ISCTE Business School
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CAIXABANK´S TAKEOVER OF BPI: THE IMPACT ON BPI´S STOCK

João Pereira Pedro de Jesus

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Supervisor:

Prof. José Carlos Dias, Professor Associado com Agregação, ISCTE Business School, Department of Finance

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Abstract

Caixabank, the Spanish bank that belongs to the "La Caixa" financial group, has been BPI´s shareholder for more than twenty years and since 2015 it has tried to take over the Portuguese bank. The ultimate takeover bid was in January 2017 and Caixabank became BPI´s majority shareholder in February 2017.

This thesis main objective is to study the impact this takeover had on BPI´s security, focusing on measuring the unexpected performance of the stock. Thus, we applied the event study methodology, using the market model as estimation model and choosing an estimation and event window that better fitted the corresponding event.

We computed the abnormal returns for the event window days and evaluated if these returns were statistically significant, presenting the main findings obtained.

This thesis outcome reveals that the takeover had a negative impact on BPI´s security price, which was statistically significant on the day of the takeover and the following day. Moreover, we observed the takeover had an unfavorable effect for the stock, which ended up being excluded from the PSI 20 index.

Keywords: Abnormal Returns, Event Study, Market Model, Takeover

Resumo

O Caixabank, o banco espanhol que pertence ao grupo financeiro espanhol "La Caixa", faz parte da estrutura acionista do BPI há mais de vinte anos e desde 2015 que tem tentado assumir o controlo do banco português. A derradeira oferta pública de aquisição foi em janeiro de 2017 e o Caixabank tornou-se acionista maioritário em fevereiro de 2017.

O principal objetivo desta tese é estudar o impacto que esta aquisição teve no título do BPI, mais precisamente, quantificar a performance inesperada da ação. Assim, aplicámos a metodologia de estudo de eventos, utilizando o Modelo de Mercado como modelo de estimação e tendo em conta a janela temporal de evento e de estimação que se adapta melhor ao respetivo evento.

Calculámos os retornos anormais dos dias correspondentes à janela temporal do evento e avaliámos a significância estatística destes retornos, apresentando os principais resultados obtidos.

O resultado desta tese evidencia que a aquisição teve um impacto negativo no preço da ação do BPI, sendo que este foi estatisticamente significativo no dia da aquisição e no dia a seguir. Para além disso, observámos que a aquisição teve um efeito desfavorável para a ação, que acabou por ser excluída do índice PSI 20.

Palavras-chave: Estudo de Eventos, Modelo de Mercado, Oferta Pública de Aquisição, Retornos Anormais

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Abbreviations/ Glossary

AAR – Average Abnormal Returns

AR – Abnormal Returns

BCBS – Basel Committee on Banking Supervision

BCP – Banco Millennium BCP

BFA – Banco de Fomento Angola

BFE – Banco de Fomento Exterior

BPI – Banco Português de Investimento

CAAR – Cumulative Average Abnormal Returns

CAR – Cumulative Abnormal Returns

CET 1 – Common Equity Tier 1

CMVM – Comissão do Mercado de Valores Mobiliários

EC – European Commission

ECB – European Central Bank

EMH – Efficient Market Hypothesis

GDP – Gross Domestic Product

IMF – International Monetary Fund

OLS – Ordinary Least Squares

PIIGS – Portugal, Italy, Ireland, Greece and Spain (in a context of economic crisis)

PSI 20 – Portuguese Stock Index 20

SPI – Sociedade Portuguesa de Investimento

1. Introduction

Banco Português de Investimento (henceforth, BPI) is one of the biggest Portuguese banks. In terms of total assets, BPI is the fifth largest financial institution operating in Portugal and not only provides its services in the banking business, but has a considerable share of the Portuguese insurance business.

In January 2017, the Spanish bank Caixabank presented a voluntary takeover proposition, with a price per share of 1.134 euros, to acquire all share capital of BPI.

The "La Caixa" group, the owner of Caixabank, has been BPI´s shareholder since 1995 and throughout the years it has increased its stake in the Portuguese bank, going from an initial 12% to an 84% stake.

Caixabank tried to acquire BPI for the first time in February 2015, with a proposal price of 1.329 euros per share. This offer had two main conditions to be able to move forward: Caixabank had to become the majority shareholder and BPI had to eliminate the statute which implied a maximum power of voting limit per shareholder of 20%. Some shareholders ended up declining this offer and, consequently, Caixabank decided to withdraw it.

In April 2016, Caixabank made a new proposal, in an offer valued at 1.113 euros per share, less than the previous valuation. However, the same two conditions of the previous takeover attempt had to be met.

Finally, five months later, the Spanish bank achieved the elimination of the statute which prevented the last takeover attempt. Therefore, in January 2017, Caixabank presented the ultimate formal public offer, with a price per share of 1.134 euros and a deadline fixed on the 07 of February 2017. The takeover formal announcement was one day later.

This thesis main objective is to study the impact this acquisition had on BPI´s security, focusing on the assessment of the unexpected performance of the stock. For this, we applied the event study methodology and taking into consideration the literature on this topic, we had to choose which estimation model to use, what event and estimation window better fitted the given event and what data sources to use.

Thereafter, we had to compute the abnormal returns (henceforth, AR) for the chosen event window and evaluate if these excess returns were statistically significant, taking conclusions about the relevant characteristics that affected each return.

In addition, in order to better understand the overall effect of the takeover, we computed the cumulative abnormal returns (hereafter, CAR) for various selected event windows, analyzing each result having in mind the different features of each time period.

Furthermore, apart from the event study methodology, this thesis explored BPI´s and Caixabank´s background, concentrating on the stock market history of these two companies and making the connection with the work performed on the general topic, namely Caixabank´s takeover of BPI. Moreover, this analysis of the historical stock performance of the two companies involved in the acquisition is really useful for the conclusions drawn.

In short, this thesis is organized as follows: section 2. "Literature Review" presents the financial literature on the efficient market hypothesis and the event study methodology; section 3. "Global Economy" shows a brief overview of the global economic situation; section 4. "Banking Sector Analysis" describes the main topics regarding the "Global Banking Industry" and the "Portuguese Banking Industry"; section 5. "Banco Português de Investimento Overview" presents the main historical facts about BPI, specifying the details about the takeover (performing a chronological analysis on this topics); section 6. "Stock Market" describes the "Portuguese Stock Market" major occurrences, displays some main facts about BPI´s and Caixabank´s stocks and compares the performance of these securities with the PSI 20 index and the IBEX 35 index, respectively; section 7. "Methodology", describes the methodology applied in the performance of the event study; section 8. "Results" exhibits the results obtained and shows an explanation of the main findings; section 9. "Conclusion" provides a brief explanation of the work performed and details the conclusions drawn.

2. Literature Review

2.1. Efficient Market Hypothesis

The efficient market hypothesis (hereafter, EMH) is one of the most respected theories in the financial literature, but, at the same time, a topic that generates much controversy. When we are working with financial markets and more specifically when an individual is studying the effect on the market of a given release of information, he is always dealing with the EMH.

The foundation of this topic had its starting point in the random walk theory of Bachelier (1900). In his work, he concluded that it is not possible to predict a perfect forecast for a specific financial asset, namely the future price of a certain security is always unknown. However, he determined that it is only feasible to calculate which fluctuations have a bigger probability of happening, stating "the market, unwittingly, obeys a law which governs it: the Law of Probability" (Bachelier, 1900: 47).

Seventy years later, Fama (1970) added some deeper knowledge about this topic, exploring the concept that when dealing with efficient markets, any security price "fully reflects" the available information.

First, for a better interpretation of the EMH concept, the author gives a simple example of three conditions that would be sufficient for capital market efficiency: "consider a market in which (i) there are no transaction costs in trading securities, (ii) all available information is costlessly available to all market participants, and (iii) all agree on the implications of current information for the current price and distributions of future prices of each security" (Fama, 1970: 387). However, these are clearly not conditions we can observe in markets nowadays, but fortunately they are not mandatory requirements for market efficiency. Fama (1970) states that if at least the right amount of investors own the available information and there are no investors who constantly have better judgements of these information we can also be in the presence of an efficient market, it will always depend on these market specifications. Moreover, quantifying the effect that these several conditions have on the financial markets is the author´s main focus.

Later, Fama (1970) defines three different categories regarding the information available and divides is empirical work and further conclusions according to these:

1. The weak form of EMH, where he states that security prices will incorporate all historical market information, giving no possibility of excess returns among the investors;

2. The semi-strong form of EMH, a category which describes a market that fully reflects all the available public information, where it is impossible to profit using new data;
3. The strong form of EMH, where the market reflects all information, i.e. public and inside information. In this category, the author adds the concept that it is irrelevant if an investor possess limited information access.

Some years later, Brenner (1979) studied the importance of the market model used in tests on the EMH. The question the author is addressing is "how sensitive are tests of the EMH to alternative specifications of the market model?" (Brenner, 1979: 918).

Using a same sample of stock splits to test for the EMH, the author managed to observe some differences between the results of the five estimation models applied. He states that these differences can have diverse interpretations, depending on how strict the test is, but concludes that it is evident that different market models result in different outcomes and that the market model applied is a fundamental component of any test.

The type of event that is being tested can also have implications in terms of market efficiency conclusions, as determined by the author, when comparing with stock splits: "In more complicated events, the differences may be large enough to make definite conclusions about market efficiency dependent upon the market model that is used" (Brenner, 1979: 927).

The overall conclusion of this study was that different market models should be applied for future work on this topic and that distinct results should be analyzed in order to conclude about market efficiency.

The premise of efficient markets is considered a requirement when an individual is performing an event study as it discusses the way information is absorbed by the market. Therefore, the EMH is crucial when taking conclusions about the effect a given event had on a particular stock / market.

2.2. Event Studies

We use the event study methodology when we want to measure the relationship between an event that affects securities and the return of those specific securities. We can state that the main objective of an event study is to estimate abnormal security returns. This abnormal or excess return can be described as the difference between the return estimated for the security and the actual observed return (Peterson, 1989).

When dealing with event studies, we can enumerate various types of events that have impact in securities. Namely, we can conduct an event study about a merger or acquisition, about a company´s new product release or even about a firm´s bankruptcy announcement.

Furthermore, we can have different types of events with reference to the scaling of their effect. For instance, if we are talking about a regulatory measure or other event that will affect the economy as a whole, this event will affect many securities simultaneously. On the other hand, if we are facing a stock split news or an adjustment in the dividend policy of a given company, this event will only have an impact in individual securities (Kritzman, 1994). Thus, the individual who is conducting the event study should be able to adapt to the given dimension of the event.

The term event study gained some popularity in 1969, when Fama et al. (1969), hereafter, FFJR (1969), published the paper "The adjustment of stock prices to new information". Fifty years later, this paper is still one of the most acclaimed works regarding this topic and it is crucial that we reference it. The authors examined the impact of stock splits on securities, investigating for a defined period of 33 years and 940 splits, whether stock splits have a direct influence in the analyzed securities returns. Despite this thesis being based on a specific event, BPI´s takeover, in contrast with the defined population of 940 different splits considered by FFJR (1969), the outcome of their analysis can be really useful for this work.

With the attempt to find if stock splits have a positive correlation with higher returns for investors, the authors focused in two main occurrences: "purchasing split securities after the splits have become effective" and "buying splitting securities as soon as information concerning the possibility of a split becomes available". They concluded the following: stock splits would in fact influence the price of securities, associating it with the fact that the market views the stock split as an increase of the probability of having a bigger dividend. However, they also determined that, excluding the case where an individual has prior market information about a specific stock split, it is not possible to take advantage of this situation, concluding that the behavior of the average

residuals (average results for the entire population) is clearly positive for a long period. Yet when dealing with individual securities the residuals are "much more randomly distributed around 0", which suggests that one cannot get increased expected profits.

This contrast between the average residuals and the residuals of individual securities is explained by the fact that residuals from different splits are independent and so the positive returns associated with a stock split will be observed in different periods for different splits. Even though the average results are positive for a specific period, we cannot be certain that they will be positive for a particular security among the population in that same period.

The majority of the work performed regarding event studies is based on stock splits. We can suggest that this happens because in most of the cases the information given in a split announcement is particularly straightforward when compared to more complex information disclosures like a share repurchase or a company takeover, as the intention behind a stock split is normally easier to understand and has a direct impact in the specific stock price (Hwang et al., 2008).

An important topic to analyze concerning event studies, which will have an impact in the conclusions of this thesis, is the difference in abnormal returns for an anticipated event versus an unexpected event. When investigating this, we must have in mind the short run and the long run, as the outcome can be different.

According to Hwang et al. (2008), analyzing the effect of stock splits, we can observe that for the short run (-1, 0, +1 days, considering day 0 as being the split announcement day) the abnormal returns are slightly higher when dealing with unexpected stock splits in comparison with returns for expected stock splits, while in the long run (-12, 0, 36 months, considering day 0 as being the split announcement day) we conclude the opposite.

Considering a population of stock splits which took place between January 1962 and December 2003, the authors determined that in the short run a surprise split can be briefly more attractive to investors but in the long run anticipated stock splits will bear higher returns, as the split announcement is normally seen as more credible thanks to a higher abnormal return in the months prior to the split. They also concluded that in both cases the speed at which the announcement information is absorbed by the market is equal, taking several months of rising returns to see that the information is fully absorbed in the stock price.

As shown before, a large proportion of the works on event study's methodology focuses on measuring the impact of many events simultaneously, for example considering a population of several stock splits or several dividend distributions for a defined period. In this case, one should compute the average of the abnormal returns calculated for each stock, getting the average abnormal return (AAR) and then, in order to aggregate all the excess returns, one should compute the cumulative average abnormal return (CAAR), analyzing these in terms of statistically significance and taking subsequent conclusions.

However, if we are dealing with a single event, like the one in this thesis, the analysis performed will differ, but the final objective of the event study methodology, namely conclusion about the existence of statistically significant excess returns, will be the same. Therefore, for a single event study, one should calculate each abnormal return for the defined event window, aggregate these across time, computing the cumulative abnormal returns and then conclude about the statistically significance of these AR´s and CAR´s. Detailed information about the calculation of the single event abnormal returns is presented in section 7. "Methodology".

3. Global Economy

The 21st century brought many transformations in several major fields, which turned out to be vital for the huge economic growth observed in the early years (prior the 2008 crisis). But, when the global financial crisis emerged in 2008, the economy collapsed and it started to be obvious that countries like Portugal were unable to produce sufficient capital to pay its government debt, even with a successive increase in taxes and significant taxpayer benefit reductions.

Furthermore, most European countries saw their debt levels sustain a continuous growth throughout the years (see Exhibit 1), easily observable in the years after the crisis. However, the gross domestic product (hereafter, GDP) of these countries also remained in a growing pace, a lot due to the modern technology expansion, which had an effect in all economic environment, obviously including the banking industry (with the rise of electronic banking alongside the recent globalization of the term Fintech).

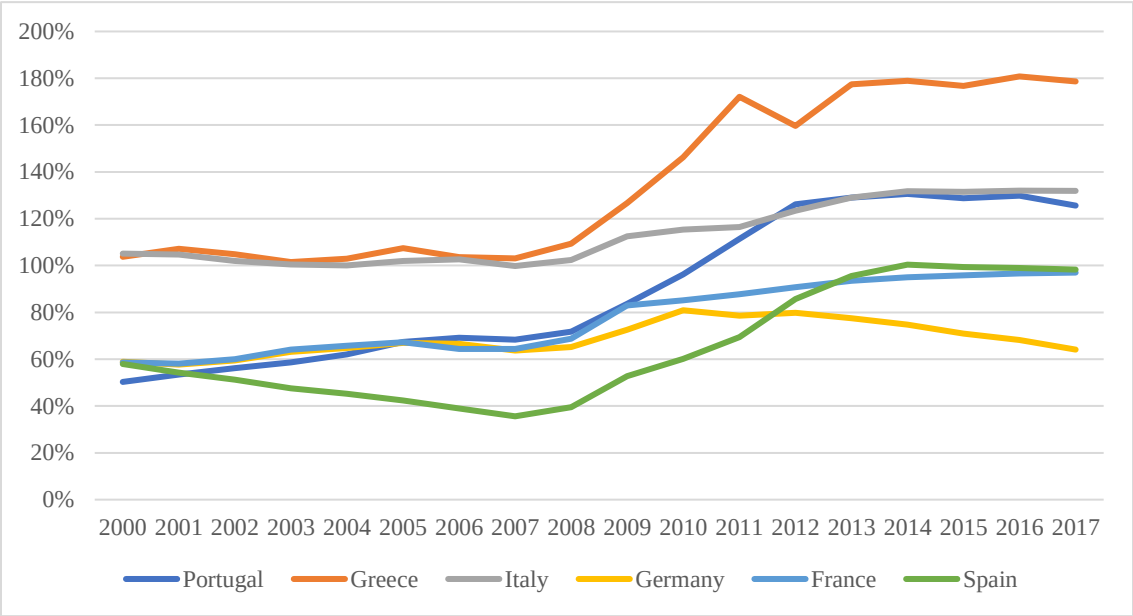
Exhibit 1: Gross Debt (in million €) - Portugal, Greece, Italy, Germany, France and Spain

Years	Portugal	Greece	Italy	Germany	France	Spain
2005	106,920	213,970	1,518,640	1,541,400	1,189,919	393,479
2006	115,002	225,648	1,588,072	1,591,334	1,194,106	392,132
2007	120,089	239,915	1,606,203	1,600,016	1,252,867	384,662
2008	128,191	264,775	1,671,401	1,669,035	1,370,326	440,621
2009	146,691	301,062	1,770,230	1,785,684	1,607,946	569,535
2010	173,063	330,570	1,851,817	2,088,455	1,701,085	650,079
2011	196,231	356,235	1,908,004	2,125,099	1,807,921	744,323
2012	212,556	305,085	1,990,130	2,202,307	1,892,492	891,502
2013	219,715	320,498	2,070,254	2,190,496	1,977,703	979,031
2014	226,041	319,629	2,137,320	2,192,004	2,039,852	1,041,624
2015	231,513	311,724	2,173,387	2,161,775	2,101,251	1,073,934
2016	240,883	315,009	2,219,546	2,145,473	2,152,523	1,107,220
2017	242,620	317,407	2,263,056	2,092,643	2,218,436	1,144,298

Source: Pordata

We can observe in the above table a substantial increase of the Portuguese gross debt, with levels of debt in 2017 reaching almost two times the total debt of 2008 (128 191 million euros to 242 620 million euros). The same growth pattern can be noticed in the other European countries, with considerable increases in countries like France (848 110 million euros from 2008 to 2017) and Spain (703 677 million euros from 2008 to 2017).

Exhibit 2: Gross Debt as a % of GDP - Portugal, Greece, Italy, Germany, France and Spain



Source: Pordata

In addition, to be able to make a better analysis of the economic situation of these six countries, we included the ratio Gross Debt / Gross Domestic Product, shown in Exhibit 2.

Regarding this ratio, we can state that all the countries presented had a substantial rise after the 2008 crisis, with Greece reaching alarming levels of 180% in 2017, the only of the six given countries that had a decrease of its GDP from 2008 to 2017 (from 241 990 to 177 735 million euros).

After Greece, the two biggest rises were Spain (with an increase of 58.8% from 2008 to 2017) and Portugal that had an increase of 53.9%, even with a GDP growth of 8% for the same period. Accordingly, it is possible to observe in Exhibit 2 a very similar pattern between these two countries´ ratios, the countries of origin of the banks analyzed in this work (BPI and Caixabank).

4. Banking Sector Analysis

4.1. Global Banking Industry

As observed in the 2008 crisis, the banking system plays a major role in the world´s financial health. When banks are not operating properly, the whole economy will resent it, as they are the main intermediary of funds that put the whole economy functioning. From families' savings accounts to firms´ operating loans, banks are key drivers of the whole economic environment and so a subject of prime importance in present society. Nevertheless, from this big influence banks have derives an increasing risk that has to be regulated and governed with utmost care.

The financial crisis had its starting point in 2007, when the first effects of the subprime mortgage market began to emerge. In a time of low market regulation, high risk financial products were growing at a high pace, banks were giving people high interest rate loans to buy houses, which they could not afford, and every moral boundary was being disregarded in Wall Street.

In September 2008, Lehman Brothers, the fourth-largest investment bank in the United States of America at the time, went bankrupt, in a time everyone thought governments would not allow any major bank to collapse and would bailout banks in this situation. However, in a year in which the government had already gone through a 25 billion dollar bailout of investment bank Bear Stearns, the situation was clearly doomed to failure.

In Europe, the situation was escalating to a new level, with the problem not being the solvency of banks, but the bailout of governments, with countries like Portugal, Italy, Ireland, Greece and Spain reaching maximum economic deficit levels. At the time the acronym "PIIGS" (Portugal, Italy, Ireland, Greece and Spain) was created to characterize these five countries instability over the European debt crisis.

During these years´ crisis, it became clear that the banking regulatory system needed an update in order to tackle the problems that were developing in the worldwide economy. Thus, in late 2009 the Basel Committee on Banking Supervision (henceforth, BCBS) published their first version (revised a few times over the years) of the set of reform measures with the purpose of responding to these deficiencies in the financial regulatory framework. The main features targeted by BCBS were the meeting of certain capital requirements (stricter than Basel I and Basel II), increasing banks liquidity, focusing on the limitation of procyclicality (banks should build capital buffers during periods of economic expansion to use them in recession periods) and restricting

banks leverage (with the adoption of a minimum leverage ratio, which constrains banks raise of debt).

The various phases of the agreement, from 2013 to 2019, were defined as follows:

Exhibit 3: Basel III Phase-in Arrangements

	Phases	2013	2014	2015	2016	2017	2018	2019
Capital	**Leverage Ratio**	Parallel run 1 Jan 2013 – 1 Jan 2017 Disclosure starts 1 Jan 2015					Migration to Pillar 1	
	Minimum Common Equity Capital Ratio	3.50%	4.00%	4.50%				**4.50%**
	Capital Conservation Buffer				0.625%	1.250%	1.875%	**2.50%**
	Minimum common equity plus capital conservation buffer	3.50%	4.00%	4.50%	5.125%	5.750%	6.375%	**7.00%**
	Phase-in of deductions from CET1		20%	40%	60%	80%	100%	**100%**
	Minimum Tier 1 Capital	4.50%	5.50%	6.00%				**6.00%**
	Minimum Total Capital	8.00%						**8.00%**
	Minimum Total Capital plus conservation buffer	8.00%			8.625%	9.250%	9.875%	**10.50%**
	Capital instruments that no longer qualify as non-core Tier 1 capital or Tier 2 capital	Phased out over 10 year horizon beginning 2013						
Liquidity	**Liquidity coverage ratio – minimum requirement**			60%	70%	80%	90%	**100%**
	Net stable funding ratio						Introduce minimum standard	

Source: Bank of International Settlements

As we can observe in Exhibit 3, these features are well evidenced. The capital requirements presented are stricter, with well-defined dates for financial institutions to meet certain ratios and the new principle of capital conservation buffer was established in order to create a liquidity

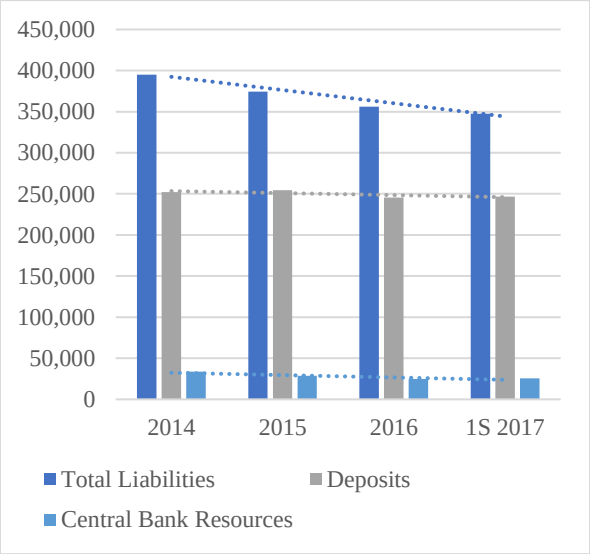
obligation, forcing companies to meet a capital requirement above the regulatory minimum at all times, reaching an amount of 2.5% in 2019. In terms of liquidity ratios, banks were obligated to go from 60% to 100% of coverage ratio, from 2015 to 2019, which means that by 2019 banks are required to have an amount of highly liquid assets (easily and rapidly converted to cash) equal to or higher than its net cash flow over a 30 day stress period.

4.2. Portuguese Banking Industry

In December 2016, the Portuguese banking system was composed of 157 institutions, of which 65 were banks, 88 were mutual agricultural credit banks and 4 were savings banks. From the 65 traditional banks, 34 were Portuguese banks and 31 were branches of foreign companies. At this point, Caixa Geral de Depósitos, Millenium BCP (hereafter, BCP), Santander Totta, Novo Banco and BPI were the five largest Portuguese banks and made up to 70% of the total banking assets.

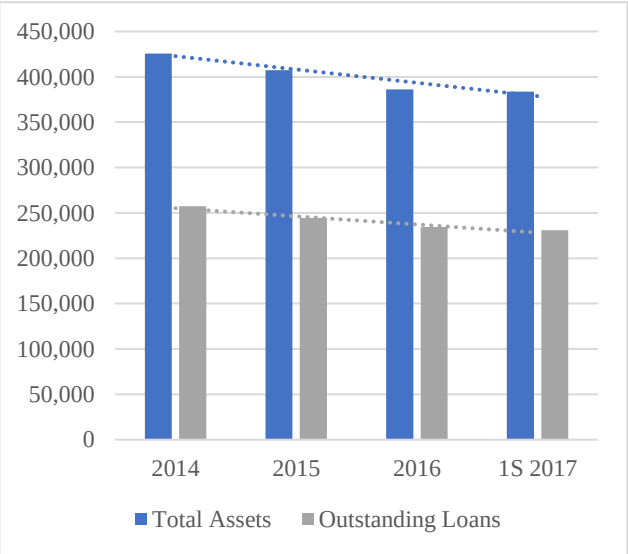
The banking sector key indicators at 31 of December 2016 accounted to 386 billion euros in total assets, with about 234 billion euros in outstanding loans and 356 in total liabilities, with about 245 billion euros in deposits. Considering the same indicators in June 2017 (after the takeover), we can see a decrease of both total assets and liabilities. This downward trend can also be observed in the previous years, as suggested in the following charts:

Exhibit 5: Portuguese Banking Industry - Total Liabilities



Source: Banco de Portugal

Exhibit 4: Portuguese Banking Industry - Total Assets



Source: Banco de Portugal

The Portuguese economic scene over the past few years, resulted in a situation where Portuguese banks are attaching even more importance to risk management. Problems related to non-performing loans arising from poor results or even bankruptcy of firms due to the crisis created huge difficulties for Portuguese banks and were the main trigger for some of the worst incidents we had in our banking system. Several years after the crash of 2008, Portuguese banks are still trying to clean up their balance sheets from this uncollectable debt, many times transforming the so-called "Bad Debt" into high risk financial products tradable in the market.

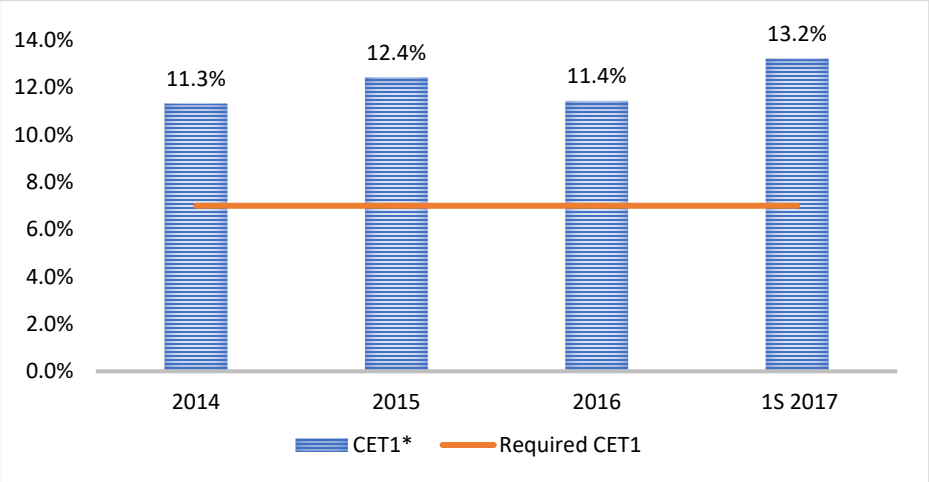
The harshest years for the Portuguese economy was the period between 2010 and 2014, immediately after the financial crash. As stated early, Portugal was part of the group of countries that were having trouble repaying its government debt and along with countries like Ireland and Greece, was reaching tremendous amounts of deficit, with an increasing prospect of a possible bailout.

Therefore, in 2011, the European Commission (EC), the European Central Bank (hereafter, ECB) and the International Monetary Fund (hereafter, IMF) had to intervene and Portugal entered in a 78 billion euros bailout program for a period of three years, agreeing on cutting its budget deficit along the way. This austerity package had a clear objective of stabilizing Portugal´s public finances, producing a positive effect in the overall economy.

In 2014, after hitting ECB and IMF objectives, a slightly better looking Portugal exited the program, however some problems still remained for a full recovery to be considered. Since then, levels of GDP have been increasing, as well as investment, imports and exports levels, alongside a declining unemployment rate. Thus, it looks like Portugal is finally in the right path for economic stability.

One of the most important ratios established by BCBS, regarding banks´ risk management is the Common Equity Tier 1 (hereafter, CET 1) ratio. The ratios achieved by the Portuguese banks, from 2014 to the first semester of 2017, are presented in the chart below:

Exhibit 6: Portuguese Banks´ Common Equity Tier 1 Ratio (2014 – 1st Semester 2017)



*CET1 ratio calculated according to the transitional arrangements established by CRD IV/CRR

Source: *Banco de Portugal*

In terms of the Portuguese banks´ solvency levels, we can state that the requirements imposed by the Basel III reform have been achieved.

Accordingly, the evolution of the Common Equity Tier 1 ratio, as well as the corresponding "Minimum common equity plus capital conservation buffer" imposed for Portuguese Banks (7%) are presented in Exhibit 6. As we can observe, for the period between 2014 and the first semester of 2017 (a few months after the takeover), the CET 1 ratio of Portuguese banks was well above the level required by the BCBS and Banco de Portugal.

5. Banco Português de Investimento Overview

Since its creation, BPI has been one of the most influential banks in the Portuguese economy. Artur Santos Silva founded the company in 1981 with the name Sociedade Portuguesa de Investimento (SPI), with the purpose of investing in the private sector and creating a modern and strong Portuguese capital market.

In 1985, the bank started to have new services in the retail banking area, creating the so called Banco Português de Investimento (BPI). One year later, BPI´s share joined the Portuguese stock market, entering Oporto and Lisbon stock exchanges.

Only a decade after its creation, BPI took advantage of a huge opportunity, integrating Banco Fonsecas & Burnay in its structure, in August of 1991, creating huge value for the firm´s future financial statements. This event is still considered one of the greatest acquisitions in the Portuguese banking history and was vital for the current situation of the company. In this same year, the company started an important partnership with the Brazilian group Itaú, which converted in Itaú becoming one of its most relevant shareholders.

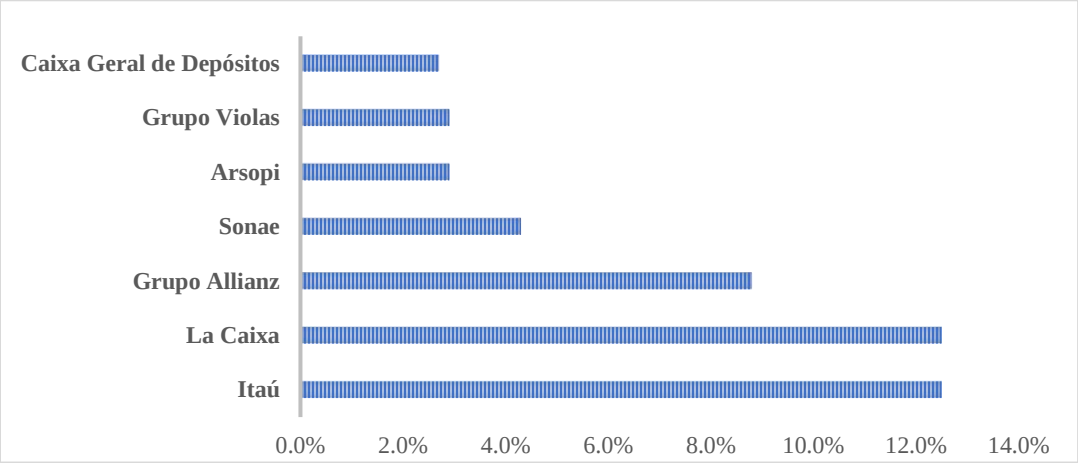
In 1995, the bank suffered more structural changes, going through a reorganization process that led to the creation of the holding BPI SGPS, the firm that consolidates all the group´s activities. The holding became the only listed company in the group, enhancing the bank´s investing situation, creating more liquidity for BPI´s shares. In addition, "La Caixa", the owner of Caixabank, and the insurance company Allianz became part of BPI´s shareholders, this same year.

One year later, BPI took a decisive step in its international scene, acquiring Angolan group Banco de Fomento Exterior (BFE), which was fully incorporated in the bank´s activities. This strategic decision was quite important for BPI, as it generated a boost in the bank´s financial statements, creating new expansion opportunities. Until today, the now renamed Banco de Fomento Angola (hereafter, BFA) spread its commercial area throughout Angola, being one of the most important firms in the development of the banking sector of this country.

The beginning of the century was highlighted by the first attempt for a merge between BPI and another Portuguese bank. Namely, an effort between Artur Santos Silva and Ricardo Salgado (former president of Banco Espírito Santo) to join two of the biggest Portuguese banks together, a negotiation that only lasted 3 months until the two parties realized their management vision was divergent. In the year 2000, BPI´s equity was highly distributed when compared to the current

situation, with seven different shareholders with more than 2% and approximately 53% of the shares in free float:

Exhibit 7: BPI´s Shareholders with more than 2% (Year 2000)



Source: BPI´s 2000 annual report

The year 2004 marked the end of Artur Santos Silva as the president of the firm, as the former president reached the age limit defined in the Bank´s statutes. At the time, the elected president was Fernando Ulrich, who stayed as the face of the company until 2017, when he was replaced by a former general manager of Caixabank, the Spanish Pablo Forero, after the takeover took place. At this time, BPI had implemented a maximum power of voting limit per shareholder of 12.5%.

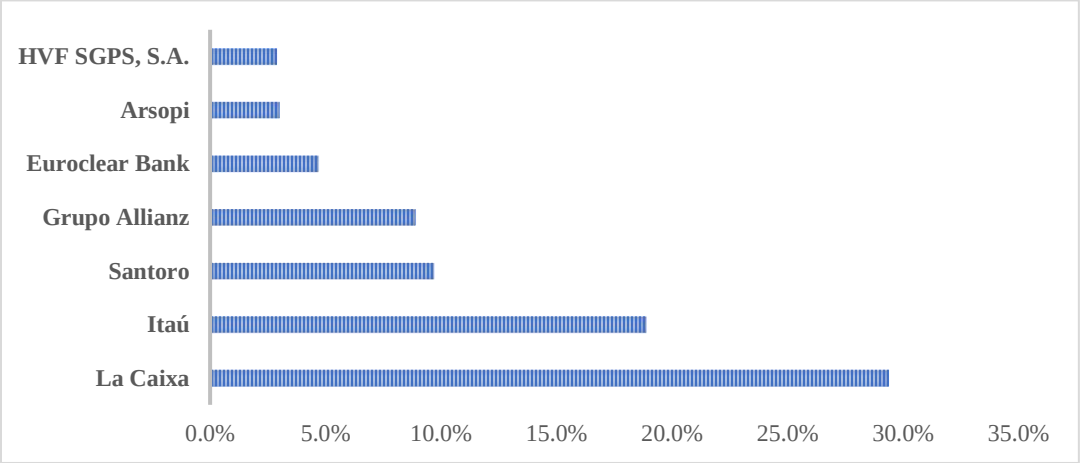
In addition, it is possible to observe some significant changes in BPI´s investments in 2004 and 2005. With a considerable sale of 41.4% of SIC, a Portuguese communications company, for 129 million euros, the sale of its stake at Portugal Telecom, for 150 million euros, as well as some important investments in Galp and BCP, that the Bank would liquidate some years later.

In 2006, BCP tries to take over the firm, but BPI acknowledged quickly that the purpose and value of the takeover was a lot different than expected. At this time, the bank modified the maximum power of voting limit per shareholder to 17.5%, giving slightly more control to investors with bigger stakes in the Bank.

Two years later, in a period marked by the financial crisis, BPI announces that the Angolan telecommunications provider firm Unitel will get 49.9% of BFA, in a deal which starts Isabel dos Santos investments in BPI, as she holds control of the acquiring company. In the same month,

BCP sells 9.69% of BPI´s shares to Santoro, also a company owned by Isabel dos Santos, putting her in the top three major shareholders of BPI. Furthermore, the maximum power of voting limit per shareholder was revised again to an amount of 20%, in a time where the distribution of shareholders were as follows:

Exhibit 8: BPI´s Shareholders with more than 2% (Year 2008)

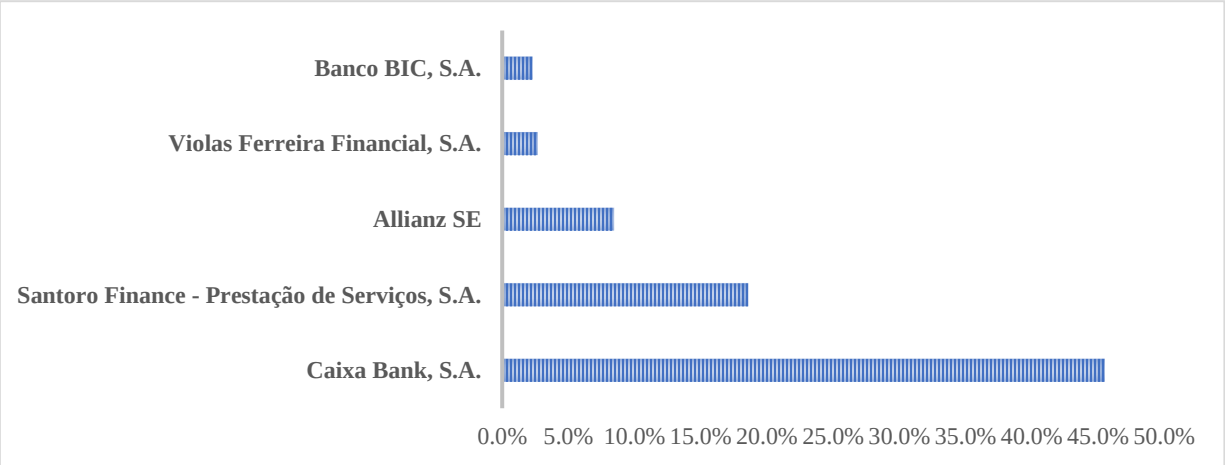


Source: BPI´s 2008 annual report

In 2012, Itaú representatives decided to sell all their shares to La Caixa, selling 18.87% of BPI, from which Isabel dos Santos acquired approximately 5%. As a result, La Caixa owned now 44.1% and Isabel was the second largest shareholder, with 19%.

In the following years, until CaixaBank´s takeover, many changes affected BPI´s shareholder structure and the shares distribution right before the full takeover, in late 2016, was the following:

Exhibit 9: BPI´s Shareholders with more than 2% (Year 2016)



Source: BPI´s 2016 annual report

5.1. Takeover History

As mentioned before, the "La Caixa" group, the owner of Caixabank, has been BPI´s shareholder since 1995. Over time, the Spanish financial sector market leader has increased its stake in BPI, creating more value for the Portuguese banking industry, as well as enhancing its dominance in the Iberian market. In fact, throughout these 22 years, the Spanish bank went from a 12% to an 84% stake in the Portuguese bank.

Caixabank presented its first bid for BPI in February 2015, with a formal proposition of 1.329 euros per share. This offer had two main conditions to be able to move forward: Caixabank had to become the major shareholder and so had to obtain 5.9% of shares, as they had already 44.1% and BPI had to eliminate the statute which implied a maximum power of voting limit per shareholder of 20%. At this time, according to BPI´s statutes number 4 of the article 12, the votes cast by a shareholder, acting in his own name or on behalf of other or others, which exceed 20% of the total votes corresponding to the share capital, would not be counted.

One month later, BPI declined the offer, since the value proposed was considered low by some of the main investors, particularly to Angolan business woman Isabel dos Santos, that had about 19% of shares at the time and had the power to force the Spanish bank to retreat, considering the still in place number 4 of article 12 statute. Therefore Caixabank withdrew the offer.

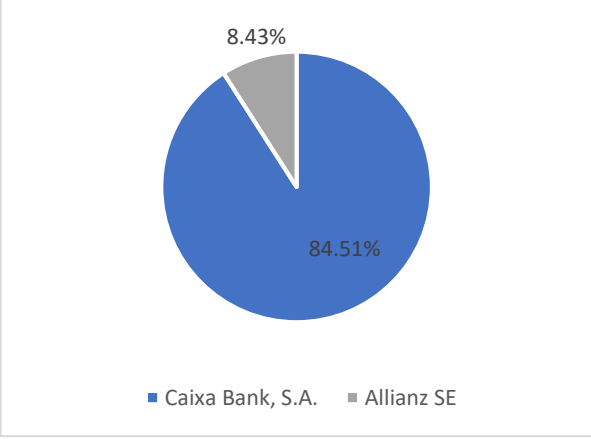
In April 2016, Caixabank made a new takeover attempt, in an offer valued at 1.113 euros per share. This price was 16% lower than the last offer and 6.5% lower than the last BPI quotation and so it was considered short by the general market. However, according to BPI´s administration the rationale behind the price was it represented the average stock price for the last 6 months and that since the February 2015 offer the price was in a downward trend.

For this offer to be successful, the same two conditions of the previous takeover attempt had to be met. Eventually, five months later, Caixabank finally achieved the elimination of the statute which prevented the takeover, in a meeting where the biggest shareholder against this amendment, Isabel dos Santos company Santoro, decided to abstain from voting.

In January 2017, Caixabank presented the ultimate formal public offer, with a price per share of 1.134 euros, the average stock price of the six months before the 21 of September 2016 (the date of the statute elimination). The deadline for this offer, formalized by the Portuguese financial markets regulator, Comissão do Mercado de Valores Mobiliários (hereafter, CMVM), was the 07 of February 2017, whereas the takeover formal announcement was one day later.

Nowadays, after the takeover, Caixabank owns the majority of BPI shares, with 84.51%, Allianz has 8.43% and just 7% remains in free float.

Exhibit 10: BPI´s Shareholders with more than 2% (after the takeover)



Source: BPI´s Investor Relations website

6. Stock Market

6.1. Portuguese Stock Market

The earliest stock market evidences can be found in the middle ages. The developing of international trading brought the need of communication between different transaction parties and the first brokers were created. The importance of the exchange of securities started to have a bigger weight throughout the years and with this came the implementation of different regulatory frameworks and the establishment of the first authentic Portuguese stock exchange, founded in Lisbon, in 1769.

More than a century later, in 1891, the *Bolsa de valores do Porto* (Oporto´s stock exchange) was inaugurated, creating an important financial center in the second biggest Portuguese city. In 1999, after a long and difficult process, the merge between Lisbon and Oporto stock exchanges was achieved, a critical step towards the current situation of the Portuguese stock market.

In order to create a superior securities market, sustained in important aspects such as lower transaction costs, higher liquidity, financial transparency and greater exposure to different markets, Amsterdam, Paris and Brussels stock exchanges merged in 2000, conceiving the renowned Euronext. Two years later, Lisbon and Oporto stock exchange joined Euronext, creating massive value in the Portuguese markets and providing the Portuguese investors a wider range of financial opportunities.

6.2. Banks in the Stock Market

6.2.1. BPI

BPI went public in 1986, entering the Lisbon and Oporto stock exchange. At the time it was the first Portuguese bank to be quoted in the stock market, thus it generated huge interest in the general public. BPI´s investors went from nearly 100 to around 1880 entities and individuals.

Some years later, with the progression of the Portuguese financial markets, came the need to establish an index which replicated the Portuguese stocks performance, thereby the PSI 20 index was founded. When dealing with the largest stocks from the Portuguese stock exchange, this index

is normally considered the preferred benchmark, as it was created to replicate the prices of the twenty largest stocks in terms of market capitalization.[1]

As explained in the methodology used, we chose the PSI 20 as a reference index for BPI´s stock performance and so it is useful to compare the historical performance of both.

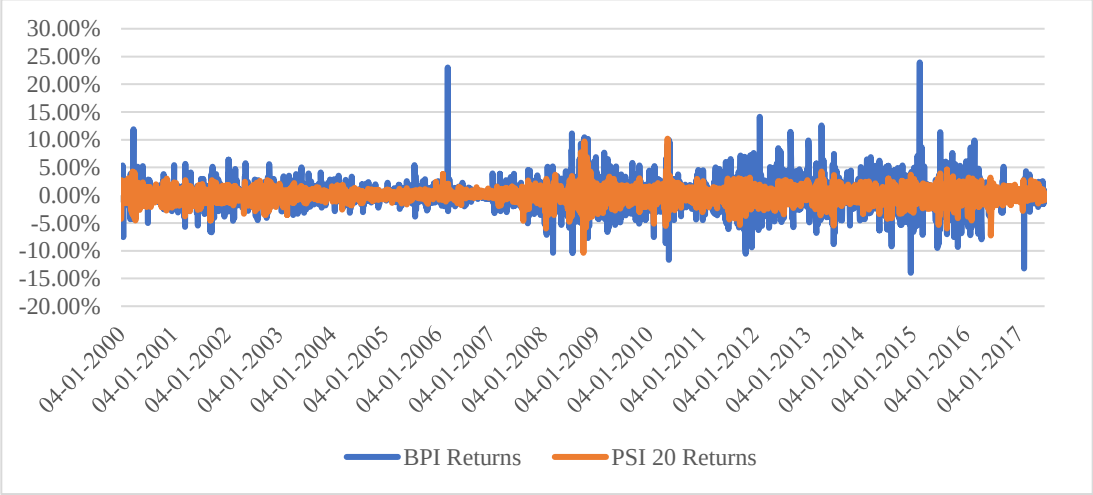
In the table and chart below, for a period ranging from the 03 of January 2000 to the 30 of June 2017, we compare the main data of BPI´s stock and the PSI 20 index (first and last price for this period, highest, lowest and average price) and the returns of these two assets:

Exhibit 11: BPI vs. PSI 20: Main Price Indicators (2000 - 2017)

	BPI	Date	PSI 20	Date
Price 03-01-2000	3.26	03-01-2000	11,851.54	03-01-2000
Highest Price	5.95	26-10-2007	15,080.99	09-03-2000
Lowest Price	0.34	24-05-2012	4,175.28	24-06-2016
Price 30-06-2017	1.05	30-06-2017	5,152.96	30-06-2017
Average Price	2.14	-	7,554.30	-

Source: Reuters

Exhibit 12: BPI vs. PSI 20: Returns (2000 - 2017)



Source: Reuters

[1] Throughout the years, some companies that belonged in the PSI 20 index were removed, due to several eligibility criteria, and so the index had periods with less than 20 companies. For instance, at the time BPI´s takeover took place, the PSI 20 index had 18 companies.

We can observe in the chart above that the two assets follow a similar pattern over the course of the 17 years analyzed. However, BPI´s stock has higher occasional peaks, as it represents the performance of just one company and consequently experiences bigger impacts with the occurrence of particular events. On the other hand, the PSI 20 index aggregates various stocks from the Portuguese market, stabilizing the price of the index along time, but following the same behavior of the bank´s stock.

Due to BPI´s persistent strong results over time and its importance for the Portuguese economy, the bank´s shares remained in the PSI 20 index for many years. The turning point was this thesis event, Caixabank takeover in February 2017, which created conditions for a possible withdraw from the index. Euronext Lisbon ended up deciding that BPI´s stocks would be excluded from the PSI 20 index on the 10 of February 2017, two days after the takeover, stating that the liquidity of the stocks was too low. In fact, Caixabank´s acquisition left BPI with an all-time minimum volume of shares in free-float (just 7%), contrasting with the 22.5% before the takeover. Furthermore, Caixabank´s administration promptly expressed that BPI´s shares would still remain listed in the Portuguese stock exchange.

BPI´s exclusion from the PSI 20 left the index with a really poor financial sector weight, with only BCP and Montepio remaining. At the time, BCP represented around 10% of the total value of the index, but had already a price of less than 0.5€ per share. And Montepio was in a similar situation, with a price also lower than 0.5€ per share and trying to maintain a stable position in the index. However, in September of 2017, due to a restructuring in Montepio´s shareholders, where Associação Mutualista took 98.28% of the banks shares, Montepio not only withdrew from the PSI 20 index, but its stocks were also not exchangeable anymore in the Portuguese stock market.

6.2.2. Caixabank

The early stages of Caixabank were carried out by the name Criteria CaixaCorp, the company created by the “La Caixa” group to hold its investments in the general market, as well as in the financial services industry. However, the so-called Caixabank was only created in 2011, following a restructuring plan concerning the operations of the “La Caixa” group. At this time, the

centenary group "La Caixa", founded in 1904, approved a post-crisis reorganization which turned to be vital for the expansion of the company in the years that followed.

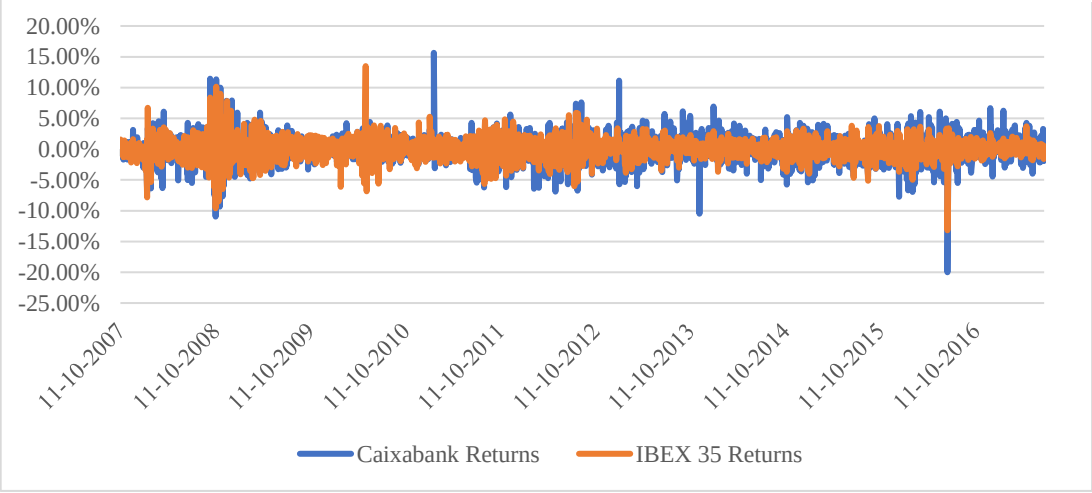
Thereby, Caixabank became the group´s firm that held together the local banking and insurance business, as well as all the international banking (which became stronger with the acquisition of BPI, some years later). In addition, the bank also got a big share of Repsol, the oil and gas multinational, and Telefónica, the Spanish telecommunications company, among other minor stakes in the financial services industry.

Nowadays, Caixabank is considered the third biggest Spanish bank, in terms of revenue, net income and total assets owned. The largest one is Banco Santander, which is in the top 20 of the world´s biggest banks and the second one is Banco Bilbao Vizcaya Argentaria (BBVA), in the top 50 worldwide. However, Caixabank has the largest branch network in Spain, with over 5300 branches around the country, which is a huge number if, for example, we compare it with the number of branches BPI has in Portugal (around 400).

In terms of the stock market history of Caixabank, the company´s stocks were first traded in October 2007, by the name Criteria CaixaCorp, setting the largest initial public offer (IPO) at the time. Then, three months later, they were included in the IBEX 35 index, as the management intended it would create more liquidity and visibility for the company´s shares.

In Exhibit 13, for the period ranging from the 11 of October 2007 (the second day Caixabank was traded in the stock market, and so the first day we could compute returns) to the 30 of June 2017, we compare the returns of Caixabank and IBEX 35:

Exhibit 13: Caixabank vs. IBEX 35: Returns (2007 - 2017)



Source: Reuters

As we can observe in the chart above, the two assets have a similar pattern along the ten years period. However, it is possible to observe the same behavior discovered for the "BPI versus PSI 20 returns", namely that Caixabank´s stock has higher peaks than the index it is associated with, as the impact the single stock experiences from a given event is higher than the impact in the IBEX 35 index, where the effect will typically be more balanced. Nevertheless, this characteristic is less significant when analyzing the two Spanish assets, compared with BPI versus PSI 20.

7. Methodology

Regarding the methodology used for this work, we will conduct an event study to conclude about the effect that Caixabank´s takeover had on BPI´s stock. For this purpose, we will have to determine some main assumptions that will affect the calculation of abnormal returns and the corresponding event study results, such as: estimation model, event and estimation window, and data sources.

7.1. Model

For the computation of the stock and benchmark returns, we had to make one first decision, whether to use simple or logarithmic returns. Based on the standard methodology introduced by Fama et al. (1969) and other recent research papers on the topic, logarithmic returns would bring more advantages to the work.

When we are dealing with low return levels, near zero, the two types of returns will have close values. However, with higher returns, the divergence between them will become clearer and so it is important to investigate the impact of using both.

The main advantage considered when deciding what returns to use was logarithmic returns make it easier to aggregate data across time, as a multi-period logarithmic return can be computed as the sum of the one-period simple returns and so it will be easier to work with the data and compare returns from different time windows.

Next, for the calculation of the abnormal returns, one of the main choices we had to make was what model to use to estimate returns. Previous literature on this topic describes many estimation methods that can be used, but the Market Model is by far the preferred one.

For instance, Brown and Warner (1985) describe the following three models that can be applied when measuring abnormal returns: Mean Adjusted Returns; Market Adjusted Returns; Market and Risk Adjusted Returns (where the Market Model is included).

The major difference between the Mean and Market Adjusted and the Market and Risk Adjusted Returns is that the first two are normally used in situations of limited information, as they possess some main assumptions for the estimation of parameters.

The Mean Adjusted Returns model assumes a constant return for each security i, which can be different across securities:

$$R_{it} = K_i \,, \tag{1}$$

where K_i,
is the constant return for a given security i.

The Market Adjusted Returns model assumes an identical return across securities, but not necessarily constant for each particular security (does not consider systematic risk):

$$R_{it} = K_t \,, \tag{2}$$

where K_t,
is the constant return for time period t.

Alternatively, the Market and Risk Adjusted Returns method will consider both the market factors and the risk of each particular security. Brown and Warner (1985) specified that they tested numerous variations of this method, but the ordinary least square (OLS) Market Model was their primary choice.

$$R_{it} = \alpha_i + \beta_i \cdot R_{mt} + \varepsilon_{it} \,, \tag{3}$$

where:
α_i – Measure of performance of security i compared to the benchmark (intercept value);
β_i – Measure of volatility of security i compared to the benchmark;
R_{mt} – Return of the reference market (benchmark) on period t;
ε_{it} – Error term, with an expected value of 0 (excess return).

Through the Market Model there are no limiting assumptions in the computation of α and β, as they are computed individually for each stock, which brings more advantages for the further use of this model.

The estimated parameters are then used to calculate the abnormal returns for each day of the event window, which will be discussed next. The formula for the abnormal returns is the following:

$$AR = R_{it} - (\alpha_i + \beta_i \cdot R_{mt}) \,. \tag{4}$$

After having the abnormal returns, one can compute the CAR´s. These aggregated returns can be really useful when the event study consists in the use of different windows, as they provide a clear image of the periods where the unexpected return was higher/lower. The formula for the cumulative abnormal returns is the sum of all the returns for a given period between t_1 and t_2, as shown below:

$$CAR(t_1, t_2) = \sum_{t=t_1}^{t_2} \text{AR} . \quad (5)$$

Following the computation of abnormal returns and in order to conclude about this measurement, one should evaluate the statistical significance of these AR, for each day included in the event window (Brown and Warner, 1985: 7). Accordingly, the test statistic used is equal to the excess return computed for each day, divided by the estimated standard deviation:

$$\theta = \frac{AR_{it}}{STDV_t} \sim N(0,1) . \quad (6)$$

This test is performed under the null hypothesis that, for a given security i, the excess return for each day t is equal to zero, implying that the stock follows its usual course.

Therefore, the underlying hypothesis, for each day t, is the following:

H_0 – The AR computed for each day t are equal to zero and so not statistically significant.

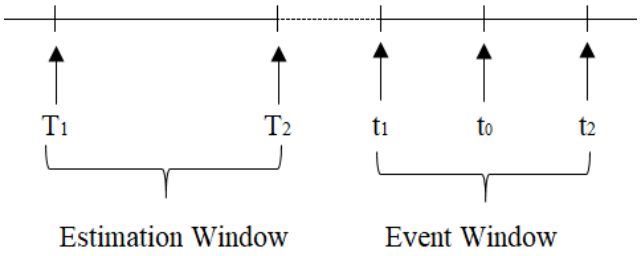
H_1 – The AR computed for each day t are different than zero and so statistically significant.

7.2. Event Period

The choice of the appropriate event and estimation window to use in any event study analysis has to be done with caution. The focus must be setting an event and estimation period that better fits the data we are working with. In other words, one should take into account all the main occurrences that can have an impact on the given company, for a defined period, and from that, it is possible to create different feasible time frames that can be adjusted according to what better suits the event we are evaluating.

The figure below shows the standard event study timeline, according to which we selected the estimation and event windows for this analysis:

Exhibit 14: Event Timeline - Estimation and Event Window



Where:

t_0 – Event day

T_1 – First day of the estimation window;

T_2 – Last day of the estimation window;

t_1 – First day of the event window;

t_2 – Last day of the event window;

7.2.1. Event Window

The event window should match the time when we believe the event had an impact in the given stock. "Ideally, this should correspond to the period over which the probability that investors attach to the event´s occurrence goes from zero to one" (Rodrigues, 2003). Therefore, many aspects of the event have to be taken into consideration when selecting the length and position of the event window.

According to Peterson (1989), the usual length of the event window is within 21 and 121 days for daily studies and 25 to 121 months, when we are working in a monthly basis. Still, many studies have defended the idea of assuming diverse windows in attempt to observe different results. Therefore, nowadays it is common to perform an event study with various event windows, for example [-15, 0, +15 days], [-10, 0, 10 days] and [-5, 0, 5 days], rather than limiting the study to just one time frame.

The first date we have to establish is the event day, which in this study will be the 08 of February 2017, the day of the takeover formal announcement. The decision to choose this day instead of the offer announcement day, was due to the conditions surrounding this particular takeover. Namely, because Caixabank was already the biggest BPI shareholder and had attempted a full takeover before and so the announcement of a new offer was not going to have a substantial impact until the public knew that Caixabank would finally get the majority of BPI´s shares and knew how successful the takeover was (namely, what percentage would Caixabank end up with), the day we considered as being the event day.

Normally, we think the event day will be the most affected one, but many authors determined that this will depend on many variables. For example, the announcements of dividend distributions are usually at the end of the day, after the market is closed and so the reaction of the market will normally start in the next trading day. Other example is the leak of information about a particular event, which could lead to a market reaction anticipation and could affect the days prior to the event day. All this has to be taken in consideration when performing an event study, because it will affect the reliability of the results.

Having chosen the event day, one should select what event window better suits the given conditions of the event. Taking in consideration Caixabank introduced the public offer in the 16 of January 2017, 17 days before the formal results presentation, we decided to use an event window with a range of [-17, 0, 17 days]. Then from here, we applied different time frames, detailed in the results section (section 8. “Results”), to be able to compare alternative cumulative returns. Thus, we were able to examine properly whether the event had an anticipated market reaction from the time the takeover was formally presented until the event day. Also, we can manage to observe how long it took for the event information to be absorbed by the market.

7.2.2. Estimation Window

According to Peterson (1989) the usual length of the estimation period is within 100 and 300 days for daily studies and 2 to 5 years, when we are working in a monthly basis. As we are working in a daily basis and this range of 200 days is not that explicit, we decided to adopt a period of 250 days, the number of trading days in one year. This decision is based on the works of Brown and Warner (1985), Lee and Varela (1997) and Corrado (2011), three studies where the authors applied

a length of around 250 days, having a wide sample of daily prices to use as estimators when computing the market model returns for the event window.

After selecting the estimation period length, one should decide where it is going to be placed in the event time frame. From previous literature, when determining the estimation window, the most common chosen period is right before the event window, in attempt to get the most recent stock performance. However, one should take in account the quality of the returns, namely if the returns for the estimation period are replicating the natural price evolution for that particular stock.

When selecting the position of the estimation window, we had in account all significant BPI´s events and analyzed the direct impact they had on BPI´s stock price, particularly if they affected the usual price evolution. Therefore, we examined the takeover offer announcement of the 18 of April 2016, the annulment of the maximum power of voting limit per shareholder of the 21 of September 2016 and the final takeover offer announcement of the 16 of January 2017, which preceded the full acquisition.

It was possible to quickly come to the conclusion that from the 18 of April 2016 Caixabank offer until the actual takeover formal announcement in the 08 of February 2017, the market was expectant regarding BPI´s stock and so the price did not have a normal evolution, with a cumulative return of only -2.1% in this period (as presented before, this is an expected event). Hence, the estimation window for this event study will range from the 20 of April 2015 to the 08 of April 2016 (since from 08 to 18 of April 2016 BPI´s shares were not traded by CMVM order), totaling 250 trading days. This way, we benefited of a more accurate price evolution, in order to estimate better abnormal returns.

7.3. Data

The abnormal returns we want to estimate will be calculated according to a previous chosen benchmark. In this case, the benchmark used was the PSI 20 Index, since it is arguably the best option to emulate BPI´s price performance, considering the size of the Portuguese stock market and the small number of reliable indexes.

In terms of the data we needed to be able to conduct the event study, we had to extract BPI´s and PSI 20´s prices for the two periods corresponding to the event and estimation window. However, in order to analyze the historical stock performance, we had to obtain a larger set of prices. Thus, the prices retrieved ranged from the 03 of January 2000 to the 30 of June 2017.

We collected these daily prices from Reuters´ data and trading platform as this is a reliable source of financial information. As we are dealing with the Portuguese stock market after the year 2000, all the prices were collected in euros, not having any currency issues.

8. Results

In order to analyze the impact of the takeover we had to extract BPI´s and PSI 20´s daily prices for the chosen estimation and event period, calculate daily returns for these two assets, estimate the market model´s volatility and performance measure, more specifically β and α, compute the abnormal returns for the defined event window and then conclude about the statistically significance of these returns. All these calculations were done in Microsoft Excel as it has all the tools needed to perform this work. The results and conclusions drawn are presented below.

The β and α estimated for the period of 250 days corresponding to the estimation window are displayed in the following table:

Exhibit 15: Market Model Alpha and Beta

Market Model	Values
Alpha	0.0004
Beta	1.2640

Examining the alpha value, we can conclude that, from the 20 of April 2015 to the 08 of April 2016, BPI´s stock had a regular performance relative to the PSI 20 index corresponding return, having an excess return of almost zero (0.0004), compared to this benchmark. The beta value of 1.2640, which measures the market risk of the stock, tells us that BPI´s stock is 26.40% more volatile than the considered benchmark, the PSI 20 index.

As presented in the methodology, the abnormal returns were calculated by subtracting the estimated returns from the actual returns for each day of the event window. Then, we divided each abnormal return by the previously calculated standard deviation, in order to apply the t-test analysis. The purpose of the test is to assess if the null hypothesis should be rejected, taking conclusions about the computed abnormal returns, namely if they are authentic results or if there´s a big possibility of their happening by chance.

The main results of the performed analysis are presented in the table below:

Exhibit 16: Event Study Results

Days	AR	t-test	CAR
-17	0.009	0.387	0.009
-16	-0.002	-0.072	0.008
-15	-0.004	-0.182	0.003
-14	0.007	0.271	0.010
-13	-0.005	-0.215	0.005
-12	0.011	0.456	0.016
-11	-0.006	-0.240	0.010
-10	0.001	0.055	0.011
-9	-0.003	-0.120	0.008
-8	-0.008	-0.316	0.001
-7	0.035	1.450	0.036
-6	0.001	0.058	0.037
-5	0.003	0.104	0.040
-4	-0.010	-0.401	0.030
-3	-0.036	-1.467	-0.006
-2	-0.016	-0.642	-0.021
-1	0.025	1.030	0.004
0	-0.068	**-2.772**	-0.064
1	-0.142	**-5.826**	-0.206
2	-0.003	-0.123	-0.209
3	0.032	1.300	-0.177
4	-0.021	-0.856	-0.198
5	-0.004	-0.174	-0.202
6	0.002	0.102	-0.200
7	0.014	0.589	-0.185
8	0.018	0.753	-0.167
9	0.037	1.496	-0.131
10	0.004	0.181	-0.126
11	0.013	0.529	-0.113
12	-0.002	-0.088	-0.115
13	0.019	0.787	-0.096
14	-0.025	-1.016	-0.121
15	0.002	0.075	-0.119
16	-0.010	-0.417	-0.129
17	0.018	0.752	-0.111

First of all, we can take conclusion about the positive versus negative reaction of the market, and as we can observe the general market reaction was negative, but had some positive periods as well. The cumulative abnormal return for the 35 days of the event window was -0.111, with an abnormal return of -0.068 on the event day ("day 0") and a maximum negative abnormal return of -0.142 on the next day ("day 1"). A detailed table with several event windows and the corresponding CAR´s is presented in Exhibit 17, in order to compare different time frames along the chosen 35 days main period.

Although this event is considered an expected event, as the public was well aware of the takeover proposition, the days preceding the takeover announcement did not display a large market reaction, since the market price was adjusted at the takeover formal price of 1.13 euros per share.

For the purpose of this test, and following the standard application of the t-test, a value is statistically significant with a 95% confidence level if the computed t-statistic is higher than 1.96

or lower than -1.96. In the results´ table above (Exhibit 16), the statistically significant values are presented in bold, the only values which meet the given criterion.

We can observe that only two of the computed abnormal returns are statistically significant, and these correspond to the day of the takeover formal announcement and the day following it ("day 0" and "day 1" of the event window). The values for the computed t-test were -2.772 and -5.826, respectively, and it shows that the calculated abnormal returns for these two days were not obtained by chance.

There is a specific aspect about these two days that created this negative market behavior. Throughout the whole acquisition period, the market was expectant to see what percentage of BPI, Caixabank was going to end up with, knowing that if it was higher than 90%, Caixabank was almost certainly going to take BPI´s shares out of the stock market, and if the overall free-float of BPI´s stocks eventually fell to less than 15%, the asset would not remain in the PSI 20 index.

Once the takeover was achieved in "day 0", with Caixabank getting 84.51% of BPI, with a remaining free-float of only 7% (Allianz had the remaining shares), Caixabank would not remove BPI from the stock market, but the possibility of BPI´s stocks coming out of the PSI 20 index was almost certain. Thus, only two days later, on "day 2", Euronext Lisbon ended up deciding that BPI´s stocks would really be excluded from the biggest Portuguese index, stating that the liquidity of the stocks was too low. Therefore, "day 0" and "day 1" were the days where the stock experienced the market reaction associated with the possibility of getting removed from the Portuguese index.

Additionally, for numerous event windows, we computed the CAR´s and compared them having in mind the length of each window and its position in the 35 days main period. This analysis is presented in the following table:

Exhibit 17: Cumulative Abnormal Returns

Event Window	CAR
[0, 0] CAR	-0.068
[0, 1] CAR	-0.210
[-3,3] CAR	-0.207
[-2,2] CAR	-0.203
[-1,1] CAR	-0.185
[-5,5] CAR	-0.240
[-5,-1] CAR	-0.034
[1,5] CAR	-0.139
[-17,17] CAR	-0.111
[-17,-1] CAR	**0.004**
[1,17] CAR	-0.047
[2,17] CAR	**0.095**

It is easy to observe that the market reacted negatively to Caixabank´s full takeover, as almost all the CAR´s calculated are below zero (the two positive computed CAR´s are in bold in Exhibit 17).

First, as mentioned before, we can observe that the lowest abnormal returns were computed for "day 0" and "day 1", which means that the window [0, 1] was the worst period for BPI´s stock, with the minimum two-day period CAR.

Next, for the days around the event day, [-3, 3], [-2, 2] and [-1, 1] windows, we can see that the bigger the period, the lower the CAR values, which is in line with the negative trend we observed for BPI´s stock.

Furthermore, it is important to take conclusions about the reaction before and after the event day. For the period between "day -5" and "day 5" we can observe that the "after the event" period had a greater impact in BPI´s stock, since the period [1, 5] has a CAR of -0.139, compared with the -0.034 of [-5, -1]. Plus, it is important to notice again that the only statistically significant days are the day of the event and the day after, which right away indicates that the after period has a larger importance in terms of the impact in BPI´s stock.

Considering a wider range, equivalent to the whole 35 days event window, we can observe that the period [-17, -1] had a minimal but positive CAR of 0.004, in contrast with the -0.047 of the [1, 17] window. However, it is important to highlight that, considering "day 1" has an abnormal return of -0.142, the [2, 17] window is also positive, with a CAR of 0.095, which means the market reacted positively a few days after the event day, following BPI´s stock removal from the PSI 20 index.

9. Conclusion

The main goal of this thesis is to assess the impact of Caixabank´s acquisition of BPI on BPI´s security, focusing on measuring the unexpected performance of the stock.

For this purpose we had to perform an event study, computing the abnormal returns for the chosen event window, evaluate if these excess returns were statistically significant on each day, take conclusions about the rationale behind the different market behaviors and analyze the impact the event had afterwards.

When performing and analyzing the results of a given acquisition event study we have to consider three important aspects: Does the buyer already have a stake in the acquired company or is it a completely new shareholder? What is the difference in terms of dimension between the buyer and the acquired company? Were we expecting this takeover or is it an unexpected event?

In our case, being Caixabank the buyer and BPI the acquired company, it was possible to determine that the buyer had already a large stake in the acquired company, as it was already the biggest BPI shareholder, with almost 46%. Also, it was simple to determine that the buyer has a greater dimension than the acquired company, since in December 2016 (a few months before the takeover) BPI´s total assets represented around 11% of Caixabank´s total assets. Furthermore, the expected versus unexpected event subject was an essential part for analyzing results, as it had a direct impact in the stock´s performance. Thus, we could determine the event was an expected event, since Caixabank presented the offer in the 18 of April 2016, almost one year before the takeover announcement, and additionally Caixabank had already tried to acquire BPI in 2015 and so the event was highly predictable.

With this in mind, the obtained results demonstrate an overall negative market reaction, with just a few positive returns along the 35 days event window. We concluded that the market was somehow expectant about how successful the takeover was going to be, namely investors wanted to realize what percentage was Caixabank actually going to acquire, in order to understand what was going to happen with BPI´s stock.

Therefore, there were three possibilities for the future of BPI´s stocks. First, if the takeover was really successful for Caixabank, and the Spanish firm ended up with more than 90% of BPI´s shares, the stocks had a very good chance of being excluded from the stock market. Second, if Caixabank ended up with less than 90% and the free-float of BPI´s stocks fell to less than 15%, the stocks had a very good chance of being excluded from the PSI 20 index, but should remain

traded in the stock market. And third, if the takeover was not that successful for Caixabank, maybe the stocks would remain in the PSI 20 index, but it most definitely would have a negative effect on BPI´s stock price.

Eventually what happened was the second scenario. Caixabank got 84.51% of BPI, Allianz stayed with 8.43% and 7% remained in free-float. Thus, the Spanish bank decided not to take BPI out of the stock market, but the situation of the Portuguese bank was unstable in terms of staying in the PSI 20 index. Consequently, the market reacted negatively towards the stock, and as we can observe in the results section, the abnormal returns calculated display a statistically significant negative value for the day of the takeover announcement and the following day.

However, two days after the takeover announcement Euronext Lisbon determined that BPI´s stocks were not liquid enough to be eligible to remain in the PSI 20 index and the cumulative abnormal returns calculated for the period between this day and the end of the analyzed event window turned out to be positive.

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