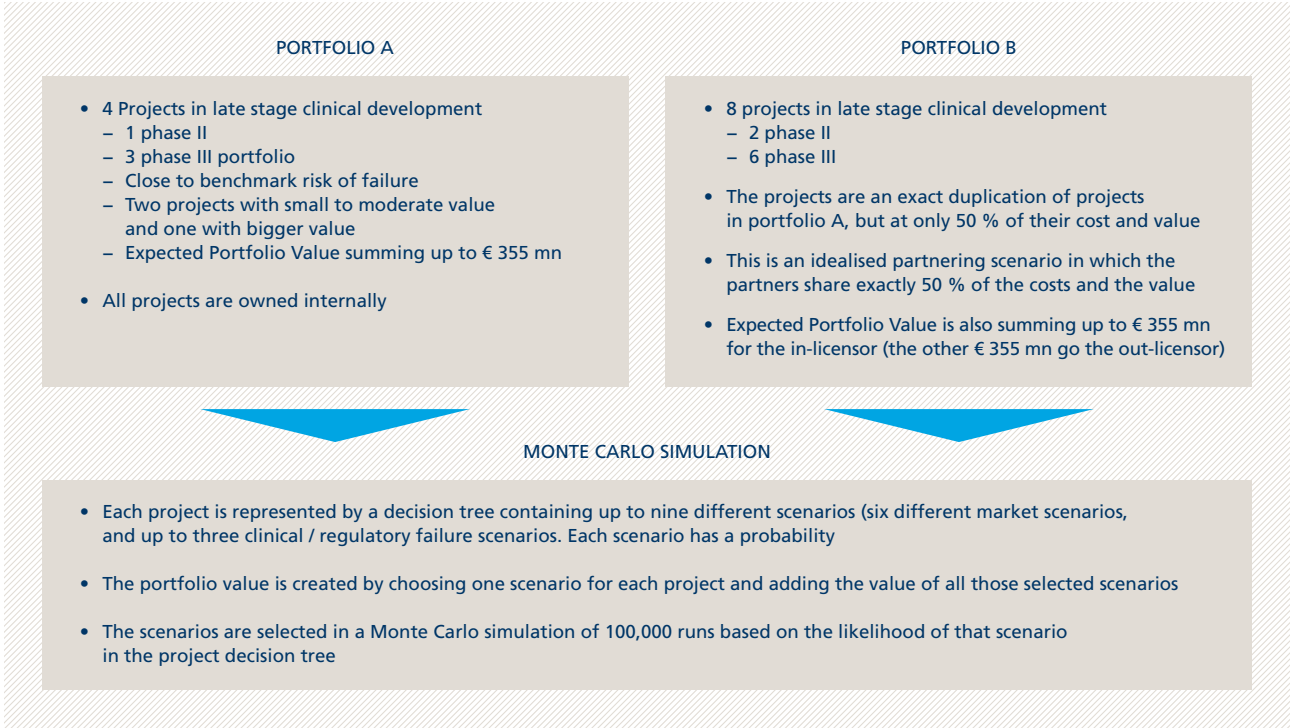
### Exhibit 1: The Risk and Value Profile of a Pharmaceutical Portfolio



constrained pharmaceutical company and have to decide on your partnering strategy. Suppose further that there are two proposals on the table that reflect two fundamentally opposing views. One view is propagated by your Head of Business Development and fully embraces partnering for every project, as you can then do more within the same budget: "although we have to give away 50% of the value, we have more shots on goal". The opposing view is postulated by the Head of R&D: "we do not want to give away any value of our internal assets and our Research group is highly productive, let's rely on internal strength".

To put the argument on a quantitative basis you ask your portfolio experts to come up with an analysis of the eNPV of the two strategies. They do this and come back to tell you that they have compared a scenario of four Development projects (the current pipeline) where all projects are internally controlled with one of eight Development projects in which there is a 50:50 split of all costs and revenues with the partner. Your portfolio expert tells you that both strategies have a very similar value. The risk of the projects is also not affected by either strategy as the success probabilities in the respective project decision trees clearly show. The Head of R&D immediately uses this to further push his view that you should clearly decide to go with the strategy that gives you full control over all assets: "and if we are successful we do not have to share the upside". You agree, but you still have the feeling that an essential element is not captured. You ask your portfolio expert to think about portfolio risk and the impact of diversification. After a while the portfolio expert comes up with a Monte Carlo simulation of all possible portfolio outcomes in which the eNPV of the "partnering" and the "internal" scenarios are still similar but the likelihood to fall below a certain value threshold is much lower in the partnering scenario. This is what you were looking for to convince your Head of R&D. You use this to formulate a new strategic objective that "in the long-term, we want x% of our projects to be partnered". (See Exhibits 2 and 3 for an illustration)

## Exihibit 2: Comparing a Partnering Strategy with an Internal R&D Only Strategy



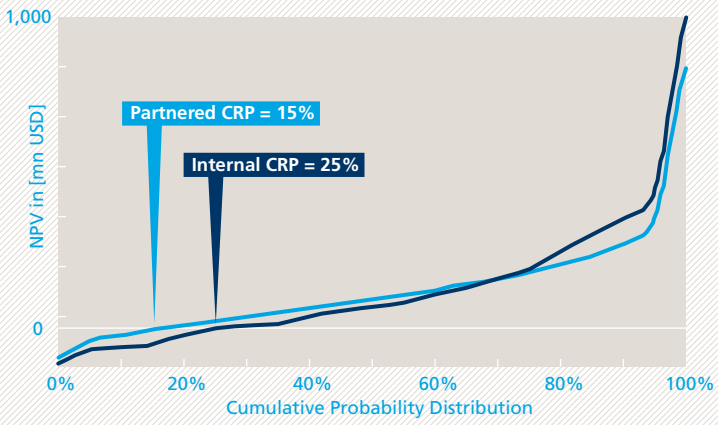
## Using Portfolio Risk and Value Profiles for a Strategy Review

The review of a business field or corporate strategy is another field where our approach can lead to actionable insights that would not be uncovered in a traditional strategy setting. A typical strategy process starts out with the formulation of goals. A goal could be to become a leading player in terms of market share in a therapeutic area, it could be a sales or profit target or even something intangible. The strategy then describes how you can actually achieve that goal by selecting a position in the marketplace that is differentiated and creates a competitive advantage – "where to play and how to compete". At some point the question becomes whether the goals are actually appropriate or achievable, so it is both a top-down and bottom-up process. In our experience, we found the following dimensions helpful to structure the discussion:

- Focus areas – these can be therapy areas, technologies, business fields or regions
- Customer groups – primary care vs. specialists
- Geographic coverage – home market/region vs. global coverage
- Innovation mix – incremental lower risk approaches vs. aiming for high unmet need or difficult science with breakthrough potential
- Value chain scope – degree of outsourcing, partnering, etc. for each step in the value chain

While these elements are of a purely descriptive nature, the ultimate question is how to create competitive advantage. In the pharmaceutical industry there are numerous regulatory constraints resulting in a limited scope for true business model innovation compared to other industries. In pharmaceuticals, the key lever for success is to develop drugs that address high unmet need (= high price) better than (expected) competitors for as many patients as possible. Of course, the option space is vast in terms of choosing therapy areas/ indications, drug targets and technologies, but the basic business model has not changed much over the last 20 years in spite of the rhetoric that states that "pharma needs to invent new models".

### Exhibit 3: The Partnering Scenario Significantly Reduces Risk in a Value and Risk Model




- Dark line is a Monte Carlo simulation (100,000 runs) of a portfolio of 4 projects, blue line is a portfolio of 8 projects, the Expected Value of both portfolios is equal (the 8 project portfolio has 50% of the Expected Value per project compared to the 4 project portfolio). The Cumulative Probability Distribution indicates how many of the scenarios fall into a certain value range.
- The internal portfolio has a significantly higher likelihood to create no value (~25%) compared to the partnered portfolio (~10%)
- This benefit of 10 percentage points is due to risk diversification

CPR = Catastrophic Risk Probability = NPV of portfolio ≤ 0

There are quite a few skeptics in this field who will claim that strategy is really an emerging property and is often defined ex post to rationalise past successes so there would be limited value in spending too much time strategising up front. Because there is some truth to this view, we feel that a solid strategy process needs to encompass both top-down and bottom-up elements. The typical trap of the corporate strategist is to come up with options that are completely detached from the reality of the portfolio and the organization.

While the top-down process can deliver goals, objectives and an unbiased view of the external environment, the bottom-up process should deliver the strengths and weaknesses of the portfolio, operating model and core capabilities. Portfolio risk profiles can be used at both levels to get a realistic overview of how much risk a company is willing to take. By calculating the likelihood of achieving goals based on the current portfolio, the option space for hedging some of that risk is opened up. This can be done by adding areas with different risk/return profiles, through partnering, financial hedging, etc. Our framework can help quantify this discussion, and most importantly it will lead to qualitative insights that go beyond personal beliefs that often dominate the discussion around focus or diversification.

## Lundbeck and Johnson & Johnson – Two Companies Seen Through the "Portfolio Risk Lens"

To illustrate the principles discussed above, let us take a look at two successful companies which are located on extreme ends of the spectrum in terms of portfolio strategy and operating model: Lundbeck and Johnson & Johnson.

Lundbeck is an archetypal highly focused pharmaceutical player and Johnson & Johnson is an archetypal diversified and decentralised healthcare company. Of course, one could also review a typical biotech or platform technology company to illustrate the concept of focus and correlated risks, but the nature of a one-project or one-technology biotech company as a high-risk venture is too obvious to serve as an illustrative example here.

Lundbeck's CNS focus can be seen as an advantage as well as a clear disadvantage. It has allowed the company to establish learning curve effects and economies of scale within its target areas of psychiatry and neurology on the one hand. On the other hand the company has a riskier profile due to its extreme focus. CNS is the field with the highest failure rates, the science is difficult and animal models are not predictive. The downside risk is compensated by a huge upside due to large underserved patient populations. It just requires one or two large successes and a CNS-focused company could ride the upside curve (= growth rate) much better than any diversified company ever could (assuming similar size). The more you spread your bets across indications and therapy areas, the more unlikely the extremely good and bad results become, and the less co-dependent project-related risks will be. This Janus-like behavior of risk in the context of portfolio size and diversity is essential to understand. In the past, Lundbeck rode the upside curve due to a small, focused portfolio. One could argue that the extreme focus and capability level in CNS led to Citalopram and Escitalopram, two related blockbuster SSRIs (the first is a racemate, the latter the S-enatiomere). However, the upside curve was severely challenged when patents on Citalopram expired. Lundbeck's extreme focus and deep capabilities have allowed it to come up with a potential follow-up drug Vortioxetine that has recently been approved. Whether this is sufficient to put the company back on the sustainable growth track remains to be seen. Any company with a strong focus on CNS carries a high degree of catastrophic risk that does not really show up in analyst models that sum up individual project eNPVs. The real risk distribution of the Lundbeck product and project portfolio would only show in a risk and value simulation (showing the likelihood of the portfolio not delivering against financial targets).

The crucial question for Lundbeck is how to improve its strategic position. One option could be to rely on superior capabilities within certain fields of CNS and hope to strike it lucky and ride the upside curve once

again. This may sound like a risky bet, but Lundbeck has demonstrated over the years again and again that it is capable of bringing new CNS drugs to market – both in-licensed and from internal research. From a pure risk perspective, however, performance could probably be better achieved through some degree of diversification. The question then becomes where and how to diversify. This can be done by adding one or more therapy areas with uncorrelated risk. Lundbeck seems to have answered that question by remaining strongly committed to CNS diseases. Whether a company is highly focused or diversified, the logic of portfolio risk modeling allows capturing the essential strategic questions at their very core.

At the other end of the spectrum there is Johnson & Johnson as a highly diversified and decentralised company. According to popular logic, this model should be prone to underperformance as there are only limited operational synergies between its three businesses in pharmaceuticals, medical devices/ diagnostics and consumer products.

Many would argue that J&J pays a price for its diversification in the form of a conglomerate discount (because investors think diversification should be done by them and not by management). This is exactly what happened over the last few years as J&J has lagged behind the S&P Global Healthcare Index slightly since 2002. But this is only part of the story. J&J's long-term performance has been undisputed – the company has outperformed the S&P Global 500 by a factor of five over the last forty years. In the turbulent year 2008, the company's risk profile was seen as more attractive than those of its highly focused peers and J&J has outperformed the S&P Global Healthcare Index (Jan. – Nov. '08). In difficult times, investors value the ability of J & J to deliver predictably growing operating profit more than the volatility associated with a profit maximisation strategy.

J&J is highly competitive in all of its three business fields. The company is the market leader in medical devices and ranks sixth in the pharmaceutical field. The underlying strength of J&J's diversification strategy is reflected by the fact that the company's profit distribution has become more balanced whereas in the past, pharmaceuticals tended to dominate.

The fact that the pharmaceutical business of J&J will face a rough period of patent expiries is less threatening than for a highly focused pharma player such as Pfizer. Speaking in risk profile terms, the catastrophic risk of the company faltering or being forced into a mega-merger is much lower than that of its highly focused peers. In the context of the financial crash, long-term thinking and diversification are suddenly en vogue again, and J&J fits the bill perfectly. The credo of J&J that was formulated in 1943 by its founder Robert Johnson reads as if it had been written in response to current short-term excesses. It states as a final point that shareholders should make a fair return but only after investing into innovation and making sure that reserves are created for difficult times. In 1943 there was no such thing as double-digit returns year after year, which many investors (and consultants pushing "value management") have demanded in the past years.

What sets the company apart from other diversified mod-els is that J&J seems to have found the right balance between granting autonomy to its businesses and keeping central control over the overall portfolio performance. Quality in key management processes is a prerequisite for success in a diversified portfolio. J&J provides a good example of the basic logic of a corporate conglomerate, which consists of optimising long-term performance even at the expense of short-term underperformance of individual units.

## Is there an Ideal Model?

Johnson & Johnson and Lundbeck are models located at the extreme ends of the strategic continuum. For both companies, the question of focus versus diversification has been answered a long time ago. While Lundbeck may get lucky and ride the upside curve once more, J&J seems to be set up for stable long-term success with less volatility.

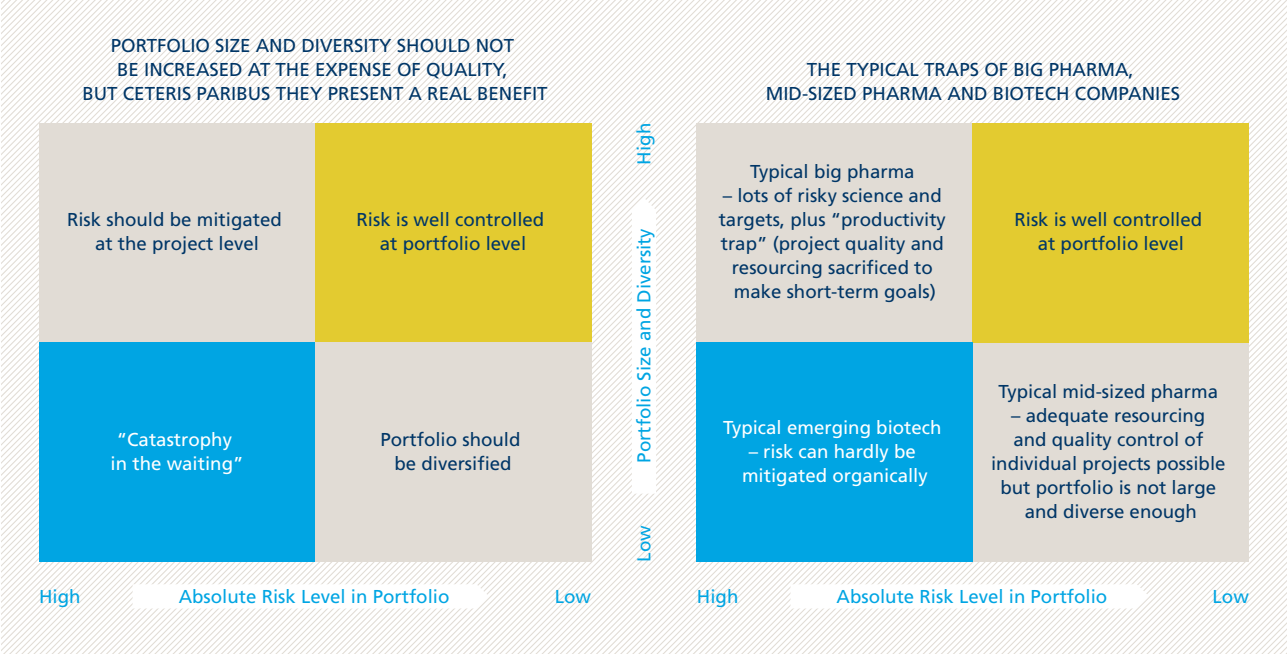
But for most companies, who are located somewhere in the middle, the question of which model is the

right one depends on their strategic and shareholder's objectives. For those taking a long-term perspective, reducing volatility and the risk of going out of business is most likely more important than maximizing growth. Family-owned businesses especially tend to fall into this category. In this case, diversification and a policy of avoiding too many correlated risks in the portfolio becomes a strategic imperative.

But very importantly, highly diversified models only seem to thrive when there is strong attention paid to management and portfolio quality. It is too easy to disguise poor management and an unfocused and overstretched portfolio under a diversification umbrella. Companies need to clean up their portfolio first before starting to think about more diversification. If a company is already stuck with too many projects or businesses of low quality/profitability, more focus may be the right answer (see Exhibit 4).

In our experience, a good deal of common sense and understanding of the context is essential when using quantitative valuation models. The healthcare business is too complex to be reduced to a few numbers like a portfolio of stocks; unforeseen events and serendipity will continue to play a large role. If one fully acknowledges these limitations, portfolio risk simulation based on a solid review of the project/product or business portfolio can serve as an important framework to guide management through the process of asking the right questions and ultimately selecting a strategy that fits with the company's overall objectives.

## Exhibit 4: The Typical Portfolio Challenges of Big Pharma, Emerging Pharma and Biotech



## About the Firm

Catenion is a management consulting firm devoted to helping pharmaceutical and medical products companies significantly increase the returns on their R&D and marketing investments by creating more innovative and effective strategies and organisations.

We greatly improve how our clients assess the value and risk of their project and product portfolios and how they allocate resources. We also address the cultural impediments to pharmaceutical innovation by helping clients create the organisational climates that foster creativity and medical breakthroughs. And we draw on our deep understanding of industry trends and company dynamics to help our clients develop actionable competitive strategies.

We work with board directors, CEOs, business unit general managers, heads of R&D, finance, strategy, portfolio management, business development and other executives who want to improve the performance of the organisation. We are able to do so because of four differentiators.

First, we specialise in strategy development and innovation management for pharmaceutical and medical products companies. It's our sole focus.

Second, we possess and continually develop leading approaches to key aspects of R&D strategy such as asset valuation, risk assessment and portfolio management.

Third, we bring highly experienced consultants with deep expertise in the economic, scientific and organisational issues of life sciences R & D and who deliver a cross-disciplinary approach to their work.

Last, our consultants are passionate about transferring their knowledge and capabilities to clients. We do so through The Catenion Academy, which offers education programmes on decision analysis. The Academy focuses on proven approaches to making complex investment decisions for R&D projects and portfolios. We are equally passionate about helping our clients boost innovation and thus contributing to medical advances. We are constantly seeking entrepreneurial opportunities related to our core capabilities and are willing to go at risk.

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Commentary

Risk Profiles of Corporate Portfolio Strategies
– A Perspective for the Pharmaceutical Executive


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