

POLITECNICO DI MILANO

Scuola di Ingegneria dei Sistemi



POLO TERRITORIALE DI COMO

Master of Science in Management Engineering

**Performance Management System and Enterprise Risk
Management: the case of Investment Banking industry**

Supervisor: Prof. Michela Arnaboldi

Master graduation thesis by: Victor Nogueira dos Santos

Student Id. number 779962

Academic Year 2012/13

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Acknowledgements

Firstly, I would like to thank all my family, which was always with me, even with an ocean between us. Especially my parents and my sister, for the continuous support; and my uncle, for his pieces of advice during the development of this work.

I cannot even describe how I am thankful to my grandfather, who learned how to use a computer after eight decades of life so we could always be together. Our chats were a source of joy and happiness for my days here.

I would also like to thank my friends; the ones from Brazil for two amazing decades together; and the ones that I had the pleasure to meet in these past two years, who opened my mind to new cultures and turned these moments into an unforgettable experience.

I would like to express my gratitude for two institutions: Politecnico di Milano and Escola Politécnica da USP, which provided me this unique opportunity of the Double Degree, a lesson that went far beyond the classroom.

To Brazil, I am grateful for my education in these past six years and for shaping who I am. We have many things to improve in the future, but I am confident that we will do it, and I truly expect to contribute and make the difference in this process.

I would also like to thank all the people who collaborated for the development of this work. Especially the people interviewed in the banks. Without their cooperation this work would not be possible.

Finally, I am grateful for all my professors and their collaboration for my academic and personal development. In special to Prof. Michela Arnaboldi, for the opportunity to develop this work, a tough but enriching experience.

Abstract

The investment banks have operated in one of the most dynamic, fast-paced and challenging industries in the world. However, many scandals and management fiascos have scarred the investment banks' reputation in the past years. From the recent financial crisis, which impacted the whole world economy, to the JP Morgan trading loss, which cost the bank \$6.2 billion, the industry's executives have been questioned and challenged if they can control and manage these institutions. A possible solution for these problems might reside in better performance and risk management practices.

Thus, this work aims at analyzing the current Performance Management System and Enterprise Risk Management practices in the industry, developing a diagnostic of these systems, thereupon proposing improvements for them that can lead to better management practices. To sustain this analysis, two case studies were conducted, one in an Italian and the other in a Brazilian bank. The main findings are the presence of developed risk management systems, especially in the quantitative metrics; and performance systems strongly focused on financial metrics, which provide many opportunities for improvements in this area and for the decision making process of these institutions.

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AUM	Assets Under Management
BIS	Bank for International Settlements
BSC	Balanced Scorecard
CEO	Chief Executive Officer
CFO	Chief Financial Officer
COSO	Committee of Sponsoring Organizations of the Treadway Commission
CRD	Capital Requirements Directive
ERM	Enterprise Risk Management
FDIC	Federal Deposit Insurance Corporation
FICC	Fixed Income, Currencies, and Commodities
IPO	Initial Public Offering
IRC	Incremental Risk Charge
IT	Information Technology
KPI	Key Performance Indicator
KRI	Key Risk Indicator
KSF	Key Success Factor
LIBOR	London Interbank Offered Rate
M&A	Merger & Acquisition
P&L	Profit & Loss
PMS	Performance Management System
ROE	Return on Equity
SEC	Securities and Exchange Commission
TSS	Treasury and Security Services
U.K.	United Kingdom
U.S.	United States of America
VaR	Value at Risk

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Introduction

“Unprecedented floods may occur once a century, but in investment banking the cycle seems a bit shorter – perhaps once every four years” (Davis, 2003, p. 82). The investment bank business has been characterized as one of the most dynamic, fast-paced and challenging industries in the world, but the growing number of crises and issues has put the industry under public and political scrutiny. During the past years, investment banks were in the center of many scandals, from the conflicts of interest denounced by the Global Research Settlement in 2003, which cost the industry approximately \$1.4 billion (FT, 2006), to the recent financial crisis, whose consequences are still being felt by the whole world. Moreover, there are the recent management fiascos, like the 2012 JP Morgan trading loss of \$6.2 billion (FT, 2013a) and the LIBOR manipulation scandal involving many banks operating in the United Kingdom (FT, 2013b). These are just some of the recent headlines that stained the investment banking reputation.

The objective of this work is to analyze the current Performance Management System (PMS) and Enterprise Risk Management (ERM) practices in the investment bank industry, developing a diagnostic of these systems, thereupon proposing improvements that can contribute for better management practices, which can impact and decrease these control problems faced by the institutions.

The work starts with a literature review regarding the central topics of this study: the investment banks, PMS, and ERM, providing the theoretical base for the analysis. Then a framework is presented, it was based on Ferreira & Otley's (2009) proposal and adapted to the particularities of investment banks, resulting in twelve central questions for posterior investigation. The next section is a description of the methodology applied in the two case studies, in which interviews were conducted with one Italian and one Brazilian bank. Then, the results of the cases are presented and discussed. The last section brings the conclusion of the work.

The main findings of this study are: the presence of a developed ERM system, especially in the quantitative metrics, but highly influenced by regulatory requirements, which have opportunities for improvement in the operational and qualitative perspective; and PMS

strongly focused on financial metrics, with a stunted link between strategy and key performance indicators, which constrains the full development of the performance management practices, but also provides opportunities for improvements in these systems and in the decision making process.

1. Literature review

To achieve the objectives mentioned above, this project reviews the literature in three main areas: the investment banking business, performance management systems and enterprise risk management. It is also presented the literature which analyzes the intersection among these topics.

The investment banking section presents the key characteristics of the players in the industry, the business environment and regulation. The performance management system section presents the concepts, goes into the aspects related to its design and usage, plus its intersection with investment banks. The enterprise risk management section presents the concepts and its issues, plus its intersection with investment banks. Finally, the last section explores the literature regarding the integration between PMS and ERM.

1.1 Investment Banks

Investment banks can be explained in their essence as the activity of “mediating the flow of assets between issuers and investors” (Eccles & Crane, 1988, p. 38).

The relevance of the investment banks for the financial systems is explained by Sirri (2004) as investment banks provide five out of the six basic functions from the framework proposed by (Froot, et al., 1995) for the well-function of the financial system. The functions provided are:

1. Pooling resources and subdividing shares;
2. Transferring resources across space and time;
3. Providing mechanisms to manage risk;

4. Providing information to coordinate decentralized decision making in the economy; and
5. Providing mechanism to solve problems of asymmetric information, agency problems and incentives.

Investment banks have operated in one of the most fast-paced, challenging and highly regulated industries in the world (Accenture, 2012b). The evolution to achieve this complex environment and the recent failures during the financial crisis are described by Stowell (2013, p. 3):

Investment banking changed dramatically during the 20-year period preceding the global financial crisis that started during mid-2007, as market forces pushed banks from their traditional low-risk role of advising and intermediating to a position of taking considerable risk for their own account and on behalf of clients. This high level of risk-taking, combined with high leverage, transformed the industry during 2008, when several major firms failed, huge trading losses were recorded and all large firms were forced to reorganize their business.

Globalization is a shaping force in the industry; as global capital markets are more connected and as information technology and greater cooperation among financial regulators enable a larger sum of money to move across countries integrating the international finance network and requiring banks to provide a world-wide platform (Liaw, 2011).

The industry is characterized by the presence of big world-wide players, the global investment banks, with total assets near \$1 trillion each. Aside from these global investment banks, there are also some smaller local players (Boot & Marinč, 2008), which in some countries have a bigger market share than the global ones (Stowell, 2013).

There are also the so called boutique firms, small firms that engage in some business of investment banks. They usually focus on one or a small combination of business like M&A activity, financial advisory, small asset management, and limited amount of proprietary trading (Liaw, 2011; Stowell, 2013).

The financial crisis has put corporate and bank risk-taking under political focus and public scrutiny (Cooper & Uzun, 2012). After the financial crisis the investment banking

business has been pressured by three main forces: the increased expectations, the unprecedented market pressures, and long-term global shifts (Accenture, 2012a).

The expectations are expressed by three main stakeholders:

1. Regulators, demanding new capital and liquidity regimes;
2. Shareholders, demanding the reduction on the cost base, higher transparency and corporate governance, but also the maintenance of “supernatural” returns which characterized the industry; and
3. Clients, demanding a high-value service business through a simple and unbiased service.

The market pressures are straining in three fronts:

1. Economic conditions, through uncertainty conditions over the sovereign debt crisis and disparity on the growth rates around the globe;
2. Political climate, through an anti-banking sentiment in many countries which can lead to an unnecessary and dangerous overregulation; and
3. Technological change, through an increasingly monopolistic infrastructure environment (Accenture, 2012a).

And the long-term global shifts regard the changes in consumer behavior via substantial demographic shifts, a recalibration of the corporate landscape via the rise of emerging markets corporations as global players, and geo-political shifts which impact how business is conducted internationally (Accenture, 2012a).

Regarding the expected business models to be presented after the crisis, an Accenture (2012a) studied proposed five different tactics to exploit opportunities beyond the short-term concerns, they are:

1. Flow monster, offering a commoditized product portfolio, focusing on the processing of huge trading flows backed by tight spreads, serving sophisticated institutional investors via developed capital markets;

2. Regional champion, focusing on a determined region, attending a loyal clients' base, and effectively cross-selling products, focusing on long-term relationships;
3. Product specialist, focusing on a determined product portfolio, being recognized by the market as the specialists in an specific area, developing a market identity;
4. Primary markets powerhouse, focusing on the development of customized and infrequent products and deals. The model is backed by specialist talent, sector-specific expertise and brand awareness; and
5. Risk master, focusing on risk taking and managing practices. This strategy is influenced by new regulations, but might provide big opportunities for banks that can effectively control its risks and demonstrate this capability to the market, clients and regulators.

In the next sections it is presented a deeper study in the business areas and their characteristics, some aspects of the investment banks' culture and the industry regulation, which has played a major role in determining the banks characteristics and business.

1.1.1 Business areas

According to Stowell (2013), it is common that different banks present slight different structures, but the core structure of most large investment banks consists of:

1. Investment banking business, managed by the investment banking division, focused on capital raising and mergers and acquisitions for corporate clients, and capital raising for government clients;
2. Sales and trading business, managed by the trading division, that offers "investing, intermediating, and risk management services to institutional investors, research, and also participate in non-client related investing activities" (Stowell, 2013, p. 7); and
3. Asset management business, managed by the asset management division, which the core activity is to manage money for institutional investors and individuals.

Some investment banks provide additional services like Treasury and Security Services (TSS), advising clients (e.g. companies and governments) on topics like working capital management, security landing, custody, and fund accounting. This is a low risk business

model presenting consistent fees, which has been capturing the attention of some players (Stowell, 2013).

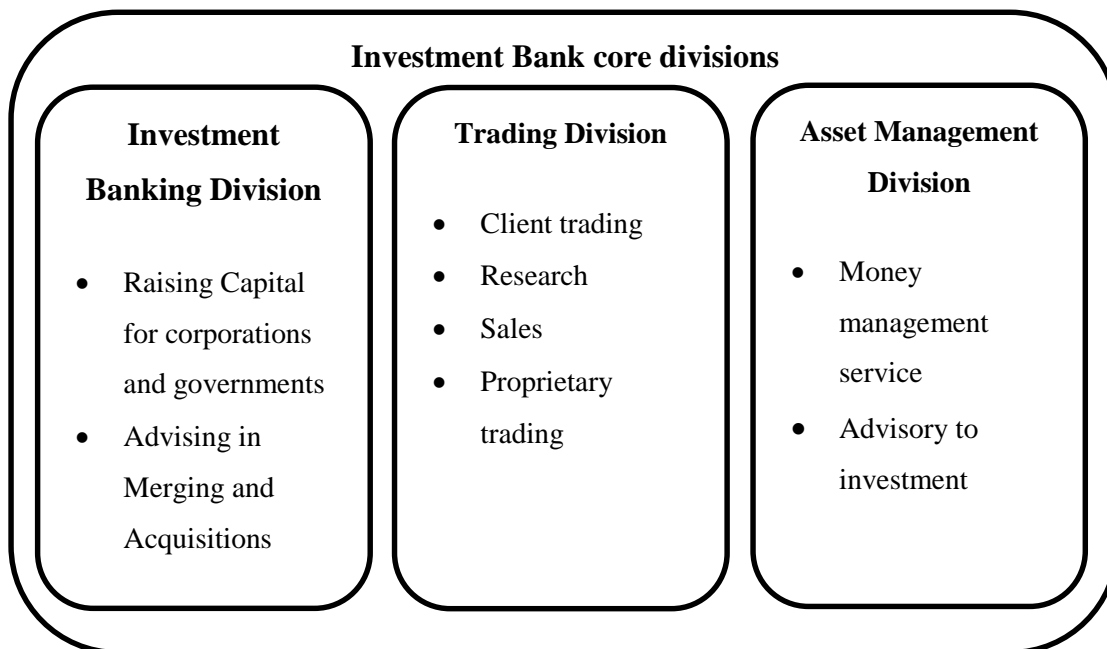


Figure 1: Investment Bank core divisions

The Investment Banking Division is responsible for working with corporations which is looking for:

1. Capital raising through capital markets;
2. Risk-manage the existing capital; and
3. M&A transactions (Stowell, 2013).

Investment banks play a key role for the well-functioning of the capital raising process (Ellis, et al., 2011). In some firms the Investment Banking Division might also provide direct investments in both equity and debt and loans for corporate clients.

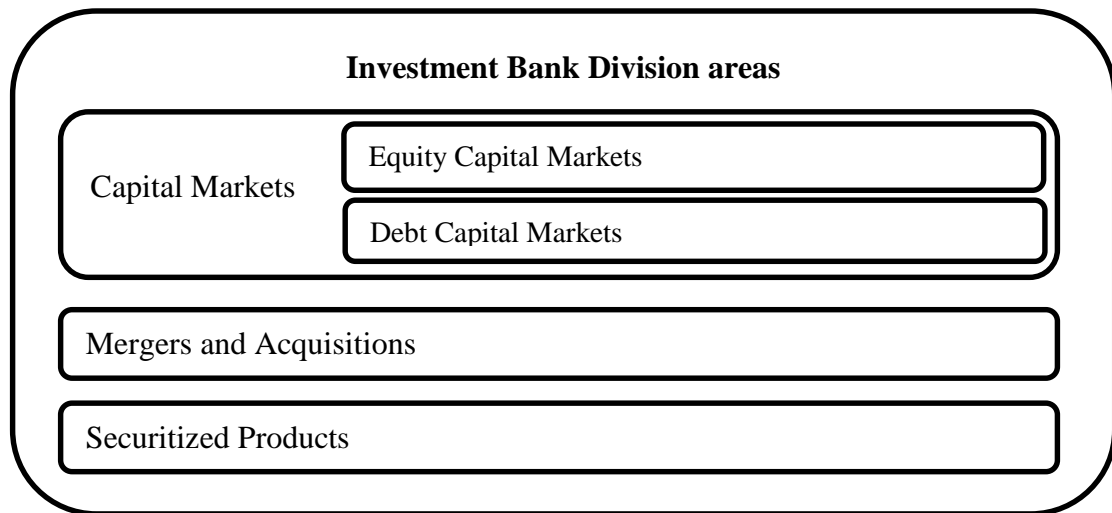


Figure 2: Investment Bank Division core areas

Capital Markets area operates in capital raising determining price, time, and other aspects and details of transactions. It collaborates with the Trading division, especially with the sales area, which is responsible to manage the products and offers to investors. Inside the Capital Markets there are two main areas: Equity Capital Markets and Debt Capital Markets (Stowell, 2013).

Equity Capital Markets are specialized in:

1. Common stock issuance, as initial public offerings, follow-on offerings, secondary offers and private placements;
2. Convertible securities, as bonds and preferred share offering, and
3. Equity derivatives, as options and forward contracts, enabling companies to raise or retire equity capital and hedge equity risks.

Debt Capital Markets main activity is to articulate debt financing for government and corporate clients. The activity goes through, together with the client, the determination of “timing, maturity, size, covenants, call features, and other aspects of a debt financing. Of critical importance is [the] determination of the likely impact that a new debt offering

will have on the company's credit ratings and investor reaction to a potential offering” (Stowell, 2013, p. 15).

Usually the investment banks underwrite the capital markets financing (equity and/or debt), which is a risky business as the banks buy the securities from an issuer and then sell them to investors (Liaw, 2011). The spread between the buying and selling price, represents the gross spread, which is the compensation the banks receive for underwriting the distribution and bear certain legal risks (Fleuriet, 2008). The underwriting process can happen in two forms:

1. Best-efforts basis, in which the issuer bears the security price risk; and
2. Bough-deal (firm- commitment basis), in which the bank bears the security price risk. Sometimes, banks are forced to accept these deals due to a competitive environment (Stowell, 2013).

The gross spread can be broken down into three main fees:

1. Management fee, compensating the work of preparing the offer;
2. Underwriting fee, compensating the underwriting risk; and
3. Selling concession, compensating the selling efforts (Stowell, 2013).

As the underwriting process is usually backed by more than one bank, the fees mentioned above shared among the banks according to their participation in the processes (Fleuriet, 2008).

According to Stowell (2013) the Merger and Acquisition area is responsible for the coordination of:

1. Sell-side transactions, including the sale or merger of a company or the disposal of a division or a business unit;
2. Buy-side transactions, including the purchase of a company or a division;
3. Restructuring (reorganization), focusing on carving out business units of a company to unleash shareholder value, changing a company's capital structure to avoid bankruptcy or preparing for a sell-side transaction; and

4. Advisory in hostile acquisition defense's strategies.

The revenue stream in the area is usually a fee paid for the successful transactions, however for the buy side, defense advisory and restructuring a retainer fee is also collected (Fleuriet, 2008).

The Securitized Products area is responsible for the structuring, underwriting, and trading activities in the collateralized securities markets. It makes active markets and takes proprietary positions in many products like asset-backed, residential mortgage-backed, commercial-backed, and collateralized debt obligation securities in both the cash and synthetic markets (Morgan Staley, 2013).

The Trading Division is composed by three main areas: Trading, Sales and Research areas. They work in synchrony; the Research area develops opinions and recommendations in securities and markets over the globe; the Sales area is responsible for marketing these recommendations as well as to manage the relationship with investors; and the Trading area is responsible for pricing products, holding inventories as risk positioning for the execution of the trades demanded by the clients, and trade through principal investments (Fleuriet, 2008).

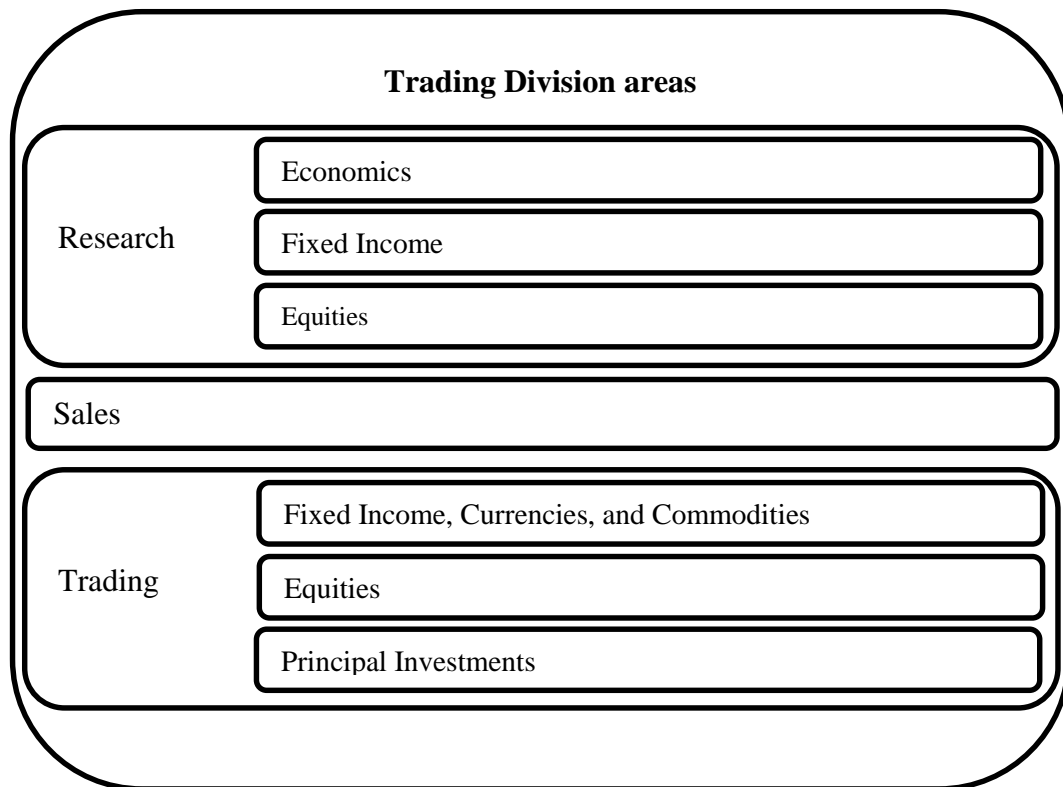


Figure 3: Trading Division areas

According to (Rosenbaum & Pearl, 2009), the Trading area traditionally operates in three different areas:

1. Fixed Income, Currencies, and Commodities (FICC), which trades and makes market in corporate and government bonds, mortgage-related securities, asset-backed securities, currencies, and commodities and derivatives from the previous products. The area also engages in proprietary trading;
2. Equities, which trades and makes market in equity and equity derivatives. The area also engages in proprietary trading; and
3. Principal investments.

The Research area provides analysis on major investment themes, as economics, fixed income and equities (Stowell, 2013). Usually the research is a complementary service that banks offer to their clients, with its revenues coming indirectly from the trading fee; however some firms might offer the research service on a direct payment basis (Fleuriet, 2008). The reduction in the past years in the size of this area (sell-side research) inside

the investment banks is due to the expansion by some buy-side investors in its in-house research and their worries about the sell-side bias (Stowell, 2013).

According to Sirri (2004) there are unavoidable conflicts of interest emerging in the Research area, as research analysts, looking for the fair value of their covered companies, might give sell recommendation for companies which can be also client of other areas, like the investment banking division, generating friction between the analyst's recommendations and the client's interest.

The Sales area is responsible to manage the bank relationship with its clients (institutional investors); it markets trading ideas, brings prices from traders to investors, facilitating the purchase process (Stowell, 2013), and in coordination with the Research area, it organizes events (e.g. meetings and conferences) to gather investors, analysts and companies' executives (e.g. CEO, CFO and directors).

A service that might be offered by some banks through the Trading Division is the Prime Brokerage, in which the bank offers to its clients services like securities lending, cash lending, trading clearing, custody and settlement, as well as assistance for performance measurement and reporting (Fleuriet, 2008).

Additionally to the main business of intermediation developed by the investment banks, large institutions have historically developed the business of investing in securities and real estate through co-investment with its clients or direct investments (Stowell, 2013). This activity, called principal investment, was in its major part restricted due to the regulation followed the financial crisis. For instance, U.S. regulation, the Dodd-Frank Act bars investment banks to run principal investments through funds, and requires to these investments be limited to direct investment only. Investment banks can provide seeds to funds, but they are limited by 3% of the funds size after one year. Moreover, investment banks cannot compromise more than 3% of their Tier 1 Capital in these investments on funds.

Farther to the principal investment activities, investment banks also develop non-client related activities through the so-called proprietary trading. Proprietary trading is the

activity of the short-term investment in commodities, currencies, derivatives, equities, and other securities, an activity similar to the hedge fund business (Stowell, 2013).

The proprietary trading was an important source of income for the banks during the first years of the XXI century (Rosenbaum & Pearl, 2009), however this activity generated huge losses for almost all the banks during the financial crisis. For instance, according to Stowell (2013, p. 18) “during the four-quarter period ending in April 2008, investment banks suffered over \$230 billion in proprietary trading losses”. The future of proprietary trading is dramatically changing as the Dodd-Frank Act, limited this activity for the investment banks¹.

The revenue streams of the Trading Division are the commissions from executing and clearing client transactions, the earning spreads on financing and lending activities, and the earnings from the proprietary trading (Stowell, 2013).

The next division, Asset Management Division is responsible for the offering of investment services for institutional and individual clients (Stowell, 2013).

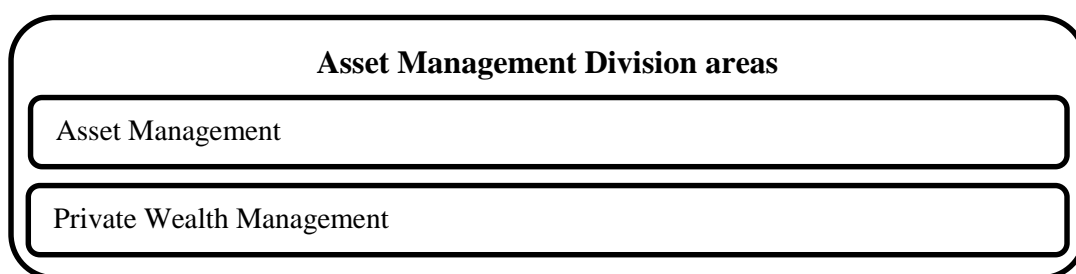


Figure 4: Asset Management Division core areas

The Asset Management area offers equity, fixed income, alternative investments like private equity, hedge funds, real state, currencies, and commodities, and additional money market investment products. These investments are offered through private investment funds and mutual funds, which might or not be under the bank’s own investment and supervision (Fleuriet, 2008).

¹ More regulation and the Dodd-Frank Act will be approached in the following topics

Most firms, under the Asset Management division, have the Private Wealth Management are, which is dedicated to high-net-worth individuals, families and foundations, offering advisory on where to allocate the resources (Stowell, 2013).

The revenue stream for the division is the fee that clients pay as percentage of the assets under management (AUM), and depending on the product there is also a performance fee, which is a percentage of the excess returns compared to a benchmark (Fleuriet, 2008).

Regarding the cost perspective in all the divisions, the literature does not provide how its ratios and main drivers for each of the business areas. Nevertheless, Davis (2003), analyzing the overall business, described the difficulties to manage the costs in a volatile and market-driven business. According to the author, this difficulty is leveraged as the main cost category is human capital. The benchmark compensation-cost per net revenue in the industry is around 50%. Another important cost driver is the spending in information technology and its required infrastructure, which accounts for approximately 15% of the total costs (Davis, 2003).

To manage costs through economic cycles, investment banks use a considerable inflow and outflow of employees to adjust their cost base, Davis (2003, p. 103) questioned “is such volatility in the human resource base a major issue? Does one destroy a firm’s culture?”

1.1.2 Culture

Regarding the culture perspective of the industry, Davis (2003, p. 46) started analyzing the employees’ profile. According to the author the employees are characterized as “highly ambitious, intense individuals with a high degree of self-confidence and commitment to achieve the best”. The author argued the importance of developing a culture to channel all these egos into the firm’s objectives. Another important perspective on the culture is the development of relationship networks, as many products are sold and dealt in the basis of trust.

Davis (2003) also argued that the culture might become irrelevant in the industry as a huge number of employees work in many different players through their careers simply

experiencing the same environments. This fact is also reinforced as it is common for the different banks the “same” customer-focus strategy, leading to the lack of differentiation and uniqueness among the players.

A main topic discussed in the culture perspective is the key role the variable compensation, the bonus, has in shaping employees’ behavior (Williams, et al., 2008). This compensation usually is short-term focused and stimulates asymmetric and excessive risk-taking (Cooper & Uzun, 2012), as employees gain the upside but are not penalized for the downside, and the bill goes to the shareholders or the society (Holland, 2010). On the flip side, Davis (2003) argued that compensation is the key channel to attract, to motivate and to retain the unique human skills which are the linchpin of the business model.

1.1.3 Regulation

Due to its impact the global economy, and the smooth functioning of capital markets, the activities of investment banks has been subject to an expressive number of government regulations (Stowell, 2013). The regulatory agencies seek to maintain a safe and sound banking system, which implies an aversion to risk by the banks (Cooper & Uzun, 2012).

As governments around the globe react according to their own requirements, the regulation that investment banks need to obey is defined in a local level, “banks must now respond to multiple regulatory regimes in multiple jurisdictions” (Accenture, 2012b, p. 8). Moreover, the firms must be able to comprehend and exploit the possibilities of the countries where they operate.

In this section it will be presented a historical perspective of the regulatory acts in the U.S. as it hosts the biggest capital markets in the world as well as it is the base country for the majority of the big investment banks. Further it is presented the main topics regarding the Basel rules, which is a major force shaping the international banking regulation and setting standards.

In the U.S., the first three decades of the XX century presented an environment of strong demand for securities, strong competition between banks and poor regulation. In short,

the regulation was mainly through states securities laws, the so-called “Blue Sky” laws. They required, for a security offered in the state, the obtention of a permission from the state’s Bank Commissioner. All the existing US states, but-Nevada, had a similar regulations (Stowell, 2013).

The lack of specific regulation changed after the October 28th 1929, when the Black Monday started the worst depression ever seen in the United States of America. At that time, the president Herbert Hoover didn’t promote major changes, but his successor, Franklin Roosevelt, was active in the development of the regulation for the banking world, three of them the 1933 Securities Act, the 1933 Glass-Steagall Act, and the 1934 Securities Exchange Act shaped the financial system for the rest of the XX century (Stowell, 2013).

The two objectives of the Security Act of 1933 were:

1. To require that investors receive financial and other significant information concerning securities being offered for public sale; and
2. To prohibit deceit, misrepresentations, and other frauds in the sales of securities (Stowell, 2013).

This act forced investment banks to disclose more information when they were participating in the distribution of a security in order to provide equality in the information for different investors. There were four main sections that impacted the investment banking division activity, they were:

1. To submit a registration statement to the SEC;
2. To provide an investment prospectus to potential investors;
3. To assume civil and criminal liability for the disclosure material; and
4. To determine a post-filing waiting period before selling securities to the public.

The Banking Act of 1933, also known as the Glass-Steagall Act “was a large piece of regulation that, among other things, separated commercial and investment banks and created the Federal Deposit Insurance Corporation (FDIC), which insured depositors’ assets in the event of a bank’s default” (Stowell, 2013, p. 28). The act had a major impact

in the investment banking business operations, structures and revenues streams as both private and commercial banks were separated from the investment banking business (Alcidi & Gros, 2011) changing how the industry developed itself through the XX century. This act was overcome by the Gramm-Leach-Bliley Act in 1999, but its outcomes were one of the main responsible for the shape of the financial world in the past decades (Stowell, 2013).

The Securities Exchange Act of 1934, also known as Exchange Act, was the responsible for the creation of the Securities and Exchange Commission (SEC) that supervises capital markets and investment banks in the USA. The Act created standards for new security offerings, for the reporting of the existing ones and created a code of conduct for the exchanges.

The following years had little new regulatory standards, in 1940, the Investment Company Act defined what constitutes an investment company, and defined the different functions of investment banks and investment companies like mutual funds (Stowell, 2013).

The regulatory landscape for investment banks started to change in 1999, when Gramm-Leach-Bliley Act, also known as Financial Services Modernization Act, allowed the re-integration of the commercial and investment activities of the banks (Alcidi & Gros, 2011). The rationale was that the creation of the universal banks, which integrate the commercial and investment businesses, resulting in savings from economies of scale and offering a more stable business model even in different economic environments. A consequence of this act was that from 2001 to 2006, five large U.S. investment banks became universal banks, offering commercial and investment banking services (Holland, 2010).

The next regulatory change started in 2002, by the Sarbanes-Oxley Act. It impacted all the business as it hardened the internal monitoring, the gatekeeper regulation, the regulation of insider misconduct, the requirement of more disclosure and regulated the securities analysts' activities (Ribstein, 2005). The act created rules to enforce the independence of research analysts' opinion from the investment banking division

activities, separating the equities analysts activities and compensation from underwriting activities; and strengthen the due diligence requirements. The impact in the overall businesses was mainly regarding changes in accounting rules, the independency from outside auditors, top executives responsibilities, and the disclosure of off-balance sheet transactions (Stowell, 2013).

In 2003, the SEC through Regulation Analyst Certification, the Regulation AC, required research analysts to make disclosures on their research report, ensuring the views there expressed are from themselves (Gittleman & Sacks, 2008).

According to Gittleman & Sacks (2008, p. 28), through this last change, investment banks “were instructed by regulatory authorities that certain ways of doing business were no longer acceptable, and major institutional change was dictated by regulators”.

The last U.S. piece of legislation was signed in 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act, as the political response (Krainer, 2012) and the main regulatory consequence of the financial crisis. The Act “aimed at regulating the unregulated, protecting the consumer, and reversing the perverse incentives that guided the actions of subprime lenders and investors, credit rating agencies, market-based financial intermediaries, and others” (Khademian, 2011, p. 841).

The act contains 2319 pages, 16 provisions and the Volker rule, its main focus are protecting consumers, ending “too big to fail” bailouts, coordinating the various regulatory agencies, identifying and avoiding systemic risk, bringing transparency for complex financial products and executive compensation (Krainer, 2012). The main topics regarding the investment banking business are:

1. Financial firms which work with securitization must retain in its portfolio and unhedge at least 5% of each debt tranche they create;
2. The Securities and Exchange Commission and the Commodities Futures Trading Commission are now responsible for the over-the-counter market regulation, demanding higher transparency threshold;

3. Prohibition of the proprietary trading, and prohibition to be the principal investor in either hedge or private equity funds, this specific piece of regulation is known as Volker rule; and
4. The Act enables preemptive liquidation of a financial institution if it poses substantial systemic risk.

The Basel III agreement is the latest global regulatory agreement to set standards for the banking industry in the whole world. Its reforms are built upon the regulatory framework proposed by the Basel II and Basel 2.5 (BIS, 2012). It is developed by the members of the Basel Committee on Banking Supervision and its implementation depends on local governments.

According to the Bank for International Settlements, BIS (2010, p. 1), “the objective of the reforms[, Basel III,] is to improve the banking sector’s ability to absorb shocks arising from financial and economic stress, whatever the source, thus reducing the risk of spillover from the financial sector to the real economy”.

Even though the full implementation of the Basel III rules is to the end-2018, there are some steps to be taken on the way and investors should anticipate the regulation, and penalize the banks which fail on the implementation of such requirements (Allen, et al., 2012).

The main impact for the investment banks regarding this upcoming regulation is:

1. Common Equity Tier 1 will be at least 4.5% of risk-weighted assets at all times (BIS, 2010);
2. Tier 1 Capital will be at least 6.0% of risk-weighted assets at all times (BIS, 2010);
3. Total Capital (Tier 1 Capital plus Tier 2 Capital) will be at least 8.0% of risk-weighted assets at all times (BIS, 2010);
4. “Banks will have to hold a capital conservation buffer of 2.5%, in the form of common equity. It can be drawn on in times of stress, but if it is drawn on, the bank's ability to distribute earnings will be constrained” (Allen, et al., 2012, p. 160);

5. Banks will also have to hold a countercyclical buffer in common equity of up to 2.5% at the discretion of national regulators, with the intention of protecting the banking sector from periods of excess credit growth (Allen, et al., 2012, p. 160); and
6. Banks considered ‘too big to fail’ are “likely to be subject to additional capital requirements which are yet to be announced” (Allen, et al., 2012, p. 160).

According to Paulet (2011), the Basel III requirements are consequences of the Central Banks’ need to force banking institutions to be overcapitalized, assuming their part of the losses in times of crisis.

It is worth to notice the cause-consequence relationship between industry issues and new regulations. From the “Glass-Steagall Act”, which aimed to prevent the issues that led to the 1929 stock market crash, to the recent “Basel III” requirements and “Dodd-Frank Wall Street Reform and Consumer Protection Act”, which was mainly a response to the financial crisis; all regulations aimed to put constraints and especially to control the industry aggressive instinct to grow, which sometimes is unsustainable and lacks on long-term vision.

This regulatory control, which is subject to external interferences from non-core objectives, like political pressure with electioneering aims, might bring to investment banks a reactive control systems, not related to their objectives and focused on past issues.

1.2 Performance Management Systems

Every year, companies face a more turbulent environment, with increasing sustainability concerns, the complexity of global networks, the needs to do business in different countries and cultures, an increasing competition and a blurry future visibility (Cifuentes, 2012; Kaplan & Norton, 1992; Keegan, et al., 1989; Neely, 1999; De Toni & Tonchia, 2001).

In this reality, Eccles (1991) had already stated that business needs new strategies, and competitive realities demand new measurement systems. This is the context that in the past two decades an increasingly amount of literature regarding PMS emerged, trying to provide answers and frameworks for business to succeed in this new era (Taticchi, et al., 2010). According to (Neely, 2002), an article regarding PMS was published every five hours of working days since 1994.

Neely (1999) suggested that this is an era of performance management due to seven main reasons:

1. Changing nature of work;
2. Increasing competition;
3. Specific improvement initiatives;
4. National and international awards;
5. Changing organizational roles;
6. Changing external demands (e.g. regulators and other stakeholders); and
7. The power of information technology.

These are the external drivers which increased the complexity of business management and the PMS should embrace and decipher the company environment in all its dimensions (Keegan, et al., 1989). Moreover, the PMS gives managers a way of ensuring that all levels of the organization understand the long-term strategy and that both departmental and individual objectives are aligned with it (Kaplan & Norton, 1996). Also, hidden values of PMS are clarifying the strategy, communicating the strategy and challenging basic assumptions of the strategy (Neely & Al Najjar, 2006).

Thus, PMS can be defined as “a set mechanisms and process used by an organization to identify key objectives and supporting the implementation of action, planning, measurement, control, rewarding and learning” (Agostino & Arnaboldi, 2012, p. 327).

According to studies conducted in 1996, companies using integrated balanced PMS outperform (Lingle & Schiemann, 1996) and have superior stock prices (Gates, 1999) to the companies that are not “measured managed”.

In the following sections it is presented some important topics addressed in the literature regarding PMS like its evolution, classifications, strategy maps, implementation, the motivational feature, possible problems and the literature regarding PMS and investment banks.

1.2.1 Evolution

The usage of systems to manage companies dates back to the beginning of the XX century. Chandler (1977) stated that in 1910 Du Pont was employing nearly all the basic methods that were, at his time, used in managing big business. Also in 1951 Ralph Cordiner, the CEO of GE commissioned a high-level task force to identify key performance measures (Eccles, 1991) due to the dissatisfaction from the usage of only financial measures. Peter Drucker in his 1954 *The Practice of Management* already suggested the introduction of balanced sets of measures to manage business (Neely, 2005).

The big attention to the PMS started in the late 80's beginning of the 90's, when academics and practitioners have begun to demonstrate that accrual-based performance measures were at best obsolete, and more often harmful (Eccles, 1991). Also a study conducted by Hayes and Abernathy in 1980 demonstrated that PMSs in the U.K. and U.S. companies were financial biased, and designed for external accountability, not for management (Bourne, et al., 2000).

In 1988-1989 Cross and Lynch described a pyramid of measures for the integration of performance measurement through the hierarchy of the organization (Bourne, et al., 2000).

It is important to highlight the critical role that information technology has played in making a performance measurement revolution possible (Eccles, 1991).

The cornerstones for the PMS were the year of 1992 and 1996, when Kaplan and Norton introduced the Balanced Scorecard (BSC) and then developed it as a strategic management system. In short, the Balanced Scorecard is a set of measures, derived from the company's strategy, which gives top managers a fast but comprehensive view of the

business. It includes financial measures that tell the results of actions already taken, and complements with operational measures on customer, internal processes, and company's innovation and growth that are drivers of future financial performance (Kaplan & Norton, 1992).

Others PMS models were introduced by different authors; and a key point of the upcoming literature was related to the analysis of the consequences of PMS and hypothesis linked to the BSC; as well as the evolution for more dynamic PMS as their boundaries were increasing, incorporating more and more complexities to the system. As defined by De Toni & Tonchia (2001) environmental factors demand the development of PMS which can deal with the environmental turbulence - related to the frequency and unpredictability of changes - and the managerial complexity - due to the passage from strategies based on cost-leadership to the ones grounded in differentiation or customization, increasing the completion and demanding more complex organizations.

Regarding the external environment, Bitici et al. (2006) defined that dynamic PMS should:

1. Continuously monitor the external environment;
2. Continuously monitor the internal environment signaling if minimum performance thresholds are reached;
3. Review if the information provided by the system is aligned with internal objectives and priorities; and
4. Unwind revised objectives and priorities to the whole system.

A key element to activate this performance management revolution was the debate over financial measures versus non-financial ones. Taticchi, et al. (2010) emphasize the evolution of PMS indicators from the financial perspective to a broader one with the inclusion of non-financial indicators. As stated by (Kaplan & Norton, 1996, p. 75) "competition based on information and companies' capabilities to exploit intangible assets have become far more decisive than to invest and manage physical assets". Traditional financial performance measures worked well for the industrial era, but they became out of date with the new environment companies have started to face, demanding

new skills and competencies (Kaplan & Norton, 1992). The misalignment between PMS and financial measures is explained by (Kaplan & Norton, 1993) as traditional financial measures were good on the report of what happened in the past, but the essence of PMS is the company's current and future success. As Tangen (2004) wrote, PMS has as one of its key goals the encouragement of proactive rather than reactive management.

More than measuring, the challenge for the PMSs introduced in the 90's was defined by Eccles (1991), when he said that track market share, quality and other financial measures is not the real value generator, but the value comes from the ability to give to these new measures the same status as the financial ones, determining strategy, driving behavior and establishing compensation.

1.2.2 Classifications

In this section will be explored some proposed classifications found in the literature for the PMSs.

According to De Toni & Tonchia (2001), five different models of PMS can be found in the literature, they are:

1. Strictly vertical models, focused on cost and non-cost indicators in different parts of the organizational hierarchy, until a final consolidation in economic-financial;
2. Balanced scorecards models, where different perspectives evaluate performances independently, whose links are defined only in a general way (Kaplan & Norton, 1996). Although, in the 1996 publication, Kaplan and Norton started the integration of the measures through vertical linkages;
3. The "frustum" models, in which the low-level measures are synthetized into more aggregated ones, although without a linkage from the non-cost performance into financial performance;
4. Models which considered the internal and external performances; and
5. Models regarding the value chain, considering internal relationships with customers and suppliers.

Another separation between the various types of PMS is the diagnostic models versus interactive ones. The diagnostic models set objectives, implement the defined plan, and after the gathering of the measures, correction actions are taken. This approach is called by Simons (1991) as management-by-exception, as top managers are part of the decision making just at the end of the process if results are not as expected. These models are characterized by the usage of financial metrics, lack of cascading process throughout the organization, explicit targets definition for the indicators, and no linkage to reward systems (Agostino & Arnaboldi, 2012).

On the flip side, interactive systems enable double loop learning (Argyris, 1977), as top executives are part of the process and are able to identify emerging strategies. This process is more interactive, requiring proactivity of executives and as consequence the PMS is not a reactive system but an active one. It is characterized by a good balance between financial and non-financial indicators, the cascading process, the set of implicit targets, and linkage to the reward system (Agostino & Arnaboldi, 2012).

1.2.3 Strategy Maps

According to Neely & Al Najjar (2006, p. 102) “Strategy Maps are cause-effect diagrams that seek to make explicit the links between different performance measures, effectively mapping the management team’s theory of how their organization operates”.

Kaplan & Norton (2000) justify the emergence of the Strategy Maps due to the increase importance of intangible assets and their potential to generate value. They notice a recurrent problem as the links between those assets and the value creation is commonly set aside, leading the organization to undervalue this assets’ potential. Thus, they argue that the Strategy Map emerged as the solution for this problem, explaining the cause-and-effect relationship between required inputs and the desired outputs, providing a clear and strong link among the indicators, and in the case of the Balanced Scorecard, from the learning and growth perspective to the value creation in the financial perspective - the bottom line (Kaplan & Norton, 2000).

Another argument made by Kaplan & Norton (2000) is that even though the formulation of great strategies is more related to art than science, the description and implementation

of the defined strategies should not be. Thus, Strategy Maps should provide tools to a more cohesive, integrated and systematic implementation of strategy, sometimes providing the evidence of gaps between strategy and implementation, opening space for corrective actions to be taken by executives.

The development of Strategy Maps happens from the top to the bottom of the company, understanding the long-term financial goals; what is the value proposition to be delivered to the company's customers; identifying the internal processes required to create and deliver that value proposition; and last but not least, defining the human, information and organization capital required to support all the previous steps (Kaplan & Norton, 2004).

Strategy Maps also help to identify if the Balanced Scorecard is truly focused on the company's strategy. Moreover, they provide employees with a visual relationship into how their activities are related to the company's strategy, increasing their motivation, and enabling the coordination toward the same goal (Kaplan & Norton, 2000).

1.2.4 Implementation

According to Bitici et al. (2006), an important factor regarding the implementation and the usage of PMS is the organizational culture and management styles as these two perspectives are highly related with the failure or success of the PMS implementation. They also note the reversal impact, as management styles and the organizational culture are reversely influenced by the PMS implementation. Moreover, they found out that successful implemented PMS can, through cultural change, positively impact the management style resulting in more participative and consultative manager.

An important factor determining a successful implementation of the PMS is the internal communication of the system through the whole organization. This process enables managers to inform the strategy up and down the organization, also linking it to departmental and individual objectives (Kaplan & Norton, 1996). Taticchi, et al. (2012) stated that the company should provide clear guidelines of the PMS to its employees; also should ensure the performance measures to be hierarchical, as well as integrated across business units (Keegan, et al., 1989), enabling the alignment of employees toward a common and shared strategy.

Regarding the communication of PMS to outside the company, Eccles (1991) argued that limits on the relevance of the nonfinancial measures will happen until investors treat them as serious as the financial ones. It is also argued that the disclosure of this metrics might lead the company to provide its competitors with confidential information (Eccles, 1991). Nevertheless, changes regarding the external communication can happen as senior management gains confidence in the ability of the PMS to monitor strategic performance and to predict future financial performance. The key point is to find the ways to inform outside investors without disclosing competitively sensitive information (Kaplan & Norton, 1996). Moreover, the communication to outside investors leads to an increased commitment and accountability to the business's long-term strategy (Kaplan & Norton, 1996).

1.2.5 Motivational feature

Performance measurement guides actions for good or bad (Keegan, et al., 1989). This short sentence represents one of the most powerful consequences of the PMS. Senior executives must understand that the introduction of the system strongly affects the behavior of managers and employees (Kaplan & Norton, 1992).

A successful PMS will positively affect employees' actions, motivating them to reach their individual goals, as well as revealing the links between their activities and the company overall strategy.

On the flip side, an error during the establishment of the PMS may lead to dysfunctional behavior of the employees, as well as sub-optimization of their activities, for instance, low goal settings may diminish the workers' motivation.

Berry et al. (2009) questioned if incentives should be formula-based, and consequently open to manipulation, or if they should incorporate uncontrollable factors, and consequently be opened to bias. According to them, one of the main issues in the design of the incentive system is the difficulty to foresee the behavior response to the system.

Accepting that the benefits of a well-designed PMS are higher than the drawbacks, the literature discusses if there should be a link between PMS results and employee's

compensation. Eccles (1991, p. 131) stated “what gets measured gets attention, particularly when rewards are tied to the measures”. Kaplan & Norton (1996) suggested the establishment of minimum threshold levels for a critical subset of the measures; individuals would earn no incentive compensation if in a given period the performance fell short in any threshold. Thus individuals would achieve a more balanced performance across short- and long-term objectives. They recognized that some companies, believing that tying financial compensation to performance is a powerful lever; even though it is also risky, assuming that if the company doesn’t have reliable data or the right individual metrics, it can backlash in the employee compensation resulting in demotivation and a sense of injustice (Kaplan & Norton, 1996).

1.2.6 Possible problems

Several problems might appear during the PMS life; according to Bourne et al. (2000) there are three main obstacles to a successful implementation and maintenance of the PMS. The first is the internal resistance to measure, the second is the information technology to enable the system and its right implementation, and the third is the lack of top management commitment especially during the design and the implementation of the PMS.

These obstacles were further analyzed by a case study conducted by Bourne et al. (2002), and they were broken down in seven main reasons for the failure of PMS implementation, they are:

1. Time and effort required;
2. Avoidance of personal exposition as the implementation of the PMS may reveal personal inefficiencies;
3. An expected lack of benefits from the PMS implementation;
4. Problems with data access and with information technology systems;
5. Lack of continued top management commitment;
6. No alignment between companies performance measures and the ones the parent company impose; and
7. Difficulties to implement the process.

Neely and Al Najjar (2006) also identified the functional silos as a possible constraint to a full development of the PMS, as well as to weak the links among indicators identified by the Strategy Maps.

During the implementation of PMS, Neely (2005) identified as a possible danger the obsession with performance measurement at the expense of performance management. Moreover, a common mistake in companies which failed to implement PMS is to not know what they expect to achieve with its implementation (McCunn, 1998). Thus, a clear objective for the system implementation results is a key guidance for the process. Neely et al. (1997) stated that the inappropriate design and implementation of PMS may result in dysfunctional behavior, encouraging individuals to take actions towards a misleading direction.

During the evolution and update stage of PMS the risks are associated with four main causes (Kennerley & Neely, 2003), they are:

1. The absence of a process of reflection for the updating of the system;
2. Lack of the necessary skills and human resources to support the process;
3. Inflexible systems able to adapt; and
4. Inappropriate culture, creating barriers for the change.

For the interpretation of the information provided by the PMS, Taticchi, et al. (2012) defined the “knowing-doing” gap, which is related to the difficulties to interpret the information from PMS and take actions based on that. This gap emerges due to the limited understanding of the cause-and-effect relationships.

1.2.7 PMS & investment banks

According to Wu, et al. (2009), a holistic evaluation model of performance linked with the corporate's goals is key to a bank's survival. The most successful organizations have as one of its common characteristics an effective method of performance measurement (PwC, 2009a, 2009b). However, researchers pointed out difficulties to evaluate banks performances due to the intangible nature of the industry's products and services (Wu, et al., 2009).

Moreover, most of the studies found in the literature regarding the PMS to evaluate banks' performance are only focused on financial factors (Kosmidou, et al., 2006), and the measures are biased to the external financial reporting (Hepworth, 1998). This strong relevance of the external reports has been a barrier for banks' long-term learning, innovation and planning (Davis & Albright, 2004).

Wu (2012) argued that a bigger emphasis on internal operational performance is mandatory, and the banks should reach success in the nonfinancial perspectives prior to the financial one.

For the studies regarding the implementation of PMS in banks, Hauser, et al. (1994) and Hemmer (1996) showed how the linkage among bonuses and non-financial measures can provide information which is not captured by the actual financial metrics for the managers' decision making. However, a study regarding the implementation of the Balanced Scorecard determining the bonuses in large banks resulted in a large unsuccessful, leading to the Balanced Scorecard abandonment (Ittner, et al., 2003). According Ittner et al. (2003), the lack of success might be the consequence of the lack of full implementation of the Balanced Scorecard proposed by Kaplan & Norton (1992, 1996).

Ittner, et al. (2003) found in their research that even though the implementation of PMS in financial services firms is not directly related to improvement in revenues and return on assets metrics, there is a strong correlation of the PMS implementation and the improvement in stock prices. The results were stronger when associated with a continuous usage of the system for a three years period and a broader usage of nonfinancial metrics.

Regarding the metrics used to measure the performance of investment banks, there is a gap in the literature analyzing the non-financial perspectives and the divisions together. Nevertheless, the analysis of each of the division enabled the identification of key metrics used in the industry. For instance in the Investment Banking Division the usage of league tables is a widespread practice among the player. League table is a ranking listing the banks by the sum of the deals done by an area (e.g. Debt, Equity, M&A) in a determined

region (e.g. Global, U.S., Europe, Latin America) in a determined time (e.g. year, quarter or semester) (Stowell, 2013).

Inside the Investment Banking Division there are many studies analyzing the performance of IPO (Clarke, et al., 2002) and M&A (Raghavendra Rau, 2000; Cartwright & Schoenberg, 2006; Bao & Edmans, 2011; Meglio & Risberg, 2011) but they all either assume the perspective of the client or they analyze the consequences of the IPO, thus they do not really analyze the work of the investment banks involved.

For the Asset Management Division the indicators found in the literature focused in the assets under management (Fleuriet, 2008), the quantity of money being managed by the division, and the return of funds in absolute terms and in comparison with a benchmark (Fleuriet, 2008), a completely financial and poor analysis.

No article was found analyzing the performance of the overall Trading Division. Nevertheless, the performance of individuals in the trading area was analyzed by Fenton-O'Creevy (2003) in terms of contribution to the trading desk profits, analytical ability (defined by the superior) and people skills (defined by the superior). It is worthy to notice the inclusion of two metrics regarding a non-financial perspective in this study.

1.3 Enterprise Risk Management

Enterprise Risk Management emerged with the increasing need of companies to manage risk and create value. As stated by (COSO, 2012, p. 1):

Value is a function of risk and return. Every decision either increases, preserves, or erodes value. Given that risk is integral to the pursuit of value, strategic-minded enterprises do not strive to eliminate risk or even to minimize it, a perspective that represents a critical change from the traditional view of risk as something to avoid. Rather, these enterprises seek to manage risk exposures across all parts of their organizations so that, at any given time, they incur just enough of the right kinds of risk—no more, no less—to effectively pursue strategic goals. That's why risk assessment is important. It's the way in which enterprises get a handle on how significant each risk is to the achievement of their overall goals.

ERM is a process which requires the involvement of the whole company, from board of directors, top executives team, to all the personnel, applied in strategy definition and through all the company, in order to identify potential events that might compromise the company's performance. It manages the company's risk, ensuring it to be inside the defined risk appetite and aligning it with the company overall strategy and objectives (COSO, 2004).

According to COSO (2011, p. III) the increasing interest in enterprise risk management is driven by many powerful sources:

It is driven by the need for companies to manage risks effectively in order to sustain operations and achieve their business objectives. Other forces also come into play, including rating agency reviews, government regulations, expanded proxy disclosures, and calls by shareholders and governance reform proponents for improving the way risks are managed by organizations.

In the past fifteen years, risk management “has moved from peripheral functional areas of the organization to the corporate level” (Arena, et al., 2010, p. 660), this led to an increase in literature regarding ERM frameworks and implementation.

The implementation of the ERM is subordinated to a series of attributes like company's size, management style, industry, and culture; they will affect how efficient and effective the implementation process will be (COSO, 2004).

According to COSO (2004) there are common steps taken in the successful implementation of ERM, they are:

1. Core team preparedness, a team composed by members of different business units, and key strategic functions;
2. Executive sponsorship, illustrating the importance of ERM;
3. Implementation plan development, set an initial plan with the steps to be taken, it should include work streams, milestones, resources and timing;
4. Current state assessment, understanding how the company currently manages ERM's components, concepts and principles;
5. ERM vision, the core team set up a vision on how the ERM will be used and how it will be included in the organization dynamics;

6. Capability development, the cross check of the current state assessment with the vision provides the capabilities that need to be developed;
7. Implementation plan, the initial plan should be updated and strengthened;
8. Change management development and deployment, to act according to the needs to implement and to sustain the ERM; and
9. Monitoring, the continuous review and upgrade of the risk management capabilities.

Mostly, the implementation of ERM is an evolutionary process, and it takes time to develop; the continuous improvement is a main requirement for the ERM development (COSO, 2011).

In the following sections it is presented the possible issues regarding the ERM implementation and how it is used by the Investment Banking industry.

1.3.1 Possible problems

Notwithstanding the increase in the interest on the topic during the last fifteen year (Arena, et al., 2010), according to Cifuentes (2012) ERM is a practice not fully implemented in all organizations, as in some companies ERM is just an isolated set of practices in different functional areas with no integration. To succeed in the risk management activities, it is important for the ERM to be enterprise-wide and seen as a fundamental strategic effort (COSO, 2011).

The implementation and continuity of the ERM is sustained by eight connected processes, any negligence in one of the processes and its requirement might harvest the effectiveness of the ERM. An additional difficulty described in the literature is the lack of top-management commitment, which undermines the development of the ERM system (Cifuentes, 2012).

Also, a big critic of the ERM effectiveness is Power (2009). In his publication, he challenged three core aspects of the ERM, they are:

1. Enterprise wide-view and the definition of risk appetite in the overall company as problematic;
2. The auditability would lead to the proliferation of detailed process-based rules; and
3. The lack of comprehension or articulation of some risks, like the interconnected ones.

Another main criticism against the ERM is that it is backed by an “overly-rational light taking a simplistic view of organizations” (Arena, et al., 2010, p. 661).

Power (2009) criticized the accounting and auditing perspective developed by COSO for the ERM as well as the simplifications it imposes, resulting in a barrier for a more intelligent form of control. The author addressed as one of the causes of the financial crisis the incapacity of the ERM systems to understand the entities interconnectedness, but he did not condemn them as “risk management designs like ERM are fundamentally unable to process and represent internally systemic risk issues, since this would require an imagination of externalities well beyond their design parameters” (Power, 2009, p. 853).

1.3.2 ERM & investment banks

“Unprecedented floods may occur once a century, but in investment banking the cycle seems a bit shorter – perhaps once every four years” (Davis, 2003, p. 82). The repetition of disasters in the investment banking industry that are related to risk-driven collapses and massive losses are a clear signal of the failures in the risk management systems of these institutions (Davis, 2003). A good example was the incapacity to foresee and control the risks which generated the financial crisis (Holland, 2010), which has put banks and corporate risk-taking under public and politic scrutiny (Cooper & Uzun, 2012). As stated by Mishkin & Eakins (2012, p. 568) “managing financial institutions has never been an easy task, but in recent years it has become even more difficult because of greater uncertainty in the economic environment”.

Nevertheless, there have been major improvements in the risk measurement systems of financial institutions (Mikes, 2009). According to Mikes (2009), ERM is becoming a

widespread practice in financial institutions mainly due to regulatory, corporate governance and organizational management blueprints requirements. For instance, “the Basel Committee, leading the reform of banking supervision, endorsed enterprise risk management as an umbrella notion that can accommodate the techniques required for bank capital adequacy calculation” (Mikes, 2009, p. 19).

Before addressing the risk management system controlled by the enterprises and its types, it is important to understand the main risk categories. Investment banks face three basic risks, they are:

1. Credit risk, regarding the risk of losses in the principal or interest;
2. Market risk, regarding the adverse movements of securities prices such as equities, currencies and interest rates; and
3. Operational risk, regarding human and system failures that might lead to major losses (Davis, 2003).

The credit risk is becoming a major concern in the industry, as some players are not managing it as well as they could, especially when they are also engaged in the universal banking business (Davis, 2003). Regarding the market risk, Davis (2003) conducted a series of interviews with investment bankers, and most of them were comfortable with the current tools to manage it, as well as the ability to reach the expected results. The operational risk is one of the main concerns for the managers in the industry, and inside this category, the rogue trader risk stands out as a regular worry for the majority of them (Davis, 2003).

Another concern in the operational risk category is the reputational risk, which can be affected either by a bad performance of the firm or by a bad behavior which can undermine the bank’s reputation and brand. As stated by John Whitehead, former co-CEO of Goldman Sachs, reputation “is the hardest to get and the easiest to lose (Davis, 2003, p. 90).

Regarding the risk management activity, Davis’ (2003) interviews showed the importance of the personal judgment for the well-functioning of the activity. As explained by Walter Gubert, at that time the Chairman of JP Morgan’s Investment Bank, “we use

lots of controls and different risk management models, but ultimately what matters is judgment” (Davis, 2003, p. 87). The topic was also addressed by Peter Weinberg, a member of Goldman Sachs’ management committee, when he stated that “models are important but only one part of the puzzle. Systems tell you what the risks are, but you need adults to understand them” (Davis, 2003, p. 87).

Concerning the overall risk management system, Mikes (2009) studied two types of ERM, the ERM by the numbers, driven by a strong shareholder value, using ERM in the strategic setting, and managing the enterprise risk appetite; and the holistic ERM, driven by the demands of risk-based internal control, identifying possible risk events, putting them in the decision making agenda. The differences between these two types are one indicator of the systemic variance on ERM practices in the financial service industry (Mikes, 2009).

More than the two types mentioned above, the literature addresses four main categories of risk management; they are all enterprise-wide, although they differ in their main focus and objective (Mikes, 2009). The risk management approaches are:

1. Risk-silo management;
2. Integrated risk management;
3. Risk-based management; and
4. Holistic-risk management.

The risk-silo management approach looks for the quantification, measurement and control of the main risks faced by the bank, usually they are clustered in terms of credit, market and operational. For this approach the most mentioned technique is the value-at-risk, or simply VaR (Davis, 2003; Mikes, 2009; Simons, 1996).

Given a time horizon, a confidence interval and a measurement unit, the value-at-risk aims to calculate the possible decline in the value of a determined portfolio (Simons, 1996). Simons (1996) highlighted the limitations of VaR; first its focus on a single point of a distribution instead of the whole distribution itself, and second, it loses importance in extreme market conditions and can be a misleading risk metric in such environments.

The integrated risk management approach has been a challenge for risk practitioners due to the difficulties to aggregate risk as their measures vary in different silos, and to determine the correlations among them (Mikes, 2009). Nevertheless, the introduction of a common denominator, the economic capital, also known as economic risk capital, enabled, given a confidence level, the quantification of risks through the estimation of the required amount of capital to cover liabilities in a harsh loss event (Mikes, 2009). It is a proxy of the cushion required by the rating agencies to sustain a target credit rating. Furthermore, the Basel Committee recognized the economic risk capital tool as one of the best practices among practitioners in the last decade (Marrison, 2002).

The risk-based management approach uses risk-based capital allocation for performance measurement and control (Mikes, 2009). It is a consequence of the possibilities for banks to quantify and to aggregate risks. It has a strong shareholder value claim and is offered mainly through two measures for the banks, the risk adjusted return on capital (RAROC) and the shareholder value added. The first is a ratio that merges risk-adjusted profit and economic capital, and the second calculates the residual income which is determined by the net profit subtracted by a charge on the economic capital.

The holistic-risk management approach looks for the risks which can puzzle the achievement of the strategic objectives of the bank. Unlike the measurable risk silos, the holistic-risk management looks for the risks which cannot be easily quantifiable or aggregated (Mikes, 2009). For this approach it is important employees' skills such as judgment, experience and intuition to put in practice the required activities. The techniques related are scenario analysis and decision tree methods, which are borrowed from strategy and decision making literature (Pickford & Alexander, 2001).

According to Mikes (2009), in the financial services businesses, ERM is thought to incorporate many practices from quantitative to qualitative. This combination is sustained by the practitioners as the best practice that the organizations must pursue to implement (Gilbert, 2004).

However, there are doubts in the literature on how well the risk management systems actually work on the investment banking industry, according to Mikes (2009, p. 19), "we

know little of how enterprise risk management works in action”, and according to Mark Williams, at the time the head of McKinsey’s investment banking practice in London, there is much space for improvements (Davis, 2003).

To enhance the risk management system, Davis (2003) sustained the importance of a partnership structure and a culture which stresses values like communication and integrity, to avoid, identify and report frauds and human mistakes.

1.4 Integrating Performance Management System & Enterprise Risk Management

The integration and synchronization between risk management and performance management is an idea that few would disagree, especially after some recent corporate disasters (Palermo, 2011b), and as the business environment gains complexity and managers need to cope with a volatile economy and disruptive technologies (Nixon & Burns, 2005).

The evolution of both, risk and performance management systems, has presented similarities, which might suggest their alignment. Both of them are focused on the company’s objectives, aim to be pervasive in the organization, and are designed to strengthen interdependencies and managers’ responsibilities (Palermo, 2011b). Moreover, the merger of risk and performance process can generate a more comprehensive organizational vision toward risk exposure and improve the company’s results (Palermo, 2011a). This integration has indirectly occurred through tools such as the Balanced Scorecard and its nonfinancial measures, which provide an early signal from the environment enabling a more timely response and long-term view of the business (Beasley, et al., 2006).

On the flip side, there are arguments that the combination of these systems might not be that simple, mainly due to a quite complex business and its environment (Palermo, 2011a), which can result in an excessive simplification cost, which does not pay off the integration (Palermo, 2011b).

According to Palermo (2011a), there are three main clusters of elements to enable or not the risk and performance systems integration, they are:

1. Barriers, which block the integration. The first barrier regards the relationship and possible tensions between risk and performance, the second barrier regards the different time horizon of risk and performance management process;
2. Facilitators, which help to overcome the barriers. The first facilitator is the relation with the strategy which help to reinforce the alignment, the second is the presence of risk champions who help people to understand and manage their risks; and
3. Levers, which consist of performance tools that might provide insightful information regarding risks. They can be KPIs, as some of the nonfinancial metrics can be useful for the identification of risk events, and variance analysis, which can be an important source of risk information as it helps to decipher performances that are changing unexpectedly.

According to Cifuentes (2012), despite the huge similarities, the PMS and ERM were not fully developed to be merged, but there is a clear trend in the “integrative” direction. The combination of both systems into a single management tool can result in the increase of the risk awareness of senior managers (Beasley, et al., 2006).

In the end, risk is embedded into performance and vice-versa (Palermo, 2011a), they both can provide useful insights to each other (Beasley, et al., 2006), and their integration is a decision that should take into account the simplification costs and the managerial gains.

2. Framework

For the achievement of the objectives proposed by this project, the study and analysis of the performance management system and enterprise risk management applied in investment banks, a framework was developed aiming to guide the analysis of the current practices.

The proposed framework is based in Ferreira & Otley’s (2009) framework, “the performance management systems framework”, and adapted to capture the peculiarities of the banks, to understand the risk practices, and to reflect the possible integration between performance and risk management systems.

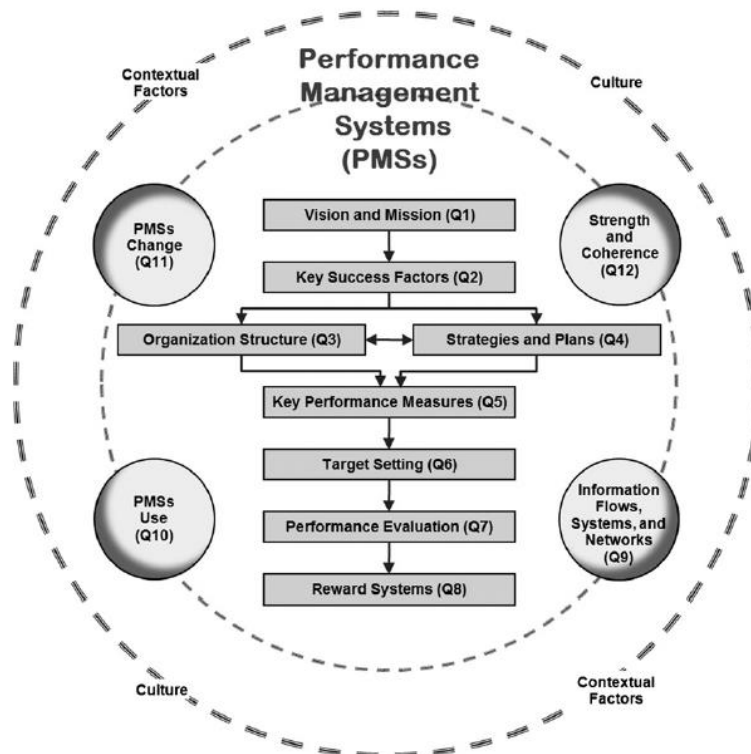


Figure 5: Ferreira & Otley's (2009) framework

The framework above was developed by Ferreira & Otley (2009) as a twelve questions which looked to “provide a powerful means of relatively quickly outlining the main features of a PMS in a comprehensive manner, and the ways in which it is used in the context of a specific organization” (Ferreira & Otley, 2009, p. 266). It is based in the previous framework proposed by Otley (1999), which consisted of five central questions, which the author considered to be key to the development of a coherent structure for the PMS, and in the “levers of control framework” proposed by Simons (1995), which is considered as guidance for the implementation and control of business strategies.

As pointed out by the figure five the key areas of analysis are:

1. Vision and mission;
2. Key success factors;
3. Organization peculiarities,
4. Strategy and plans;
5. Key performance measures;

6. Target setting;
7. Performance evaluation;
8. Reward system;
9. Information flows, system and network;
10. PMS usage;
11. PMS change;
12. Strength and coherence (Ferreira & Otley, 2009).

The previous topics were regrouped and new ones were introduced to also embrace the risk elements and to suit the investment banking specificities.

Especially, the cross-analysis of the reviewed literature regarding Investment Banks, PMS and ERM provides some possible issues to be considered during the analysis, they are:

1. The banks operate in one of the most fast-paced industries in the world (Accenture, 2012b), can the PMS and the ERM keep the same pace and provide a useful responsiveness?
2. Can the huge regulation of the industry (Stowell, 2013) influence the design of the PMS and ERM, undermining a more holistic and long-term analysis, and focusing in regulators' requirements undermining the monitoring of the defined strategy?
3. The literature criticize the employees' compensation and its short-term orientation (Cooper & Uzun, 2012). The right linkage between remuneration, performance and risk measures could ensure the employees to pursue the company's objectives. Is this link strengthened after the recent industry issues and scandals?
4. Despite the huge complexity presented by the markets and other risks, the operational risk is a major concern (Davis, 2003). How to measure and manage it?
5. The international finance network requires banks to provide a world-wide platform (Liaw, 2011), and many articles pointed out the lack of comprehension of the risk of interconnectedness as one of the main causes for the 2007/2008 financial crisis. How to measure and manage it?

6. The Investment Banking industry is one of the most developed industries regarding risk management practices (Davis, 2003). Even though there is a clear correlation between risk and performance, there are still questions if this proximity is also presented in the control systems and decision making, as the risks issues might be underweighted in detriment of a short-term performance. Do the performance and risk control systems and outcomes receive equal importance?

Thus, a new framework is proposed aiming at finding the answers to the topics presented by Ferreira & Otley (2009) framework, as well as to analyze these topics regarding the peculiarities of the Investment Banking industry.

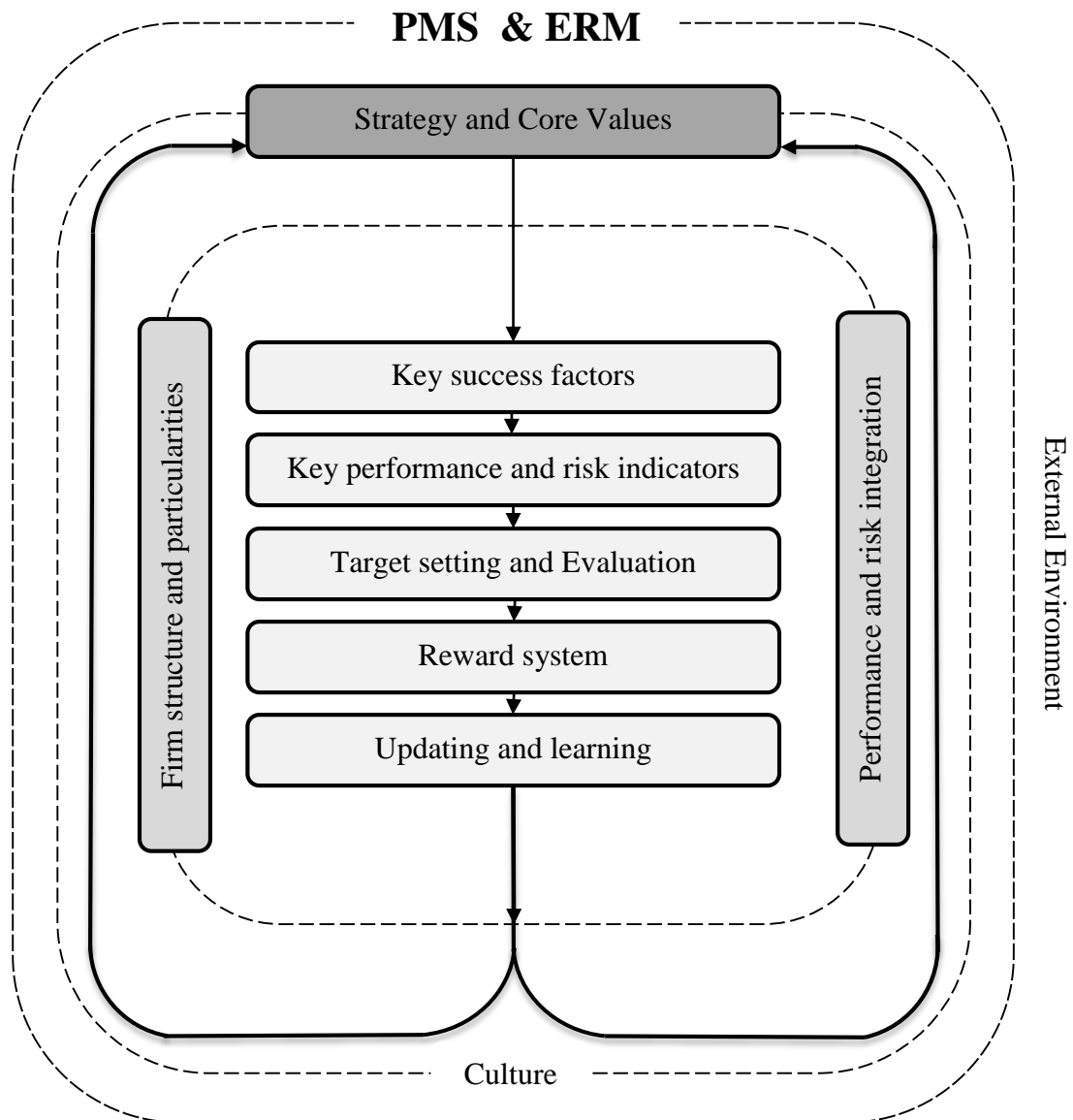


Figure 6: Proposed framework for the analysis

The proposed framework addresses direct questions for each of the boxes presented in the figure six, and below it is presented a deeper analysis of the topics.

2.1 Strategy and core values

In their publication, Ferreira & Otley (2009) highlighted that performance measurement starts with purposes and objectives. Understanding the company's core values and strategy is the central stage to determine how the PMS and the ERM should be designed and implemented in the company.

Regarding the strategy, it is recurrent in the literature the necessity of the linkage between PMS and strategy. As early explained by Keegan et al. (1989) if PMSs are not linked to strategy they will become a frustrating exercise. Bourne, et al. (2000) were more extreme, stating that PMSs have two main uses, the first to measure the implementation of the strategy, the second to challenge the initially strategy, thus revealing the importance of this linkage.

Business strategy has been characterized as the manner in which a firm decides to compete, which encompasses the pursuit, achievement, and maintenance of competitive advantage in its industry (Varadarajan & Clark, 1994).

To analyze this perspective, the following question is proposed:

- Which are the core values of the bank and its strategy? Are they linked to the PMS and ERM? How are they communicated to the employees?

2.2 Key success factors

As stated by Ferreira & Otley (2009, p. 269) “the key success factors (KSFs) are those activities, attributes, competencies, and capabilities that are seen as critical pre-requisites for the success of an organization” in achieving its objectives. They are important elements to be identified and pursued by the PMS and to be safeguard by the ERM as they are the connection between a company and its objective. The definition of key success factors is responsible to focus management’s attention in what is truly important for an organization.

More than the connection, the translation of the vision and strategy into key success factors helps managers to build a consensus around the organization’s vision, clarifying possible misunderstandings (Kaplan & Norton, 1996); the alignment between indicators and strategy ensures the evaluation of the strategy implementation and also encourages behaviors toward the same goal (Neely, 1999).

To analyze this perspective, the following question is proposed:

- Which are the key factors that the bank pursue to the achievement of its objectives? How are they monitored and controlled by the management team?

2.3 Firm structure and particularities

According to Ferreira & Otley (2009), the firm structure defines the individual roles and tasks, providing each employee the responsibility over a determined task. It delimited the empowerment sphere where each employee, team and division should manage and control. The structure and the firm's peculiarities are key elements shaping the overall organization and they are key elements of the control system, influencing how the measures should be developed and who takes responsibility over them.

To analyze this perspective, the following question is proposed:

- What is the current bank structure and peculiarities? How are they influenced by the current strategy and how do they shape the PMS and ERM design and usage?

2.4 Key performance and risk indicators

According to Ferreira & Otley (2009, p. 271), "key performance measures are the financial or nonfinancial measures used at different levels in organizations to evaluate success in achieving their objectives, KSFs, strategies and plans".

Regarding the financial metrics, there is a clear bias by managers, analysts and financial economists in cash flow metrics, based on the belief that they reflect a company's economic condition more accurately than accrual metrics (Eccles, 1991).

For the nonfinancial metrics Neely & Al Najjar (2006) suggested the identification of the "moments of truth", which are related to the moments when clients realize the real value of a provided service or product. Another possibility for the nonfinancial metrics is to be derived from the critical success factors, through the identification of the major activities that a company must deliver to achieve its proposed strategy.

Keegan et al. (1989) reminded the importance of always checking if the metrics are linked with the strategy; and the importance of benchmarking; checking if the internal pace of change is enough to beat competitors. Moreover, they stated the need that, as the metrics goes through the organization, they must become increasingly specific and safeguard the internal alignment among them. The indicators selection corresponds to the balance between financial and nonfinancial indicators. Keegan et al. (1989, p. 48) stated that “an easily understood performance measurement system works well; a complicated performance measurement system will be scrapped eventually”, thus the need of a good reasoning in the selection process.

Regarding the risk measures, according to COSO (2010), key risk indicators are metrics developed by companies to be used as an alarm for increasing risk exposures in different areas of the business. They differ for the key performance indicators as they provide timely information regarding emerging risks while the last ones look for underperforming aspects of the companies COSO (2010).

The identification of the risk indicators happens though a risk assessment analysis, which can be through qualitative and quantitative tools, and risks are assessed in an inherent and residual basis (COSO, 2004). Regarding the differences between quantitative and qualitative techniques, the quantitative ones (e.g. Value at Risk and Stress Test) usually provide a more precise output and are used in more complex situations and to supplement the qualitative ones (COSO, 2004). On the flip side, the qualitative techniques offer a wider possibility of analysis, but this is relied on the capacity and judgment of the individuals involved (COSO, 2004).

During the development of the risk measures the company should look for metrics which provide insights about potential risks that might compromise the pursuit of its objectives (COSO, 2010). An effective method for developing the KRIs is the analysis of an event that affected the company performance in the past or the present and go back to its roots, looking for the underlying cause of it. An important facet to be considered when developing a KRI is the quality of the data resulting from it (COSO, 2010).

An important remark is that KRIs are designed to point risks, they neither manage nor resolve them. This fact can lead to a false sense of security (COSO, 2010). Another fact, is that the usage of KRIs can contribute to improve performance, processes and workplace environment, through a proactive management position instead of a reactive one (COSO, 2010).

To analyze this perspective, the following questions are proposed:

- What are the key performance indicators? How are they linked to the bank's strategy? How is the balance between the financial and the nonfinancial ones?
- What are the key risk indicators? How are they related to the defined risk appetite? How is the balance between quantitative and qualitative indicators?
- How does the regulation influence the definition of the indicators?

2.5 Target setting and evaluation

The step of target setting and evaluation regards the expectations to be achieved in the metrics previously established and the evaluation process which takes place after the metrics results are known.

The target setting reveals “the universal tension between what is desired and what is thought to be feasible in determining targets for all aspects of organizational performance” (Ferreira & Otley, 2009, p. 271). It defines the threshold level to be achieved in each measure (Agostino & Arnaboldi, 2012).

According to Kaplan & Norton (1996), managers should establish specific short-term targets for their measures, the process enables managers to continuously monitor and test the theory underlying the strategy and also the strategy implementation.

The evaluation phase regards the need to compare the defined targets and obtained results. The achievement or not in each performance or risk metric should be understood and assigned for a responsible (individuals, teams, divisions).

According to Ferreira & Otley (2009) the evaluation can be through an objective method or a relative one. The first one can be used when there is a clear linkage between input and output and the performance is controllable. The relative performance evaluation is used when the performance is measured in comparison to peers, in an attempt to diminish the relevance of uncontrollable issues.

To analyze this perspective, the following questions are proposed:

- How is the target setting process for the metrics? How challenging is the targets?
- How is the evaluation process? Does it embraces individuals, teams and divisions or just one of the mentioned groups? How is the usage of formal and informal channels for the information control?

2.6 Reward system

According to Ferreira & Otley (2009, p. 272) “rewards are typically the outcome of performance evaluations and as such reward systems are the next logical aspect to consider in the analysis of PMSs.” The authors took a broad definitions of rewards, considering it from the recognition and approval of senior managers to financial compensation (bonus) and promotions.

The reward system is an important linchpin of the PMS and ERM, as Eccles (1991, p. 131) stated “what gets measured gets attention, particularly when rewards are tied to the measures”, showing the major role played by the rewards to get the managers’ attention to the metrics.

To analyze this perspective, the following question is proposed:

- How are the rewards assigned to employees who achieve the objectives? Are the rewards linked to financial and nonfinancial metrics? How is the rewards balanced between long- and short-term objectives? Which are the penalties to employees when a target is not achieved?

2.7 Updating and learning

This stage provides the company with the opportunity to assess the architecture and the efficacy of the system's measures, adjusting them to new environment realities, as well as correcting previous misalignments with the current strategy (Taticchi, et al., 2012). Due to the turbulent and dynamic environment that organizations face nowadays, managing and updating the systems are important steps to keep them appropriate and providing insightful and relevant information to the company (Kennerley & Neely, 2003).

PMS measures will either lead the strategy to be implemented or to be a failure, thus updating performance measures requires special attention (Keegan, et al., 1989). During the process of updating, the introduction of new performance measures should happen as the PMS evolves and the company's expertise increases. The main goal of PMS is to look ahead, not to the rearview, thus even though historical data to track an indicator can suffer, it can be considered a minor loss (Eccles, 1991).

Another key concept in this stage is the feedback and the opportunity for learning provided by the PMS. Argyris (1977) defined organizational learning as the act of realize and correct errors. When this act enables the company to simply keep its policies and objectives, it is called single loop learning. However, when the action leads to the questioning of the underlying policies and the objectives, then it is called double-loop learning. The last also embraces the capability to open the debate and challenge the discrepancies between what a company believes its policies, objectives and strategy are, and what and how they are really perceived through the organization (Argyris, 1977).

The double-loop learning is the capability that a turbulent environment demands from a winning company; when new threats and opportunities arise constantly, the company must be capable to learn and to change people's assumptions and theories about cause-and-effect relationships (Kaplan & Norton, 1996). Moreover, the learning should enable the company to evaluate the proposed business model, which is based on a series of assumptions that might not be valid (Neely & Al Najjar, 2006).

Additionally, the PMS should allow the company to evaluate strategy in the light of recent performance, modifying strategy to reflect real time learning (Kaplan & Norton, 1996). This review stage enables the company to evaluate its business model, which is based in a series of assumptions that might not be valid (Neely & Al Najjar, 2006). Closing the loop, PMS enables the company to review and update its strategy, and to adjust misleading measures or the strategy itself, as the environment might change.

To analyze this perspective, the following questions are proposed:

- How is the information provided by the PMS and ERM used by the bank? Is it used to correct errors? Is it used to challenge the strategy and its implementation?
- How is the responsiveness of the indicators? Is it as dynamic as the organization and its environment require? Are the systems flexible to the introduction of new indicators?

2.8 Performance and risk integration

As previous mentioned in the literature review, the integration and synchronization between risk management and performance management is an idea that few would disagree, especially after some recent corporate disasters (Palermo, 2011b), and as the business environment gains complexity and managers need to cope with a volatile economy and disruptive technologies (Nixon & Burns, 2005). That is the description of the current scenario in which Investment Banks do business, thus an important focus of the analysis is how the industry players run PMS and ERM practices, if there is a convergence in the practices and how they weighted the importance of both systems for the decision making.

To analyze this perspective, the following question is proposed:

- How are the performance and risk management practices balanced? How are their metrics weighted in the decision making process? Is there a convergence in the systems for a centralized one?

3. Methodology

In this work it was adopted a case study approach to analyze the current practices regarding the performance management systems and enterprise risk management in the investment banking industry, looking for characteristics, best practices and possible issues of the PMS, ERM and their integration. The analysis is based in two companies, one operating in Italy and the other in Brazil.

The companies were selected through an initial sample of twenty pure investment banks and banks with investment banking units as both were more favorable in sharing their experiences in the areas of this study. For reasons of confidentiality, they will be called by pseudonymous (*Iota* –for the Italian Bank and *Beta*–for the Brazilian one) instead of the banks' real names.

Table 1: Case studies

Bank	Country	Employees	Total Revenue (€millions)
<i>Iota</i>	Italy	15000	250000
<i>Beta</i>	Brazil	500	222

The first bank, *Iota*, is an Italian commercial bank with investment banks activities, employs over 150000 people, operates over fifty markets, with 80% of its revenues coming from Italy, Germany and Central East Europe. For the fiscal year of 2012, it reached total assets over €900billions, and revenues over €25000millions.

The history of *Iota* dates back to the XV century, and more recently it resulted from the merger of several Italian banks and the expansion via acquisitions of European peers. The business model presented by the investment bank's activities, ex-Asset Management, is the clear division between coverage and local distribution areas, and those areas dedicated to centralized specialization of customized products or services. The rationale is the focus

on selected customers with high demand for products, resulting in the combination of profitable clients and cost control.

The Asset Management activities operates under a different brand, controlled by the holding company, and the lack of information from this area due to the holding's structure led to the exclusion of this area of the study, as it represents less than 5% of the overall revenue.

The second bank, *Beta*, is a Brazilian commercial bank with investment banks activities, which operates mainly in the Brazilian market. For the fiscal year of 2012, it reached total assets over R\$4.3billions (around €1.5billions), and revenues over R\$640millions (around €222millions). It employs almost 500 employees and its business model focus on the development of customized solutions for its clients.

The history of the bank dates back four decades ago, starting as brokerage house and operating in corporate lending business. A few years ago, *Beta* started an expansion phase of its business, mainly through partnerships and investments by a private equity fund and a foreign trade services, and an acquisition of a financial advisory company, enlarging its financial services expertise.

It is important to highlight that, as both banks are commercial banks, special attention was given to study the dynamics within the investment banks' activities, the scope of these work, and to not confuse them with the lending activities of commercial banks.

The information regarding the banks was collected via their websites, financial reports, press releases and an interview, which was initiated by email and consolidated face-to-face for *Iota* and via Skype for *Beta* due to geographical constraints.

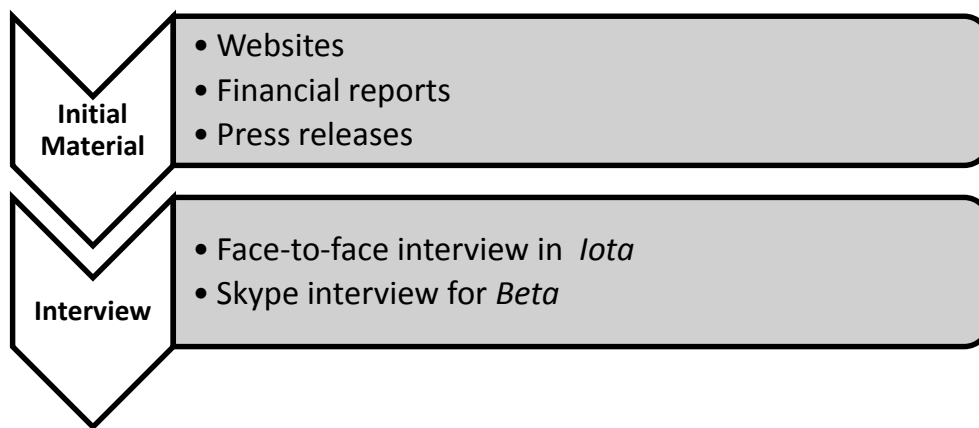


Figure 7: Sources of information for the analysis

The interviews were guided by the check list presented in the appendix 8.1 developed through the analysis of each topic presented in the framework section and its resulting twelve main questions. These questions look for characteristics, best practices and possible issues of the PMS and the ERM in each company. They are summarized below:

1. Which are the core values of the bank and its strategy? Are they linked to the PMS and ERM? How are they communicated to the employees?
2. Which are the key factors that the bank pursue to the achievement of its objectives? How are they monitored and controlled by the management team?
3. What is the current bank structure and peculiarities? How are they influenced by the current strategy and how do they shape the PMS and ERM design and usage?
4. What are the key performance indicators? How are they linked to the bank's strategy? How is the balance between the financial and the nonfinancial ones?
5. What are the key risk indicators? How are they related to the defined risk appetite? How is the balance between quantitative and qualitative indicators?
6. How does the regulation influence the definition of the indicators?
7. How is the target setting process for the metrics? How challenging is the targets?
8. How is the evaluation process? Does it embraces individuals, teams and divisions or just one of the mentioned groups? How is the usage of formal and informal channels for the information control?
9. How are the rewards assigned to employees who achieve the objectives? Are the rewards linked to financial and nonfinancial metrics? How is the rewards balanced

between long- and short-term objectives? Which are the penalties to employees when a target is not achieved?

10. How is the information provided by the PMS and ERM used by the bank? Is it used to correct errors? Is it used to challenge the strategy and its implementation?
11. How is the responsiveness of the indicators? Is it as dynamic as the organization and its environment require? Are the systems flexible to the introduction of new indicators?
12. How are the performance and risk management practices balanced? How are their metrics weighted in the decision making process? Is there a convergence in the systems for a centralized one?

After the data collection, it was reviewed through a qualitative analysis of the material. Initially, the data was organized by the lens of the proposed framework, then it was analyzed in accordance with the literature reviewed as well as the cross analysis between the cases.

5. Results & Discussion

This section shows the results of both case studies; the discussion of the finds in each case, the comparison between them, and the analysis with the practices described in the literature review and the framework.

5.1 *Iota*

Iota is an Italian commercial bank with investment banks activities, which operates mainly in Italy, Germany and Central East Europe.

Its core values are Fairness, Transparency, Respect, Freedom to act, Trust, and Reciprocity. As the bank resulted from the merger and acquisition of many different banks across different European countries, *Iota* gives a special attention to diversity, and mainly, as a consequence of the financial crisis, it strongly states the importance of reputation and trust. According to the interviewee, these ideas are communicated to the employees via internal communication channels, like CEO letters via e-mails.

Under a restructuring project, in 2011, the bank initiated a series of changes in order to readapt itself to a new global reality and it redesigned its organizational model aiming at maximizing the clarity in the definition of the roles and responsibilities of the different functions in the bank, ensuring greater proximity to customers, empowering countries units and simplifying its internal structure. These new business model and structure looked for a more efficient, less complex and more customer focused bank. Focusing on the investment banks' activities, the changes aimed to maintain and increase its competitive advantage in terms of costs and expertise, while also refocusing the activities on individually selected customers with high demand for Investment Banking products.

5.1.1 Performance management

Iota performance management system was changed in order to unify different information with different views and different key performance indicators that were generated across multiple business. Due to the consolidation of the activities of the different banks that became part of *Iota*, the company started a program that set common base rules, formulas and procedures to provide consistency across regions, divisions and legal entities.

This process was commanded by a consultancy firm that reported that the resulting system, called Corporate Performance Management, was a flexible, browser-based interface and Excel interface that offered a 10% decrease in costs after the first year. Moreover, it reduced the reporting cycle time by almost 43%.

The system ensured the alignment between strategic goals and day-to-day activities around accounting and planning (budgeting and forecasting), regulatory requirements and managerial needs across regions and businesses; all in accordance with the IAS 14 Segment Reporting, which established guidelines for reporting financial information by line of business and geographical areas (Delloite, 2013).

The updating process of the system is done in a weekly basis for the key performance indicators; and the overall data is consolidated monthly at group, regional and divisional

level. The target setting for the metrics and evaluation process are mainly determined by the management teams.

The system previously mentioned controls more than six thousand accounts over the bank whole operations, revealing the huge number of indicators, used across divisions and different levels of the organization.

Regarding the key performance indicators *Iota* monitors:

1. Daily P&L, which is the daily profit or loss;
2. Capital Ratio, which consists of the total regulatory capital divided by the total risk-weighted assets;
3. Return on Average Equity, which is a variation of the classic ROE, but adjusted for variations in the bank's equity;
4. Economic Value Added, which is measured by the net operating profit decreased by the result of capital employed times cost of capital;
5. Integration Costs, measured as the costs related to integration of the mergers and acquisitions;
6. Operating margin, which is a ratio of the operating profit divided by the operating Income, resulting in a measure of profitability;
7. Net non-performing loans to customers divided by the loans to customers, measuring the quality of the loan portfolio;
8. Total deposits from customers and debt securities in issue; and
9. Position in the euro-denominated bonds' league table in Europe, monitored by the position in the league table of this core product.

These indicators consist of key measures controlled by the top management to monitor the performance of the group. It is important to remember that the top managers can access a broader range of indicators via the Corporate Performance Management when required; also the managers and employees monitor different indicators, in accordance with their hierarchical level and responsibilities.

The reporting of the performance metrics, occurs via different reports addressed to top managers, employees and stakeholders, and they differ in their frequency.

For instance, the interviewee revealed that daily reports are addressed to the traders showing their individual daily P&L, revealing their performance. This metric is also reported daily to the top management, but in this case it is the consolidated result of the whole group.

The Corporate Performance Management provides monthly updated information for the employees, and via the Consolidated Interim Report the performance of the bank is released to the general public in a quarterly basis report, providing performance data of the bank and its divisions, the financial statements and their notes and explanations, management comments on the past performance, outlook for the next periods, as well as other regulatory requirements. The Annual Report is released annually, at the end of the fiscal year, and it has the same structured of the Consolidated Interim Report but it provides more detailed information.

5.1.2 Risk management

The risk management practices are coordinated by the Group Risk Management team. Aligned with the top management team, they are responsible to control and steer the risks, optimizing asset quality and diminishing the cost of risk, monitoring the risk appetite, evaluating capital adequacy, and be in compliance with regulatory requirements. All these activities must be through a transparent and consistency process.

According to the interviewee, regulation plays an important role in this process, from the selection of the indicators to the target setting. For instance, the development of a model to generate an index required by the central authority must present the whole documentation of the development process, which is verified and must be approved by the Bank of Italy before its usage.

Regarding the target setting, when a minimum target is not determined by regulation, the bank unit has flexibility to set it. According to the interviewee, for specific divisional indicators, the bank's headquarters determines general goals, and it is responsibility of the unit to determine the indicators and their targets in accordance with the overall goal.

The evaluation process varies for each indicator. Some indicators, like VaR, are reported daily. Moreover, depending on the market headwinds, the bank starts to report daily or weekly figures of indicators once monitored in a wider time period, as the previous example of the exposure by country during the financial crisis and the current exposure to a Greece exit.

Regarding the Updating and Learning process, *Iota* presents a system responsive and flexible. The interviewee described the possibility to monitor many indicators daily, as well as to introduce new indicators when required.

Iota presents in its risk management practices many indicators, though, the bank monitors as its key indicators:

1. Daily VaR, which is segregated by portfolio and compared to the bank's capital, as defined by the Basel rules;
2. Stress tests, calculating the possible losses in extreme market conditions. These tests also analyze the impact of scenarios like a Greece exit of the Eurozone, an Emerging Markets Slowdown, or a Sovereign Debt Tension;
3. Daily Limit on Greece Exposure, as explained in the topic above, but this one is currently reported daily to the top management;
4. IRC, known as Incremental Risk Charge, it captures default risk and credit migration risk from non-securitized products to trading books; and
5. Counterpart risk, as a measure of risk exposure to determined counterpart.

The interviewee highlighted the capability of the bank to develop new indicators when required by the top management team or regulators. For instance, he reported that during the financial crisis the top management was receiving a daily update on the indicators presenting the bank's risk exposure by the main countries.

The responsibilities for the indicators are mainly assigned to the divisions, and the managers are considered the ultimate responsible for them. The teams assigned to monitor an indicator are responsible for the analysis of it. In the daily reports, they are responsible to analyze and justify the variations in the monitored indexes. Moreover, it is interesting to highlight the flexibility to breach an indicator target. According to the interviewee,

sometimes the top management team orders a big position in a stock or bond that might take more risk than the usual target, but the bank has flexibility to take this more-than-usual risks if required by the top management.

The risk indicators are presented via multiple reports to different stakeholders. The data is continuously presented to the employees via the previously mentioned Corporate Performance Management system.

Moreover, there are a series of internal reports providing these risk figures through the organization. According to the interviewee, it is reported to the top management team the consolidated daily VaR, combined with an analysis when the number exceeds a pre-established target. The interviewee also said that reports regarding risk exposure for counterpart and sensitivity analysis are usually performed monthly, and a report, consisting of regulatory requirements, is sent quarterly to the Bank of Italy.

An important factor regarding the reports is the flexibility to introduce a new one when required, as previously mentioned, as the bank did during the financial crisis with its exposure by country and the current exposure to a Greece exit scenario.

The interviewee also emphasized the increase in the regulatory requirements post-crisis, which resulted in more reports to be addressed to the Bank of Italy and the European Bank Authority.

Regarding the release of risk figures to the general public, they are presented, together with the performance figures, in the previously mentioned Consolidated Interim Report and Annual Report. Moreover, a more detailed picture of the risk indicators is published quarterly in a report named “Basel II Pillar 3 disclosure”. This report was established after the beginning of 2007 by the Capital Requirements Directive (CRD), acknowledged by the Bank of Italy, aiming to disclosure requirements that should improve market participants' ability to assess banks' capital structures, risk exposures, risk management processes and, hence, their overall capital adequacy, providing transparency to stakeholders.

5.1.3 Performance and Risk

The balance between performance and risk appears in the reward system, as reported in *Iota* annual report, the employees' variable remuneration is determined by the individual performance, as well as the unit and country level when appropriate, times an overall factor which takes into account overall risk, profitability, solidity and liquidity of the achieved results. Thus revealing this equilibrium between performance and risk balance.

This balance is also presented from a daily report to the top executives presenting the daily VaR and daily P&L, to a broader process, the Capital Management, which takes into account proposals to risk propensity and capitalization objectives, assignment of risk-adjusted performance objectives, and a process of capital allocation based on a "dual track" logic, considering both economic capital, measured through the evaluation of risks by risk management models, and regulatory capital, quantified applying internal capitalization targets to regulatory capital requirements. These activities are done by the Planning, Strategy and Capital Management in collaboration to the risk management team.

5.1.4 *Iota* by the lens of the literature and framework

Initially, the bank presents as its guiding values a good reading of the needs desired by the industry's stakeholders, from investors to customers and governments. Values like Fairness, Transparency and Respect show this alignment with the current moment in the industry. Moreover, they are complemented by a diversity value, which derives from the bank's strategy of merger and acquisition of its peers. These values show a good diagnostic of the external and internal situation.

The chosen strategy is in accordance with the "regional champion" strategy defined by Accenture (2012a) as one of the five leading strategies to this post financial crisis period, as the bank focus on specific markets creating loyal clients' base and focusing on long-term relationships.

The usage of the Corporate Performance Management system to organize the performance management is a good example of the important role that information technology plays in empowering the PMS (Eccles, 1991; Neely, 1999). The system enable the integration and consolidation of data among different units, countries and hierarchical levels.

The analysis of the interview and reports does not allow a strong linkage from values and strategy to the key performance indicators, which undermines the evaluation of the strategy implementation and also may not encourage behaviors toward the same goal (Neely, 1999). In particular, the communication of the strategy is perceived by the interviewee only through the institutional communications channels, like e-mail, and not through the PMS itself, as the literature suggests (Bourne et al., 2000; Kaplan & Norton, 1992).

It is true that, from the presented key performance indicators, two of them have links with the strategy, they are:

1. Integration Costs, which monitors the integration of the bank's merger and acquisition strategy; and
2. Position in the euro-denominated bonds' league table, which monitors the investment banking strategy of focusing on determined products expertise.

The other indicators are mainly financial ones, which can lead to a reactive rather than a proactive PMS (Tangen, 2004). These other indicators can be associated with an increasingly importance of capital requirements, monitored by the capital ratio; liquidity and funding issues, monitored by total deposits from customers and debt securities in issue; a deterioration in its clients financial health, measured by the net non-performing loans to customers divided by the loans to customers; and the squeeze in the industry profitability after the financial crisis, monitored by the operating margin. Moreover, the return on average equity and the economic value added represents a focus on shareholder via two traditional metrics.

Even though these indicators show an important part of the business, they does not anticipate future performance. These finds are in accordance with the studied done by

Kosmidou et al. (2006), which shown the big focus on financial measures by the banks' PMS and the Hepworth (1998) studied, which shown that the indicators were mainly biased to the external financial reporting.

In the risk perspective, the practices are well diffused, as expected by an industry highly regulated, as the banking one (COSO, 2011). The usage of the daily VaR is a signal of a risk-silo management approach (Mikes, 2009), measuring and quantifying the main risks faced by the bank, clustering them in terms of credit, market and operational risk (Davis, 2003; Simons, 1996). The usage of VaR, as well as the usage of the IRC and stress tests, are recommended by regulators and the BIS (2012). It is interesting to highlight the complementary role of the IRC to the VaR, The first, IRC, takes into account the risk of migration and default of a trading book (Finger, 2011), something that VaR does not capture, as highlighted by Simons (1996), showing an evolution in the complexity and boundaries of the risk management practices.

The presence of the metrics of stress test and its scenarios, daily limit on Greece exposure, counterpart risk as well as the testimony of the daily reports during the financial crisis, shows a responsive risk system, which can provide managers many data to support decision making.

A possible problem to the risk system lies behind an extremely complex financial modeling, which can lead to a false sense of security (COSO, 2010), as reality might impose a different case than what the models forecast. Moreover, even though many data can be generated by the risk systems, at the end there's the need to analyze and understand it, which sometimes is anchored in series of complex assumptions.

An important highlight to the analysis of the interview, is the role that regulation plays in setting indicators, threshold levels, validating processes, and requiring information. This goes into the direction of what Stowell (2013) reported as one of the leading forces shaping the banking industry. This huge amount of regulation, an external and determining factor to the business, can lead the PMS and ERM systems to focus on other requirements rather than the bank's strategy and main objectives.

The target setting for the risk indicators seems a process more influenced by regulators while the performance ones are defined by the company's headquarters.

The reward system seems in accordance with the literature as it takes into account the individual performance of the employee as well as unit and group's performance, and then applies a factor considering overall risk, profitability, solidity and liquidity of the groups achieved results. It goes in the direction to discourage an excessive risk-taking behavior, a relevant risk discussed in the literature (Cooper & Uzun, 2012). However it can also lead to the demotivation of a performing employee, as his variable remuneration do not depend only on him (Kaplan & Norton, 1996).

Iota presents a responsive and flexible updating system, for both performance and risk management. The bank does not present any of the four possible problems to the updating process of the PMS listed by Kennerley & Neely (2003), as it seems able to introduce new indicators when required, as well as providing updated data to feed the systems. On the flip side, the learning perspective looks stunted. Even though the system can update its indicators and provide information to the management team to take actions when a target is not reached, the analysis of reports and the interview provided no evidence of a process to enable the double-loop learning (Argyris, 1977), evaluating and challenging the proposed business model its implementation (Neely & Al Najjar, 2006).

Concluding, *Iota* presents a balanced relation between performance and risk, and both perspectives seems to be taken into account in the bank's decision making. The PMS and ERM systems are fed with updated data, both can support the introduction of new indicators and they have a powerful modelling capability. What seems the main problems of the PMS is an excessive amount of financial metrics, a weak link from key indicators to strategy and the lack of a double loop learning. It only differs from the management-by-exception system described in the literature (Agostino & Arnaboldi, 2012), as it includes some performance and risk measures in the reward system. The ERM system is well developed, it is strongly influenced by regulation but it also seems capable to adapt to management needs when required. Both PMS and ERM systems present a huge capability to support management decisions, as well as the regulatory ones, but the lack of a stronger link between indicators and overall goals, and the lack of a more holistic-

risk management approach (Mikes, 2009) might lead to short-term oriented systems, with a weak link to strategy, thus not exploiting the full possibilities of the systems.

5.2 *Beta*

Beta is a Brazilian commercial bank with investment banks activities, which operates mainly in the Brazilian market.

Its core values are Ethics & Credibility, Client Focus, Attitude of Ownership, Excellence, Commitment to Results, Team Work & Innovation. They are translated into a strategy of becoming an innovative bank, which excels in the knowledge of its clients activities and the sectors of the economy where it operates.

The bank structure was recently changed in order to better suit new organizational goals. They were driven by the recent expansion plans, resulted of partnerships with a private equity group and a financial service firm, and mainly impacted the Commercial and the Products areas. The first became responsible for the Corporate and Middle Market business, and the second is responsible for Agricultural Bond Issues, M&A and Structured Products.

5.2.1 Performance management

Beta's performance management system is guided by a process and generates a report called Action Plan. According to the interviewee, it communicates the strategy throughout the company. It involves the whole bank, from the top management team determining the overall goals to each of its business areas and their accordance and alignment with the main strategy. It is done in accordance with the Capital Budget process, developed by the Risk area, which investigates if the goals are achievable by the current bank capital structure.

This plan aims to monitor the key factors to the achievement of *Beta*'s objectives. These factors were identified as: the development of a products' portfolio which fits and fulfill the clients' needs; to increase *Beta*'s coverage area, increasing the number of its corporate

clients; and improve operational excellence, developing its internal procedures. These factors are monitored by the Action Plan, which is shared by the whole organization and controlled by the top executives.

They are translated into indicators that are, in general, monthly monitored, except by the daily P&L that is monitored and reported daily.

For the target setting process, *Beta* uses quantitative targets defined by the top management for each of its key indicators, and for each of its business areas the top management controls the revenues, number of clients, and profitability.

Regarding the Updating and Learning process, the bank gathers the information regarding the performance metrics in managerial reports, which are used to monitor and correct projected values when they point to a misalignment with their targets. The interviewee emphasized the importance of these reports as a tool to ensure the implementation of the strategy. The Action Plan is reviewed each semester, and once in a year an in-deep review process is done to check if the plan is still suitable for the company's objectives.

Regarding the employees' performance and the bank's reward system, it was reported that the individuals are evaluated by their co-workers (bosses, peers, subordinates and internal clients) in a 360 degree assessment, which is the base for the variable remuneration. Thus, the reward system is linked to the co-workers' perception of the performance achieved by each employee, and there is not a formal linkage between reward and threshold levels to be individually achieved in the key performance or risk indicators. Moreover, during the evaluation, the bosses rank their subordinates in an A, B, C and D scale, in which, employees ranked as "A" are recognized as talents that the organization must keep, and employees ranked as "D" receive an alert to improve their performance.

Connecting the key success factors to the performance measurement and management, *Beta* presents as its key performance indicators:

1. Net interest margin, which consists of the difference between interest income and interest paid divided by its interest-bearing assets;

2. Efficiency Index, which measures the ratio between costs and revenues;
3. Net Income, as reported in the income statement;
4. Return on Average Equity, which is a variation of the classic ROE, but adjusted for variations in the bank's equity;
5. Growth Loan Portfolio, which measures the growth in the bank's loan portfolio;
6. Loan Portfolio Leverage over Equity, which consists of the ratio between the leverage of the loan portfolio divided by the bank's equity;
7. Capital Adequacy Ratio, which is the ratio between the bank's capital and its risk weighted assets; and
8. Organizational Climate & Employee satisfaction; which is measured through an internal questionnaire.

According to the interview, these are the metrics followed monthly by the top management team in order to evaluate *Beta* accomplishments. The interviewee defined the performance system as dynamic and flexible; it can accommodate the introduction of new indicators, exemplified by the bank's expansion phase and the revaluation and introduction of new indicators.

Beta's reporting activities regarding the performance are mainly done via three channels: the Action Plan, the Quarterly Information report, and an Annual report.

The Action Plan also works as an internal reporting practice monitoring the performance of the firm in a broader perspective. It reports the key indicators to the top management team, as well as it unfolds through the areas providing reports regarding their individual performance.

The Quarterly Information report, as the name says, is a quarterly report, addressed to all stakeholders, providing performance data of the bank and its business, the financial statements and their notes and explanations, management comments on the past performance, outlook for the next periods, as well as other regulatory requirements. The Annual Report is similarly structured, and it is presented once in a year.

5.2.2 Risk management

The bank considers the risk management practice as a dynamic, continuous and iterative activity, which includes the entire organization. To this end, it follows the evolution of the business to identify events that may influence the quality of the process of risk management.

According to the bank's risk management report, the process is structure through five main steps:

1. Identification, this step aims to identify the risks to which the organization's activities are subject, including the analysis and classification of business products and services with a focus on risk;
2. Measurement, quantifying the possible loss of the institution, considering the expected losses and also not expected in normal market conditions and stress scenarios;
3. Mitigation, which displays the means for risk reduction through measures that reduce the chances of unexpected events to occur and if they occur, to minimize the impact. Some of the measures are: internal controls, use of collateral, and hedges;
4. Control, which includes activities designed to ensure proper behavior of the risk management practices, including the verification of the effectiveness of mitigation measures, as well as internal controls, and process creation and updates; and
5. Report, this step is responsible for disseminating information about risks and controls, conducted periodically in all areas of the organization, market and regulatory bodies.

This general process is coordinated by the Accounting, Control and Risk area, and comprehends activities like the Internal Policy, Capital Budget, and target setting and evaluation.

The Internal Policy defines the company's risk appetite, it is set by the board of directors and top management and is annually revised. In the management perspective, there's a committee that meets once a month to discuss strategic issues, such as liquidity, equity ratios, assets' growth, and exposure to determined risk factors.

Capital Budget is the continuous process of monitor and control the bank's capital, assessing capital needs to face the different risk scenarios, and cross checking the organization strategy and goals with the capital requirements to sustain this objectives.

For the target setting process of the key risk indicators, the interviewee said it is developed in accordance with regulatory requirements, but it is ultimately decided by the board of directors and top management, which means that some metrics present a cushion in comparison with the minimum legal requirements. The evaluation of some indicators is done daily by the risk area, and if any risk indicator does not reach its minimum target, the top management team is immediately informed.

As reported in *Beta's* risk management report, the bank monitors many indicators, though, the interviewee stated that the key risk indicators are:

1. Daily VaR, which is segregated by portfolio and compared to the bank's capital;
2. Stress Tests, calculating the possible losses in extreme market conditions;
3. Daily Basel Index, which consists of the ratio between the bank's capital and its loans;
4. Cash Flow stress test, measuring the stress tests impact on the short, medium and long term cash flows.

The others risk indicators monitored by *Beta* are clustered into four main groups: credit risk, market risk, liquidity risk, and operational risk.

The risk management is presented via multiple reports to different stakeholders.

Through a Risk Management report, the bank reveals to the general public key information regarding its risk practices, and data presenting the evaluation of credit risk, market risk, liquidity risk, and operational risk. Credit risk reports the risks regarding

Beta's credit activities, such as loans, analyzing the exposure by industry sector, clients' size, and others. Market risk reports the exposure to derivatives, interest rates, exchange rates, inflation, commodities prices, and share prices; this exposures are measured via stress tests, VaR, and sensitivity analysis in different scenarios. Liquidity risks measures the possible mismatches between payments and receipts that may affect the bank ability to fulfill one or more obligations; it also comprehends the analysis of the ability to raise sufficient funds to meet its short, medium and long term positions. The operational risk is managed through a software that allows a holistic view of the different risk management areas, controlling procedures and internal auditing. It enable the monitoring of the different risk matrixes, their controlling procedures and their related action plans.

Besides the Risk Management report, the bank also provides risk figures in its Quarterly Information report and Annual report, as well as a qualitative analysis of possible risks.

5.2.3 Performance and Risk

The bank balances its performance and risk information via the Capital Management process. It looks for the optimization of its allocated capital, beacons by the strategy and risk appetite. It goes from the balance of allocated capital versus capital availability, the implementation of corrective actions, to the forecast and monitoring of the strategy achievement as defined in the Action Plan and the risk levels. The interviewee highlighted that there is not a single system which converges all the risk, performance, and accounting data, but they are all analyzed in this process mentioned above and in the Capital Budget.

5.2.4 *Beta* by the lens of the literature and framework

Beta is a bank that recently initiated an expansion phase, increasing its products portfolio and its business area. The bank's strategy is in accordance with this picture. Moreover, its small size and operations only in the Brazilian market, when compared to global competitors or Brazilian players much bigger than *Beta*, support the strategy of developing deep knowledge of its clients' business and coverage areas, providing innovative and customized solution, a strategy in accordance with the bank's current

capabilities and a mix of two strategies listed by Accenture (2012a) studied, the regional champion and product specialist.

The presence of the Action Plan, which is shared by the whole organization and controlled by the top executives, represents a formal link of operations and strategy, which is a positive signal for a strengthened control systems.

The recent change in the bank's structure points to a good reading of portfolio opportunities, and according to the interviewee it was mainly in order to exploit this new possibilities generated by the expansion of the business. Focusing on the investment bank's activities, it is a good strategy to leverage its development via the exploiting of synergies coming from the commercial bank's activities, as loans, and investment banking services, as advisory in restructuring or M&A; this synergies are in accordance with one of the reasons why the Financial Services Modernization Act, allowed the re-integration of the commercial and investment activities of the banks in the U.S. (Holland, 2010).

Regarding the key performance indicators, there is no evidence of a strong linkage between them and the strategy. Even though there is the presence of one non-financial indicator, organizational climate/employee satisfaction, a measure of the internal environment, the majority of the indicators is focused on financial measures deriving from the income statement and balance sheet. Two indicators are mainly focused on the bank biggest business, the commercial bank activities, measuring the growth and leverage of the loan portfolio, which is comprehensive.

More generic, the indicators net income, efficiency index, return on average equity and capital adequacy ratio, measures the performance of the whole business, the quality of its operations, the return to shareholders, and the adequacy capital limits respectively. These KPI's composition, mainly focused in financial metrics and not balanced in the different areas of the bank, might lead to the track of past performance, but it hardly will anticipate the future one (Kaplan & Norton, 1992), providing a reactive rather than an active PMS (Tangen, 2004).

These finds are again in accordance with the studied done by Kosmidou et al. (2006), which shown the big focus on financial measures by the banks' PMS and the Hepworth (1998) studied, which shown that the indicators were mainly biased to the external financial reporting.

In the risk perspective, *Beta* has a detailed risk management process, which is in accordance with the proposed COSO (2004) framework, as well as it covers all the main risks listed by Davis (2003). The bank has practices related to the risk-silo management approach, like VaR and other quantitative ones, but it also presents in its operational risk practices the monitoring of the different risk matrixes and their links with the bank's objectives; which is a sign of an holistic-risk management approach that looks for the risks which can puzzle the achievement of the strategic objectives of the bank (Mikes, 2009). This combination, from risk-silo to a holistic-risk approach is sustained by the practitioners as one of the best practices that the organizations must pursue to implement (Gilbert, 2004).

The analysis focused only in the key risk indicators reveals a risk-silo management approach, as it focus on the quantification, measurement and control of risks (Mikes, 2009). This preference for this metrics as the key ones might be attributed to regulation as it requires measures like VaR, stress tests, and it also determines minimum levels for the Basel Index. Nevertheless, the cash flow stress test is an indicator to be highlighted, as it measures the refinancing risk, which gained major concern after the financial crisis, showing a good reading of the external scenario.

Regulation, from a requirement to an interference perspective, did not appear in the interview as a major concern. However, it sets minimum levels and standards for VaR and Basel Index as well as it is clear its presence, even if indirect, in the selected key risk indicators. That is comprehensive given the high regulation of the industry (Stowell, 2013).

The internal processes and meetings to determine and analyze risk appetite and strategic issues, such as liquidity, equity ratios, assets' growth, and exposure to determined risk factors is a signal of good governance. This might be attributed to the presence of

shareholders with an active presence like the private equity firm, and the standards that it brings to *Beta*'s managerial skills.

The target setting process is controlled by the top management team for the performance perspective, and by the board of directors for the risk one. This is an interesting approach, as the board as representatives of the shareholders, can express and define the risk appetite and risk levels to be taken by the bank, and the management team can work on the performance given these risk limits.

On the flip side, the approach of control the revenues, number of clients, and profitability for each of its business areas, seems a poor process, lacking the customization of requirements for each division that can lead to a lack of predictability and understanding on how a division will perform; hampering one of the PMS capabilities.

The evaluation and monitoring seems appropriate for both performance and risk systems, with the presence of a defined period for each of them and some major indicators being daily monitored.

The reward system, as defined by the 360 degree evaluation of the employee, is based on the perception of performance by the co-workers, which is subjective. This characteristic can weaken the PMS system, as the variable remuneration does not present a clear linkage to the indicators and can lead to demotivation (Kaplan & Norton, 1996). On the flip side, it does not lead to dysfunctional behavior and the denominator's manager problem (Berry, et al., 2009).

Regarding the Updating and Learning perspective, *Beta* presents systems capable to provide on time data to support decision making. The main concern regards the learning ability. Even though the interviewee highlighted the usage of reports as a tool to ensure the implementation of the strategy, the lack of stronger link between strategy and indicators seems a barrier to a more complete and long-term learning, innovation and planning process (Davis & Albright, 2004).

There is evidence of a good balance between performance and risk, from indicators to processes, the presence of both perspectives in many activities gives confidence to state that one is not undermined by the other.

Concluding, *Beta* is a bank in expansion phase and its strategy is in accordance with its size and capabilities. The recent expansion plans and the presence of active shareholders seems to be translated into the definition of process to monitor the banks performance and risk. The definition of targets for the systems is an interesting practice, exploiting the characteristics of the top management team and board of directors. On the flip side, even though it could be notice in the interview the recurrence of the “strategy” topic, the lack of a stronger link between stated strategy and PMS shows a control system not fully develop to exploit all its possibilities. In the performance metrics, the bank possesses financial and non-financial indicators, but a better balance between them, a strong linkage to strategy and a bigger focus on the upcoming performance can result in a better supportive tool to the decision making. The risk management system seems well structure, embracing qualitative and quantitative practices that are in accordance with the best practices presented in the literature.

5.3 Cases comparison

The comparison between the two case studies points out similarities and differences between the banks. Even though both are commercial banks with investment bank’s activities, the differences in size and territory introduce factors that affect their decisions and systems.

The first common finding in the cases is the accordance of each strategy to the moment of each bank. *Iota*’s strategy reacts to new requirements from the markets in response to the financial crisis as well as the internal requirements due to the consolidation of its mergers and acquisitions strategy. *Beta*’s strategy also reflects its internal demands of business expansion. Both are in accordance with the business models proposed by Accenture (2012a) to face this new reality in the industry post-financial crisis.

For the PMS, *Iota* presents a more structured reporting system, consolidating the information from different divisions, meanwhile *Beta* has its Action Plan to structure its PMS, but far less developed than the Italian bank, which is in accordance with their different sizes. Regarding the key performance indicators, both banks struggle to create a strong linkage between strategy and indicators, however *Iota* has this linkage marginally better than *Beta*. Moreover, both banks focus on financial indicators that can be derived from financial statements. The lack of non-financial indicators and the lack of distribution of these metrics in different perspectives of the business (customer, internal process or learning) hampers the PMS capabilities to anticipate future performance, and might bring difficulties to the management team to evaluate the success of the current strategy and its implementation.

In the risk perspective, both companies relies in similar indicators. The presence of VaR, stress tests and capital ratios in both banks is a signal of the international efforts towards a more standardize regulation across markets. The risk management practices in *Beta* seems to be more process oriented, with focus on the definition of evaluation meetings, responsible teams for target settings and analysis. On the flip side, *Iota* seems to have a more powerful risk management system supported by an extensive use of technology. However, this more powerful system looks to lack integration in order to provide a unique picture. The risk practices in the Brazilian bank seems more connected and better balanced, a possible benefit from the smaller size in comparison with the Italian one.

The quantity of information and the complexity introduced by the models, especially for the risk systems, brings the attention for the human capital required to understand, to interpret and to take decisions based on the data provided by the systems. All the indicators are based in a series of assumptions and hypothesis that requires skilled people to provide thoughtful information. Regulation plays an important role for both banks, however, the interviews revealed a bigger concern in *Iota* than in *Beta* regarding reports, indexes, audited processes and other requirements. This bigger focus on regulation in the Italian bank is explained when analyzed together with a longitudinal study of Barth, et al. (2013) regarding banking regulation and supervision. In this study from 1999 to 2011, the authors show, among others, the evolution across time of the “official supervisory powers index”, a measure of the intervention and demands from regulators. In a scale

from minus ten to ten, Italy scored seven while Brazil scored minus one, illustrating the tightening of regulation in Italy, illustrating this bigger concern from the *Iota*'s interviewee with regulatory requirements. Moreover, Italy was in the top three countries that increased regulation from a total poll of 180 countries during this period, as shown in the Appendix 8.2. This trend was also seen following the financial crisis; an increase in regulation in Italy and a decrease in Brazil, as seen in the Annex 8.3.

Regarding the target setting process, both banks are influenced by regulation. Nevertheless, the comparison shows that *Beta* has a more thoughtful and balance target setting process delegating the risk to the board of directors and performance to top management. This might be attributed to the size of the company, which enables a faster and more collaborative decision making among stakeholders.

The analysis of the reward systems, shows different practices. While *Iota* uses a factor that takes into consideration overall risk, profitability, solidity and liquidity of the achieved results, defining a linkage between performance and variable remuneration, *Beta* focuses its reward system in the 360 degrees assessment, which is subjective. Thus, *Iota* can be considered with a better practice in this perspective than *Beta*. However, both banks could pursue the development and strengthen of the linkage between PMS and the employees' variable compensation, as a way to bring this system, and all that it supports, to the attention of the employees. Nevertheless, this should be done just after the PMS becomes more focus on long-term results and more balance among different firm's perspectives, otherwise it might induce a dysfunctional behavior.

Regarding the updating perspective, both banks described in their interviews capabilities to support the performance and the risk systems, the introduction on new indicators and the ability to provide updated data, monitoring even daily some indicators.

In the learning perspective, both banks present a management-by-exception approach, in which the PMS and ERM are used to alert when an indicator is out of its target and corrective actions can be taken. However, there is no evidence, in any of the banks, of the double-loop learning (Argyris, 1977), an activity that leads to a broader process of decision making, challenging and monitoring the strategy and objectives.

Iota and *Beta* present similarities on how they balance performance and risk management, and there is no evidence, in any of the banks, of one practice being undermined by the other.

Concluding, the banks presents a general similarity in its practices. In the risk perspective, both banks present developed system, with mature practices. The possible drawbacks are more related to the capability to understand and analyze the information coming from the system, than the system itself. An important point is the role of regulation for this system, especially in Italy, influencing indicators, reports, and also the target setting process. Analyzing the performance perspective, both cases present many opportunities for improvement. Some common recommendations are a stronger linkage between strategy and key performance indicators, which should also be more balanced between financial and non-financial ones, as well as measuring different areas of the business and presenting a more long-term orientation; and especially the usage of the PMS as a tool to monitor and challenge the strategy and its implementation.

6. Conclusion

This work was motivated by the many scandals and management fiascos that have scarred the investment bank's reputation in the past decades. The business has been characterized as one of the most dynamic, fast-paced and challenging industries in the world, but the growing number of issues has put the industry under public and political scrutiny.

The objective of this work was to analyze the current PMS and ERM practices in the industry, developing a diagnosis of these systems, thereupon proposing improvements for them that can contribute for better management practices that decrease these control problems faced by the industry. To sustain this analysis, two case studies were conducted, one in an Italian and the other in a Brazilian bank.

Thus, this last chapter aims to present the conclusions derived from the analysis of the cases, to highlight interesting practices found on them, to point out possible solutions for the problems, and to suggest further topics to be studied in the area.

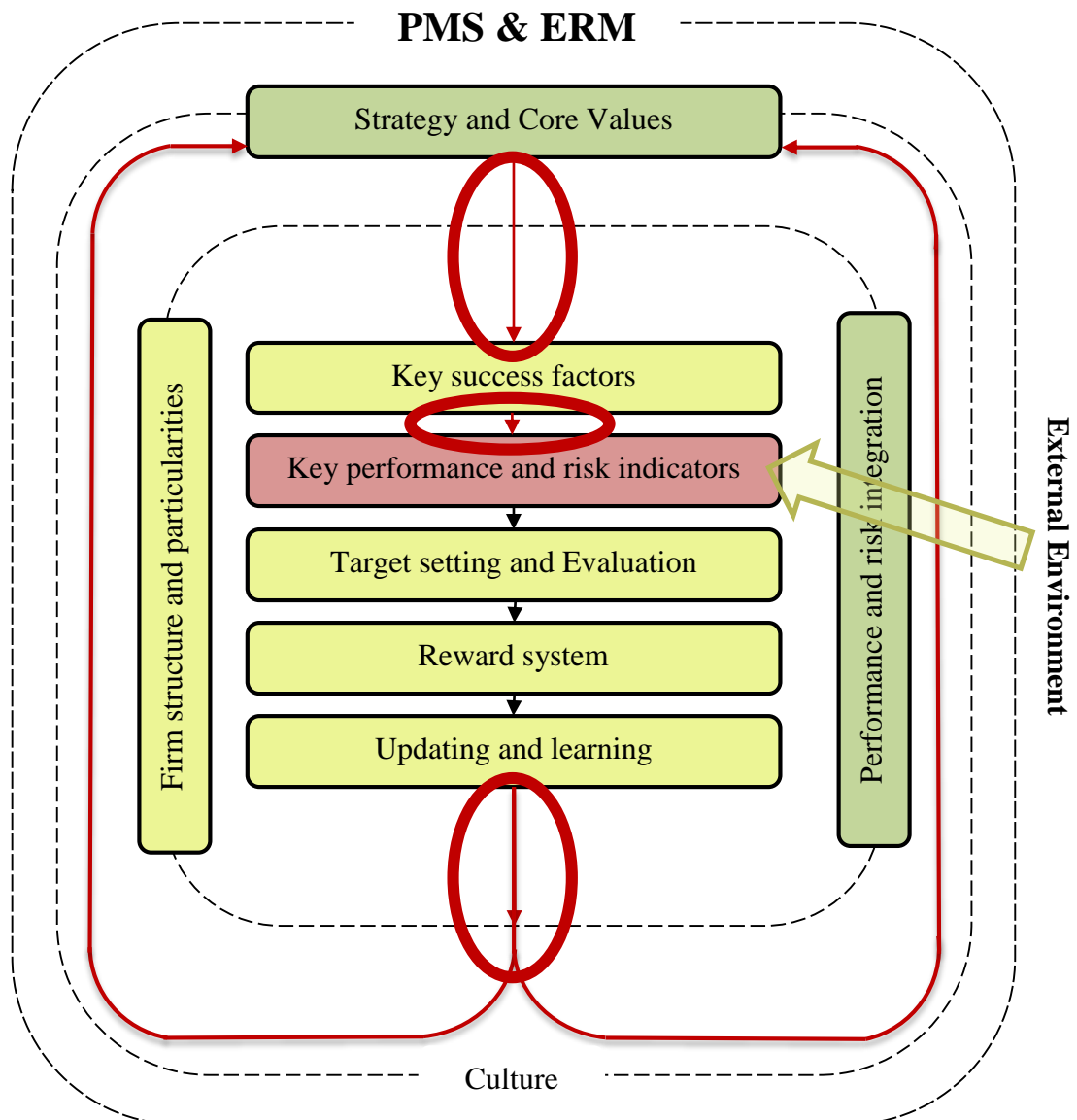


Figure 8: Diagnostic of the systems

Figure eight summarizes the main finds in both cases. The green color represents a good process, the yellow one represents an opportunity of development given the practices described in the literature, and the red one represents the critical factors for the improvement of the systems.

As the figure eight shows, the banks presented a strategy defined in accordance with the recent scenario of the industry, as well as a good balance between risk and performance practices. Firm structure and particularities were well defined in both banks, however there were not a customization of the systems to better suit each institution particularities.

The main issue found was the weak link between strategy and especially key performance indicators. The definition of key success factors was found only in one bank, but it did not strengthen the link between strategy and indicators. Also, the external environment, particularly regulation, played an important role in influencing the determination of the risk indicators. The resulting lack of customization in the key indicators undermined the full development of the next activities for the systems. Moreover, as the last step, updating and learning, is not supported by indicators customized to the current strategy, it lacks the ability to provide a more powerful output to challenge and verify the implementation of the strategy.

In deep the risk practices, in both banks the ERM system presented many similarities; the key risk indicators were quite similar, an evidence of the international efforts led by the BIS to more standardized practices in the banking industry around the world (BIS, 2010). It is important to highlight that the interview with *Iota* revealed a big concern in the Italian bank with regulatory requirements. This can be justified by an increase in the demands in the country by the Bank of Italy (Barth, et al., 2013) as well as from European Union authorities. How this regulation will affect the risk practices and the business models in the industry will be an important topic in the upcoming years. A possible improvement for both banks in this perspective is a more customized risk system, not only covering standardized risk metrics demanded by regulators, but also including customized metrics monitoring the banks' particularities.

Both banks presented IT capabilities to support the risk systems with updated data and possibilities to the introduction of new metrics. The description by *Iota* of new indicators to monitor the exposure for specific countries during the financial crisis was a good example on how the systems can adapt to new demands. Moreover, the introduction of the IRC metric, complementing the usage of VaR (Finger, 2011), shows a comprehension of the limits of each indicator, an important factor for a good ERM system. Also, the qualitative actions reported by *Beta* to investigate operational risks are good examples of practices to be taken by the industry in order to monitor risks that might be hidden inside the organization and do not appear in the most common indicators like VaR and stress tests; going in the direction of a more holistic approach to manage the risk (Mikes, 2009). This combination of the developed quantitative metrics combined with a more qualitative

approached is sustained by the practitioners as the best practice that the organizations must pursue to implement (Gilbert, 2004).

The ERM systems in both banks are mature, with staff, processes and IT capabilities to support complex models and to measure quantitative risks. An important remark is the necessity of skilled employees who are able to understand the complexity and the limitations of the risk metrics, therefore not only analyzing and judging the measured risks, but also knowing the boundaries imposed by the modeling assumptions; protecting the bank from a false sense of security that might come from a developed and complex ERM system. These are the next steps in the banks practices in order to diminish the possible problems described in the literature, as the lack of comprehension of the articulation of some risks, like the interconnected ones in an enterprise wide-perspective (Power, 2009) and an overly-rational and simplistic view of organizations (Arena, et al., 2010).

Regarding the performance practices, the PMS of both banks present opportunities for improvement. The most critical problem found was the lack of a stronger connection between the banks' goals and the key performance indicators, and according to Wu, et al. (2009) this link is an important characteristic for a bank long-term survival.

Both institutions have strategies in accordance with the ones suggested by the literature for the upcoming years, as well as IT capabilities to support PMS activities; however, the huge focus on financial metrics is a signal of PMS with short-term orientation, reactive and focused on past performance. These findings were aligned with the ones by Kosmidou, et al. (2006) and Hepworth (1998), which respectively reported PMS of banks focused mainly in financial factors and biased to external financial reporting.

A possible solution would be a better balance between financial and non-financial metrics, as well as indicators measuring different perspectives of the business. The implementation of tools, like the Balanced Scorecard (Kaplan & Norton, 1992; Kaplan & Norton 1996), and the development of Strategy Maps (Kaplan & Norton, 2000), could be an answer to provide the banks a better monitoring system of their business and their

performance, also clarifying and strengthening the cause-and-effect relationship among indicators and the strategy (Neely & Al Najjar, 2006).

This seems to be the central issue of the PMS in the banks. Solving this problem would enable *Iota* and *Beta* to have a performance system more active, signaling upcoming difficulties and enabling the banks to take actions prior to major problems (Tangen, 2004). It could also enable the implementation of a reward system more aligned to the indicators and the strategy; the monitor, reflection and challenge of the strategic goals; and it would also bring the attention of the organizations and their employees to the critical success factors of the organization (Simons, 1991).

Regarding the balance between performance and risk practices; both cases provided evidences that risk and performance are embedded into each other, as pointed out by Palermo (2011a), they both receive managements' attention, and no system is undermined by the other. Even though the interviews revealed processes that integrate risk and performance features, risk and performance management are not fully merged into one system, in accordance with Cifuentes (2012), probably due to high simplification costs, as stressed by Palermo (2011a).

Concluding, this study provided important insights into the banks practices, presenting the strengths and weaknesses of performance and risk management systems of two institutions; it suggests alternatives for the improvement of ERM and PMS practices in these banks. Robust and well developed PMS and ERM practices can play an important role supporting the decision making process for the organizations that operate in a complex and dynamic environment, as investment banks.

6.1 Limitations and further research

The suggestions for posterior studies in this topic are based on limitations faced during the research activity and also on topics that the results will appear in the upcoming years as their measures are being implemented.

The first one would be a similar study embracing more institutions in order to enrich the material and enabling the identification of common practices for specific countries, or for

banks with a similar profile. More cases probably would result in a wider range of best practices, as well as more solid conclusions as they would be backed by a bigger sample. The finds of this study are based on only two cases, thus, there are limitation on the extent of them and it is uncertain if this practices represent the general ones in the industry.

Another topic to be addressed by a future study is how the changing regulation, mainly consequence of the financial crisis, will impact the risk and performance systems. The concern with regulation and its changes was a recurrent topic in the *Iota* interview, thus the better understanding, especially for the risk management, on the role that regulators will play in the definition of practices and how and if it will affect the decision making, will be a central topic for the industry.

A study regarding ERM practices focusing on operational risk and how to manage and mitigate them would be important to disseminate practices that appear as a concern for banks' executives, like the rogue trader risk. The banks have complex quantitative models to measure risks, however a more holistic approach focused on qualitative issues can strengthen the risk practices.

Finally, the study of the performance of a bank with a developed PMS, with balanced indicators linked to the strategy and focused on the long-term, would be a way to confirm if some of the suggestions made by this work are pointing to the right direction for the performance management practices in the investment banking industry.

7. References

Accenture, 2012a. *Focus for Success: The high performing investment bank*, s.l.: Accenture.

Accenture, 2012b. *Financial reporting challenges in Investment Banking*, s.l.: Accenture.

Agostino, D. & Arnaboldi, M., 2012. Design issues in Balanced Scorecards: The “what” and “how” of control. *European Management Journal* , 30(4), pp. 327-339.

Alcidi, C. & Gros, D., 2011. Great recession versus great depression: monetary, fiscal and banking policies. *Journal of Economic Studies*, 38(6), pp. 673-690.

Allen, B., Chan, K. K., Milne, A. & Thomas, S., 2012. Basel III: Is the cure worse than the disease?. *International Review of Financial Analysis*, 25(1), pp. 159-166.

Arena, M., Arnaboldi, M. & Azzone, G., 2010. The organizational dynamics of enterprise risk management. *Accounting, Organizations and Society*, 35(7), pp. 659-675.

Argyris, C., 1977. Double loop learning in organizations. *Harvard business review*, 55(5), pp. 115-125.

Bao, J. & Edmans, A., 2011. Do investment banks matter for M&A returns?. *Review of Financial Studies*, 24(7), pp. 2286-2315.

Barth, J. R., Caprio Jr, G. & Levine, R., 2013. *Measure It, Improve It: Bank Regulation and Supervision in 180 Countries 1999 – 2011*, Santa Monica: Milken Institute.

Beasley, M., Chen, A., Nunez, K. & Wright, L., 2006. Working Hand in Hand: Balanced Scorecard and Enterprise Risk Management. *Strategic Finance*, 87(9), pp. 49-55.

Berry, A. J. et al., 2009. Emerging themes in management control: A review of recent literature. *The British Accounting Review* , 41(1), pp. 2-20.

BIS, 2010. *Basel III: A global regulatory framework for more resilient banks and banking system*, Basel: Bank for International Settlements.

BIS, 2012. *Basel III regulatory consistency assessment programme*, Basel: Bank for International Settlements.

Bititci, U. S. et al., 2006. Dynamics of performance measurement and organisational culture. *International Journal of Operations & Production Management*, 26(12), pp. 1325-1350.

Boot, A. W. & Marinč, M., 2008. The evolving landscape of banking. *Industrial and corporate change*, 17(6), pp. 1173-1203.

Bourne, M. et al., 2000. Designing, implementing and updating performance measurement systems. *International Journal of Operations & Production Management*, 20(7), pp. 754-771.

Bourne, M., Neely, A., Platts, K. & Mills, J., 2002. The success and failure of performance measurement initiatives: perceptions of participating managers. *International journal of operations & production management*, 22(11), pp. 1288-1310.

Cartwright, S. & Schoenberg, R., 2006. Thirty years of mergers and acquisitions research: Recent advances and future opportunities. *British Journal of Management*, 17(1), pp. S1-S5.

Chandler, A. D., 1977. *The visible hand: The managerial revolution in American business*. 16 ed. Boston: Harvard University Press.

Cifuentes, E. C., 2012. *Performance and Risk Management*, Milan: Politecnico di Milano.

Clarke, J., Dunbar, C. & Kahle, K., 2002. *All-star analyst turnover, investment bank market share, and the performance of initial public offerings*, s.l.: University of Pittsburgh. Working Paper.

Cooper, E. & Uzun, H., 2012. Directors with a full plate: the impact of busy directors on bank risk. *Managerial Finance*, 38(6), pp. 571-586.

COSO, 2004. *Enterprise Risk Management - Integrated Framework*, s.l.: Committee of Sponsoring Organizations of the Treadway Commission.

COSO, 2010. *Developing Key Risk Indicators to Strengthen Enterprise Risk Management*, s.l.: Committee of Sponsoring Organizations of the Treadway Commission.

COSO, 2011. *Embracing Enterprise Risk Management*, s.l.: Committee of Sponsoring Organizations of the Treadway Commission.

COSO, 2012. *Risk assessment in practice*, s.l.: Committee of Sponsoring Organizations of the Treadway Commission.

Davis, S. & Albright, T., 2004. An investigation of the effect of balanced scorecard implementation on financial performance. *Management Accounting Research*, 15(2), pp. 135-153.

Davis, S. I., 2003. *Investment Banking: Addressing the Management Issues*. Basingstoke, Hampshire: Palgrave Macmillan.

De Toni, A. & Tonchia, S., 2001. Performance measurements systems, models, characteristics and measures. *International Journal of Operations & Production Management*, 21(1), pp. 48-70.

Delloite, 2013. *IASPLUS*. [Online]
Available at: <http://www.iasplus.com/en/standards/ias14>
[Accessed 02 July 2013].

Eccles, R. G., 1991. The performance measurement manifesto. *Harvard business review*, 69(1), pp. 131-137.

Eccles, R. G. & Crane, D. B., 1988. *Doing deals: Investment banks at work*. Boston, MA: Harvard Business School Press.

Ellis, K., Michaely, R. & O'Hara, M., 2011. Competition in investment banking. *Review of Development Finance*, 1(1), pp. 28-46.

Fenton-O'Creevy, M., Nicholson, N., Soane, E. & Willman, P., 2003. Trading on illusions: Unrealistic perceptions of control and trading performance. *Journal of Occupational and Organizational Psychology*, Volume 76, pp. 53-68.

Ferreira, A. & Otley, D., 2009. The design and use of performance management systems: An extended framework for analysis. *Management Accounting Research*, 20(4), pp. 263-282.

Finger, C. C., 2011. Benchmarking the incremental risk charge. *The Journal of Credit Risk*, 7(2), pp. 53-70.

Fleuriet, M., 2008. *Investment Banking explained: An insider's guide to the industry*. New York, NY: 2008.

Froot, K. A. et al., 1995. *The Global Financial System: A Functioning Perspective*. Boston, MA: Harvard Business School Press.

FT, 2006. *Financial Times*. [Online]
Available at: <http://www.ft.com/intl/cms/s/0/8fb42468-7dbb-11db-9fa2-0000779e2340.html#axzz2XtlocSz0>
[Accessed 02 July 2013].

FT, 2013a. *Financial Times*. [Online]
Available at: <http://ftalphaville.ft.com/tag/the-belly-of-the-jpm-whale/>
[Accessed 02 July 2013].

FT, 2013b. *Financial Times*. [Online]
Available at: <http://www.ft.com/intl/indepth/libor-scandal>
[Accessed 02 July 2013].

Gates, S., 1999. *Aligning strategic performance measures and results*, New York: The Conference Board.

Gilbert, D., 2004. *Will Every Bank Eventually have ERM?*, s.l.: Accessed on www.erisk.com.

Gittleman, C. S. & Sacks, R. D., 2008. The development of US regulation of broker-dealer research. *Journal of Investment Compliance*, 9(2), pp. 12-25.

Hauser, J. R., Siemester, D. & Wernerfelt, B., 1994. Customer satisfaction incentives. *Marketing Science*, 13(4), p. 327–350.

Hemmer, T., 1996. On the design and choice of “modern” management accounting measures. *Journal of Management*, Volume 8, p. 87–116.

Hepworth, P., 1998. Weighing it up-a literature review for the balanced scorecard. *Journal of Management Development*, 17(8), pp. 559-563.

Holland, J., 2010. Banks, knowledge and crisis: a case of knowledge and learning failure. *Journal of Financial Regulation and Compliance*, 18(2), pp. 87-105.

Ittner, C. D., Larcker, D. F. & Randall, T., 2003. Performance implications of strategic performance measurement in financial services firms. *Accounting, Organizations and Society*, 28(7), pp. 715-741.

Kaplan, R. S. & Norton, D. P., 1992. The balanced scorecard: Measures that drive performance. *Harvard Business Review*, 1(1), pp. 71-79.

Kaplan, R. S. & Norton, D. P., 1993. Putting the balanced scorecard to work. *The performance measurement, management and appraisal sourcebook*, 71(5), pp. 134-142.

Kaplan, R. S. & Norton, D. P., 1996. Using the balanced scorecard as a strategic management system. *Harvard business review*, 74(1), pp. 75-85.

Kaplan, R. S. & Norton, D. P., 2000. Having trouble with your strategy?: Then map it.. *Harvard Business Review*, 78(5), pp. 167-176.

- Kaplan, R. S. & Norton, D. P., 2004. Measuring the strategic readiness of intangible assets. *Harvard business review*, 82(2), pp. 52-63.
- Keegan, D. P., Eiler, R. G. & Jones, C. R., 1989. Are your performance measures obsolete?. *Management accounting* , 70(12), pp. 45-50.
- Kennerley, M. & Neely, A., 2003. Measuring performance in a changing business environment. *International Journal of Operations & Production Management*, 23(2), pp. 213-229.
- Khademian, A. M., 2011. The Financial Crisis: A Retrospective. *Public Administration Review*, 71(6), pp. 841-849.
- Kosmidou, K., Pasiouras, F., Doumpos, M. & Zopounidis, C., 2006. Assessing performance factors in the UK banking sector: A multi-criteria methodology. *Central European Journal of Operations Research*, 1(25-44), p. 14.
- Krainer, R. E., 2012. Regulating Wall Street: The Dodd–Frank Act and the New Architecture of Global Finance, a review. *Journal of Financial Stability*, 8(2), pp. 121-133.
- Liaw, K. T., 2011. *The business of investment banking: A comprehensive overview*. Hoboken, New Jersey: Wiley.
- Lingle, J. H. & Schiemann, W. A., 1996. From balanced scorecard to strategic gauges: is measurement worth it?. *Management Review* , 85(3), pp. 5656-61.
- Marrison, C. I., 2002. *The fundamentals of risk measurement*. 1a ed. New York: McGraw-Hill.
- McCunn, P., 1998. The Salanced Scorecard... the eleventh commandment. *Management Accounting*, 76(11), pp. 34-37.

Meglio, O. & Risberg, A., 2011. The (mis) measurement of M&A performance—A systematic narrative literature review. *Scandinavian journal of management*, 27(4), pp. 418-433.

Mikes, A., 2009. Risk management and calculative cultures. *Management Accounting Research*, 20(1), pp. 18-40.

Mishkin, F. S. & Eakins, S. G., 2012. *Financial markets and institutions*. 7a ed. Boston: The Prentice Hall.

Morgan Stanley, 2013. *Morgan Stanley*. [Online] Available at: http://www.morganstanley.com/institutional/invest_bank/corporate_advisory.html [Accessed 02 July 2013].

Neely, A., 1999. The performance measurement revolution: why now and what next?. *International Journal of Operations & Production Management*, 19(2), pp. 205-228.

Neely, A., 2002. *Business performance measurement: theory and practice*. 1 ed. Cambridge: Cambridge University Press.

Neely, A., 2005. The evolution of performance measurement research: developments in the last decade and a research agenda for the next. *International Journal of Operations & Production Management*, 25(12), pp. 1264-1277.

Neely, A. & Al Najjar, M., 2006. Management learning not management control: the true role of performance measurement. *California Management Review*, 48(3), pp. 99-114.

Neely, A. et al., 1997. Designing performance measures: a structured approach. *International journal of operations & Production management*, 17(11), pp. 1131-1152.

Nixon, W. A. & Burns, J., 2005. Management control in the 21st century. *Management Accounting Research*, 16(3), pp. 260-268.

Otley, D., 1999. Performance management: a framework for management control systems research. *Management Accounting Research*, 10(1), pp. 363-382.

Palermo, T., 2011a. *Integrating risk and performance in management reporting*, London: Chartered Institute of Management Accountants.

Palermo, T., 2011b. *Time to link risk and performance management: but how?*, s.l.: Accessed via <http://community.cimaglobal.com/blogs/tommaso-palermos-blog/time-link-risk-and-performance-management-how>.

Paulet, E., 2011. Banking ethics. *Corporate Governance* , 11(3), pp. 293-300.

Pickford, J. & Alexander, C., 2001. *Financial Times Mastering Risk: Concepts*. 1a ed. London: Financial Times-Prentice Hall.

Power, M., 2009. The risk management of nothing. *Accounting, Organizations and Society*, 34(6), pp. Power, Michael. "The risk management of nothing." *Accounting, Organizations and Society* 34.6 (2009): 849-855..

PwC, 2009a. *Effective performance management practices drive superior performance*, Ontario: PricewaterhouseCoopers.

PwC, 2009b. *Performance Management Matters: Sustaining Superior Results in a Global Economy*, Ontario: PricewaterhouseCoopers.

Raghavendra Rau, P., 2000. Investment bank market share, contingent fee payments, and the performance of acquiring firms. *Journal of Financial Economics*, 56(2), pp. 293-324.

Ribstein, L. E., 2005. Sarbanes-Oxley after three years. *University of Illinois Legal Working Paper Series*, 30(1), pp. 1-24.

Rosenbaum, J. & Pearl, J., 2009. *Investment banking : valuation, leveraged buyouts, and mergers & acquisitions*. Hoboken, New Jersey: John Wiley & Sons, Inc..

Simons, K., 1996. Value at risk: new approaches to risk management. *New England Economic Review* , pp. 3-13.

- Simons, R., 1991. Strategic orientation and top management attention to control systems. *Strategic Management Journal* , 12(1), pp. 49-62.
- Simons, R., 1995. *Levers of control: how managers use innovative control systems to drive strategic renewal*. 2a ed. Boston: Harvard Business Press.
- Sirri, E., 2004. Investment banks, scope, and unavoidable conflicts of interest. *Federal Reserve Bank of Atlanta Economic Review, Fourth Quarter*, pp. 23-35.
- Stowell, D., 2013. *Investment banks, hedge funds, and private equity*. 2a ed. Waltham, MA: Elsevier.
- Tangen, S., 2004. Performance measurement: from philosophy to practice. *International Journal of Productivity and Performance Management*, 53(8), pp. 726-737.
- Taticchi, P., Balachandran, K. & Tonelli, F., 2012. Performance measurement and management systems: state of the art, guidelines for design and challenges. *Measuring Business Excellence*, 16(2), pp. 41-54.
- Taticchi, P., Tonelli, F. & Cagnazzo, L., 2010. Performance measurement and management: a literature review and a research agenda. *Measuring Business Excellence* , 14(1), pp. 4-18.
- Varadarajan, P. R. & Clark, T., 1994. Delineating the scope of corporate, business, and marketing strategy. *Journal of Business Research*, 31(2), pp. 93-105.
- Williams, M. A., T. B. M. & Rao, R. P., 2008. Bank mergers, equity risk incentives, and CEO stock options. *Managerial Finance*, 34(5), pp. 316-327.
- Wu, H.-Y., 2012. Constructing a strategy map for banking institutions with key performance indicators of the balanced scorecard. *Evaluation and Program Planning*, 35(3), pp. 303-320.

Wu, H. Y., Tzeng, G. H. & Chen, Y. H., 2009. A fuzzy MCDM approach for evaluating banking performance based on Balanced Scorecard. *Expert Systems with Applications*, 36(6), pp. 10135-10147.

8. Appendix

8.1 Interview Check List

Case study #___

Objective:

To analyze the Performance Management System and Enterprise Risk Management practices in the Investment Banking Industry.

- Bank strategy and objectives
- Bank local structure and particularities
- Key performance and risk indicators
- Planning and Monitoring
- Reward System
- Update and Learning
- Integration PMS and ERM
- Additional notes

8.2 Change in the index of official supervisory powers from 1999 to 2011

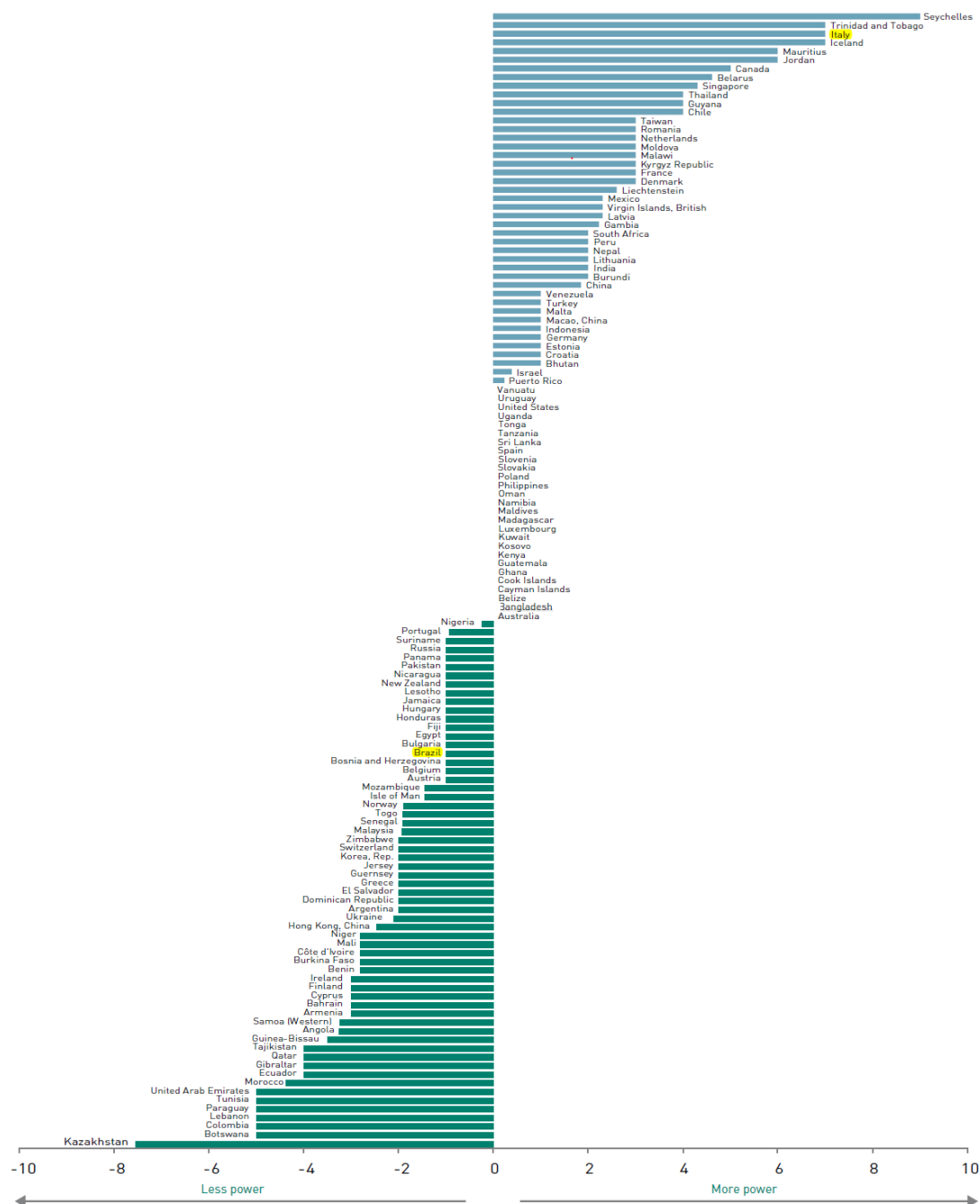


Figure 9: Change in the index of official supervisory powers from 1999 to 2011 (Barth, et al., 2013)

8.3 Change in the official supervisory powers following the global financial crisis

Table 2: Change in the official supervisory powers following the global financial crisis (Barth, et al., 2013)

Increase		Decrease		
Belarus	Moldova	Angola	Ecuador	Malaysia
Bhutan	Netherlands	Argentina	Egypt	Maldives
Botswana	New Zealand	Armenia	El Salvador	Malta
Burkina Faso	Nicaragua	Australia	Estonia	Mauritius
Burundi	Niger	Austria	Fiji	Mexico
Finland	Norway	Bahrain	Gambia	Morocco
France	Oman	Bangladesh	Germany	Nigeria
Greece	Peru	Belgium	Ghana	Pakistan
Guatemala	Poland	Belize	Gibraltar	Philippines
Guernsey	Puerto Rico	Benin	Hungary	Portugal
Guinea-Bissau	Russia	Bosnia and Herzegovina	Indonesia	Romania
Guyana	Seychelles	Brazil	Israel	Senegal
Iceland	Slovakia	Bulgaria	Jordan	Singapore
India	Sri Lanka	Canada	Kazakhstan	Slovenia
Isle of Man	Suriname	Cayman Islands	Kenya	South Africa
Italy	Tajikistan	Chile	Korea, Rep.	Spain
Jamaica	Thailand	China	Kosovo	Switzerland
Jersey	Togo	Colombia	Latvia	Taiwan
Kuwait	Trinidad and Tobago	Cook Islands	Lesotho	Tonga
Kyrgyz Republic	Uruguay	Côte d'Ivoire	Liechtenstein	Turkey
Lebanon	Vanuatu	Croatia	Lithuania	Uganda
Luxembourg	Virgin Islands, British	Cyprus	Macao, China	United States
Malawi	Zimbabwe	Denmark	Madagascar	
Mali				