



Synergies Valuation in M&A

Practical Application in Financial Institutions

Acquisition BNP Paribas - Fortis Bank

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EXECUTIVE SUMMARY

Presentation and problematic:

The objective of this research paper is to better understand the concept of synergies in the context of mergers and acquisitions. We start by the observation that synergies are often cited by corporates as both a primary reason for contemplating external growth as well as a major cause of M&A failure.

In such a context, we try to answer the problematic on how to properly value the synergies deriving from a merger or an acquisition. With equal importance, we intend to appreciate the link, or more probably the gap, between theory and practice around the concept of synergies.

Work and methodology:

The methodology adopted in the research paper combines review on financial literature, analysis on recent transactions, as well as interviews with professionals relevant to the topic of synergies. This methodology was shaped in order to comprehensively embrace the challenges mentioned above.

In order to address the different objectives, the research paper is divided in three distinct sections.

- The first section provides a global overview about synergies on a theoretical standpoint: we identify the different sources of synergies and discuss the possible difficulties encountered by merging companies.
- The second section presents the possible methods to value synergies: we engage a technical investigation about the role of synergies in value creation in the context of mergers and acquisitions.
- The third section applies the theoretical findings to a practical case study: we apply the discussed topics on synergies on acquisition of Fortis Bank by BNP Paribas that occurred in 2008-2009.

Conclusion of the first section: Literature Overview

- Companies contemplate M&A deals primarily for strategic growth opportunities, the synergies being a materialization of potential incremental cash flow deriving from expansionary offensive M&A
- The control premium the buying company usually pay in acquisitions is only justified by the existence of potential synergies out of the combination with the target company
- The potential synergies from the transaction can take two different forms for the buyer company:
 - Operating: revenue enhancement & cost reduction
 - Financial: capital flexibility & tax efficiency
- The operating synergies however are the only form of synergies pursued by the combined entity while financial synergies appear to be questionable and negligible
- Synergies are one of the major cause for M&A failures because buying companies usually make mistakes when estimating the operating synergies from the combination

Conclusion of the second section: Valuation of Synergies

- The first part of the valuation process is the synergy estimation. Buying companies will internally identify and estimate the possible synergies from a transaction involving different teams in the estimation process. The synergy estimation may also involve the computation of multiples in order to check the estimations with industry benchmarks using similar past transactions.
- The second part of the valuation process involves the proper synergy valuation. Since synergies can be identified as streams of cash flows for the merged entity, the traditional DCF approach can be applied to value synergies but some specificities around the synergistic cash flows have to be considered (time horizon, implementation phasing, high uncertainty, line effect).
- We also discussed the effects of synergies on value creation. Since acquisitions can be identified as investments, we showed that the merged entity will extract value creation from the deal only when the ROIC of the acquisition (return on investment) remains higher than the WACC of the target (risk associated with the investment). The shareholders of the merged group may experience short-term impacts on communicating around estimated and realized synergies, as markets positively reward transparency. However, value creation will be achievable only if the realized level of synergy is sufficient enough to justify the invested amount and risk associated with the acquisition.

Conclusion of the third section: Case Study - BNP Paribas acquisition of Fortis Bank

- Using the valuation methods described in the previous section, we value the synergies of the BNP Paribas Fortis Bank deal up to € 4.5 billion for a ROIC the acquisition of 23%.
- This transaction was carried out in times of crisis and allowed BNP Paribas to fairly recover from the great financial crisis when looking at its current situation in Europe.
- This transaction is a perfect illustration of the key implications for large acquisitions – some drivers may play against each other (growth opportunity vs. value creation - large restructuring / ring fencing vs. large synergies) and require the buyer to make important choices when such opportunities knock at the door.
- Tracking the synergies appears as a critical engagement for merging companies if they want to fully benefit from the positive effects of identified synergies. We may conclude that the synergies valuation will be all the more important if two factors are reunited: the two merging companies have strong synergy opportunities (adjacencies) and the merged group implements a rigorous synergy tracking during the integration phase with a dedicated team (synergy team). This second requirement may be where synergies bring additional value creation in M&A deals.

INTRODUCTION

Synergy or an intriguing concept in the world of mergers and acquisitions. The word resonates steep when spoke out by a financial corporate or an investment banker. This concept itself arises both interest and curiosity for many buyers contemplating external growth. Synergies are indeed commonly cited by corporate investors as a major driver for takeovers but also point as a major pitfall for M&A deals.

Are synergies the carrot and the stick that will decide for transactions to succeed or to fail? Are synergies a valid justification for paying high price to acquire another adjacent company? More innocently, are synergies really accessible?

The main objective of this research paper is to better understand the myth around synergies. We try to answer the problematic on how to properly value the synergies deriving from a merger or an acquisition. With equal importance, we intend to appreciate the link – or probably the gap – between theory and practice around the concept of synergies.

The methodology adopted in the research paper combines review on financial literature, analysis on recent transactions, as well as interviews with professionals relevant to the topic of synergies. This methodology was shaped in order to comprehensively embrace the challenges mentioned above.

In order to address the different inquires raised in the first place as well as the objectives derived from these preliminary observations, the research paper is divided in three distinct sections.

The first part provides a global overview about synergies on a theoretical standpoint. In particular, we identify the different sources of synergies and discuss the importance and difficulty for merged entities to catch them.

The second section represents the core of this master thesis by discussing the possible methods to value synergies. We engage a technical investigation about the role of synergies in value creation in the context of mergers and acquisitions.

The third and last chapter follows the step open by the previous developments with a practical case study. We apply the discussed topics on synergies on the BNP Paribas' acquisition of Fortis Bank that occurred in 2008-2009. The practical application intents to reconcile, or more modestly, to highlight the existing discrepancies between theory and practice.

“Synergies is better than my way or your way. It is our way”

Stephen Covey – The Seven Habits of Highly Effective People

PART 1 – LITERATURE OVERVIEW

The first part of the research paper explores the theoretical perspectives around synergies in M&A by providing an overview of financial literature. This first section is crucial before diving into technical valuation methods and applying the theoretical findings to a practical case study. The section appears as a comprehensive summary about synergies and is based on the review of finance books, company reports, academic papers, press articles as well as the completion of interviews with professionals.

1. Rationale of M&A deals – Introduction

Before getting into the detail of synergies, it seems important to understand the rationale of M&A deals and then infer how synergies derive from such strategic considerations. The objective of this introductory section is to understand why companies carry out mergers and acquisitions.

1.1 - Surveys on drivers of M&A

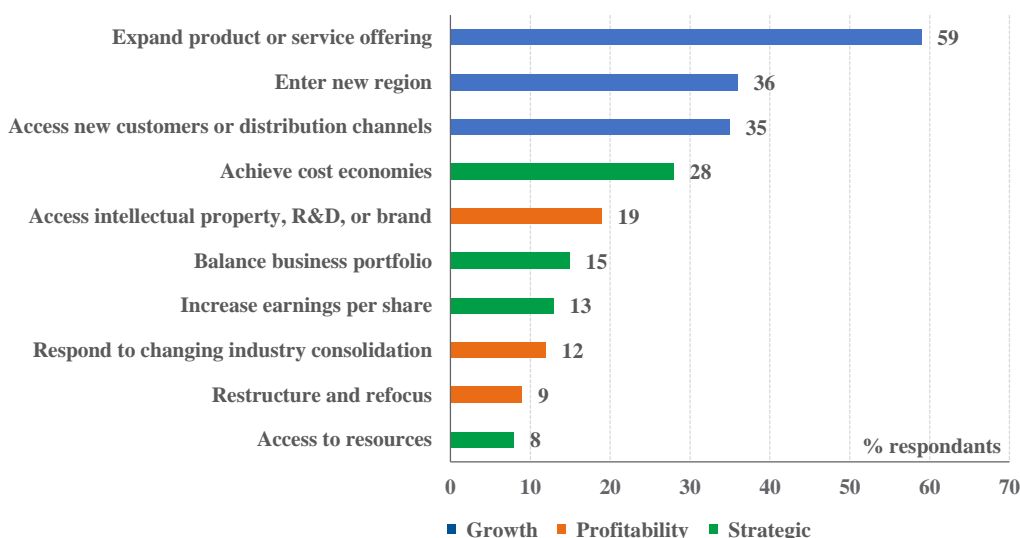
The two following graphs present the main drivers for M&A transactions according to top executives of different companies. The first graph relates a survey carried out in 2012 by BCG /UBS while the second graph summarizes a latest survey released in 2016 by KPMG;

Even if carried out in two different times, the two surveys show the same outcome: the main driver for M&A deals can be clustered under the terms of “**growth opportunities**”.

This idea of growth embraces the following elements:

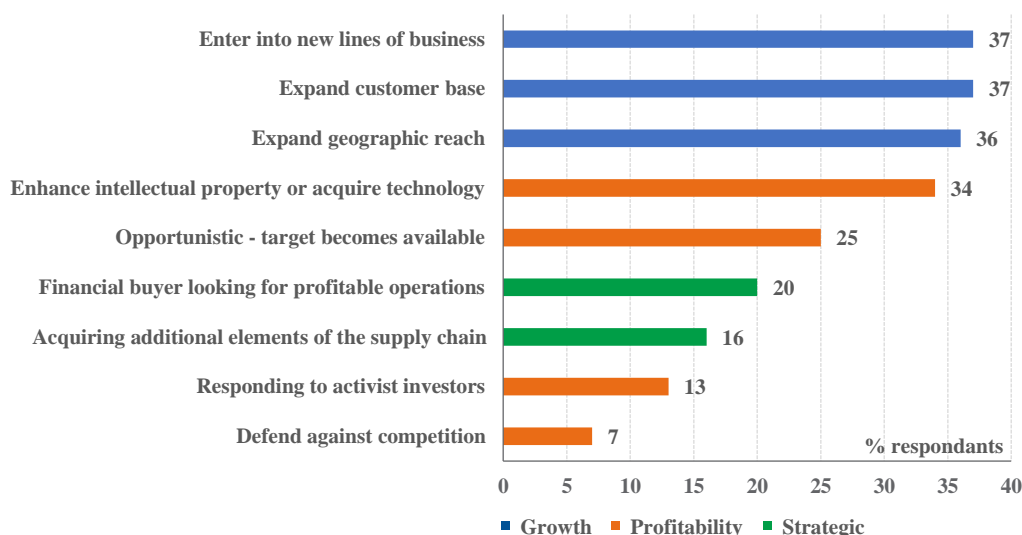
- expand product or service offering (59%) / enter into new lines of business (37%)
- enter new region (36%) / expand geographic reach (36%)
- access new customers or distribution channels (35%) / expand customer base (37%)

Graph 1 – Drivers of M&A Transactions in 2012



Source – BCG / UBS – A Survey of European Companies on M&A Plans – 2012

Graph 2 – Drivers of M&A Transactions in 2016



Source – KPMG – US Executives Survey on M&A – 2016

As a summary for the two surveys, M&A motivations can be clustered into three strategic categories, each corresponding to a strategic rationale for the two merging companies:

- 1. Growth Opportunity
- 2. Profitability Enhancement
- 3. Strategic Position

To add on this finding, investor presentations and meetings with investment bankers allow to say that there is first and foremost a strategic rationale under M&A deals. Two companies decide to merge because they have a strategic interest to do so. In particular, investor presentations appear very clear on this point, and start by highlighting the strategic rationale behind the deal, as mentioned by the following examples:

- Bayer is acquiring Monsanto **“to create a global leader in agriculture”** (June 2016)
- Shire is merging with Baxalta **“to create the global leader in rare diseases”** (August 2015)
- Tesla is acquiring Solarcity **“to create the world leading sustainable energy company”** (August 2016)

Such examples could be multiplied over and over but give an interesting intuition: if a large number of companies enter into M&A looking for growth, synergies should be a consequence of this offensive strategic move. Are there synergies for defensive M&A – that is merging in order not to be acquired or overwhelmed by competitors? Are there synergies for restructuring M&A – that is divest a business unit or a subsidiary to another company in order to refocus on core business or profitable business lines? For the sake of simplicity and consistence, we will consider in this research paper synergies only in the case of expansionary offensive M&A (that is ignoring defensive restructuring deals).

1.2 - Scope of the Research Paper

Before specifying and identifying the sources of synergies, we can now better define the scope of the research paper – taking for granted that M&A belongs to the category of external growth. Contrary to intrinsic growth, which derives from operational strategies implemented by corporates in order to internally maximize cash flow from invested capital, organic growth relates to the complex moves of acquiring, merging, and splitting assets, activities or companies.

From here, mergers and acquisitions belong to the category that we will call “expansionary M&A” which is nothing but the idea of maximizing cash flow from invested capital through external strategies. Divestitures (regrouping spin-off or carve-out) belong to the category of “restructuring M&A” whose idea is to maximize corporate clarity and focus on core business.

From this distinction, we would consider in this research paper only expansionary offensive M&A deals when speaking about synergies – that is mergers and acquisitions where growth is the main rationale lying behind the takeover. In the next section and in some efforts to define synergies, we would indeed assume now that synergies will derive from growth opportunities of M&A deals.

2. Definition of Synergies

2.1 - Definition

If synergy is a concept widely used in corporate finance – especially in M&A talks – the term originates from physics by referring to “*the types of reactions that occur when two substances or factors combine to produce a greater effect together than that which the sum of the two operating independently could account for*”. From this perspective, synergy can be naively considered as the natural phenomenon by which $1 + 1 > 2$.

From the corporate finance point of view, synergy can be defined as “*the positive incremental net gain associated with the combination of two firms through a merger or an acquisition*”. Therefore, synergy is the positive difference between the value of the combined firm and the sum of values of the firms as separate entities. Otherwise stated, synergies refer to the fact that a corporate combination can be more valuable than the individual parts of the firms before the acquisition or the merger.

We would consider now that synergies relate to the financial concept under which the value of the combined companies – in expansionary offensive M&A deals – result to be greater than the sum of the separate individual firms.

2.2 - Synergies and Acquisition Premium

As we saw previously, if the main rationale for M&A is the strategic consideration of bringing “**growth opportunities**” under a combined entity, the synergies are one materialization, among others, deriving from this strategic outlook.

However, one common feature of acquisitions is the concept of acquisition premium or control premium. The acquisition premium is the excess amount a buyer will pay, as part of the acquisition price, for acquiring the target company in order to benefit from the right to control the company (and shape its future business orientations). The acquisition premium is not a free gift to the target shareholders but an anticipation of the future value of the takeover so that buyer shareholders will benefit from future higher earnings. This concept only applies in the case of acquisitions and remains absent when speaking about mergers.

The acquisition premium can be calculated as follow:

$$\text{Acquisition Premium} = \text{Final Acquisition Price} - \text{Market Value of the Target} \quad (\text{Eq. 1})$$

This is here where synergies are cited as the reason to justify acquisition premium: ***“the presence of acquisition premium can only be justified by the fact that the new acquirer will get more value from the company than the former shareholders. The acquisition premium is only explained by the synergies that the new acquirer hopes to capture”*** [Pierre Vernimmen – Corporate Finance – Paragraph 35.47].

The buyer anticipates that the synergies performed under the combined entity largely offset the upfront payment of a premium to acquire the target company. This acquisition premium can be seen as an investment in which the buyer retrocedes one part of the value of the deal in order to receive future cash flows. Considered as an investment, the acquisition premium would turn to be a profitable investment for the acquirer only if:

$$\text{Acquisition Premium} < \text{NPV of Synergies} \quad (\text{Eq. 2})$$

In addition, the acquisition premium can bring some difficulties for the success of the deal. From a negotiating point of view, it can be inferred that the higher number of bidders to acquire a target, the higher the premium to be paid, so the higher amount of synergies left on the way. Therefore, sometimes the justification of the acquisition premium is not only determined by the expected level of synergies from the buyer but also the conditions of the deal (auction or market conditions) or the attractiveness of the target (scarce desired asset).

From a financial and strategic point of view, the acquisition premium may put some pressure under the management of the combined entity in a sense that the synergistic gains of the acquisition are very uncertain cash flows (uncertain amount or uncertain timeframe) and imply costs of implementation (negative cash flows) to achieve these synergies.

2.3 - Mathematical Approach

The synergies deriving from M&A, as positive incremental net gain, may generally lead to a positive “**Net Acquisition Value**” (NAV), given by the following equation:

$$\text{NAV of Synergies} = [V_{AB} - (V_A + V_B)] - [P + E] \quad (\text{Eq. 3})$$

Using the following notations:

- V_{AB} is the value of the combined firms A and B
- V_A is the value of the standalone firm A
- V_B is the value of the standalone firm B
- P is the premium paid for the acquisition
- E is the amount of expenses engaged in the acquisition process

If we focus now on the first part of the equation – which is the part from which synergies will source out – and assume that the “**Net Present Value**” (NPV) of synergies is the difference between the value of the combined firms and the sum of the two separate firms, we get the subsequent equation:

$$\text{NPV of Synergies} = V_{AB} - (V_A + V_B) \quad (\text{Eq. 4})$$

Considering the NPV formula of synergies in the previous equation, it seems possible to derive the potential sources of synergies by identifying the incremental cash flows induced from external growth operations. These incremental cash flows can be simply identified as the cash flows of the combined firms less the sum of the cash flows of the separate firms:

$$\Delta\text{CF (Synergies)} = \text{CF}_{AB} - (\text{CF}_A + \text{CF}_B) \quad (\text{Eq. 5})$$

Using the following notations:

- CF_{AB} is the amount of cash flows of the combined firms A and B
- CF_A is the amount of cash flows of the standalone firm A
- CF_B is the amount of cash flows of the standalone firm B

If we apply now the standard definition of Free Cash Flows to determine the incremental cash flows from the combination considering the combined entity directly, we derive the following equations:

$$\begin{aligned}\Delta\text{CF} &= [\Delta\text{EBIT} + \Delta\text{Depreciation}] - [\Delta\text{Tax} + \Delta\text{Capital Requirements}] \\ \Delta\text{CF} &= [\Delta\text{Operating Profit}] - [\Delta\text{Financial Flexibility}] \\ \Delta\text{CF} &= [\Delta\text{Revenue} + \Delta\text{Cost}] + [\Delta\text{Tax} + \Delta\text{Capital}]\end{aligned}$$

From the last equation, we conclude that the incremental cash flows from the combined entity following the merger or the acquisition fall into two main sources: operating (higher revenues – lower costs) and financial (lower taxes – higher capital flexibility).

As an intermediary conclusion, we can identify two main sources of synergies: operating synergies and financial synergies. We will breakdown more precisely these two sources of synergies in the next section.

3. Breakdown of Synergies by Source Type

Synergies can be broken down according to their specific impact on cash flows, allowing to make the distinction between operating and financial synergies. The table below summarizes the synergies by source type that we will detail further in this section:

Table 1 - Summary of Synergies by Source Type

Source 1	Source 2	Source 3
Revenue Synergies	Cost Synergies	Financial Synergies
<ul style="list-style-type: none">- Cross selling- Market power- Market access	<ul style="list-style-type: none">- Economies of scale- Economies of scope- Complementary resources	<ul style="list-style-type: none">- Cost of capital- Tax efficiency- Financial flexibility

Source – Summary of Literature Review

3.1 - Operating Synergies

Operating synergies can be defined as “*synergies that allow firms to increase their operating income from existing assets, increase growth or both*”. In other words, operating synergies are synergies that derive from revenue enhancements or cost reductions induced by the merger or the acquisition.

3.1.1 - Cost Synergies

Cost synergies correspond to the incremental gains related to operating cost reduction of the combined entity compared to its previous forms as separate companies. Cost synergies are often associated with the disposal of redundant processes (manufacturing, employees, administration ...). Even if mergers and acquisitions often involve staff reduction, it would be really reductive to confine cost synergies just as layoffs. As detailed below, cost synergies can take more precise forms and come from various sources.

Economies of scale: economies of scale is the cost advantage that results from the increased volume of production. The higher the quantity of goods produced, the lower the cost per unit of the production. Indeed, economies of scale allow to spread out fixed costs over a larger number of units produced. This is also known under the notion of “**spreading overhead**”, that is dividing total costs (fixed + variable costs) as the number of units produced increases. The economies of scale will be all the more efficient for capital intensive companies with large fixed costs.

Economies of scope: economies of scope is the cost advantage that results from the combination of supporting activities for a given range of products or services. The most common economies of scope that we think about is combining the sales, marketing, distribution activities to improve the selling process of the product or service line. The economies of scope will find most potential for companies likely to have a large range of products and services.

Complementary resources: economies of scale and economies of scope are types of cost synergies that allow firms to naturally decrease their per-unit cost as their size induce better dispersion of total costs. On the contrary, complementary resources refer to the cost synergies that arise from improvements and efficiencies on the production process itself. Operational efficiencies will allow firms to reduce their variable costs thanks to the combination of resources (closing overlapping activities) or the mutualisation of expertise (transferring best-practices). We can break-down the complementary resources into different categories related to different functions (administrative, IT, management ...).

Cost synergies may be seen as the main source of operating synergies since they can derive directly from removing overlapping functions of the two merged companies. They represent production improvements or organization rationalization as result of the combination of the two assets of the merged companies.

3.1.2 - Revenue Synergies

Revenue synergies correspond to the incremental gains related to operating earnings enhancement of the combined entity compared to its previous forms as separate companies. Revenue synergies can be viewed as all the growth opportunities – in terms of sales, market share, market access, and customer retention – unlocked by the merger of the two companies that were not available before. The details below intent to describe the main forms of revenue synergies.

Cross selling: cross-selling is the phenomenon by which a company can sell a complementary or additional product or service to an existing customer. The objectives of cross-selling are either to increase sales or to improve customer retention. Merging companies can largely benefit from cross-selling opportunities in different ways. They can build better product mix or design new product-service offering based on combining complementary sales resources or distinct marketing strengths. Cross-selling opportunities will be likely to arise for companies acting in complementary areas across the value chain or the business position.

Market power: market power relates to the fact that merging or acquiring competitors allow the company to reduce competition within the sector and thereby drive profitability. This is also known as “**monopoly effect**” such that reduced competition gives the leading companies a higher pricing power over customers. The market power will be all the more powerful as the two merging companies dilute competition or become bigger, under the condition that antitrust regulation do not restrict the takeover.

Market access: market access is the synergy form by which a company acquires a new opportunity or an option to generate future growth. This opportunity can take the form of entering a new geography, designing a new product, securing a new distribution network. For market access, the term “**beach-head acquisition**” is also used to account for an offensive move to establish an entry point for future growth opportunities (usually by acquiring minority interest in the target company).

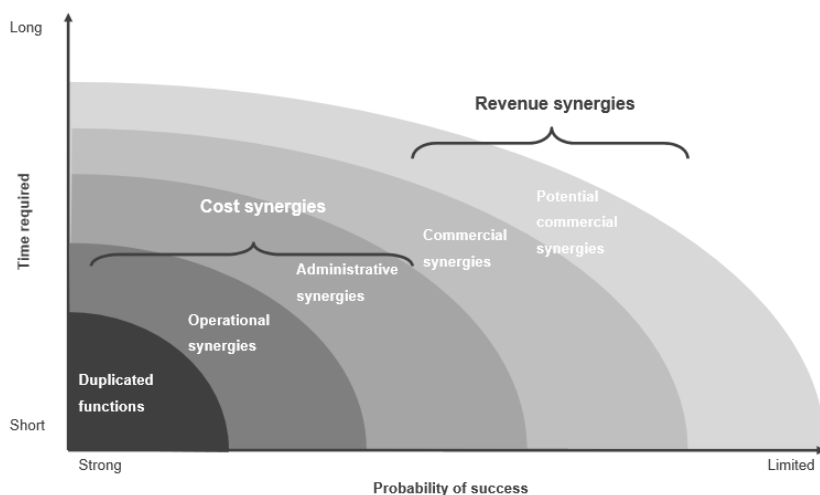
Revenue synergies may come out from many potential sources after a deal is settled. They represent growth opportunities as result of the combination of the two merged companies. Potential revenue synergies vary widely across deals and industries and might be much more difficult to identify for companies.

3.1.3 – Timeline of Operating Synergies

If revenue and cost synergies fall into the same category of operating synergies, they widely differ regarding their possible materialization. Cost synergies inherently show up when the two companies start to implement the integration plant, while revenue synergies largely require more efforts from the management to arise.

The graph below eminently shows the operating synergies (revenue and cost) in a double scale by positioning the time required and the probability of success of achieving the synergies.

Graph 3 – Timeline of Operating Synergies



Source – Franck Ceddaha – *Mergers, Acquisitions, Divestitures*

Unsurprisingly, cost and revenue synergies hugely differ in terms of timing and likelihood. Cost synergies are positioned on the lower left part of the graph, meaning that the time required to achieve the cost synergies is short and the probability of success is strong. On the contrary, revenue synergies are located on the higher right part of the graph, indicating that the time required to achieve the revenue synergies is longer and the probability of success is limited. This major finding makes sense when considering that merging entities will quickly contemplate the benefits of removing overlapping functions while the design of cross-selling strategies will require more time and efforts.

3.2 - Financial Synergies

Financial synergies can be defined as “synergies whose payoff can take the form of either higher cash flows or a lower cost of capital (discount rate) or both”. They refer to the positive impact of a merger or an acquisition to the combined entity in terms of cash flows (lower taxes or lower capital requirements) or in terms of cost of capital (lower cost of capital).

Diving now into the sources of financial synergies, it can be inferred that financial synergies derive from increased size, increased diversity, better credit profile and market access to financing.

According to a report released by J.P. Morgan in 2009, financial synergies are turning relatively more important since the great financial crisis (2008) in terms of value creation. Financial synergies are becoming more valid in times of credit crisis, which implies restricted capital market access and higher cost of capital.

3.2.1 - Breakdown of Financial Synergies

Cost of capital: cost of capital (WACC) is the weighted average of the cost of equity (shareholders) and the after-tax cost of debt (debtholders) – representing the cost of funds provided by both shareholders and debtholders to finance the activity of the company.

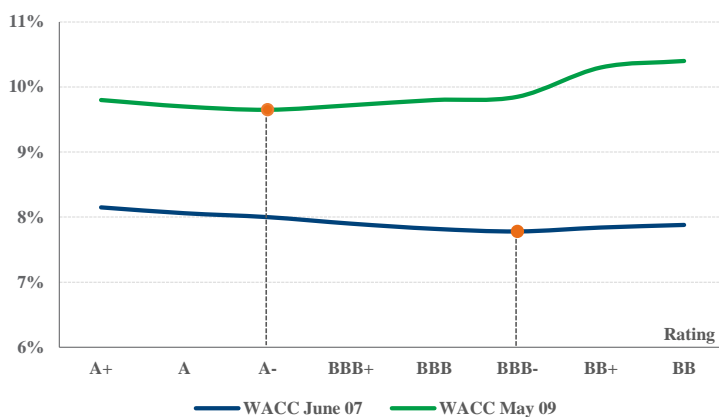
Financial synergies can take the form of a lower cost of capital for the company, meaning a lower overall cost of financing. A bigger firm may indeed have a lower cost of capital thanks to its increased size and induced lower risk of bankruptcy (cheaper financing). This firm may also see lower volatility in generating future cash flows, reducing the required rate of returns from all fund providers (lower operational risk). In addition, the bigger firm may be more capable to find its optimal capital structure (optimal gearing).

The sources of cost of capital synergies can be summarized in 3 forms for a bigger company:

- cheaper financing access (better credit rating or higher debt capacity)
- lower operational risk (lower cash flow volatility)
- capability to find the optimal gearing (optimal debt/equity ratio)

The graph below shows the evolution of the cost of capital curve according to the different credit ratings by comparing June 2007 (pre financial crisis) with May 2009 (post financial crisis). The cost of capital curve is built by estimating the WACC of a firm at different capital structures (proportion of equity and debt in financing the business) which corresponds to different credit rating levels.

Graph 4 – Illustration of the Cost of Capital Synergy



Source – J.P. Morgan – *A shifting landscape for synergies* – 2009

The graph shows first that as the firm levers up (higher debt/equity ratio), the cost of capital of the company tends to increase. The lower cost of capital is achieved at the highest credit ratings.

More interestingly, the graph highlights two discoveries:

- the cost of capital has increased after the great financial crisis (from an average 8% to 10%)
- the cost of capital structure is more sensitive since the great financial crisis

The higher steepness of the cost of capital curve around BB rating implies that companies can achieve a substantial cost of capital benefit if they successfully upgrade from non-investment grade (BBB to BB) to investment-grade (A+ to BBB) rating. Concretely, when two merging firms achieve this credit upgrading, the benefit in terms of cost of capital (up to 1% according to the curve) is a financial synergy. It is also important to notice that the credit rating where the cost of capital is minimized does not necessarily correspond to the optimal capital structure. Anyhow merging companies can benefit from financial synergies as the form of higher debt capacity, lower cash flow volatility, and improved capacity to strike the optimal gearing.

Tax efficiency: tax efficiency refers to the financial synergies under which merging companies would benefit from tax reductions in different ways:

- tax shield
- tax loss carry forward
- asset step up / asset write up

The tax efficiency can firstly take the form of “**tax shield**” that is tax deduction on debt payments. The merging company can benefit from higher debt capacity and therefore encounter tax savings on the higher amount of debt issued. The tax efficiency can secondly take the form of “**tax loss carry forward**”. The merging company can offset or shelter the taxable profit of one company with the net operating losses of the other company. This tax efficiency can thirdly take the form of “**asset step up**”. The merging company can see the assets of the target company re-evaluated, resulting in tax savings from increased depreciation and amortization.

Financial flexibility: financial flexibility accounts for all the financial synergies that allow a merging company to enhance its certainty of financial market access as well as to reduce its liquidity and bankruptcy risks. Larger firms may encounter the ability to source capital from diversified markets and reduce liquidity crunch or solvency risk. For example, commercial papers are only accessible for investment grade companies such that stronger merged companies will have access to cheaper forms of financing under commercial papers. These examples could be multiplied for many different financial instruments. In addition, merged companies may benefit from unlocking unused cash, as part of financial flexibility synergy, to finance future profitable investment projects.

[3.2.2 - Validity of Financial Synergies](#)

The main takeaway around financial synergies is that there are some reasons to believe that they do exist – and may be relevant when the combined firm can achieve a better credit rating through the merger (allowing to move on the cost of capital curve). Financial flexibility refers to the increased size of the merged entity while tax efficiency arises from tax opportunities in the takeover.

The table below summarizes the synergetic effects of financial synergies (as % of total combined enterprise value) on takeovers for companies moving from one credit rating to another.

Table 2 - Breakdown of Financial Synergies

Financial synergy benefit as % of total combined EV	A to AA	BBB to A	BB to BBB
+ Cost of capital	(2%)	1% to 2%	7% to 8%
+ Tax efficiency	0%	0% to 1%	1%
+ Financial flexibility	7% to 8%	4%	5%
+ Total benefit	5% to 6%	5% to 7%	13% to 14%

Source – J.P. Morgan – *A shifting landscape for synergies* – 2009

Among financial synergies, financial flexibility appears as the most valuable financial gains for merging companies while the tax efficiency is negligible whatever the credit rating improvement. Besides, the total financial synergies remain the most valuable for merging companies moving from the credit rating BB to BBB, driven by a higher cost of capital benefit for this credit rating range.

However, after having identified and described the sources of financial synergies, it remains important to notice three facts. First, the positive impact of financial synergies in terms of cash flows or capital structure could be really negligible regarding other gains from the takeover. Second, corporate finance theory debates on the validity of the cost of capital effect, and more broadly on the financial synergies, from a merger or an acquisition. Third, financial synergies – if they exist – do not, and by no means, comply with growth opportunities as the rationale of expansionary offensive M&A.

In the next sections of the research paper, we will not consider financial synergies anymore since they are usually not taken into account when performing synergy valuation for the reasons mentioned just above.

4. Negative Synergies or Cost to Achieve Synergies

If synergies were previously defined as the positive incremental net gain from combining two or several firms through a merger or an acquisition, some cash flows resulting from the combination will distinctly be negative. Negative synergies – or equivalently costs to achieve synergies – refer to the negative cash flows that will occur from the combination, apart from the acquisition premium and the transaction costs which are part of the invested capital of the buyer.

As for operating and financial synergies, negative synergies can take several forms and come from different sources, some being more recurring than others. The idea of this section is to embrace the comprehensive background of synergies by providing common examples of negative synergies merging entities may face.

Market cannibalization: market cannibalization or cannibalization of sales can be identified as the contrary effect of cross-selling. This happens when a company launches a new product that will damage the sales performance of other existing products from the same company. In case of a merger or an acquisition, the combined entity may face redundancy or competition on the products of the two separate companies, and therefore need to repackage its offer accordingly to avoid drop in sales. Market cannibalization will be all the more prominent when the two separate entities are offering the same type of products or services, and positioned on the same customer segments or market geographies.

Operational complexity: after considering financial flexibility as a potential synergy resulting from a takeover, it seems crucial to discuss about the opposite effect of operational complexity. Indeed, if a bigger company may enjoy better financing solutions or lower capital requirements, the same bigger company will be shorted on costs associated with its new size. Large companies may lack of operational flexibility compared to smaller companies when it comes to react quickly to changes in the business environment or to implement new measures.

Removing overlapping functions cannot be done without implementation costs:

- breaking a leasing contract to close a rented office
- building a new plant or a new headquarter
- terminating employment contracts in case of layoff
- shipping the material resources to a new place

There are many examples... Operational complexity can definitively be seen as the burden of growing bigger, incurring implementation costs during and after the post-merger integration process.

Culture clash: culture clash is a common phenomenon in large M&A deals when two combining companies show really different identities. In terms of negative synergies, the most frequent expression of culture clash is the leakage of human talent. After a merger or an acquisition, some employees may want to leave the company, especially in case of new working site or new management, because they no longer fit with the DNA of the new combined entity.

Client leakage: if takeovers allow new growth opportunities, they may also induce negative effects such as a leakage of clients or suppliers. On the client side, some customers may stop buying products or services from the combined entity. On the supplier side, some may want to diversify their customer base so not to rely on one single powerful client created after the merger or the acquisition.

Negative synergies or implementation costs are not literature but do exist. They need to be taken into account by the buyer when contemplating M&A as part of the synergies resulting from the deal. These negative synergies will certainly be included in the valuation process of synergies.

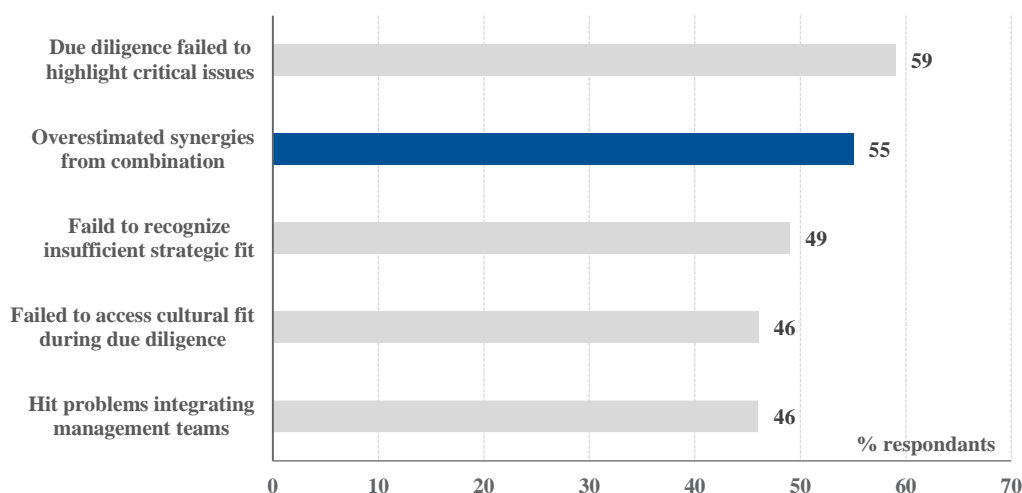
5. Issues related to Synergies – Conclusion

5.1 - Implication of Synergies in M&A Failure

Unfortunately in life, things do not always turn as expected. This is the same story in corporate finance and especially in M&A. Discussions with investment bankers pointed out that estimated synergies is not an exact science. If the main objective of M&A is strategic growth, the realization of synergies would be the icing on the cake.

According to surveys carried out by consulting firms involved in post-merger integration processes, synergy estimations are often wrong because synergy implementations are always difficult and these difficulties are usually underestimated. In a report released by Bain & Company in 2014, the consulting firm presented the results of a survey carried out on 350 executives and 150 mergers worldwide. The graph below presents the main drivers of failure in M&A deals according to global executives of different companies across the globe.

Graph 5 – Drivers of M&A Failures



Source – Bain & Company – *Why some merging companies become synergies overachievers* – 2014

As stated in the report, **“the open secret about M&A is that most deals fail to generate the synergies companies expect when they announce a merger”**. Overestimated synergies from combining the companies (55%) appears as the second root cause for M&A disappointment, right after the due diligence failing to highlight critical issues (59%). This finding is critical in a sense that the buyer – by making a mistake in estimating the possible synergies out of the target – will be likely to overpay the acquisition through the control premium.

5.2 - Pitfalls in Synergies Estimation

In another survey carried out by McKinsey & Company in 20004, the consulting firm showed through the analysis of 160 mergers that **“when companies merge, most of the shareholder value created is likely to go not to the buyer but to the seller – it is known as the winner’s curse”**.

They also point out that the “*winner’s curse*” is the consequence of two main pitfalls:

- The lack of information and data around the context of the deal or the target
- The lack of experience and wisdom when estimating the synergies

As for the absence of access to information, buyers usually have little data on the target when it comes to assess the level of synergies they can expect from the merger. In particular, buyers need to deal with really limited access to the managers, suppliers, customers, or contracts of the target company. Even investment banks, as transaction advisers, cannot evaluate synergies with the required granular level mainly because of data privacy and lack of time.

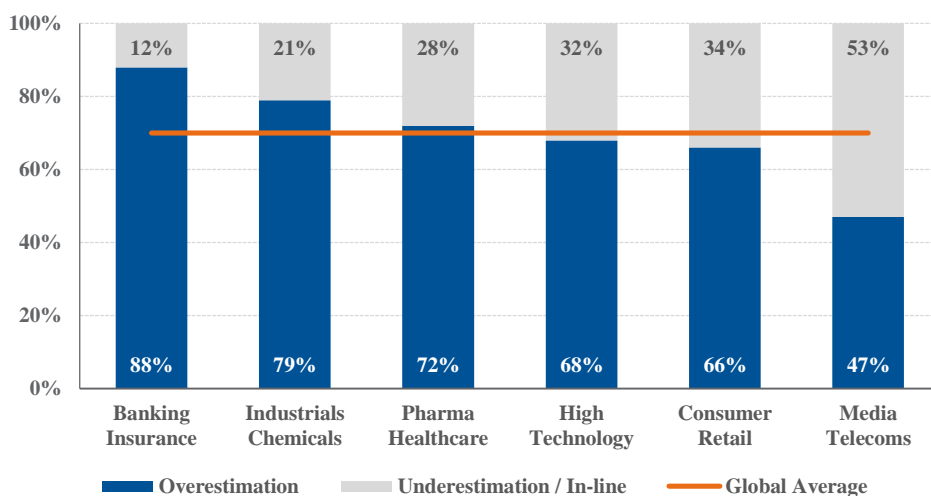
Most buyers lack of experience in the complex exercise of estimating synergies. Only few companies are involved in recurring external growth strategies – and would therefore be familiar with synergies. A fewer number of companies can demonstrate a competitive advantage in integrating companies and realizing full synergies. This leads buyers to make some considerable mistakes when estimating synergies:

- overestimate of revenue and cost synergies
- underestimate (or avoidance) of negative synergies or implementation costs
- inconsistency with business standards and company benchmarks
- overconfidence on the synergies timeline

5.3 - Importance of Synergies Failure

The direct consequence of these pitfalls is that M&A deals are likely to destroy value for the shareholders of the combined entity in numerous cases. The same report from Bain & Company shows that about 70% of companies will fail to realize the synergies announced in a merger. It is important to mention that this result remains consistent across the different surveys on such post-deal analysis – with an estimation of 60% to 70% of synergies estimation failure.

Graph 6 – Evidence of Synergies Overestimation

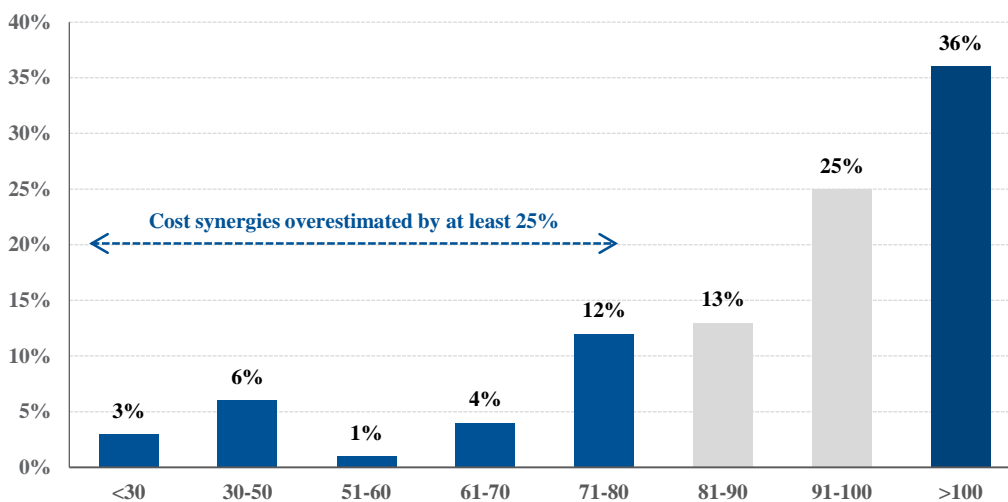


Source – Bain & Company – Why some merging companies become synergies overachievers – 2014

The graph breaks down the synergies overestimation (blue rectangle) by industrial sectors. The grey rectangles give the proportion of the companies that correctly estimate or underestimate the synergies before the deal. The analysis of the graph allows to conclude that indeed 70% of merging companies – all business sectors included – fail to achieve the amount of expected synergies from the takeover.

The major limit of this analysis is the absence of data regarding the difference between the synergies announced and the synergies realized. If it is accepted that 60% to 70% of takeovers are bound to synergies issues, by how much do companies fail to achieve the expected level of synergies?

Graph 7 – Overestimation of Cost Synergies



Source – McKinsey & Company – *Where mergers go wrong* – 2004

In the same report from McKinsey & Company, the detailed failure on cost synergies gives some clue about the level of mistakes that buyers may communicate on synergies. When remembering that buyers do not communicate around revenue synergies – since they are highly uncertain and picky to estimate – it can be assumed that the graph above provides an accurate guess on the error spread between estimations and realizations.

So the results from the survey show that approximately:

- 36% of takeovers capture 100% of anticipated synergies
- 38% of takeovers capture between 80% to 100% of anticipated synergies
- 26% of takeovers capture less than 80% of anticipated synergies

5.4 - Intermediary Conclusion

In this first section, we started to define the synergies from a theoretical point of view. We showed the following aspects about synergies:

- Companies contemplate M&A deals primarily for “growth opportunities”, the synergies being a materialization of potential incremental cash flow deriving from expansionary offensive M&A
- The control premium the buying company usually pay in acquisitions is only justified by the existence of potential synergies out of the combination with the target company
- The potential synergies from the transaction can take two different forms for the buyer company:
 - Operating: revenue enhancement & cost reduction
 - Financial: capital flexibility & tax efficiency
- The operating synergies however are the only form of synergies pursued by the combined entity while financial synergies appear to be questionable and negligible
- Synergies are one of the major cause for M&A failures because buying companies usually make mistakes when estimating the operating synergies from the combination

In the next section, we will present the different valuation methods that can be used in theory and in practice to compute the net present value of potential synergies for the buyer. If the different approaches are commonly used in corporate finance, the valuation of synergies involves some specificities. The last objective of the next section is to provide a better understanding of the link between synergies and value creation in M&A.

PART 2 – VALUATION OF SYNERGIES

After the identification of the possible sources of synergies, this second part presents the different valuation techniques applicable to synergies. The objective of synergies valuation can be broken down into two categories, corresponding to two different steps in the valuation process. The first step is the synergies estimation and the second step comprises the synergies valuation itself. When carrying out these two steps, the buyer will be able to compute the Net Present Value of synergies taken out of the transaction, and more importantly the possible value creation from the deal. In this section, we provide details on the synergies valuation techniques before discussing the financial impact on value creation.

1. Methods of Valuation – Introduction

Before presenting some valuation techniques relative to synergies, it seems important to bring some precisions about the key features on synergies valuation.

First, we are dealing in this section with the valuation of synergies before the merger or the acquisition, and by extension before the integration of the combined firms. This precision remains important since the valuation of synergies relates to the preliminary estimation of the future synergies that will derive from the takeover. It appears crucial to highlight the fact that the valuation will be therefore based on assumptions and subject to some margin errors – as it this the case when valuing a company whatever the method adopted.

Second, revenue and cost synergies do not follow the same patterns in terms of estimation since revenue synergies are much more difficult to estimate and to quantify than cost synergies. In addition, revenue synergies prove to be more uncertain in most cases compared to cost synergies, so that the valuation process will need to take this difference into account.

2. Synergies Estimation with the Multiples Approach

2.1 - Presentation of the Multiple Approach

The valuation by multiple is a relative valuation method relying on a sample of comparable aggregates or peers to value the company. The basic idea of the multiple approach is to assume that peers with similar characteristics should have the same value as the observed company to be valued.

Here is a brief summary of the multiple approach. The effectiveness of the relative valuation will largely depend on the quality of the comparable attributes of the selected peers sample. We do not discuss here the relevancy of the different operating metrics.

(1) Peers Sample: The sample of comparable companies needs to be built based on peers with similar characteristics as the observed company. These similar characteristics comprise the business sector (products, geographies, customers), the size of the company (market capitalization, sales, assets), the positioning of the company (margins, growth, capital expenditures) and the capital structure (debt level, credit rating).

(2) Multiple Calculation: The evaluator needs to compute the multiple for the selected comparable metric among the peers sample. For instance, among a sample of companies operating in the solar energy industry, the average EV/EBITDA multiple is equal to 10x. The comparable metric may be different according to the sector in which the observed company operates.

(3) Multiple Valuation: The multiple valuation is simply obtained by applying the computed multiple of the most comparable peer within the sample to the aggregate of the observed company. For instance, if the observed company operating in the solar energy industry has an EBIT of €10m and the comparable EV/EBITDA is 10x, then its EV is equal to €100m based on the valuation process.

$$\text{NPV (Multiple Valuation)} = \text{Target Aggregate} \times \text{Comparable Multiple} \quad (\text{Eq. 6})$$

2.2 - Application to Synergy Estimation

The multiple approach applies to the estimation of synergies as similar transactions in a sector give an overview of the possible synergies realized through recent mergers. The objective of the synergies estimation is to provide a bracket of potential synergies for the buyer – especially a reasonable upper limit – as well as an anchor for the synergies valuation with the DCF approach.

(1) Sample of comparable transactions: As for relying on comparable companies, synergies estimation relies on a sample of comparable transactions. Ideally, these comparable transactions occurred in the same business industry, the same geographies, the same years and for comparable companies that communicated on the synergies realized from the deals.

(2) Calculation of the synergies multiple: Different multiples are available to estimate the possible synergies from a deal based on comparable transactions. While in the traditional multiple approach, the transaction or trading multiples are split into two main categories depending on the metric they allow to compute (even the Enterprise Value or the Equity Value), the synergy multiples rely on the single metric that we call “**Recurring Run-Rate Pre-Tax Synergies**”.

This metric corresponds to the amount of operating (revenue & cost) synergies taken out from the deal on a pre-tax basis, when these synergies can be considered as permanent (“recurring”) and realized at full potential (“run-rate”). The recurring run-rate pre-tax synergies usually corresponds to the amount of synergies communicated by companies around the deal.

The most common Synergy Multiples that can be encountered are listed below:

- recurring run-rate pre-tax synergies / target sales (usually for revenue synergies)
- recurring run-rate pre-tax synergies / combined sales
- recurring run-rate pre-tax synergies / target operating expenses (usually for cost synergies)
- recurring run-rate pre-tax synergies / combined operating expenses
- recurring run-rate pre-tax synergies / acquisition premium (also called PE of Synergies)
- recurring run-rate pre-tax synergies / target market capitalization

(3) Estimation of the synergies for the observed transaction: Similar to the traditional multiple approach, the synergies estimation is simply derived when applying the selected relevant multiple to the observed transaction. For instance, if for the observed transaction, the buyer paid an acquisition premium of 20% for a deal valued at €100m – that is an acquisition premium of €20m – while the comparable multiple Recurring Run-Rate Pre-Tax Synergies / Acquisition Premium is 10x for the current business industry, then the recurring run-rate pre-tax synergies out of the deal can be fairly estimated around €200m based on the multiple approach.

$$\text{Recurring Run Rate Pre Tax Synergies} = \text{Aggregate} \times \text{Comparable Synergies Multiple} \quad (\text{Eq. 7})$$

3. Synergy Valuation with the DCF Approach

3.1 - Presentation of the DCF Approach

The DCF approach (Discounted Cash Flows) is the referral valuation technique for intrinsic method. This valuation technique simply consists in computing the present value of the projected free cash flows of the company discounted at its cost of capital.

Here is a brief summary of the DCF methodology. We do not discuss here the advantages or disadvantages of this valuation method but just give the necessary background to be applied to synergies valuation.

(1) Free Cash Flows: The evaluator needs to forecast the future free cash flows that will need to be taken into account in the DCF valuation, with some assumptions.

$$\text{FCF} = \text{EBIT} - \text{Tax} + \text{D\&A} - \text{Capex} - \Delta\text{WCR} \quad (\text{Eq. 8})$$

(2) Discount Rate: The discount rate used in the company valuation with the DCF approach is the WACC (Weighted Average Cost of Capital) of the valued company.

$$\text{WACC} = K_e \times \frac{E}{D+E} + K_d \times (1 - \text{Tax}) \times \frac{D}{D+E} \quad (\text{Eq. 9})$$

(3) Terminal Value: The terminal value represents the value captured by the company beyond the explicit forecasted period of the business plan. The terminal value (TV) can be computed with the perpetuity growth (g) or the terminal multiple.

$$\text{TV} = \frac{\text{FCF}_{\text{Normative}}}{\text{WACC} - g} \quad (\text{Eq. 10})$$

(4) DCF Calculation: The DCF calculation can be broken down into two parts, the first part being the discounted FCF under the forecasted period and the discounted TV beyond the forecasted period.

$$\text{NPV (DCF Valuation)} = \sum_{i=1}^{\infty} \frac{\text{FCF}_i}{(1+\text{WACC})^i} = \sum_{i=1}^n \frac{\text{FCF}_i}{(1+\text{WACC})^i} + \frac{\text{TV}}{(1+\text{WACC})^n} \quad (\text{Eq. 11})$$

3.2 - Application to Synergy Valuation

The DCF approach perfectly applies to the valuation of synergies since synergies can be identified as future cash flows for the combined firm. The DCF valuation of synergies relies on the previous estimation of the amount of Recurring Run-Rate Pre-Tax Synergies. However though, synergistic cash flows may address some specifics that should be taken into account when practicing the valuation.

(1) Identification of the synergies: The first step of the synergies valuation through the DCF method includes the identification of the sources of synergies from the transaction. This step is crucial as the two sources of synergies will have significantly different impacts on the free cash flows.

The revenue synergies translate as additional sales and will have a direct impact on the top line of the DCF model. However, for calculating the free cash flow, the EBIT impact of revenue synergies needs to be computed, usually based on the current EBIT margin of the company. The cost synergies, as improvements of operating expenses, directly impact the EBIT of the buying company.

(2) Phasing of the synergies: The second step involves to take into account the time of implementation of the synergies. The merging companies need time to set up the post-merger integration as well as the required actions to implement the potential synergies identified. The DCF valuation requires the synergies phasing to be taken into account for sake of accuracy. In most cases, the synergies are fully phased (“recurring run-rate pre-tax synergies”) during the third year following the acquisition.

(3) Implementation of the synergies: The third steps involves to take into account the cost of implementation of the synergies. Also called restructuring costs, these negative cash flows can be identified as capital expenditures in the Free Cash Flow formula for the DCF valuation. Again, the merging companies need some investments in order to extract the potential synergies identified, and the DCF valuation has to consider the costs of implementation for the synergies to materialize.

(4) DCF Valuation: The next steps of the synergies valuation remain consistent with the traditional DCF approach, for both the horizon of the business plan and the perpetual value.

The synergies valuation can however present some specificities because synergistic cash flows occurring from M&A deals may differ from the traditional free cash flows resulting from the intrinsic operational activities of the company. In the following lines, we consider an example with fake numbers to show these specificities.

- In the assumptions table below, we provide all the assumptions and figures to illustrate the synergies DCF valuation. We usually apply a risk premium (1% here) to the WACC (9% here) because the synergistic cash flows are highly uncertain. In our example, we consider revenue and cost synergies respectively as percentages of target sales (5%) and target operating expenses (10%).

Assumptions Summary

<u>Assumption</u>	<u>Value</u>
Transaction Date	EOY 2016
WACC (%)	9,0 %
Risk Premium (%)	1,0 %
Discount Rate (%)	10,0 %
Perpetual Growth Rate (%)	-
Revenue Synergies as % of Target Sales	5,0 %
Cost Synergies as % of Target Operating Expenses	10,0 %

- When computing the synergistic cash flows, as for the traditional DCF method, we may consider two timelines, one corresponding to the business plan and the other to the terminal value. In our example, we consider that the buyer will extract perpetual synergies from the takeover – that is the combined entity will benefit from advantages from its competitors over an infinite timeframe. This strong consideration is acceptable as long as we consider that a merger will sharply transform the market and sustainably strengthen the position of the combined entity on this market. Otherwise, a degraded synergistic cash flow representing the permanent synergies (usually the revenue synergies) of the merged entity can be shaped as for the terminal value. Alternatively, a finished time horizon can be adopted (hence no terminal value) for the synergies valuation.
- Regarding the effects of revenue and cost synergies on the final free cash flow line, some differentiation may be considered as the two cash flows affect different lines. As top-line inflow, the revenue synergies have to be contemplated as EBIT impact applying the current EBIT margin of the buying company while cost synergies directly pour into operating result.
- Some other parameters need to be integrated such as the phasing of synergies and the implementation costs required to benefit from the positive effects of operating synergies. As a rule of thumb, the implementation phasing is such that 1/3 of full effect of synergies is obtained after one year, 2/3 after 2 years and 100% after the third year (this is the recurring run-rate synergies).

DCF Synergies Valuation								
m€	2016A	2017E	2018E	2019E	2020E	2021E	2022E	TV
Target Sales	1 200							
Target Operating Expenses	900							
Revenue Synergies		60	60	60	60	60	60	60
EBIT Margin		10 %	10 %	10 %	10 %	10 %	10 %	10 %
EBIT Impact of Revenue Synergies		6	6	6	6	6	6	6
Cost Synergies		90	90	90	90	90	90	90
Total Gross Operating Synergies		96	96	96	96	96	96	96
Implementation Phasing (%)		30 %	60 %	100 %	100 %	100 %	100 %	100 %
Total Gross Synergies Phased		29	58	96	96	96	96	96
Implementation Costs		(96)	(48)	(19)	-	-	-	-
(as % of total gross operating synergies)		100 %	50 %	20 %	-	-	-	-
Pre-Tax Net Synergies		(67)	10	77	96	96	96	96
Effective Tax Rate (%)		30 %	30 %	30 %	30 %	30 %	30 %	30 %
Post-Tax Net Synergies		(47)	7	54	67	67	67	67
(+) Depreciation & Amortization		-	-	-	-	-	-	-
(-) Change in Working Capital		-	-	-	-	-	-	-
(-) CAPEX		-	-	-	-	-	-	-
Free Cash Flow		(47)	7	54	67	67	67	67
Year Account		1	2	3	4	5	6	6
Discounted FCF		(43)	6	40	46	42	38	421

- *In the end, the Net Present Value of synergies is obtained by summing the discounted free cash flow from both the business plan and the terminal value (if considered as applicable). Sensitivity analysis around key assumptions can be performed in order to get a value range and see how sensitive is the NPV compared to key parameters (such as the discount rate, revenue synergies compared to target sales and cost synergies relative to target expenses).*

Sensitivity Analysis						
Discount Rate / Revenue Synergies (as % of target sales)				Discount Rate / Cost Synergies (as % of target expenses)		
Discount Rate						
550	8%	9%	10%	11%	12%	
3%	598	566	536	509	482	
4%	605	573	543	515	489	
5%	613	581	550	522	495	
6%	621	588	557	528	501	
7%	628	595	564	535	507	
550	8%	9%	10%	11%	12%	
8%	498	472	447	424	402	
9%	555	526	499	473	448	
10%	613	581	550	522	495	
11%	670	635	602	571	541	
12%	728	689	653	619	588	

4. Discussion around Value Creation – Conclusion

4.1 - Synergies to Breakeven for EPS

Usually, investors perform analysis on **Earnings Per Share (EPS)** when a deal is settled in order to assess the impact of the transaction on the return for the shareholders of the buyer company. EPS is an indicator of how much money the shareholder will receive for every share held in the company. EPS is popular among investors and shareholders for its simplicity.

As part of the transaction, EPS analysis relies on accretion / dilution calculation – that is the change between the EPS of the buyer pre-transaction and the EPS of the merged group post-transaction.

EPS Accretion / Dilution is measured (in %) by the following formula:

$$\text{Accretion (Dilution)} = \frac{\text{EPS}_{\text{Combined}}}{\text{EPS}_{\text{Acquirer}}} - 1 \quad (\text{Eq. 12})$$

If the EPS of the merged group is higher than the EPS of the buyer pre-transaction then the deal is said to be accretive. On the contrary, if the EPS of the merged group is lower than the EPS of the buyer pre-transaction then the deal is said to be dilutive. In case of an EPS dilutive transaction, investment bankers usually calculate the synergies to breakeven – that is the additional amount of pre-tax synergies required for the transaction to be EPS neutral (neither accretive nor dilutive). The formula of synergies to breakeven in EPS consideration is given below:

$$\text{Synergies to Breakeven} = \frac{(\text{EPS}_{\text{Acquirer}} - \text{EPS}_{\text{Combined}}) \times \text{Combined Shares}}{1 - \text{Acquirer Tax Rate}} \quad (\text{Eq. 13})$$

In addition, the investment banker may produce a sensitivity analysis on the EPS accretion / dilution to see how the synergies to breakeven amount fluctuates according to the acquisition premium paid and the mix of financing (cash, share or mixed offer deal). From this sensitivity analysis, the buyer will get an idea if the required level of additional synergies is reasonable to avoid EPS dilution.

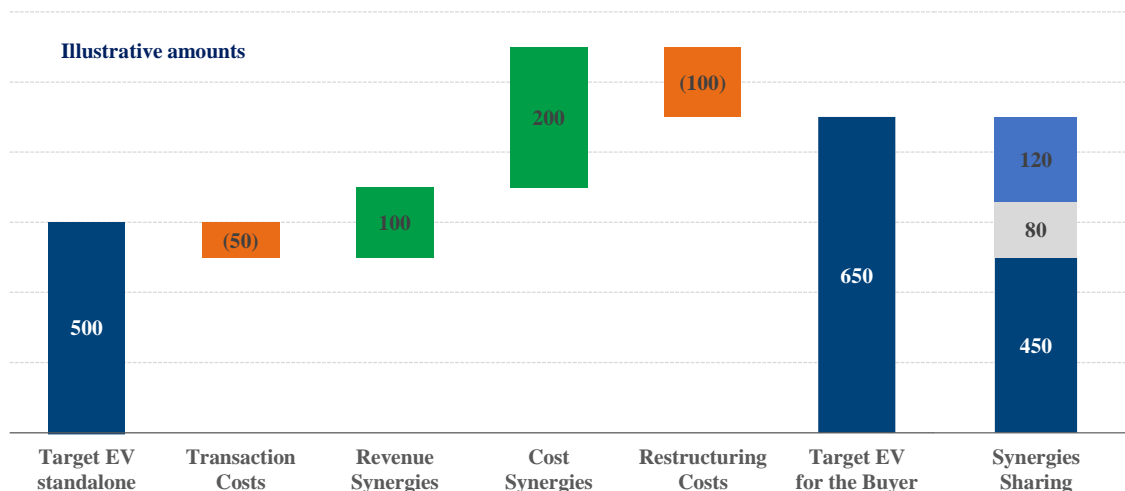
EPS is commonly used in M&A for its simplicity and because it allows to track the implementation of operating synergies. As an indicator, EPS is supposed to indirectly grasp the value creation. Nevertheless, EPS is not an indicator of value creation, essentially for its lack of consideration on the risk of the company to achieve the profitability. We will keep that EPS is a useful tool for tracking the implementation of the announced synergies.

4.2 - Synergies Sharing

Another analysis to perform on a transaction is to compare the NPV of synergies to the acquisition premium (as referenced in Eq. 2). It seems important here to make a distinction on the different mixes of financing (cash, share or mixed offer deal) in order to carry out this analysis. For sake of simplicity, we will consider here the two cases of all cash deal and share for share deal.

In the case of all cash deals, the comparison between the NPV of synergies and the acquisition premium will be an indicator on whether the buyer overpaid or underpaid the transaction regarding the value that can be extracted for acquiring the target company.

Graph 8 – Synergies Sharing in All Cash Deal



The first bridge above is an illustration of synergies sharing in all cash deals. In this example, the buyer acquires the target for a total consideration including the acquisition premium (530). The control premium (80) reflects the amount of synergies given up by the buyer to the target (only 120 is kept). The target EV for the buyer (650) represents the value of the target according to a specific buyer taking into account operating synergies (300) as well as transaction and integration costs (150).

In the case of share deal, the comparison between the NPV of synergies and the acquisition premium will be an indicator on the proportion of the value of synergies shared between the buyer shareholders and the ex-target shareholders.

Graph 9 – Synergies Sharing in Share Deal



The second bridge above is an illustration of synergies sharing in all cash deals. In this repeated example, the synergies (120) are shared between the new shareholders of the target and the shareholders of the buyer in the combined group. Considering that new target shareholders will keep a 40% stake in the combined entity, the amount of synergies given to the target goes up to 48 (40% x 120) while the buyer shareholders will keep 72 (60% x 120).

It is important to notice that a share deal is not better or worse than a cash deal in terms of synergies sharing for the buyer or the target. The main difference between the two deal structures results in the profile of the risk-return trade-off for the buyer and the target. In the share deal, if the target gets a proportion of the synergies from the transaction, it also receives a part of the risk associated with the business.

In both cases, when the acquisition premium paid is higher than the NPV of expected synergies, the buyer is leaving down the road the value from the synergies to the target shareholders. There are many reasons why a buyer would be ready to give away the value of expected synergies to the buyer. For instance, it may depend on the attractiveness of the target when a large number of buyers are competing on pricing during the auction to acquire the target. In this case, the winning bidder would be likely to pay a relatively high acquisition premium to make it. More simply, target shareholders can be better negotiators than buyer shareholders and drive the price up through a higher acquisition premium on the target company. There are many other examples or cases to think about.

It can be derived from these illustrations that the analysis on synergies sharing does not lead to value creation. Sharing synergies can be seen as a redistribution of value across the different equity stakeholders of the merged company. As we will see in the next analysis synergies sharing is only one of the component of the value creation in the transaction.

4.3 - Synergies and Value Creation

In finance, profitability alone does not lead to value creation. For a company, value creation derives only when its profitability is higher than its cost of capital – its required profitability (rate of return) taking into consideration the risk of its activity.

To give a well-established definition: *“A company will be able to create value during a given period if the Return On Capital Employed (ROCE) that it generates exceeds the Cost of Capital (WACC) that it has raised to finance capital employed. It leads to enterprise value being higher than the book value of the capital employed” [Pierre Vernimmen – Corporate Finance].*

The **Return On Capital Employed (ROCE)** represents the after-tax return on the capital employed by the company to run its business operations (equity and debt) – that is its profitability taking into account all sources of funding and independent from its capital structure.

The best metric to reflect the return on the capital employed of the company remains the **Earnings Before Interests and Taxes (EBIT)** since it represents the general return for all stakeholders of the company. The **Net Operating Profit After Tax (NOPAT)** is the EBIT after corporate tax considerations. Therefore, the ROCE of the company is given by the following formula:

$$ROCE = \frac{EBIT \times (1 - \text{Tax Rate})}{\text{Capital Employed}} = \frac{NOPAT}{\text{Capital Employed}} \quad (Eq. 14)$$

The **Weighted Average Cost of Capital (WACC)** represents the average required rate of return by all fund providers of the company (shareholders and debtholders). The fund providers of the company are financing the capital employed – or invested capital – necessary for the company to perform its operations. The WACC formula is given by weighting the required rate of return of equity and debt (after-tax) by the proportion of each source of funding (*as referenced in Eq. 9*).

So as we previously defined value creation in finance, the company will be able to create value as long as the following equation is verified:

$$ROCE > WACC \quad (Eq. 15)$$

The previous definition of value creation is applicable to any investment engaged by the company. Indeed, a company will be able to create value from an investment if the return of the capital invested exceeds the required rate of return of the investment given its risk. A transaction can be seen as an investment undertaken by the buying company and we can apply the previous findings in the synergies context of M&A investments. Therefore, the **Return On Invested Capital of the Acquisition (ROIC)** represents the after-tax return on the capital invested by the buyer to acquire the target – that is the profitability from the acquisition taking into account the capital invested in the transaction. Similarly to the ROCE, the ROIC of the Acquisition is given by the following formula:

$$ROIC_{Acquisition} = \frac{NOPAT_{Acquisition}}{Invested\ Capital_{Acquisition}} \quad (Eq. 16)$$

The later equation can be developed in its numerator (NOPAT) and denominator (Invested Capital) so that the ROIC of the Acquisition is given by:

$$ROIC_{Acquisition} = \frac{NOPAT_{Target} + NPV\ Synergies\ After\ Tax}{Target\ EV + Acquisition\ Premium + Transaction\ Costs} \quad (Eq. 17)$$

Finally, the value creation for the buyer undertaking the transaction can be derived by comparing the ROIC of the Acquisition (return on the target acquisition) to the WACC of the target (risk of the target). Therefore, the buyer will be able to extract value from the M&A transaction as long as the following equation is verified:

$$ROIC_{Acquisition} > WACC_{Target} \quad (Eq. 18)$$

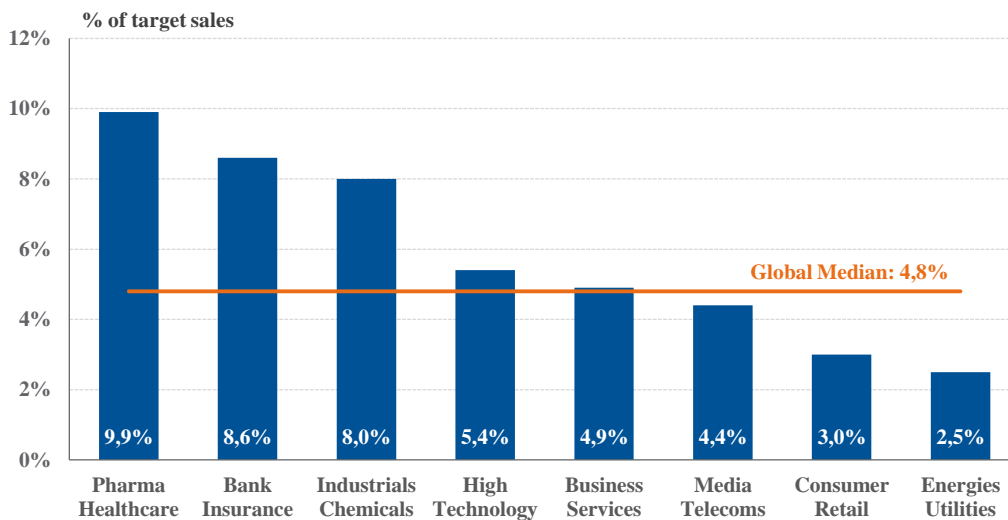
4.4 - Value of Communication around Synergies

This section is an extension of the discussion around value creation and the issues related to synergies. The development is based on a report published by the Boston Consulting Group and debates the impacts on value for merging companies to communicate about expected and realized synergies.

If we remember that about 60% to 70% of merging companies fail to deliver the estimated synergies from M&A, it is important to mention as well that some transactions simply do not carry any synergistic potential or that some merging companies do not chase any synergies out of the deal. In addition, some business sectors, and some time periods, will offer more synergy opportunities than others.

In the report, the Boston Consulting Group presents the median level of synergies (as % of target sales) announced by business sector based on a sample of 400 deals of more than \$300m occurred during the 2000s.

Graph 10 – Estimation of Synergies by Business Sector



Source – Boston Consulting Group – *Divide and Conquer* – 2013

This empirical analysis shows two main findings:

- The potential synergies widely vary across industries, from 2.5% to 9.9% of target sales
- The median potential synergies goes up to approximately 5% of target sales

This chart would be helpful for buyers contemplating M&A by providing industry benchmarks when it comes to estimate the potential synergies through the multiple approach. More precisely, the buyer will know if the synergies estimation remains conservative or aggressive by comparing to industry standards.

Whatever the potential synergies among business industries, the buying companies may find benefits from communicating around its synergies estimation. Indeed, the communication on the synergies estimation can be valuable at two different levels.

On the corporate level, the buying company should communicate on two sides. First, with its seller in order to carry out negotiations with the selling company on the sharing of synergies and the acquisition premium. The communication of synergies estimation with the seller will allow both parties to engage into a non-conflictual negotiating process and to settle a fair acquisition premium as a result. Second, with its different corporate teams so that to ensure the tracking of synergies and the post-merger integration. This intrinsic communication around synergies among the different corporate teams would result valuable for the buyer by setting the indispensable milestone for realizing and tracking the identified synergies during the post-merger integration process.

On the market level, the buying company can communicate to investors around the synergies. Taking for granted that financial markets and investors tend to reward corporate transparency, the buying company would find interest in clearly communicating around the transaction terms, in particular on the synergies estimation and valuation. As an example, financial markets may react negatively if they consider that the buyer overpays for the acquisition – that is when the acquisition premium looks relatively high compared to the communicated amount of recurring run-rate pre-tax synergies.

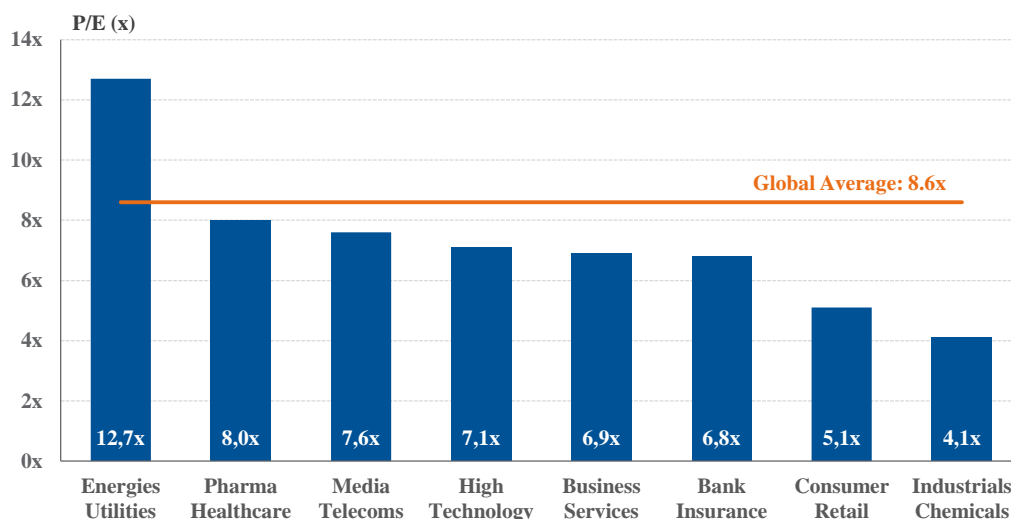
In the same report, and based on a sample of 200 deals of more than \$500m that occurred from 2010 to 2015, the Boston Consulting Group identifies a correlation between the acquisition premium relative to the synergies announced (P/E of Synergies) and the performance of the share price of the buying company relative to the business industry (relative TSR).

The P/E of Synergies is a synergy multiple given by the ratio of the acquisition premium over the recurring run-rate pre-tax synergies. According to the report, the P/E of Synergies appears as an indicative metric for the likelihood for the buyer to extract value out of the deal. Intuitively, a high P/E of Synergies indicates that the buyer paid a large acquisition premium compared to the expected synergies from the merger. Said differently, the buyer conceded a significant proportion of expected synergies to the seller.

The relative TSR defines the stock price performance of the buyer relative to the index performance of the business industry. A high relative TSR signifies that the stock price of the buying company outperformed the market.

The following table relates the P/E of Synergies calculation across the different business sectors:

Graph 11 – P/E of Synergies by Business Sector



Source – Boston Consulting Group – Divide and Conquer – 2013

This empirical analysis shows two main findings:

- The P/E of synergies slightly vary across industries, from 4.1x to 12.7x
- The average P/E of synergies goes up to 8.6x for an average acquisition premium of 34%

According to the survey, there is a negative correlation between the P/E of Synergies and the relative TSR: the lower the P/E of Synergies from the transaction, the higher the relative TSR one month after the deal closure. ***“The P/E of Synergies have a clear predictive ability to estimate how well a deal is likely to be received by investors”***. The figures provided by the survey show that:

- Buyers in the lowest quantile of P/E of Synergies outperform buyers in the highest quantile of P/E of Synergies by 4.8 percentage points on average
- Buyers that announce estimated synergies outperform buyers that do not communicate on estimated synergies from the deal by 3.7 percentage points on average
- Buyers that track realized synergies outperform buyers that do not communicate on their progress relative to targeted synergies by 6.0 percentage points on average

In other words, the stock price of the buying company is likely to outperform the market on the short run when the buyer correctly estimated the synergies and paid a fair price for the acquisition. More importantly, the market punishes undisciplined buyers and rewards buying companies that:

- initially communicate on synergies at the early stage of the deal
- permanently follow-on the realization of synergies during the integration
- finally achieve the projected synergies at a significant level

The advantages of the P/E of synergies relate to its relative simplicity. It remains easy to compute P/E of synergies based on available information and to compare with share price evolution. This makes the interest for the buyer to consider the value of communicating about synergies. The P/E of synergies also provide an industry benchmark for the buyer regarding the estimated synergies in the acquisition.

Nevertheless, this approach displays a few number of limits. Communication has only a small impact on value creation for shareholders. As stated above, value creation will result only when the obtained return on funds (as measured by the ROCE) is higher than the required return given the risk taken by fund providers (as measured by the WACC). In addition, communication has only an impact on short term considerations as deriving in the form of abnormal returns from occasional market reactions.

We can fairly expect that the share price of the buyer will increase – as an indirect translation of value creation – when the realized synergies turn out to be at least equal to the announced estimated synergies. Getting realized synergies superior to expected synergies would have a positive impact for the buyer on the ROIC of the Acquisition, resulting in possible value creation for the combined entity (as long as the ROIC of the Acquisition remains higher than the WACC of the target company).

4.5 - Intermediary Conclusion

In this second section, we described the two steps of synergies valuation as well as the possible valuation methods that can be implemented to synergies:

- The first part of the valuation process is the synergy estimation. Buying companies will internally identify and estimate the possible synergies from a transaction involving different teams in the estimation process. The synergy estimation may also involve the computation of multiples in order to check the estimations with industry benchmarks using similar past transactions.
- The second part of the valuation process involves the proper synergy valuation. Since synergies can be identified as streams of cash flows for the merged entity, the traditional DCF approach can be applied to value synergies but some specificities around the synergistic cash flows have to be considered (time horizon, implementation phasing, high uncertainty, line effect).

In addition, we discussed the effects of synergies on value creation. Since acquisitions can be identified as investments, we showed that the merged entity will extract value creation from the deal only when the ROIC of the acquisition (return on investment) remains higher than the WACC of the target (risk associated with the investment). The shareholders of the merged group may experience short-term impacts on communicating around estimated and realized synergies, as markets positively reward transparency. However, value creation will be achievable only if the realized level of synergy is sufficient enough to justify the invested amount and risk associated with the acquisition.

This section acts as a link between the theoretical approach on synergies and the following practical application. In the next section, we will implement synergy estimation and valuation on a real case study, analysing the past acquisition of Fortis Bank by BNP Paribas.

PART 3 – CASE STUDY

The third part of the research paper presents a practical case study about synergies in M&A by providing an analysis of a real transaction. This final part investigates the role of synergies in the acquisition of Fortis Bank by BNP Paribas in 2008-2009. This section is based on the review of documents around the selected transaction and the financial services sector, as well as the completion of interviews with professionals.

1. Presentation of the Case Study – Introduction

The case study detailed in this section relates to the acquisition of Fortis Bank by BNP Paribas that occurred in 2008-2009. The objective of the case study is to apply some theoretical findings to a real-life example. Particularly in the context of synergies, we would like to understand the synergies identified by the two merging companies, to verify the estimation of the identified synergies, to appropriately value the synergies, and to discuss around the value creation for the new entity.

This real transaction presents various interests in such a context. This transaction occurred in the end of the last decade (2008-2009), just after the great financial crisis. It also provides sufficient hindsight to carry out an analysis of the role of synergies in value creation for the merged group. In addition, the management of BNP Paribas tremendously detailed the synergies identified in the transaction with Fortis Bank, providing sufficient data to properly perform both the synergies estimation and valuation.

1.1 - Presentation of the Transaction

In early October 2008, the BNP Paribas group announced its agreement to acquire the main activities of Fortis Bank in Belgium and Luxemburg. Indeed, following this transaction, BNP Paribas took major control of three entities in May 2009:

- Fortis Bank Belgium (75% of control) renamed BNP Paribas Fortis
- Fortis Bank Luxemburg (67% of control) renamed BGL BNP Paribas
- Fortis Insurance Belgium (25% of control) renamed AG Insurance

The total consideration for the acquisition is €10.375 billion. BNP Paribas has acquired its stakes in Fortis Bank Belgium and Fortis Bank Luxemburg for €9 billion paid in shares (132.6 million new shares issued at €68 per share). The tangible book value of Fortis Bank Belgium and Luxemburg was valued at €15.7 billion so that BNP Paribas acquired the banking business at 0.7x adjusted tangible book value. BNP Paribas has acquired its stake in Fortis Insurance Belgium for 1.375 billion paid in cash. The net asset value of Fortis Insurance Belgium was value at €990 million so that BNP Paribas acquired the insurance business at 39% control premium (acquisition goodwill of €385 million).

In addition to the acquisition of the three entities mentioned above, BNP Paribas and Fortis Bank entered into a “ring-fencing” agreement - that is a specific program to manage the troubled structured credit portfolio identified in Fortis Bank’s balance sheet. These most impaired structured credit assets will be put into a Special Purpose Vehicle (SPV) for a total amount of €10.4 billion while BNP Paribas is engaged for 10% of any profits or losses. Under this agreement, BNP Paribas is committed to provide €200 million in equity to the SPV while Fortis Bank is providing a loan of €1 billion to the SPV (total amount of €1.2 billion in order to manage the €10.4 billion high-risk assets). This means that in case the ring-fencing program would require further impairments, BNP Paribas would account a 10%-loss of the impaired amount in its income statement.

Under these additional terms, the capital invested by BNP Paribas for the acquisition of Fortis Bank can be raised up to € 11.575 billion (€10.375 billion for the acquisition of Fortis Bank and €1.200 billion for the ring-fencing of troubled assets).

1.2 - Presentation of the Buyer – BNP Paribas

BNP Paribas is a leading European bank. BNP Paribas is headquartered in France and was created in May 2000 through the merger between BNP (created in 1966) and Paribas (created in 1998). BNP Paribas includes four main domestic markets in retail banking in Europe with France, Italy, Belgium, and Luxemburg. The bank provides services in retail banking as well as in corporate and institutional banking. BNP Paribas SA is the parent company of the entire group. The BNP Paribas group is active in approximately 75 countries with 192,000 workers around the world.

The table below summarizes the main economic indicators of BNP Paribas from 2004 to 2016:

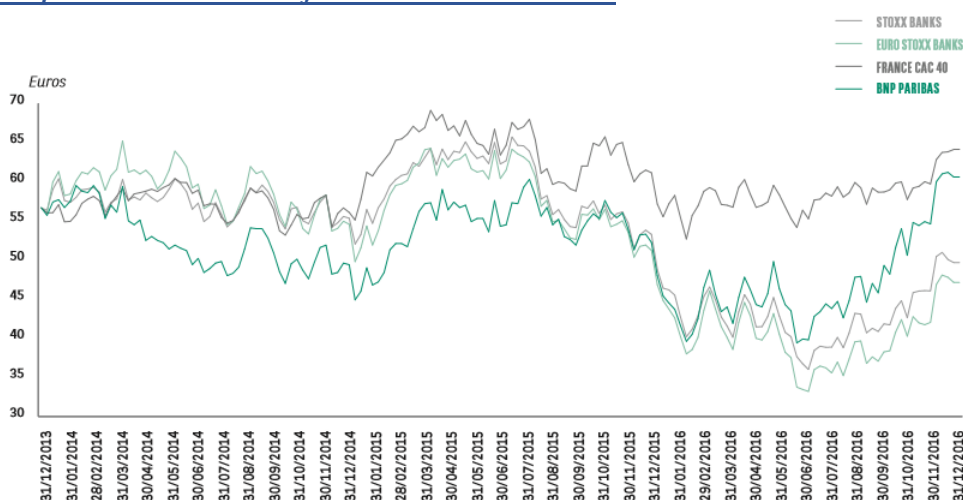
Table 3 - Economic Indicators for BNP Paribas 2004-2016

Economic Indicator	Pre Financial Crisis				Post Financial Crisis								
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Net Banking Income (€bn)	19,4	21,9	27,9	31,0	27,4	40,2	43,9	42,4	39,1	37,3	39,2	42,9	43,4
Operating Profit before Tax (€bn)	7,4	8,6	11,0	11,5	4,3	9,9	14,2	11,0	10,1	9,9	10,5	11,5	12,5
Profit Margin (%)	38 %	39 %	39 %	37 %	16 %	25 %	32 %	26 %	26 %	26 %	27 %	27 %	29 %
Net Result (€bn)	5,4	6,3	7,8	8,3	3,5	6,5	9,2	6,9	7,3	5,4	0,5	7,0	8,1
EPS (€)	5,5	7,0	8,0	8,5	3,0	5,2	6,3	4,8	5,2	3,7	4,7	5,1	6,0
ROE (%)	17 %	20 %	21 %	20 %	7 %	11 %	12 %	9 %	9 %	6 %	8 %	8 %	9 %
Market Capitalization (€bn)	47,2	57,3	76,9	67,2	27,6	66,2	57,1	36,7	53,4	70,5	61,4	65,1	75,5
Total Assets (€bn)	1 003	1 258	1 440	1 694	2 076	2 058	1 998	1 965	1 907	1 800	2 078	1 994	2 077

Source – BNP Paribas – Audited Financial Statements 2004-2016

The graph below presents the evolution of the share price of BNP Paribas from 2014 to 2016:

Graph 12 – Share Price of BNP Paribas 2014-2016



Source – Bloomberg Data

In terms of M&A activities, BNP Paribas ensured external growth with a few significant acquisitions in the past, Fortis Bank being the largest takeover undertaken by BNP Paribas. We notice a recent trend to acquire smaller companies with the objective to enter the digital banking value chain:

- 2001 – Acquisition of Banc West in the United States
- 2005 – Acquisition of TEB in Turkey (€217 m)
- 2006 – Acquisition of BNL in Italy (€9 bn)
- 2008-2009 – Acquisition of Fortis Bank in Belgium and Luxembourg (€11.6 bn)
- 2014 – Acquisition of Bank BGZ in Poland (€1.1 bn)
- 2014 – Acquisition of DAB Bank in Germany (€435 m) – Online digital bank
- 2017 – Acquisition of Compte-Nickel in France (€200 m) – Fintech in electronic banking services

1.3 - Presentation of the Seller – Fortis Bank

Back at the time of the transaction, Fortis Bank was the leading retail bank in Belgium and Luxembourg, in terms of network (1,100 branches) and branding (3.9 million customers). In Belgium and Luxembourg, Fortis Bank had established leading positions in retail deposits and consumer loans. The selling bank had also settled a strong private banking division with €238 billion of assets under management as well as significant activities in Poland and Turkey. Before the transaction, Fortis Bank Belgium had been bought by the state of Belgium.

The table below summarizes the main economic indicators of Fortis Bank from 2005 to 2008:

Table 4 - Economic Indicators for Fortis Bank 2005-2008

Economic Indicator	2005	2006	2007	2008
Net Banking Income (€bn)	9,0	11,9	8,0	5,0
Operating Profit before Tax (€bn)	3,7	5,9	3,0	(0,7)
Profit Margin (%)	41 %	50 %	37 %	(14)%
Net Result (€bn)	2,7	4,7	1,8	(20,6)

Source – Fortis Bank – Audited Financial Statements 2005-2008

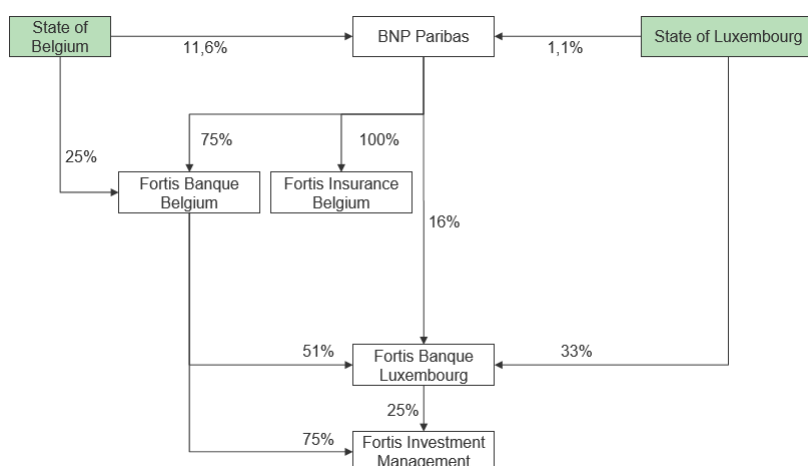
1.4 - Transaction Scope

The next subsections rely on five main documents released by BNP Paribas that allow to trace the history of the transaction between BNP Paribas and Fortis Bank:

- 1 - Press Release on 6 October 2008
- 2 - Investor Presentation on 8 October 2008
- 3 - Investor Presentation on 11 June 2009
- 4 - Press Release on 1 December 2009
- 5 - Industrial Plan on 1 December 2009

Transaction Perimeter: the chart below summarizes the transaction perimeter by showing the different stakes in the different entities involved within the deal.

Graph 13 – Acquisition Perimeter in the BNP Paribas – Fortis Bank transaction

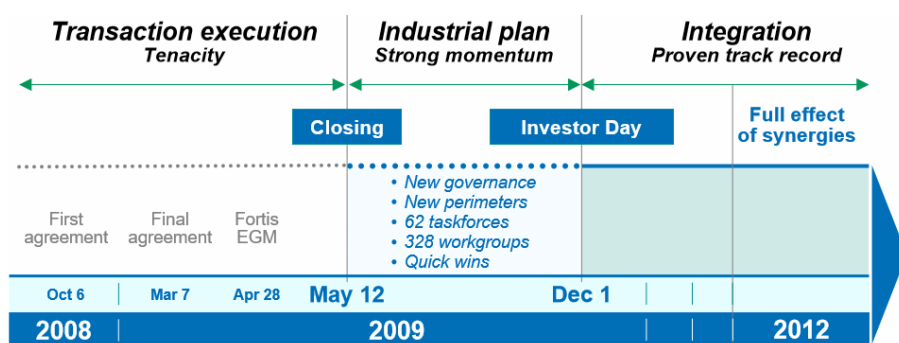


Source – BNP Paribas – Investor Presentation on October 2008

As showed by the chart above, the acquisition of Fortis Bank induced a slight modification in the board of BNP Paribas since the buyer acquired respectively its stakes of Fortis Bank Belgium (75%) and Fortis Bank Luxembourg (67%) from the states of Belgium and Luxembourg. As a consequence, the state of Belgium became a shareholder of BNP Paribas with 11.6% control and the state of Luxembourg with 1.1% control.

Transaction Timeline: the chart below summarizes the transaction timeline by detailing the different steps that structured the deal from the beginning of the negotiations.

Graph 14 – Acquisition Timeline in the BNP Paribas – Fortis Bank transaction



Source – BNP Paribas – Investor Presentation on October 2008

The transaction between BNP Paribas and Fortis Bank was structured around three main steps, the main agreements within the deal occurring in years 2008-2009:

- Transaction Execution – from 6 October 2008 (first agreement) to 12 May 2009 (closing date)
- Industrial Plan – from 12 May 2009 to 1 December 2009 (investor day)
- Integration – from 2010 to 2012 (expectation of full effect of operating synergies)

1.5 - Deal Rationale

As for the initial investor presentation released on 8 October 2008, the transaction was presented as **“a unique opportunity to expand BNP Paribas’ pan-European footprint”**. The latest investor presentation released on 1 December 2009 gave more details on the strategic rationale for BNP Paribas to acquire Fortis Bank with three main incentives that appeared as **“fully consistent with BNP Paribas’ development strategy”**:

- extend domestic and European retail presence
- catch up in asset management services
- reinforce corporate investment banking franchises

The transaction would allow the new entity BNP Paribas Fortis to **“become the core banking partner for all clients’ needs”** by settling new ambitions for the three major business lines:

- Retail banking – improving client satisfaction through better access to products and services
- Private banking – improving client coverage through better client segmentation and proximity
- Corporate banking – focusing on both local and international clients

2. Synergies Plan

BNP Paribas detailed the expected synergies from acquiring Fortis Bank in a comprehensive synergy plan. The buying bank itemized the synergies by sources (revenue and cost synergies) and by divisions (retail banking, corporate banking, investment solutions). The BNP Paribas group also provided details about the phasing timeline and the restructuring costs required in the integration process.

The table below summarizes the synergies in the transaction by sources and divisions:

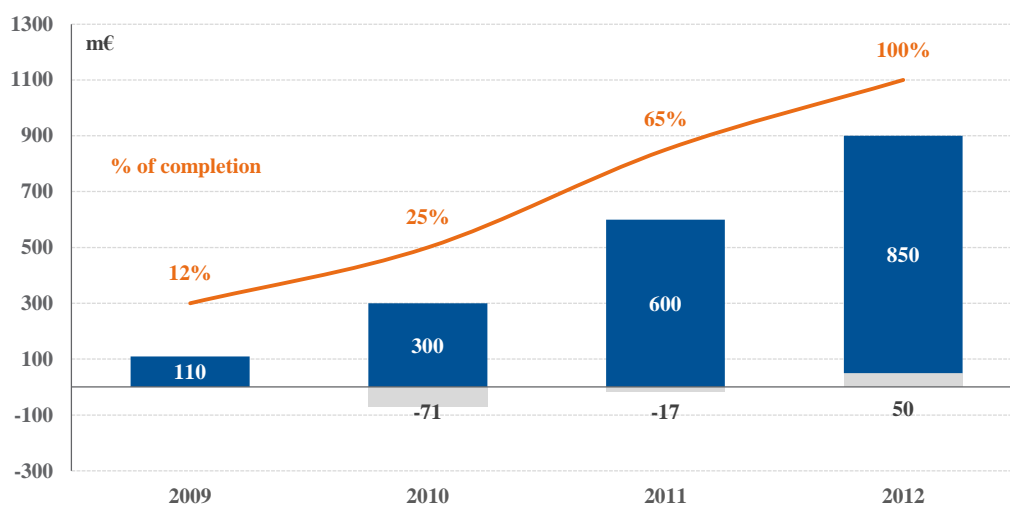
Table 5 - Summary of Estimated Recurring Run-Rate Synergies

BNP Paribas Division	in € million	as % of total
Retail Banking	38	4%
Corporate Banking	2	0%
Investment Solutions	10	1%
Total Revenue Synergies	50	6%
Retail Banking	214	24%
Corporate Banking	366	41%
Investment Solutions	121	13%
Central Functions	149	17%
Total Cost Synergies	850	94%
Total Operating Synergies	900	100%

Source – BNP Paribas – Industrial Plan on December 2009

The graph below shows how the estimated recurring run-rate synergies will materialize according to the integration process:

Graph 15 – Synergies Plan Ramp-Up



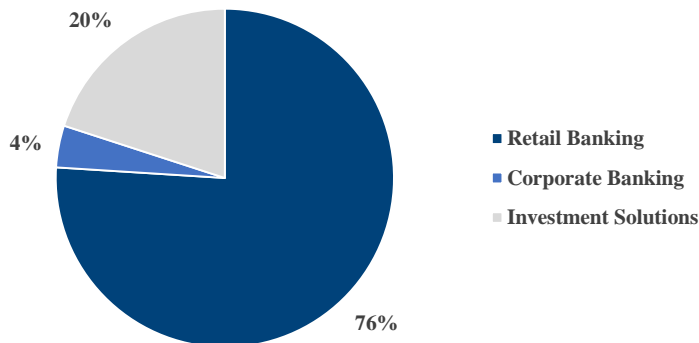
Source – BNP Paribas – Industrial Plan on December 2009

2.1 - Synergies by Sources

2.1.1 - Revenue Synergies

The estimated net revenue synergies from the acquisition of Fortis Bank amounts to €50m with full annual effect by year 2012. BNP Paribas took carefully into account implementation costs (€54m) to realize the gross revenue synergies (€104m) deriving from multi-channel implementation in Retail Banking Belgium as well as from product cross-selling in Corporate Banking and Investment Solutions.

Graph 16 – Revenue Synergies by Division



Source – BNP Paribas – Industrial Plan on December 2009

The recurring run-rate net revenue synergies (€50m) account for only 6% of the total recurring run-rate operating synergies (€900m) estimated in the acquisition and look negligible to the net banking income of BNP Paribas in 2008 (€27,376m).

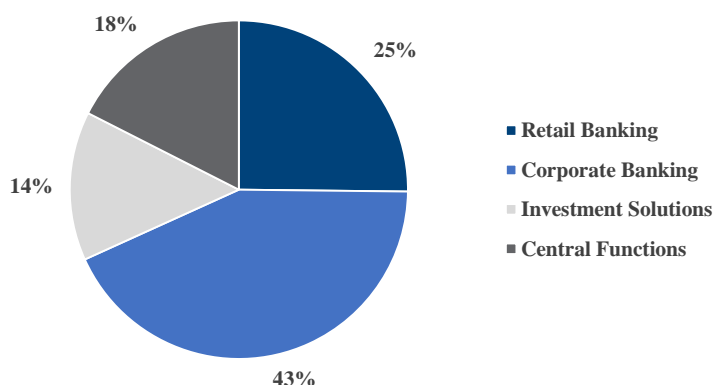
2.1.2 - Cost Synergies

The estimated cost synergies from the acquisition of Fortis Bank are much more significant than net revenue synergies with €850m full-annual savings by year 2012. The main sources of these savings come from staff reduction (44%) and IT consolidation (30%). The main divisions benefiting from these savings are Corporate & Investment Banking (43%) and Retail Banking (25%).

The cost synergies derive from “improved flexibility and efficiency” in four sources of transversal savings across all banking divisions:

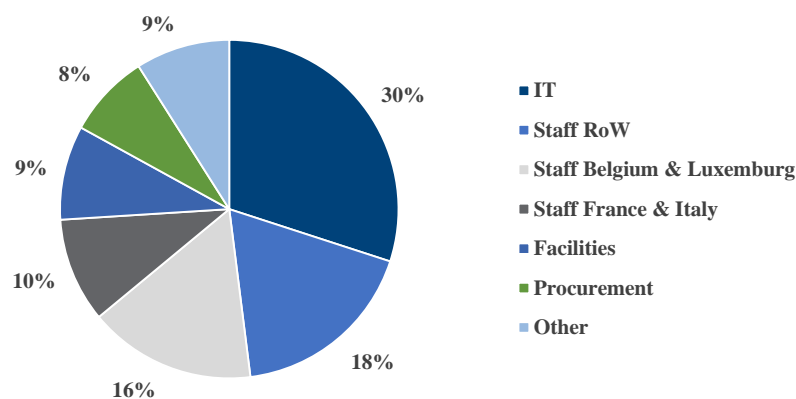
- Organisation: centralization of transverse functions (finance, audit, risk, etc.)
- Human Resources: staff reduction
- IT & Operations: consolidation of IT platform
- Facility & Procurement: centralization of offices, buildings, purchases

Graph 17 – Cost Synergies by Division



Source – BNP Paribas – Industrial Plan on December 2009

Graph 18 – Cost Synergies by Function



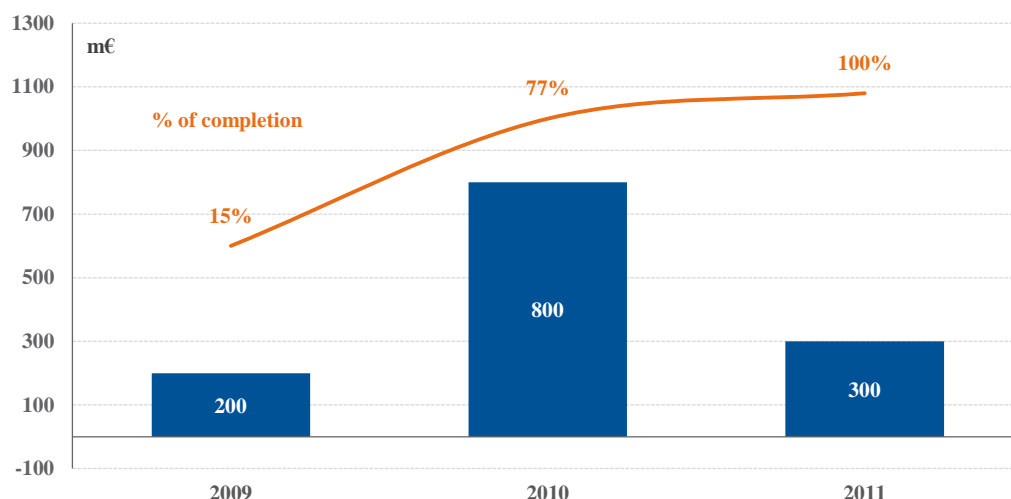
Source – BNP Paribas – Industrial Plan on December 2009

The recurring run-rate cost synergies (€850m) represent the main part of the total recurring run-rate operating synergies (€900m) with 94% of all operating synergies estimated for the transaction. These recurring run-rate cost synergies represent 15% of the target operating cost base and 4% of the combined operating cost base as for year 2008.

2.1.3 - Restructuring Costs

Wisely, the two merging companies did not forget to contemplate and quantify the implementation costs required to deliver the identified synergies. These restructuring costs are distinct from negative synergies (as accounted for in the revenue synergies as “marginal costs”) and represent the necessary structural changes to get the desired effects of all operating synergies.

Graph 19 – Phasing of Restructuring Costs



Source – BNP Paribas – Industrial Plan on December 2009

As a result, BNP Paribas will incur restructuring costs for a total amount of €1.3 billion spread over three years to generate the expected synergies of € 900 million, representing a restructuring charge of 1.4x. These implementation costs will be accounted as “other expenses” in BNP Paribas’ income statement.

2.1.4 - Potential Financial Benefits

As described in the first section of the research paper, some merging companies may benefit from financial advantages – which we do not properly call synergies in this section as they remain disputable, negligible and impossible to quantify. However though, financial institutions may encounter some financial benefits when merging together. This remains specific to banking M&A as financial institutions differ from other industrial companies.

In the present case study, BNP Paribas communicated on some unquantified financial benefits by acquiring Fortis Bank. In particular, the new entity may find more financial flexibility in managing its risk profile, especially its Risk Weighted Assets (RWA) through three main actions:

- ring-fencing on the most toxic assets allowing to reduce market RWAs
- improvement of coverage on structured credit assets due to bigger size
- reduction of market exposures with exit to major trading activities

Another financial benefit identified by the new group relates to liquidity management and to solvency position. In terms of liquidity, BNP Paribas will rely less on the interbank money market for short-term funding thanks to a larger number of client deposits. Before the acquisition, BNP Paribas found short term funding for 70% from client deposits (the 30% left from bank loans) and plan to raise this proportion up to 80% thanks to the transaction. In terms of solvency, BNP Paribas will exploit its bigger size to reduce the proportion of risky assets in its balance sheet (constant banking book and reduced trading book in derivatives).

These financial benefits identified by BNP Paribas through its acquisition of Fortis Bank should be tempered by the fact that the transaction occurred just after the great financial crisis under a new regulatory environment with tighter policies. All in all, it remains impossible to clearly identify the main driver for this increased financial strength between the transaction itself and the new regulation in a post-crisis environment.

2.2 - Synergies by Divisions

2.2.1 - Retail & Private Banking Belgium

The division Retail & Private Banking Belgium plans to generate synergies under the following motive “invest to free up people to then generate revenue synergies”. This synergy plan comprises a development in four steps that should allow the merging company to generate €93m total net synergies by year 2012:

- Investing to free up time and improving operations (support, branches, channels)
- Generating costs synergies in Operations and IT functions
- Reinvesting savings to improve servicing and to raise sales
- Generating revenue synergies in better targeted markets and customers

The main synergy plan for the division Retail & Private Banking Belgium should lead to the creation of a domestic bank with a strong focus on Belgian customers. The division would benefit from the experience and expertise of BNP Paribas in multichannel servicing. By leveraging on the CRM platform designed by BNP Paribas, the Retail & Private Banking Belgium division would create its own multichannel servicing with final objective to increase quality of service and enhance customer satisfaction.

2.2.2 - Corporate & Public Banking Belgium

The division Corporate & Public Banking Belgium plans to deliver €31m total net synergies by 2012 through a strategy comprising three pillars:

- Leveraging proximity through the current branch network
- Boosting product cross-selling through a more comprehensive offering
- Increasing international reach through the global BNP Paribas network

The BNP Paribas group seeks to strengthen the weak position of the Corporate & Public Banking Belgium division in Europe mainly by providing its international outreach. The Belgian division would develop in parallel product cross-selling (cash management, structured lending, factoring & leasing, asset management) to improve branding recognition and become a steady challenger in the market.

2.2.3 - BNP Paribas Retail Banking

The main division BNP Paribas Retail Banking comprises all the retail banking activities of the group, including Belgium and Luxemburg through the acquisition. The synergy plan holds three major actions to realize €252m total synergies by year 2012 (including the €93 of the Belgium retail division):

- Positioning Fortis Bank as a catalyst to the global project of BNP Paribas in retail banking
- Duplicating business model to Belgium and Luxemburg to boost profitability
- Fuelling future growth in other regions such as Eastern Europe, Mediterranean and Turkey

Thanks to the acquisition, BNP Paribas Retail Banking looks for higher market shares in terms of loans and deposits across France, Italy, Belgium and Luxemburg. The retail division also intends to increase its ROE (Return On Equity) in the Eurozone as well as to launch new projects outside the Eurozone. In addition, the division is supposed to expand its presence in new territories, among them Eastern Europe, Mediterranean and Turkey.

2.2.4 - BNP Paribas Corporate & Investment Banking

The main division BNP Paribas Corporate & Investment Banking comprises all the corporate banking activities of the group, including Belgium and Luxemburg through the acquisition. The synergy plan has three major actions to realize €368m total synergies by year 2012 (including the €31m of the Belgium corporate division):

- Integrating Fortis Banks as an additional strength for European competitiveness
- Complying with the new regulatory background by improving flexibility and resilience
- Capturing new opportunities in North America and Asia for further growth

The acquisition of the Corporate Banking division of Fortis Bank should allow BNP Paribas to reinforce its position for corporate and transaction banking in Europe. The new integrated CIB division expects to recover from the great financial crisis and to stick to regulatory changes. In addition, the division would result in a better position to seize growth opportunities in North America and Asia.

2.2.5 - BNP Paribas Investment Solutions

The main division BNP Paribas Investment Solutions gathers the group activities in asset management, wealth management, securities services and insurance services. The objectives of the synergy plan are the same as for the BNP Paribas CIB division while the expected level of total synergies goes up to €131m by year 2012.

3. Synergies Estimation – Practical Application

As detailed in the second part of the research paper, the synergies estimation corresponds to the preliminary step in the comprehensive process of valuing the operating synergies from M&A deals. In the present case study, BNP Paribas and Fortis Bank worked hand in hand to identify the possible synergies from the takeover.

3.1 - Estimation of Synergies with Internal Teams

In concrete terms, the CFOs of both companies implemented a strategy to properly identify the operating synergies from the different sources, by division and by function as detailed in the previous section. By mobilizing the relevant teams in each divisions and functions, by getting into the deepest possible level of detail, the two merging groups were able to quantify the operating synergies from the transaction. For instance, the revenue synergies from cross-selling can be estimated in the financial services industry by using financial models with significant data inputs (data gathered from the customers of both banks) to run regressions and get the future level of revenues by offering complementary services. As another example in the cost synergies side, the savings in the IT & Operations function could have been estimated by calculating the savings from combining the two IT systems of the two merging banks (less IT staff, less hardware and software expenses, etc.). In this primary exercise, the discipline of the different teams is crucial to properly quantify the possible synergies from the deal. This information remains strictly confidential at the corporate level and may appear only in the form of investor presentation with moderate level of details – usually only the amounts of cost and revenue synergies being communicated.

Last but not least, a Synergy Team is usually put in place to track the realization of the estimated synergies during the post-merger integration process, involving again players in the different divisions and functions. The Synergies Team acts as financial auditor and provides regular reporting to the management of the merged entity.

3.2 - Estimation of Synergies with Benchmarks in the Banking Industry

If the limited access to information cannot allow to know the granularly of the synergies estimated internally by the two banks, some estimations based on industry benchmarks may be carried out however. The estimations based on synergy multiples – as explained in the previous part – are usually implemented to check whether the level of estimated synergies remains in line with industry standards. This practice allows the management to see if the internal quantification of synergies result to be conservative or aggressive regarding the business sector.

In the present case study, we computed some synergy multiples based on transactions in the banking industry to benchmark the level of announced synergies in the transaction between BNP Paribas and Fortis Bank with industrial standards.

(1) Sampling - To conduct a proper analysis of the synergies estimation in the context of the case study, we gathered information from transactions occurring during two periods. The first period corresponds to the pre financial crisis environment, from 2000 to 2008. The second period relates to the post crisis period, from 2009 to 2017. Since the transaction between BNP Paribas and Fortis Bank occurred right after the great financial crisis, we found relevant to compare synergy multiples for both periods.

Table 6 - Comparable Transactions Sample**Transactions - Pre Financial Crisis**

Buyer Company	Target Company	Acquisition Date	Acquisition Price (€m)	Acquisition Premium (%)	Operating Synergies (€m)	Restructuring Costs (€m)
Chase Manhattan	J.P. Morgan	Sep. 2000	36 000	16,0%	1 900	2 800
Bank of America	Fleet Boston	Oct. 2003	47 000	43,0%	1 100	800
J.P. Morgan Chase	Bank One	Jan. 2004	58 000	14,0%	2 200	3 000
Santander	Abbey	July 2004	12 800	17,3%	560	560
Bank of America	MBNA	June 2005	35 000	31,0%	850	1 300
UniCredit	Capitalia	May 2007	22 000	23,5%	1 200	1 100

Transactions - Post Financial Crisis

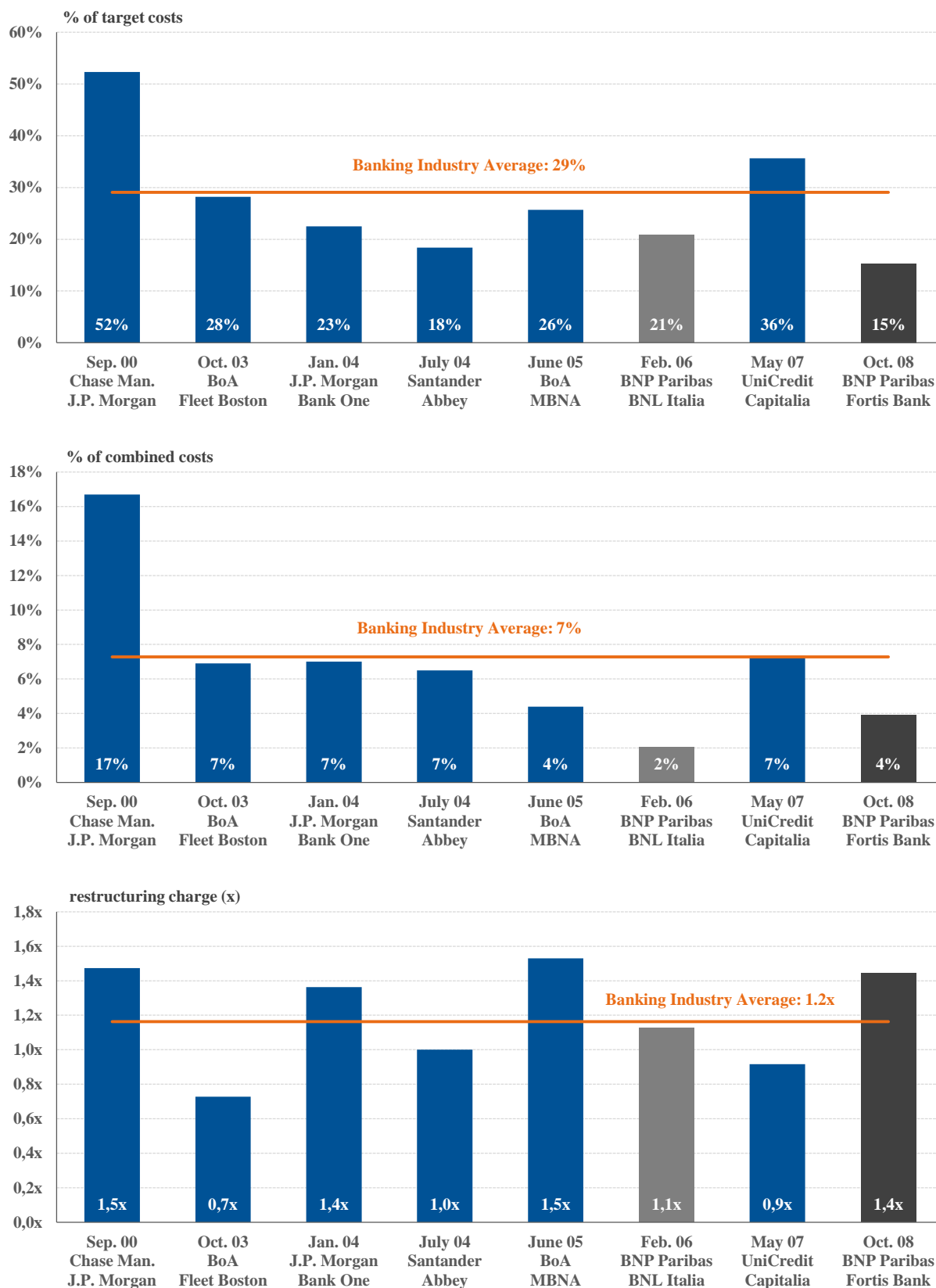
Buyer Company	Target Company	Acquisition Date	Acquisition Price (€m)	Acquisition Premium (%)	Operating Synergies (€m)	Restructuring Cost (€m)
Deutsche Bank	Postbank	Sep. 2010	9 130	15,9%	960	1 400
Capital One	INGDirect	June 2011	9 000	8,75%	420	210
Royal Bank of Canada	City National	Jan. 2015	5 400	26,0%	210	180
Banco Sabadell	TSB Banking	Mar. 2015	1 700	30,0%	160	450
Caixa Bank	BPI	Apr. 2016	1 600	29,0%	120	250

Source – *Transactions in Banking Industry*

(2) Synergy Multiples Computation - To benchmark the estimated synergies in the BNP Paribas – Fortis Bank transaction, we computed some commonly-used synergy multiples for past transactions in the banking industry. The following graphs compare synergy multiples for the observed transaction with past deals occurring between 2000 and 2007 (pre financial crisis) in the banking sector:

- 1. Recurring run-rate pre-tax synergies as % of target cost base (operating expenses)
- 2. Recurring run-rate pre-tax synergies as % of combined cost base (operating expenses)
- 3. Recurring run-rate pre-tax synergies as multiple of restructuring costs (“restructuring charge”)

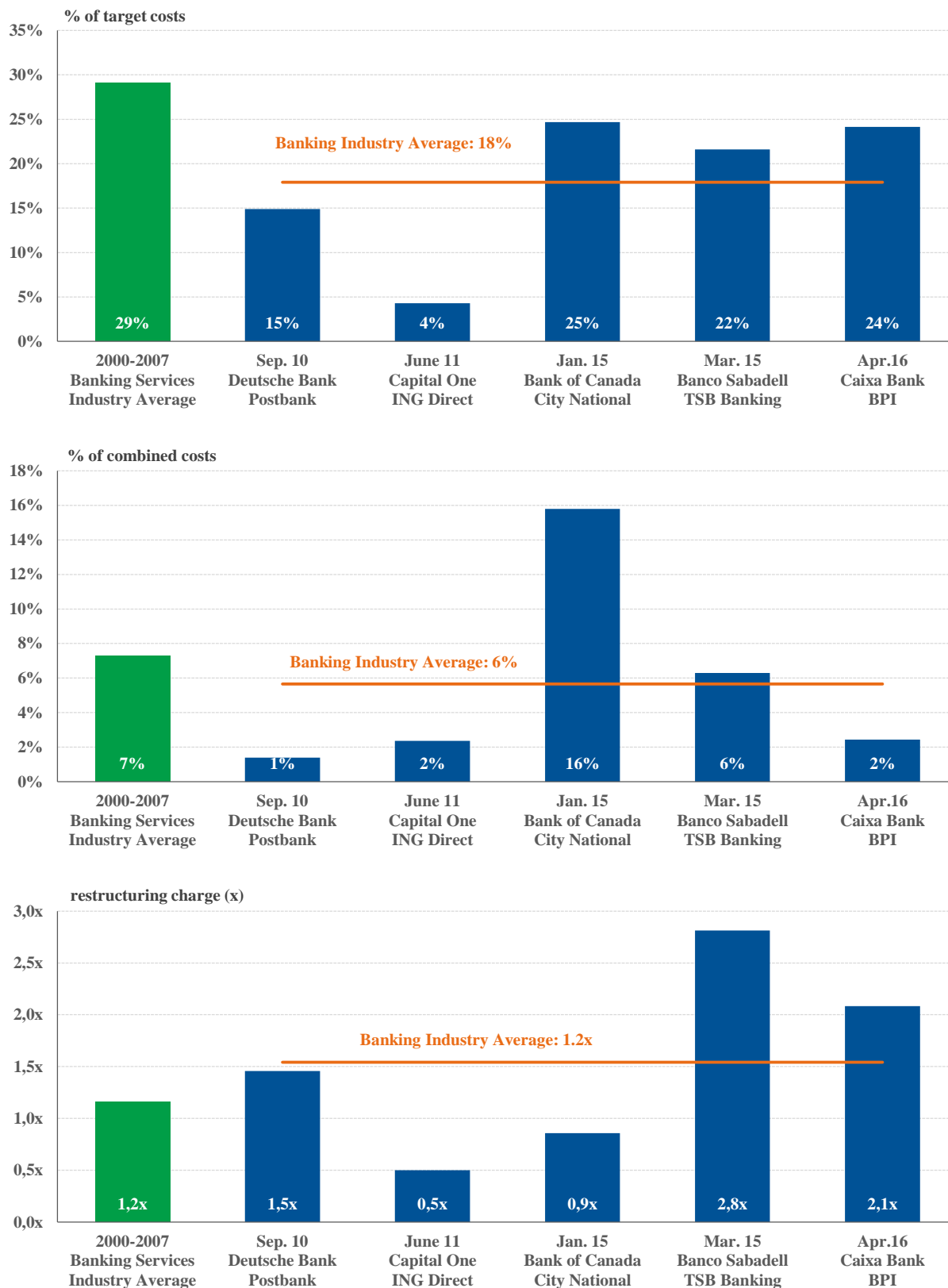
Graph 20 – Banking Transaction Multiples in Pre Financial Crisis (2000-2007)



Source – Transactions in Banking Industry from 2000-2007

For sake of comprehensiveness, we also computed the same multiples for transactions occurring between 2009 and 2017 (post financial crisis) in the banking sector, in order to understand the dynamic evolution of these synergy multiples over time.

Graph 21 – Banking Transaction Multiples in Post Financial Crisis (2009-2017)



Source – Transactions in Banking Industry from 2009-2017

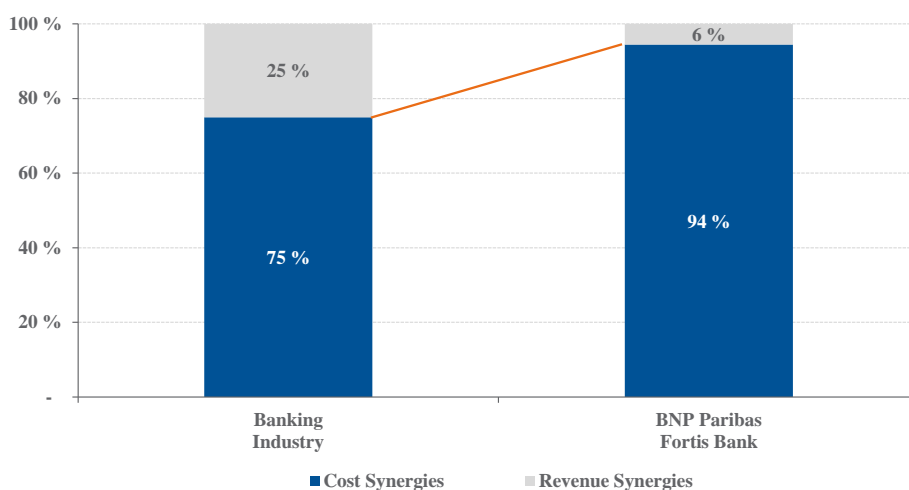
The main findings of the synergy multiples analysis show that the transaction between BNP Paribas and Fortis Bank presents estimated level of synergies below the banking industry average:

- 15% of target cost (Fortis Bank) against estimated 29% for the banking industry average before crisis (2000-2008) and estimated 18% after crisis (2009-2017)
- 4% of combined costs (Fortis Bank & BNP Paribas) against estimated 7% for banking industry average before crisis and estimated 6% after crisis

In addition, we notice that the target cost and the combined cost multiples are slightly decreasing over the two periods, reflecting distinct M&A waves before and after the financial crisis. The remarkable downturn induced by the financial crisis to the whole banking system, besides the new regulatory environment, created a new M&A wave of “super-consolidation” in the banking industry. The post financial crisis M&A wave in the banking sector can be characterized by a severe transformation of bank operating models, a prominent strategy of cost reduction, and a regional transfer of best practices within the entire group.

(3) Synergy Breakdown Computation - The synergy breakdown by source is another analysis on synergy estimation that can be undertaken by providing another type of benchmark. More precisely, the split between cost and revenue synergies for the observed transaction can be compared to banking industry standards. A survey carried out by Accenture on banking M&A deals between 1997 and 2009 showed that the synergies identified in banking deals are mainly deriving from cost savings. On average, cost synergies represent two thirds of bank merger synergies.

Graph 22 – Banking Transaction Multiples in Post Financial Crisis (2009-2017)



Source – Accenture – Synergies in Banking M&A – 2009

To conclude on this section, the estimated operating synergies between BNP Paribas and Fortis Bank (€900 million) prove to be conservative and consistent with the banking industry standards. The estimated restructuring costs to implement the synergies fall also in line with the ambitions of the merged entity (€1.3 billion) with a restructuring charge slightly above the industry average. The cost synergies represent also the major part of the identified operating synergies (€ 850m or 94% of total operating synergies) providing room for the merged entity to success throughout the implementation phase.

4. Synergies Valuation – Practical Application

The synergies valuation corresponds to the calculation of the Net Present Value of synergies and comes after the synergies estimation process. This step also allows the merged company to analyse the transaction on a value creation perspective. In the observed case study, we engage synergy valuation with the DCF approach, using the previous synergy estimation, as described in the second part of the research paper. The details provided in the synergy plan of BNP Paribas - Fortis Bank allow to compute the Net Present Value of synergies deriving from the transaction.

(1) Assumption Table in the DCF Valuation - The DCF valuation of the synergies in the BNP Paribas Fortis Bank transaction relies on several assumptions as detailed in the Assumption Table.

Assumptions Summary	
Assumption	Value
Transaction Date	EoY 2008
Horizon Date	EoY 2016
WACC (%)	9%
Risk Premium (%)	1%
Discount Rate (%)	10%
Perpetual Growth Rate (%)	0%
Revenue Synergies	50
Cost Synergies	850

- **Discount Rate (10%)** - assumption based on brokers' consensus (9% WACC for BNP Paribas) with an additional risk premium (1%) due to the uncertainty of the synergistic cash flows
- **Perpetual Growth Rate (0%)** - since the synergies are limited up to a finished time horizon, there is a 0% perpetual growth rate for the terminal value
- **Run-Rate Recurring Pre-Tax Synergies (€900 million)** - amount of estimated synergies from the industrial plan communicated by BNP Paribas
- **EBIT Margin (29%)** - average EBIT margin to be applied to revenue synergies (€50 million) based on the last six years (2004-2009) cleaned EBIT margins of BNP Paribas
- **Corporate Tax Rate (33%)** - assumption based on the historical French corporate statutory tax rate even if some marginal adjustments do exist to get the effective tax rate of BNP Paribas
- **Implementation Phasing** - phasing of cost synergies (€850 million) with full effect by year 2012 based on the industrial plan communicated by BNP Paribas
- **Restructuring Costs** - amount and phasing of restructuring costs (€1.3 billion) until year 2011 based on the industrial plan communicated by BNP Paribas

(2) Computation of Discounted Synergistic Cash Flows - Under these assumptions, we are able to compute the discounted synergistic free cash flows starting from end of year 2009 (end of the year of the transaction for simplification) to end of year 2016 (end of the year for the last available financial report of BNP Paribas).

DCF Synergies Valuation - BNP Paribas - Fortis Bank

€m	2009E	2010E	2011E	2012E	2013E	2014E	2015E	2016E	TV
Gross Revenue Synergies	-	(50)	26	104	104	104	104	104	104
Implementation Costs	-	(21)	(43)	(54)	-	-	-	-	-
Net Revenue Synergies	-	(71)	(17)	50	104	104	104	104	104
<i>EBIT Margin</i>	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%
EBIT Impact of Revenue Synergies	-	(21)	(5)	15	30	30	30	30	30
Implementation Phasing (%)	13 %	35 %	71 %	100 %	100 %	100 %	100 %	100 %	100 %
Cost Synergies	110	300	600	850	850	850	850	850	850
Total Gross Operating Synergies	110	279	595	865	880	880	880	880	880
Restructuring Costs	(200)	(800)	(300)	-	-	-	-	-	-
<i>(as % of total gross operating synergies)</i>	182 %	286 %	50 %	-	-	-	-	-	-
Pre-Tax Net Synergies	(90)	(521)	295	865	880	880	880	880	880
Effective Tax Rate (%)	33 %	33 %	33 %	33 %	33 %	33 %	33 %	33 %	33 %
Post-Tax Net Synergies	(60)	(347)	197	577	587	587	587	587	587
<i>Year Account</i>	1	2	3	4	5	6	7	8	8
Discounted FCF	(55)	(287)	148	394	365	331	301	274	3 043

(3) NPV of Synergies from DCF Valuation - The NPV of synergies is obtained by summing the discounted synergistic cash flows from the last line. As for end of 2009, the NPV of synergies for BNP Paribas from the acquisition of Fortis Bank is summarized in the next table.

Valuation Summary

€m	Value	as %	Multiple
<i>Recurring run-rate pre-tax synergies</i>	900		
NPV of Discounted FCF	1 471	33 %	1,6x
NPV of TV	3 043	67 %	3,4x
NPV of Synergies	4 514	100 %	5,0x

Considering a DCF valuation from 2009 to 2016, the total discounted synergistic free cash flows amount €1.471 billion. If we assume that BNP Paribas Fortis will generate synergistic cash flows beyond 2016 up to a limited time horizon (0% perpetual growth rate), the terminal value of the synergistic free cash flows amount €3.043 billion, representing a total Net Present Value of Synergies of €4.514 billion.

5. Discussions on Findings – Conclusion

5.1 - Limitations in the Synergies Valuation

The merged group BNP Paribas Fortis did not communicate around the final horizon of its synergies business plan which implies an appreciation for the valuation to account for the terminal value of synergies or not. If we consider that in this specific case that BNP Paribas Fortis will fully benefit from the positive effects of synergies until the end of the business plan only – that is until 2017 – then we may retain a NPV of Synergies of about €1.5 billion deriving from the transaction. Otherwise stated, the identified operating synergies used in the valuation are considered as occasional and will not turn out as structural after 2017.

There are two main arguments supporting this important assumption. First, the large majority (95%) of the identified operating synergies derives from cost reductions which lifespan is quite shorter than revenue enhancements. As illustrated in the first section with the timeline of operating synergies (*as referenced in graph 3*), cost synergies are indeed more systematic but have a shorter life than revenue synergies. This is understandable if we consider that as long as the new merged entity is being structured during the post-merger integration process, the sources for cost cutting are becoming increasingly scarce.

Second, the merger between BNP Paribas and Fortis Bank was far more driven by the recession in the banking industry than by the quest for operating synergies. Indeed, the entire banking system hugely suffered from the great financial crisis (2007-2008) that triggered a wave of M&A consolidation the banking industry, especially in Europe.

At the time of the transaction (first agreement in October 2008), Fortis Bank was a market leader in Benelux but hugely suffered from the economic downturn. The nationalization of the Dutch Bank ABN AMRO was followed by the acquisition of Fortis Netherlands. To survive from the financial crisis, Fortis Belgium and Fortis Luxemburg – partially owned by the Belgian and Luxemburg states, were looking for a strategic buyer. After long 5-month round of negotiations (*as referenced in graph 14*), BNP Paribas finally acquired the activities of Fortis Bank in Belgium and Luxemburg (final agreement in March 2009).

The rationale for BNP Paribas to acquire Fortis Bank was quite simple and refers to a pure opportunity growth strategy. As a large European bank with activities in many geographies, BNP Paribas found in Fortis Bank an opportunistic investment to start its recovering process from the great financial crisis. The adjacencies between the Belgium, Luxemburg and French banking markets also allowed the merged entities to identify considerable operating synergies.

5.2 - Little Impact of Synergies in Value Creation

In spite of the relatively high NPV of Synergies, the transaction between BNP Paribas and Fortis Bank was considered by financial markets as a bad deal. As pictured in the next graph, the share price of BNP Paribas significantly dropped right after the announcement of the first agreement to buy Fortis Bank.

Graph 23 – Share Price of BNP Paribas between March 2006-2009



Source – Broker Note by ING Banking – BNP Paribas Fortis Deal – March 2009

Speaking about value creation, we would get a rough approximation of the ROIC resulting from the acquisition (as referenced in Eq. 17), using the following information:

- NPV of Synergies = €1.4 bn (based on the previous DCF valuation)
- NOPAT of Target = €1.3 bn (based on broker consensus)
- Invested Capital for the Acquisition = €11.6 bn (without considering any transaction fees)

With these crude assumptions we obtain an upper value for the ROIC the acquisition of 23%. This result should be compared with the WACC of Fortis Bank to get an idea of the value created by BNP Paribas from the deal investment. We would fairly infer that the WACC of Fortis Bank was well below the computed 23% so that the deal created value for BNP Paribas.

However, we may also infer that this acquisition was probably not highly profitable for BNP Paribas only on a pure value creation perspective when considering the drop in the share price of the bank right after the transaction (graph above). Indeed, Fortis Bank recorded important losses during the financial crisis and was in a vulnerable position (with a probable high cost of capital due to its risky position at the time), negatively impacting BNP Paribas on its financial record.

Nonetheless, the takeover enabled BNP Paribas to smooth the negative impacts of the financial crisis and to emerge as a giant in the European banking landscape. In addition, thanks to the acquisition, BNP Paribas succeeded in securing a durable turnover and to capture a decent profitability. These improvements are directly observable from some key financial metrics for BNP Paribas (as referenced in table 3):

- Net Banking Income – significant growth after the recession (from €27.4 bn in 2008 to €40.2 bn in 2009)
- Operating Margin – redeeming stabilisation after the drop from 37.2% in 2007 to 15.7% in 2008
- Return On Equity – redeeming stabilisation as well after the drop from 6.6% in 2007 to 10.8% in 2008

This transaction is a perfect illustration of the key implications for large acquisitions – some drivers may play against each other (growth opportunity vs. value creation - large restructuring / ring fencing vs. large synergies) and require the buyer to make important choices when such opportunities knock at the door.

5.2 - High Relevance of Synergies Tracking

BNP Paribas obviously put in place a Synergy Team in charge of the synergies tracking during the integration phase of Fortis Bank. Indeed, the bank wisely communicated on the realized synergies in its financial reports of 2011 and 2012. In the ten-line paragraph dedicated to the progress of the post-merger integration, BNP Paribas indicates that they outperformed the synergies announced in the synergy plan, with:

- €1.2 billion of operating synergies realized in 2011 instead of estimated €0.9 billion
- €1.5 billion of operating synergies updated for 2012 instead of estimated €0.9 billion
- €1.65 billion of cumulated restructuring costs by 2012 instead of estimated €1.3 billion by 2011

Considering these updates, we can run a new valuation of the synergies as for end of year 2008 based on the exact same assumptions except for the operating synergies and the restructuring costs after year 2010.

(1) Updated Assumption Table in the DCF Valuation - The updated DCF valuation of the synergies in the BNP Paribas Fortis Bank transaction relies on the augmented operating synergies as well as enhanced restructuring costs. We made the choice to distribute the updated amount of synergies from 2011 to 2016 according to the contribution of cost and revenue in the level of operating synergies in 2010. We also assume that the new revenue synergies do not induce negative revenue synergies (as “implementation costs”).

Assumptions Summary

Assumption	Unchanged		Updated						Value
	2009	2010	2011	2012	2013	2014	2015	2016	
Gross Revenue Synergies	-	(50)	131	131	131	131	131	131	50
Implementation Costs	-	(21)	(43)	(54)	-	-	-	-	104
Cost Synergies	110	300	1 069	1 336	1 336	1 336	1 336	1 336	850
Restructuring Costs	(200)	(800)	(350)	(300)	-	-	-	-	(1 650)

(2) Updated Computation of Discounted Synergistic Cash Flows - Under these updated assumptions, we are able to compute the discounted synergistic free cash flows starting from end of years 2009 to 2016. The structure of the DCF remains unchanged from the previous valuation.

DCF Synergies Valuation - BNP Paribas - Fortis Bank									
€m	2009E	2010E	2011E	2012E	2013E	2014E	2015E	2016E	TV
Gross Revenue Synergies	-	(50)	131	131	131	131	131	131	131
Implementation Costs	-	(21)	(43)	(54)	-	-	-	-	-
Net Revenue Synergies	-	(71)	88	77	131	131	131	131	131
<i>EBIT Margin</i>	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%
EBIT Impact of Revenue Synergies	-	(21)	25	22	38	38	38	38	38
Cost Synergies	110	300	1 069	1 336	1 336	1 336	1 336	1 336	1 336
Total Gross Operating Synergies	110	279	1 095	1 359	1 374	1 374	1 374	1 374	1 374
Restructuring Costs	(200)	(800)	(350)	(300)	-	-	-	-	-
Pre-Tax Net Synergies	(90)	(521)	745	1 059	1 374	1 374	1 374	1 374	1 374
Effective Tax Rate (%)	33 %	33 %	33 %	33 %	33 %	33 %	33 %	33 %	33 %
Post-Tax Net Synergies	(60)	(347)	497	706	917	917	917	917	917
<i>Year Account</i>	1	2	3	4	5	6	7	8	8
Discounted FCF	(55)	(287)	373	482	569	517	470	428	4 752

(3) Updated NPV of Synergies from DCF Valuation - The updated NPV of synergies is obtained by summing the discounted synergistic cash flows from the last line. As for end of 2009, the NPV of synergies for BNP Paribas from the acquisition of Fortis Bank is summarized in the table below.

Valuation Summary						
€m	Updated Valuation			Previous Valuation		
	Value	as %	Multiple	Value	as %	Multiple
<i>Recurring run-rate pre-tax synergies</i>	900			900		
NPV of Discounted FCF	2 499	34 %	2,8x	1 471	59 %	1,6x
NPV of TV	4 752	66 %	5,3x	3 043	122 %	3,4x
NPV of Synergies	7 251	100 %	8,1x	4 514	181 %	5,0x

Considering an updated DCF valuation from 2009 to 2016, the total discounted synergistic free cash flows amounts €2.499 billion compared to a previous €1.471 billion as estimated before the transaction and the integration of Fortis Bank to BNP Paribas – that is an increase of €1 billion in the NPV of synergies compared to the previous valuation.

The lesson from this exercise is quite simple but remain often ignored by companies when we remember that synergies are seen as a major cause of failure for transactions. Tracking the synergies is therefore a critical engagement for merging companies if they want to fully benefit from the positive effects of identified synergies. We may conclude that the synergies valuation will be all the more important if two factors are reunited: the two merging companies have strong synergy opportunities (adjacencies) and the merged group implements a rigorous synergy tracking during the integration phase with a dedicated team (synergy team). This second requirement may be where synergies bring additional value creation in M&A deals.

CONCLUSION

The veil was lifted but the actor is still on the stage of corporate finance to receive the applause of potential buyers and corporate investors. Synergies from mergers and acquisitions are not an illusion but their attractiveness may be addressed with caution.

As we explained in the first developments of the research paper, synergies are not the main driver for mergers and acquisitions but one possible outcome from (external) growth opportunities. Synergies can be classified in two main categories: operating (revenue and cost) and financial – although we consider that these financial benefits remain negligible and controversial.

More importantly, the estimation of operating synergies seems decisive for two reasons. From a financial standpoint, it provides the necessary pedestal to perform synergies valuation – usually with the DCF valuation method – and to assess value creation in M&A moves. From an operational perspective, it allows the acquirer to track the realized synergies from the initial estimation and to monitor the adventurous phase of post-merger integration.

Further in the valuation process, we applied the theoretical findings on a real transaction with respect to the acquisition of Fortis Bank by BNP Paribas. This case study allowed us to shed the light on the divergence between synergies in practice and in theory. If we may perform a proper valuation of the operating synergies from M&A deals, it remains highly complex, even impossible, to truly deduce the value extracted from realized synergies for a given corporate buyer.

One reason for this theatrical illusion comes from the access to confidential internal information. Another portion derives from the inconsistency of the economic environment and the other adjacent investments undertaken by the company, dissolving the authentic impact of synergies in value creation for a firm after external growth.

The only certitude left to us is the potential and continuous communication of the corporate buyer around the realized synergies that feeds us to further debate on the impact of synergies on value creation.

We leave here the door open for a sequel to this research paper... For instance, we would find interesting to get an idea about how frenetic buyers compare to occasional acquirers to convert the estimated synergies into realized cash flows in M&A deals.

ACKNOLEWDGMENTS

Last but not least, I would like to sincerely thank the contributors to this research paper. I really appreciate the time and the professional experience they provided me on the topic. I hope they will enjoy the reading and appreciate their contributions to this research paper without any distortion.

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APPENDICES

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Data Sources

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Appendix B – Data Book

Summary of Graphs presented in the Research Paper

Graphs in the Research Paper		
#	Title	Source
Part I - Literature Overview		
1	Drivers of M&A Transactions in 2012	BCG/ UBS - A Survey of European Companies' M&A Plans
2	Drivers of M&A Transactions in 2016	KPMG- US Executives Survey on M&A
3	Timeline of Operating Synergies	Franck Ceddaha - Mergers, Acquisitions, Divestitures
4	Illustration of the Cost of Capital Synergy	J.P. Morgan - A shifting landscape for synergies
5	Drivers of M&A Failures in 2012	Bain & Company - M&A Survey
6	Evidence of Synergies Overestimation	Bain & Company - M&A Survey
7	Overestimation of Cost Synergies	McKinsey & Company - Where mergers go wrong
Part II - Synergies Valuation		
8	Synergies Sharing in All Cash Deal	Illustrative Example
9	Synergies Sharing in Share Deal	Illustrative Example
10	Estimation of Synergies by Business Sector	BCG- Divide and Conquer
11	P/E of Synergies by Business Sector	BCG- Divide and Conquer
Part III - Case Study		
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Synergies Valuation – DCF – Practical Example

Practical Example - Synergies Valuation with DCF Method

Assumptions Summary

Assumption	Value
Transaction Date	EoY 2016
WACC (%)	9,0 %
Risk Premium (%)	1,0 %
Discount Rate (%)	10,0 %
Perpetual Growth Rate (%)	-
Revenue Synergies as % of Target Sales	5,0 %
Cost Synergies as % of Target Operating Expenses	10,0 %

DCF Synergies Valuation

m€	2016A	2017E	2018E	2019E	2020E	2021E	2022E	TV
Target Sales	1 200							
Target Operating Expenses	900							
Revenue Synergies		60	60	60	60	60	60	60
<i>EBIT Margin</i>		10 %	10 %	10 %	10 %	10 %	10 %	10 %
EBIT Impact of Revenue Synergies		6	6	6	6	6	6	6
Cost Synergies		90	90	90	90	90	90	90
Total Gross Operating Synergies		96	96	96	96	96	96	96
Implementation Phasing (%)		30 %	60 %	100 %	100 %	100 %	100 %	100 %
Total Gross Synergies Phased		29	58	96	96	96	96	96
Implementation Costs		(96)	(48)	(19)	-	-	-	-
<i>(as % of total gross operating synergies)</i>		100 %	50 %	20 %	-	-	-	-
Pre-Tax Net Synergies		(67)	10	77	96	96	96	96
Effective Tax Rate (%)		30 %	30 %	30 %	30 %	30 %	30 %	30 %
Post-Tax Net Synergies		(47)	7	54	67	67	67	67
(+) Depreciation & Amortization		-	-	-	-	-	-	-
(-) Change in Working Capital		-	-	-	-	-	-	-
(-) CAPEX		-	-	-	-	-	-	-
Free Cash Flow		(47)	7	54	67	67	67	67
<i>Year Account</i>		<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>	<i>5</i>	<i>6</i>	<i>6</i>
Discounted FCF		(43)	6	40	46	42	38	421

Synergies Valuation – DCF – Synergies in BNP Paribas Fortis Bank

BNP Paribas - Fortis Bank - Synergies Valuation - DCF

Assumptions Summary

Assumption	Value
Transaction Date	EoY 2008
Horizon Date	EoY 2016
WACC (%)	9%
Risk Premium (%)	1%
Discount Rate (%)	10%
Perpetual Growth Rate (%)	0%
Revenue Synergies	50
Cost Synergies	850

DCF Synergies Valuation - BNP Paribas - Fortis Bank

€m	2009E	2010E	2011E	2012E	2013E	2014E	2015E	2016E	TV
Gross Revenue Synergies	-	(50)	26	104	104	104	104	104	104
Implementation Costs	-	(21)	(43)	(54)	-	-	-	-	-
Net Revenue Synergies	-	(71)	(17)	50	104	104	104	104	104
<i>EBIT Margin</i>	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%	29,0%
EBIT Impact of Revenue Synergies	-	(21)	(5)	15	30	30	30	30	30
Implementation Phasing (%)	13 %	35 %	71 %	100 %	100 %	100 %	100 %	100 %	100 %
Cost Synergies	110	300	600	850	850	850	850	850	850
Total Gross Operating Synergies	110	279	595	865	880	880	880	880	880
Restructuring Costs	(200)	(800)	(300)	-	-	-	-	-	-
<i>(as % of total gross operating synergies)</i>	182 %	286 %	50 %	-	-	-	-	-	-
Pre-Tax Net Synergies	(90)	(521)	295	865	880	880	880	880	880
Effective Tax Rate (%)	33 %	33 %	33 %	33 %	33 %	33 %	33 %	33 %	33 %
Post-Tax Net Synergies	(60)	(347)	197	577	587	587	587	587	587
<i>Year Account</i>	1	2	3	4	5	6	7	8	8
Discounted FCF	(55)	(287)	148	394	365	331	301	274	3 043

BNP Paribas – Financial Data Book (2004-2016)

Executive Summary on Financials (2004-2016)

Executive Summary on Financials						
Key Indicator	2004	2005	2006	2007	2008	2009
Net Banking Income (€bn)	19,4	21,9	27,9	31,0	27,4	40,2
Operating Profit before Tax (€bn)	7,4	8,6	11,0	11,5	4,3	9,9
Profit Margin (%)	38,4 %	39,4 %	39,4 %	37,2 %	15,7 %	24,5 %
Net Result (€bn)	5,4	6,3	7,8	8,3	3,5	6,5
EPS (€)	5,5	7,0	8,0	8,5	3,0	5,2
ROE (%)	16,8 %	20,2 %	21,2 %	19,6 %	6,6 %	10,8 %
Market Capitalization (€bn)	47,2	57,3	76,9	67,2	27,6	66,2
Total Assets (€bn)	1 003	1 258	1 440	1 694	2 076	2 058

Source: BNP Paribas Audited Financial Statements 2004-2016

Executive Summary on Financials (2010-2017)

Executive Summary on Financials							
Key Indicator	2010	2011	2012	2013	2014	2015	2016
Net Banking Income (€bn)	43,9	42,4	39,1	37,3	39,2	42,9	43,4
Operating Profit before Tax (€bn)	14,2	11,0	10,1	9,9	10,5	11,5	12,5
Profit Margin (%)	32,3 %	25,9 %	25,9 %	26,4 %	26,8 %	26,9 %	28,7 %
Net Result (€bn)	9,2	6,9	7,3	5,4	0,5	7,0	8,1
EPS (€)	6,3	4,8	5,2	3,7	4,7	5,1	6,0
ROE (%)	12,3 %	8,8 %	8,9 %	6,1 %	7,7 %	8,3 %	9,3 %
Market Capitalization (€bn)	57,1	36,7	53,4	70,5	61,4	65,1	75,5
Total Assets (€bn)	1 998	1 965	1 907	1 800	2 078	1 994	2 077

Source: BNP Paribas Audited Financial Statements 2004-2016

BNP Paribas – Income Statement (2004-2009)

BNP Paribas - Income Statement						
€m	2004	2005	2006	2007	2008	2009
Interest income	24 957	32 087	44 582	59 141	58 839	46 460
Interest expense	(17 403)	(24 354)	(35 458)	(49 433)	(45 341)	(25 439)
Commission income	7 164	8 701	10 395	10 721	10 713	12 276
Commission expense	(2 791)	(4 154)	(4 291)	(4 399)	(4 854)	(4 809)
Net gain (loss) on financial instruments at fair value	3 366	5 212	7 573	7 843	2 693	6 085
Net gain (loss) on available-for-sale assets	1 450	1 353	1 367	2 507	464	436
Income from other activities	16 544	21 607	23 130	22 601	20 273	28 781
Expense from other activities	(13 918)	(18 598)	(19 355)	(17 944)	(15 411)	(23 599)
Revenues	19 369	21 854	27 943	31 037	27 376	40 191
Operating expenses	(11 243)	(12 627)	(16 137)	(17 773)	(17 324)	(21 958)
Depreciation, amortization, impairment	(800)	(742)	(928)	(991)	(1 076)	(1 382)
Gross Operating Income	7 326	8 485	10 878	12 273	8 976	16 851
Cost of risk	(685)	(610)	(783)	(1 725)	(5 752)	(8 369)
Costs related to the comprehensive settlement with US authorities	-	-	-	-	-	-
Operating Income	6 641	7 875	10 095	10 548	3 224	8 482
Share of earnings of associates	407	352	293	358	217	178
Net gain on non-current assets	64	211	195	153	481	87
Goodwill	7	(14)	(13)	(1)	2	253
Pre-tax Income	7 119	8 424	10 570	11 058	3 924	9 000
Corporate income tax	(1 764)	(2 138)	(2 762)	(2 747)	(472)	(2 526)
<i>Effective Tax Rate (%)</i>	<i>24,8 %</i>	<i>25,4 %</i>	<i>26,1 %</i>	<i>24,8 %</i>	<i>12,0 %</i>	<i>28,1 %</i>
Net Income	5 355	6 286	7 808	8 311	3 452	6 474
Net income attributable to minority interests	(416)	(434)	(500)	(489)	(341)	(642)
Net Income (Group Share)	4 939	5 852	7 308	7 822	3 111	5 832

Source: BNP Paribas Audited Financial Statements 2004-2016

BNP Paribas – Income Statement (2010-2016)

BNP Paribas - Income Statement							
<i>€m</i>	2010	2011	2012	2013	2014	2015	2016
Interest income	47 388	47 124	44 476	36 967	38 707	41 381	40 894
Interest expense	(23 328)	(23 143)	(22 731)	(17 516)	(18 388)	(18 828)	(18 518)
Commission income	13 857	13 695	12 601	11 889	12 661	13 335	12 765
Commission expense	(5 371)	(5 276)	(5 069)	(5 044)	(5 273)	(5 720)	(5 563)
Net gain (loss) on financial instruments at fair value	5 109	3 733	3 312	4 602	4 631	6 054	6 189
Net gain (loss) on available-for-sale assets	452	280	1 624	1 626	1 969	1 485	2 211
Income from other activities	30 385	26 836	33 720	34 113	35 760	38 289	36 532
Expense from other activities	(24 612)	(20 865)	(28 861)	(29 351)	(30 899)	(33 058)	(31 099)
Revenues	43 880	42 384	39 072	37 286	39 168	42 938	43 411
Operating expenses	(24 924)	(24 608)	(25 007)	(23 787)	(24 958)	(27 600)	(27 681)
Depreciation, amortization, impairment	(1 593)	(1 508)	(1 543)	(1 530)	(1 566)	(1 654)	(1 697)
Gross Operating Income	17 363	16 268	12 522	11 969	12 644	13 684	14 033
Cost of risk	(4 802)	(6 797)	(3 941)	(3 643)	(3 705)	(3 797)	(3 262)
Costs related to the comprehensive settlement with US authorities	-	-	-	(798)	(6 000)	(100)	-
Operating Income	12 561	9 471	8 581	7 528	2 939	9 787	10 771
Share of earnings of associates	268	80	489	537	407	589	633
Net gain on non-current assets	269	206	1 792	287	155	996	(12)
Goodwill	(78)	(106)	(490)	(251)	(351)	(993)	(182)
Pre-tax Income	13 020	9 651	10 372	8 101	3 150	10 379	11 210
Corporate income tax	(3 856)	(2 757)	(3 059)	(2 680)	(2 643)	(3 335)	(3 095)
<i>Effective Tax Rate (%)</i>	29,6 %	28,6 %	29,5 %	33,1 %	83,9 %	32,1 %	27,6 %
Net Income	9 164	6 894	7 313	5 421	507	7 044	8 115
Net income attributable to minority interests	(1 321)	(844)	(760)	(603)	(350)	(350)	(413)
Net Income (Group Share)	7 843	6 050	6 553	4 818	157	6 694	7 702

Source: BNP Paribas Audited Financial Statements 2004-2016

BNP Paribas – Balance Sheet (2004-2009)

BNP Paribas - Balance Sheet						
€m	2004	2005	2006	2007	2008	2009
Cash and amounts due from central banks	6 888	7 115	9 642	18 542	39 219	56 076
Financial instruments at fair value through profit or loss	539 510	700 525	744 858	931 706	1 192 271	828 784
Derivatives used for hedging purposes	2 581	3 087	2 803	2 154	4 555	4 952
Available-for-sale financial assets	75 778	92 706	96 739	112 594	130 725	221 425
Loans and receivables due from credit institutions	40 983	45 009	75 170	71 116	69 153	88 920
Loans and receivables due from customers	244 228	301 196	393 133	445 103	494 401	678 766
Remeasurement adjustment on interest-rate risk hedged portfolios	-	(61)	(295)	(264)	2 541	2 407
Held-to-maturity financial assets	26 130	15 445	15 149	14 808	14 076	14 023
Current and deferred tax assets	2 140	2 135	3 443	2 965	6 055	12 117
Accrued income and other assets	41 332	65 327	66 915	60 608	82 457	103 361
Equity-method investments	2 720	1 823	2 772	3 333	2 643	4 761
Investment property	4 551	5 255	5 813	6 693	9 920	11 872
Property, plant and equipment	8 159	9 213	12 470	13 165	14 807	17 056
Intangible assets	1 175	1 225	1 569	1 687	1 810	2 199
Goodwill	6 328	8 079	10 162	10 244	10 918	10 979
Total Assets	1 002 503	1 258 079	1 440 343	1 694 454	2 075 551	2 057 698
Due to central banks	256	742	939	1 724	1 047	5 510
Financial instruments at fair value through profit or loss	457 126	610 681	653 328	796 125	1 054 802	709 337
Derivatives used for hedging purposes	450	1 015	1 335	1 261	6 172	8 108
Due to credit institutions	100 188	118 893	143 650	170 182	186 187	220 696
Due to customers	211 487	247 494	298 652	346 704	413 955	604 903
Debt securities	77 597	84 629	121 559	141 056	157 508	211 029
Remeasurement adjustment on interest-rate risk hedged portfolios	1 022	901	367	20	282	356
Current and deferred tax liabilities	1 653	2 206	2 306	2 475	3 971	4 762
Accrued expenses and other liabilities	34 056	48 446	53 661	58 815	83 434	72 425
Technical reserves of insurance companies	64 518	76 523	87 044	93 320	86 514	101 555
Provisions for contingencies and charges	3 983	3 850	4 718	4 738	4 388	10 464
Subordinated debt	13 042	16 706	17 960	18 641	18 323	28 209
Total Liabilities	965 378	1 212 086	1 385 519	1 635 061	2 016 583	1 977 354
Share capital, additional paid-in capital and retained earnings	23 779	29 395	37 179	42 705	51 737	62 494
Net income for the period attributable to shareholders	4 939	5 852	7 308	7 822	3 021	5 832
Changes in assets and liabilities recognised directly in equity	3 593	5 471	5 025	3 272	(1 530)	1 175
Shareholders' Equity	32 311	40 718	49 512	53 799	53 228	69 501
Retained earnings and net income attributable to minority interests	4 814	5 275	5 312	5 712	6 179	11 060
Changes in assets and liabilities recognised directly in equity	-	-	-	(118)	(439)	(217)
Minority Interests	4 814	5 275	5 312	5 594	5 740	10 843
Total Consolidated Equity	37 125	45 993	54 824	59 393	58 968	80 344
Total Liabilities & Equity	1 002 503	1 258 079	1 440 343	1 694 454	2 075 551	2 057 698

Source: BNP Paribas Audited Financial Statements 2004-2016

BNP Paribas – Balance Sheet (2010-2016)

BNP Paribas - Balance Sheet							
<i>€m</i>	2010	2011	2012	2013	2014	2015	2016
Cash and amounts due from central banks	33 568	58 382	103 190	101 066	117 473	134 547	160 400
Financial instruments at fair value through profit or loss	832 945	820 463	763 799	671 687	813 647	684 983	691 727
Derivatives used for hedging purposes	5 440	9 700	14 267	8 426	19 766	18 063	18 133
Available-for-sale financial assets	219 958	192 468	192 506	203 413	252 292	258 933	267 559
Loans and receivables due from credit institutions	62 718	49 369	40 406	50 487	43 348	43 427	47 411
Loans and receivables due from customers	684 686	665 834	630 520	617 161	657 403	682 497	712 233
Remeasurement adjustment on interest-rate risk hedged portfolios	2 317	4 060	5 836	3 657	5 603	4 555	4 664
Held-to-maturity financial assets	13 773	10 576	10 284	9 881	8 965	7 757	6 100
Current and deferred tax assets	11 557	11 570	8 732	9 048	8 628	7 865	7 966
Accrued income and other assets	83 124	94 787	99 207	89 105	110 088	108 018	115 967
Equity-method investments	4 798	4 474	7 031	5 747	7 371	6 896	6 910
Investment property	12 327	11 444	927	713	1 614	1 639	1 911
Property, plant and equipment	17 125	18 278	17 319	17 177	18 032	21 593	22 523
Intangible assets	2 498	2 472	2 585	2 577	2 951	3 104	3 239
Goodwill	11 324	11 406	10 591	9 994	10 577	10 316	10 216
Total Assets	1 998 158	1 965 283	1 907 200	1 800 139	2 077 758	1 994 193	2 076 959
Due to central banks	2 123	1 231	1 532	661	1 680	2 385	233
Financial instruments at fair value through profit or loss	725 105	762 795	703 623	608 147	743 527	618 261	626 348
Derivatives used for hedging purposes	8 480	14 331	17 286	12 289	22 993	21 068	19 626
Due to credit institutions	167 985	149 154	111 735	85 021	90 352	84 146	75 660
Due to customers	580 913	546 284	539 513	557 903	641 549	700 309	765 953
Debt securities	208 669	157 786	173 198	183 507	187 074	159 447	153 422
Remeasurement adjustment on interest-rate risk hedged portfolios	301	356	2 067	924	4 765	3 946	4 202
Current and deferred tax liabilities	3 745	3 489	2 943	2 632	2 920	2 993	3 087
Accrued expenses and other liabilities	65 229	81 010	86 691	78 676	87 722	88 629	99 407
Technical reserves of insurance companies	114 918	133 058	147 992	155 226	175 214	185 043	193 626
Provisions for contingencies and charges	10 311	10 480	11 380	11 963	12 337	11 345	11 801
Subordinated debt	24 750	19 683	15 223	12 028	13 936	16 544	18 374
Total Liabilities	1 912 529	1 879 657	1 813 183	1 708 977	1 984 069	1 894 116	1 971 739
Share capital, additional paid-in capital and retained earnings	66 620	70 714	75 654	80 824	83 210	82 839	86 794
Net income for the period attributable to shareholders	7 843	6 050	6 564	4 832	157	6 694	7 702
Changes in assets and liabilities recognised directly in equity	169	(1 394)	3 226	1 935	6 091	6 736	6 169
Shareholders' Equity	74 632	75 370	85 444	87 591	89 458	96 269	100 665
Retained earnings and net income attributable to minority interests	11 293	10 737	8 161	3 579	4 098	3 691	4 460
Changes in assets and liabilities recognised directly in equity	(296)	(481)	412	(8)	133	117	95
Minority Interests	10 997	10 256	8 573	3 571	4 231	3 808	4 555
Total Consolidated Equity	85 629	85 626	94 017	91 162	93 689	100 077	105 220
Total Liabilities & Equity	1 998 158	1 965 283	1 907 200	1 800 139	2 077 758	1 994 193	2 076 959

Source: BNP Paribas Audited Financial Statements 2004-2016

Fortis Bank – Financial Data Book (2005-2008)

Executive Summary on Financials (2005-2008)

Executive Summary on Financials				
Key Indicator	2005	2006	2007	2008
Net Banking Income (€bn)	9,0	11,9	8,0	5,0
Operating Profit before Tax (€bn)	3,7	5,9	3,0	(0,7)
Profit Margin (%)	41,1 %	49,9 %	37,0 %	(14,4)%
Net Result (€bn)	2,7	4,7	1,8	(20,6)

Source: Fortis Bank Audited Financial Statements 2005-2008

Fortis Bank – Income Statement (2005-2008)

Fortis Bank - Income Statement				
€m	2005	2006	2007	2008
Interest income	64 695	70 197	86 541	103 470
Interest expense	(60 043)	(65 111)	(82 781)	(99 507)
Commission income	2 894	3 583	3 323	3 375
Commission expense	(604)	(819)	(1 034)	(1 167)
Realized capital gain (loss) on investments	712	2 154	734	(278)
Other realized and unrealized gains and losses	805	1 339	674	(1 483)
Other Income	536	562	532	602
Revenues	8 995	11 905	7 989	5 012
Change in impairments	(209)	(158)	(2 793)	(10 052)
Net Revenues	8 786	11 747	5 196	(5 040)
Staff expenses	(3 370)	(3 625)	(3 154)	(3 373)
Depreciation & Amortization	(308)	(350)	(327)	(458)
Other Expenses	(1 924)	(2 341)	(1 880)	(2 361)
Total Expenses	(5 602)	(6 316)	(5 361)	(6 192)
Profit before tax	3 184	5 431	(165)	(11 232)
Corporate income tax	(733)	(690)	693	(184)
Net profit before discontinued operations	2 451	4 741	528	(11 416)
Net result on discontinued operations	253	-	1 267	(9 127)
Net Income	2 704	4 741	1 795	(20 543)
Net income attributable to minority interests	(11)	(9)	(14)	(13)
Net Income (Group Share)	2 693	4 732	1 781	(20 556)

Source: Fortis Bank Audited Financial Statements 2005-2008

Fortis Bank – Balance Sheet (2005-2008)

Fortis Bank - Balance Sheet				
€m	2005	2006	2007	2008
Cash and cash equivalents	25 594	20 792	27 003	22 644
Assets held for trading	62 830	70 635	75 347	88 432
Due from banks	80 054	89 413	118 346	47 043
Due from customers	277 862	285 877	315 302	215 630
Investments held to maturity	4 669	4 505	4 234	3 851
Investments available for sale	126 699	127 818	103 183	101 194
Investments held at fair value through profit or loss	2 289	3 535	5 718	2 828
Investment property	402	600	688	672
Associates and joint-ventures	1 285	1 352	27 699	436
Trade and other receivables	7 010	6 105	6 546	5 680
Property, plant and equipment	2 018	2 153	2 715	2 281
Goodwill and other intangible assets	635	980	1 559	1 992
Accrued interests and other assets	49 965	60 926	78 873	94 094
Total Assets	641 312	674 691	767 213	586 777
Liabilities held for trading	50 755	64 258	89 457	86 309
Due to banks	174 780	177 161	192 141	133 917
Due to customers	263 285	260 056	267 164	217 815
Debt certificates	76 827	90 360	95 054	49 617
Subordinated liabilities	12 490	14 080	23 097	21 932
Other borrowings	5 023	2 178	2 665	565
Provisions	795	717	842	1 331
Current and deferred tax liabilities	1 309	1 469	1 423	525
Accrued expenses and other liabilities	40 749	47 514	61 504	59 623
Total Liabilities	626 013	657 793	733 347	571 634
Shareholders' equity	15 091	16 700	33 436	12 363
Minority interests	208	198	430	2 780
Total Equity	15 299	16 898	33 866	15 143
Total Liabilities & Equity	641 312	674 691	767 213	586 777

Source: Fortis Bank Audited Financial Statements 2005-2008

BNP Paribas Valuation - Trading Comps

Best Trading Comps Analysis

Best Comparable Analysis

(1) Size - Total Assets (€bn)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	1 653	1 557	1 594	1 724	1 617	1 519	1 589	1 529	1 524
Deutsche Bank	Germany	2 202	1 501	1 906	2 164	2 012	1 611	1 709	1 629	1 591
Société Générale	France	1 130	1 024	1 132	1 181	1 251	1 214	1 308	1 334	1 382
Banco Santander	Spain	1 050	1 111	1 218	1 251	1 270	1 116	1 266	1 340	1 339
Groupe BCPE	France	1 144	1 029	1 048	1 138	1 148	1 124	1 223	1 167	1 235
UniCredit	Italy	1 046	929	929	927	927	846	844	860	860
BNP Paribas	France	2 076	2 058	1 998	1 965	1 907	1 800	2 078	1 994	2 077

(2) Growth - Net Banking Income (€bn)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	16,0	17,9	20,1	19,4	16,0	15,7	15,9	17,2	16,9
Deutsche Bank	Germany	12,5	25,3	27,3	31,4	32,0	29,9	30,8	32,6	28,6
Société Générale	France	21,9	21,7	26,4	25,6	23,1	22,4	23,6	25,6	25,3
Banco Santander	Spain	33,5	39,4	42,0	42,5	43,4	39,8	42,6	45,3	43,9
Groupe BCPE	France	16,1	21,2	23,4	23,4	21,9	22,8	23,3	23,9	24,2
UniCredit	Italy	26,9	27,6	26,3	25,2	25,0	24,0	22,5	22,4	18,8
BNP Paribas	France	27,4	40,2	43,9	42,4	39,1	37,3	39,2	42,9	43,4

(3) Profitability - Return On Equity (%)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	2,6 %	2,6 %	2,9 %	(3,3)%	(15,6)%	6,1 %	5,4 %	6,9 %	8,6 %
Deutsche Bank	Germany	(11,1)%	14,6 %	5,5 %	8,2 %	0,5 %	1,2 %	2,7 %	(9,8)%	(2,3)%
Société Générale	France	6,4 %	0,9 %	9,8 %	6,0 %	1,1 %	4,4 %	5,3 %	7,9 %	7,3 %
Banco Santander	Spain	17,1 %	13,9 %	11,8 %	7,1 %	2,9 %	5,4 %	7,1 %	6,6 %	7,0 %
Groupe BCPE	France	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>
UniCredit	Italy	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>
BNP Paribas	France	6,6 %	10,8 %	12,3 %	8,8 %	8,9 %	6,1 %	7,7 %	8,3 %	9,3 %

Source: Bank Peers - Audited Financial Statements 2008-2016

Banking PB Multiple Computation

PB Multiple Calculation

[A] - Equity Book Value (€bn)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	47,3	52,0	52,1	49,3	45,7	47,9	56,1	59,4	63,9
Deutsche Bank	Germany	31,9	38,0	50,4	54,7	54,2	55,0	73,2	67,6	64,8
Société Générale	France	40,9	46,8	51,0	51,1	54,1	54,1	58,9	62,7	65,7
Banco Santander	Spain	60,0	73,9	80,9	80,8	81,3	79,9	89,7	98,8	102,7
Groupe BCPE	France	35,2	47,8	51,4	48,9	54,4	58,1	62,7	65,2	69,2
UniCredit	Italy	55,0	59,7	64,2	51,5	62,8	46,8	49,4	50,1	39,3
BNP Paribas	France	59,0	80,3	85,6	85,6	94,0	91,2	93,7	100,1	105,2

[B] - Market Capitalization (€bn)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	17,8	28,7	22,8	10,9	15,2	23,3	27,7	28,7	33,5
Deutsche Bank	Germany	15,9	30,7	36,3	27,4	30,6	35,4	34,5	31,1	23,8
Société Générale	France	20,9	36,2	30,0	13,3	22,1	33,7	28,2	34,3	37,8
Banco Santander	Spain	54,0	95,0	66,0	50,3	63,0	73,7	88,0	65,8	72,3
Groupe BCPE	France	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>
UniCredit	Italy	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>
BNP Paribas	France	27,6	66,2	57,1	36,7	53,4	70,5	61,4	65,1	75,5

[C] = [B] / [A] - PBR Ratio (x)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	0,4x	0,6x	0,4x	0,2x	0,3x	0,5x	0,5x	0,5x	0,5x
Deutsche Bank	Germany	0,5x	0,8x	0,7x	0,5x	0,6x	0,6x	0,5x	0,5x	0,4x
Société Générale	France	0,5x	0,8x	0,6x	0,3x	0,4x	0,6x	0,5x	0,5x	0,6x
Banco Santander	Spain	0,9x	1,3x	0,8x	0,6x	0,8x	0,9x	1,0x	0,7x	0,7x
Groupe BCPE	France	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
UniCredit	Italy	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
BNP Paribas	France	0,5x	0,8x	0,7x	0,4x	0,6x	0,8x	0,7x	0,7x	0,7x

Source: Bank Peers - Audited Financial Statements 2008-2016

Banking PE Multiple Computation

PE Multiple Calculation

[A] - Net Income (€bn)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	1,3	1,1	1,8	(1,2)	(6,4)	2,9	2,8	4,0	4,0
Deutsche Bank	Germany	(3,9)	5,0	2,3	4,3	0,3	0,7	1,7	(6,8)	(1,4)
Société Générale	France	2,8	1,1	4,3	2,8	1,2	2,5	3,0	4,4	4,3
Banco Santander	Spain	9,3	9,5	9,1	7,8	6,2	5,4	7,0	7,8	7,9
Groupe BCPE	France	(2,7)	(0,1)	4,0	3,0	2,4	3,2	3,4	3,7	4,5
UniCredit	Italy	4,8	2,3	1,9	0,6	1,7	(3,9)	2,7	2,2	(11,1)
BNP Paribas	France	3,5	6,5	9,2	6,9	7,3	5,4	0,5	7,0	8,1

[B] - Market Capitalization (€bn)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	17,8	28,7	22,8	10,9	15,2	23,3	27,7	28,7	33,5
Deutsche Bank	Germany	15,9	30,7	36,3	27,4	30,6	35,4	34,5	31,1	23,8
Société Générale	France	20,9	36,2	30,0	13,3	22,1	33,7	28,2	34,3	37,8
Banco Santander	Spain	54,0	95,0	66,0	50,3	63,0	73,7	88,0	65,8	72,3
Groupe BCPE	France	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>
UniCredit	Italy	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>	<i>n.d.</i>
BNP Paribas	France	27,6	66,2	57,1	36,7	53,4	70,5	61,4	65,1	75,5

[C] = [B] / [A] - PE Ratio (x)

Peer Bank	Country	2008	2009	2010	2011	2012	2013	2014	2015	2016
Credit Agricole	France	14,1x	25,0x	13,0x	<i>n.a.</i>	<i>n.a.</i>	8,1x	10,1x	7,2x	8,5x
Deutsche Bank	Germany	<i>n.a.</i>	6,2x	15,6x	6,3x	<i>n.a.</i>	<i>n.a.</i>	20,4x	<i>n.a.</i>	<i>n.a.</i>
Société Générale	France	7,5x	32,7x	7,0x	4,8x	18,3x	13,3x	9,5x	7,8x	8,7x
Banco Santander	Spain	5,8x	10,0x	7,3x	6,5x	10,1x	13,7x	12,6x	8,4x	9,2x
Groupe BCPE	France	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
UniCredit	Italy	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>	<i>n.a.</i>
BNP Paribas	France	8,0x	10,2x	6,2x	5,3x	7,3x	13,0x	<i>n.a.</i>	9,2x	9,3x

Source: Bank Peers - Audited Financial Statements 2008-2016

Synergies Estimation - Transaction Comps – Synergies in Banking Industry

Synergies Estimation in Banking Industry - Transaction Comps

Transactions Comps - Pre Financial Crisis (2000-2007)

Acquirer Company	Target Company	Deal Date	Amount (€m)	Premium (%)	Operating Synergies	% target cost	% combined cost	Restructuring Cost	Synergies P/E	Restructuring Charge
Chase Manhattan	J.P. Morgan	Sept. 00	36 000	16,0 %	1 900	52,3 %	16,7 %	2 800	3,0x	1,5x
Bank of America	Fleet Boston	Oct. 03	47 000	43,0 %	1 100	28,2 %	6,9 %	800	18,4x	0,7x
J.P. Morgan Chase	Bank One	Jan. 04	58 000	14,0 %	2 200	22,5 %	7,0 %	3 000	3,7x	1,4x
Santander	Abbey	July 04	12 800	17,3 %	560	18,4 %	6,5 %	560	4,0x	1,0x
Bank of America	MBNA	June 05	35 000	31,0 %	850	25,7 %	4,4 %	1 300	12,8x	1,5x
BNP Paribas	BNL Italia	Feb. 06	9 000	<i>n.d.</i>	400	20,8 %	2,1 %	450	<i>n.a.</i>	1,1x
UniCredit	Capitalia	May 07	22 000	23,5 %	1 200	35,6 %	7,3 %	1 100	4,3x	0,9x
Min.			9 000	14,0 %	400	18,4 %	2,1 %	450	3,0x	0,7x
Average.			31 400	24,1 %	1 173	29,1 %	7,3 %	1 430	7,7x	1,2x
Max.			58 000	43,0 %	2 200	52,3 %	16,7 %	3 000	18,4x	1,5x
BNP Paribas	Fortis Bank	Oct. 08	11 600	n.d.	900	15,3 %	3,9 %	1 300	n.a.	1,4x

Source: Past Transactions in Banking Industry

Transactions Comps - Post Financial Crisis (2009-2017)

Acquirer Company	Target Company	Deal Date	Amount (€m)	Premium (%)	Operating Synergies	% target cost	% combined cost	Restructuring Cost	Synergies P/E	Restructuring Charge
Deutsche Bank	Postbank	Sep. 10	9 130	15,9 %	960	14,9 %	1,4 %	1 400	1,5x	1,5x
Capital One	INGDirect	June 11	9 000	8,8 %	420	4,3 %	2,4 %	210	1,9x	0,5x
Royal Bank of Canada	City National	Jan. 15	5 400	26,0 %	210	24,7 %	15,8 %	180	6,7x	0,9x
Banco Sabadell	TSB Banking	March 15	1 700	30,0 %	160	21,6 %	6,3 %	450	3,2x	2,8x
Caixa Bank	BPI	Apr. 16	1 600	29,0 %	120	24,1 %	2,4 %	250	3,9x	2,1x
Min.			1 600	8,8 %	120	4,3 %	1,4 %	180	1,5x	0,5x
Average.			5 366	21,9 %	374	17,9 %	5,7 %	498	3,4x	1,5x
Max.			9 130	30,0 %	960	24,7 %	15,8 %	1 400	6,7x	2,8x
BNP Paribas	Fortis Bank	Oct. 08	11 600	n.d.	900	15,3 %	3,9 %	1 300	n.a.	1,4x

Source: Past Transactions in Banking Industry

Synergies PE on Recent Reference Transactions

Synergies P/E on Recent M&A Transactions							
Business Sector	Acquirer Company	Target Company	Deal Date	Amount (in €m)	Premium (in %)	Operating Synergies	P/E Synergies
Bank & Insurance	XL Group	Catlin Group	Jan. 15	4 200	23,5 %	200	4,9x
Bank & Insurance	ACE	Chubb	July 15	28 300	30,0 %	650	13,1x
Bank & Insurance	Royal Bank of Canada	City National Corp	Jan. 15	5 400	26,0 %	210	6,7x
Bank & Insurance	Banco Sabadell	TSB Banking Group	Mar. 15	1 700	30,0 %	160	3,2x
Bank & Insurance	Caixa Bank	BPI	Apr. 16	1 600	29,0 %	120	3,9x
Business Services	Symantec	Blue Coat	June 16	4 600	18,0 %	150	5,5x
Business Services	Intel	Mobileye	Mar. 17	15 300	34,5 %	175	30,2x
Business Services	Wood Group	Amec	Mar. 17	2 200	29,0 %	110	5,8x
Consumer & Retail	AB InBev	SAB Miller	Jan. 16	107 000	30,0 %	1 400	22,9x
Consumer & Retail	Walgreens Boots	Rite Aid	Oct. 15	17 200	48,0 %	1 000	8,3x
Consumer & Retail	Reckitt Benckiser	Mead Johnson	Feb. 17	16 600	30,0 %	250	19,9x
Energies & Utilities	Tesla	Solar City	Aug. 16	2 600	35,0 %	150	6,1x
Energies & Utilities	GE	Alstom Power & Grid	May 14	16 900	25,0 %	1 200	3,5x
Energies & Utilities	Sneider Electric	Invensys	Jan. 14	3 900	14,0 %	160	3,4x
High Technology	Medtronic	Covidien	Jan. 15	42 900	29,0 %	850	14,6x
High Technology	Avago Technologies	Broadcom	May 15	37 000	25,0 %	750	12,3x
Industrials & Chemicals	Bayer	Monsanto	June 16	62 000	37,0 %	1 500	15,3x
Industrials & Chemicals	Air Liquide	Air Gas	Nov. 15	13 400	20,3 %	300	9,1x
Industrials & Chemicals	Johnson Controls	Tyco International	Jan. 16	16 200	30,0 %	650	7,5x
Industrials & Chemicals	Danaher	Pall	June 16	13 800	28,0 %	300	12,9x
Industrials & Chemicals	Safran	Zodiac Aerospace	Jan. 17	9 700	26,4 %	200	12,8x
Industrials & Chemicals	Rockwell Collins	B/E Aerospace	Oct. 16	8 300	22,5 %	160	11,7x
Industrials & Chemicals	Alaska Air Group	Virgin America	Apr. 16	4 000	47,0 %	225	8,4x
Media & Telecoms	Altice	Cablevision	Sep. 15	17 700	22,0 %	900	4,3x
Media & Telecoms	Orange	Jazztel	May 15	3 400	34,0 %	160	7,2x
Media & Telecoms	Vodafone	Ono	Mar. 14	7 200	30,0 %	240	9,0x
Media & Telecoms	AT&T	Time Warner	Oct. 16	85 400	35,0 %	1 000	29,9x
Media & Telecoms	AT&T	Direct TV	July 15	48 500	10,0 %	2 500	1,9x
Media & Telecoms	Liberty Global	Ziggo	Jan. 14	10 000	22,0 %	160	13,8x
Oil & Gas	Shell	BG Group	Apr. 15	47 000	52,0 %	2 500	9,8x
Oil & Gas	Energy Transfer	Regency Energy	Jan. 15	16 500	15,0 %	225	11,0x
Oil & Gas	Halliburton	Baker Hughes	Nov. 14	38 000	41,0 %	2 000	7,8x
Oil & Gas	Schlumberger	Cameron	Aug. 15	14 800	37,0 %	600	9,1x
Oil & Gas	Repsol	Talisman	Dec. 14	8 300	60,0 %	220	22,6x
Pharma & Healthcare	Pfizer	Hospira	Feb. 15	17 000	39,0 %	800	8,3x
Pharma & Healthcare	Becton Dickinson	Care Fusion	Oct. 14	12 200	26,0 %	250	12,7x
Pharma & Healthcare	Anthem	Cigna	June 15	54 200	35,4 %	2 000	9,6x
Pharma & Healthcare	Shire	Baxalta	July 15	32 000	36,0 %	500	23,0x
Min.				1 600	10,0 %	110	1,9x
Average				22 289	30,6 %	656	11,1x
Max.				107 000	60,0 %	2 500	30,2x