The Effect of Government Budget on Portuguese Stock Market

Ana Sofia de Oliveira

Professor Joni Kokkonen

Supervisor

March 2014

Abstract

Government budget reflects a prevision of future expenses and revenues which will predict the economic and financial situation of the country. This paper studies the effect of the publication, approval and actions inside the Portuguese government budget on the stock market performance of Portuguese companies. Additionally, the effects of presidential and legislative elections are also tested in the stock prices. The 46 companies represented in this study are listed on the Portuguese Stock Index between 1998 and 2013. I realize that a publication of government budget to the Parliament leads to a positive and significant return on the full sample results, basic materials and consumer services sector. The same sectors react in a positive way to periods of presidential elections. This study also provides a comparison between sectors. The consumer services sector reveals to be the more volatile sector before changes in the resources invested in each ministry. The consumer services sector is predominantly affected, in a negative way, by not rational expenses in the Ministry of Health. The financial sector has negative reactions on stock returns when the investment in the Ministry of Finance is reduced by the State.

Dissertation submitted for the degree of Master of Science in Business Administration, at Universidade Católica Portuguesa, March 2014

Acknowledgements

I am really grateful by the opportunity I had of studying Empirical Finance which gave me a new perspective of Finance and that inspired me on the theme of this dissertation.

Firstly, I want to thank to NYSE Euronext Lisbon, especially to Pedro Lemos Costa for providing essential data for the thesis and for his patience with me.

Secondly, I would like also to thank my supervisor Professor Joni Kokkonen which accompanied my work and who has been very helpful and supportive over the last months.

Finally, I would like to thank to my friends Kátia Ribeiro, Sara Costa and Duarte Cardoso, even being far away, for all emotional support. In addition, I also need to thank to my boyfriend Diogo Nascimento who was always beside me also in countless frustration moments of this dissertation and to my parents, Fernanda and Henrique Oliveira, by their support and guidance since I entered in Católica Lisbon in both good and bad moments.

Contents

1 - Introduction

Nowadays the State represents a human community in a fixed territory and that, within its borders, establish a form of organization of sovereign political power in order to guarantee security, justice and economic and social welfare. Its functions are centered in three main purposes. One of them is the political function which promotes social peace, managing the public administration and applying the resources in satisfying the collective needs. The social function promotes the improvement of living conditions and welfare of the population. With the economic function the main objective is to promote the stability, efficiency and equity. Fluctuations in economic cycles at times create imbalances in the economy (for example, inflation or unemployment). With this, the role of the State is to interfere in the economy to reduce imbalances and ensure the stability. Also imperfections of competition (created through monopolies and oligopolies) and externalities that the economic activity creates require the intervention of the State to promote the efficiency on the market. The last role of the State on the economy is to guarantee the equitable distribution of goods produced in the economic activity. With this summary it is possible to perceive that the role of the government on the economy is to *«set clear rules of the game putting all "players" on the same circumstances, to free up markets, orienting them but avoiding distorting them and keeping a certain control of budgets and inflationary pressures (...) »*, Neves (2007).

The State has its divided powers between legislative, executive and judicial power. With the legislative power, the government creates rules of law that will be executed only with the permission of the executive power (in Portugal, the President of the Republic). The judicial power has the function to judge in order to apply the laws enacted by the executive power. Through the laws created by the legislative power the State sets the *"rules of the game"* when controlling the environment where companies act defining taxes, subsidies and regulating the competition.

In this study I focus on an issue that could be one of the most important (economically) and decisive aspect that influences us and major companies every single year: government budgets. The important question that will characterize this dissertation is: How does the government budget influence the Stock Markets? In fact, the government budget is an important document for economic point, in a way that is possible to get information about the financial resources of the country, to compute the

assessment of economic conditions and analyze proportion of expenditure on different sectors regarding distribution of wealth and economic policies.

The government budgets include important topics to the society, for example, product market, labor markets, financial intermediaries, social protection, welfare provision, education, taxes and economic policies. Moreover the state budgets explain how the State organizes and distributes its own money by Ministries and other departments. Additionally, through the government budget it is possible to determine whether there will be an expansionary or contractionary year (increasing the public debt to increase production, reduce unemployment and reduce taxes or decreasing the public debt to decelerate production and increase taxes) or a surplus or deficit in the government budget.

The government budget is constituted by a mix between fiscal and monetary policies. The first one is the instrument used by the State to influence the economy. Its components, the public expenditures and taxes, are control variables which ensure and maintain the economic stability, softening the fluctuations of economic cycles and helping to maintain a growing economy, full employment and lower inflation rate. Otherwise, the monetary policy controls the quantity of money in circulation, of debt and interest rates controlling the global liquidity in the economic system. In this sense these two policies together will help the State to construct the government budget by controlling the fiscal and monetary policies.

According to Boyd, Hu and Jagannathan (2002) there are some factors that influence directly the stock prices. Among these factors are the risk free interest rate, the equity risk premium and the expected growth rate of corporate earnings and dividends. In fact, with this argument it is possible to affirm that the government budget, through their adjacent laws will affect those factors and consequently the Portuguese stock prices. If the budget predicts a prosperous year, for example, the expected growth rate of corporate earnings and dividends will be higher and consequently the stock prices will go up. However, if the government budget prospects for the current year a contractionary period, with austere fiscal and monetary policy, the stock prices will go down and reaction will be the opposite. Additionally, the economy's long run growth rate, which could be changed by the State, will determine an approximate value of the real risk free interest rate. Furthermore, the State will be able to influence the equity risk

premium factor through macroeconomic and political pressures. But it is also important to bear in mind that according to Baumeister, Bratslavsky, Finkenauer, and Vohs (2001) the negative events will strongly contribute to the final impression more than positive information.

The 15 years (between 1998 and 2013) included in this study are marked by negative events like times of crisis (between 2008 and 2013), so a contractionary government budget will be seen by investors as a good policy to regulate public finances. In this way, the effect in stock prices will be positive in periods when the contractionary government budget is published and discussed in the Parliament. On the one hand, an increase in the money invested on ministries will affect stock prices in a negative way, which will be accompanied by the decrease in those prices and the opposite reaction before the decrease of the money distributed to ministries. This might happen because since 2008 the financial situation of Portugal requires that costs be reduced in order to control the Portuguese public finances. So, one way to reduce Portuguese expenses is to decrease the money invested in each ministry.

So, with this paper the main purpose is to identify how companies and industries that belong to the Portuguese Stock Index react to government budgets every year between the years 1998 and 2013. The period when the government budget is published and when it is approved in the Parliament are event windows transformed in dummies, since it is the legislative power that creates the government budget and the executive power which gives the final decision about the government budget before being executed. In this way, I include dummies that represent moments when there are both legislative and presidential elections, to conclude how these variables could influence the Portuguese stock market. Additionally, another important contribution is the use of changes in the money invested for each ministry (Ministry of the Government Spending, Foreign Affairs, Finance, Internal Administration, Justice, Economy, Agriculture and Environment, Education, Employment and Social Security, Culture and others) established in the government budget. These changes can influence positively or negatively stock prices depending on the interests and needs of each company and it can influence investors' decisions.

To test the regression I create a conditional test to confirm individually both variations in the resources invested in Ministries, which can be positive (as an increase

over 5% in the money provided to the Ministry) or negative variations (a decrease over 5% in the money invested in the Ministry). Remaining variables, such as when the government budget is published and approved in the Parliament and in periods of legislative and presidential elections, are dummies that represent an event.

With all these issues that compose a government budget I have reasons to believe that the publication and approval of the government budget have some distinctive reactions when compared to other government events around the same 15 years. So, my expectation to this study is that, in the general study which includes all sectors, investors will react positively to the publication and approval of the government budget. In fact, I believe in this positive reaction because the government budget is a document that will predict the economic and financial situation of the country and will set the *"rules of the game"* for a year (Belo and Gala, 2012, and Pastor and Veronesi, 2012). Besides that, I expect a significant positive reaction accompanied by rising stock prices for the Budget dummy (which is equal to one for surplus government budgets) due to the fact that a surplus will give the opportunity to invest in future growth and favor of lower interest costs.

Regarding Portuguese ministries, after the money invested in ministries like the Ministry of Finance or the Ministry of Economy, because they are the ministries that are mostly integrated to perform a government budget, I expect to see a positive reaction by the market. Furthermore, I believe that less money invested in the Ministry of Finance will generate a negative effect, lowering stock prices, mainly in financial sector companies. Additionally, higher investments in the Ministry of Health will create a negative reaction on stock prices due to its inefficient expenses. One of the inefficient expenses is the existence of reimbursed medicine products when they are free.

When looking at each sector, since they have different characteristics they will react differently to investments in each ministry.

However, a panel data is conducted, in which the problem is decomposed in five major research questions: the impact of a government budget proposal on the PSI20; its variations across sectors; which state budget process stage is the most important (if the moment when the state budget proposal is firstly published or when it is approved in the Parliament); if there is a higher (or lower) impact in election years and before

Parliament majority; and, finally, which is the impact of variations in expected expenses on stock prices.

The most relevant findings of this study can be summarized as follows: the publication of the government budget proposal in the Parliament for discussion by political parties has a positive effect in overall study (including all companies). When looking to each sector, the same event creates positive and significant impacts in basic materials, consumer services and telecommunications sectors. Otherwise, knowing the 15 years included in this dissertation are also characterized by times of crisis and contractionary budgets, the financial industry reacts in a significant and negative way. In the full sample results the period of presidential elections creates a significant and positive impact on stock prices of PSI 20. Focus in the conditional tests about positive and negative variations in the resources aimed to ministries is important to highlight the impact when investing more resources in the Ministry of Economy which create positive reactions both globally and in particular industries. On the other hand, the consumer services sector was considered the most dependent sector before changes in investments to ministries.

The following sections will be organized as follows. Section II reviews the related literature. Section III the collected data and Section IV the adopted methodology, exploring the reasoning behind the regression used and the assumptions. In Section V the results of the study will be presented and explored, highlighting the most relevant findings. Following the results analysis, it will be finished with the conclusion.

2 - Literature Review

The theme of this study, the effect of the government budget on stock prices, has not had much attention by other studies. Many papers (for example, Afonso and Sousa (2009)) focus on general actions of the government especially on the effect of monetary and fiscal policies on stock markets. Although the same papers do not focus in government budgets processes. In this context, my goal with this dissertation is to differentiate from others and learn more about a subject that is not well explored and that is significant for both population and companies because it defines the environment lived in the country every year.

The main question of the study is also influenced by a very important aspect that is mentioned in sociology of finance papers showing that the main stake of politics is control of business (Davis, 2011). In other papers, Belo and Gala (2012) and Pastor and Veronesi (2012) argue that governments set the *"rules of the game"*, which means that governments define the environment in which firms operate, influencing them through some actions such as applying taxes, providing subsidies, enforcing laws, regulating competition and environmental policies. In the presence of the approval of the government budget for the following year by the government, the reactions of companies can be different. If the government budget is known prior to approval by the companies, the reaction is anticipated and less intense. On the one hand, if the contents of the government budget are unknown at the date of approval by the Parliament, the reaction of businesses to new policies will be stronger.

One issue that can influence some outcomes of this study focuses in interests between politicians and some companies. According to Coate and Morris (1995) the money transferred to the society is decided by politicians taking into account the traditional social welfare objectives. However, others are targeted into interest groups - farmers, unions, private firms and industries. In other words, there is an exchange by exchange between the government and the interest groups and the principle is that in one way the State contributes with more cash-flow resources to the interest group and, in other way, interest groups contribute to enhance politicians' chances to stay in the government. The significance of this contribution by interest groups allows the government to have political support to future elections by providing campaign contributions or to improve politicians' financial well-being in exchange for certain

advantages over interest groups' competitors. Some interests could be present in policy decisions in order to protect or take advantage to specific firms or industries.

Seeing now the global effect that the government budget could create on stock markets I highlight the question: *Are negative events stronger than good events?* Bauweister, Bratslavsky, Finkenauer and Vohs (2001), argue that negative events have a big probability to exceed positive events of the same type. In this study, the authors defend bad impressions are quicker to form and more resistant to disconfirmation than good impressions. However, many good events can overcome the psychological effects of a single bad one. The authors conclude negative information receives more processing and contribute more strongly to the final impression than positive information.

This is a relevant topic in this study because, in a general way, government budgets, every year, are classified as positive or negative budget when there are expansionary or contractionary policies. In this way, if a contractionary government budget is applied before a prosperity and growth context, the reaction will be stronger and more resistant. Nevertheless, knowing the 15 years analyzed in this dissertation do not completely defines Portugal in a prosperous context, a contractionary policy will not be stronger and more resistant, but instead an expansionary policy will. The effect is expected also to be stronger when analyzing each industry individually.

The main purpose of this study is to understand the effect of annual government budget on PSI 20 companies and, in a general way, in industries. Christ (1968) argues that the government budget is one of the most important decisions that government authorities made annually. The freedom to choose values to policy variables as expenditures, taxes, net amount of borrowing from the private sector and a net amount of new money issued, by the government is constraint. Nevertheless, the author also argues that the government budget restraint is not considered the most impactful restraint in companies when comparing to private individuals or firm's restraint because it is less severe.

Since the government has budget constraints when computing the expected budget in each period, the government authorities and the central bank (Bank of Portugal) come together to choose the mix between monetary policy and fiscal policy that will be present in the government budget. This mix should be defined according to

the assumption that the total government expenditure, which includes transfer payments and purchases of goods, must be equal to the flow of financing from all sources.

According to Boyd, Hu and Jagannathan (2002), there are three factors that influence directly stock prices: the risk free rate of interest, the expected rate of growth of corporate earnings and dividends and equity risk premium. In this way, all events that influence these three factors will consequently influence the stock returns. The government budget is one of the events that might affect stock prices through these three factors presented by the authors. They also argue, as Baueister, Bratslavsky, Finkenawer and Vohs (2001), that stock prices react strongly, whether positively or negatively, to bad events and react more smoothly to good events.

Despite that, it is recognized by politicians that the stock markets are used by politicians to conduit monetary policy because the stock market can influence real economy activity. In other words, stock markets are a way to achieve political goals. This leverage, created by the stock markets on real economy activity is justified through the wealth effect of stock prices on consumption and economic growth. Fluctuations of stock prices will influence the firm's cost of capital and their capacity to raise new capital to invest. The information published in the Basistha and Kurov (2006) study states that companies with credit constraints react strongly to any monetary policies than companies without credit constraints. It also refers that responses to monetary policy are stronger in periods of weak economy. This is justified by the fact that companies with tight credit conditions will have less capability to respond to demanding monetary policies.

The government budgets contain monetary and fiscal policies. When used in a correct way, they can stimulate the economy when we are in a depression or slow it down when it heats up overly. Considering, the monetary policy is the most studied by authors, this is not the most discussed in the Parliament by political parties since it belongs to an independent entity, in Portugal, the Bank of Portugal. The main objectives of monetary policies are expressed in terms of macroeconomic variables such as output, employment and inflation and the most direct and immediate effects of monetary policy actions are on the financial markets.

There are several empirical papers that study the relationship between the monetary policies of the government and the stock markets, but the studies that talk

about the relationship between fiscal policies and stock markets have had less attention. Despite that fact, the fiscal policy subject is the point which is more touched in public debates.

Afonso and Sousa (2009) argue that fiscal policy could be a good instrument to stabilize business cycles and that the monetary policy shocks do not cause significant effect, also argued in the same way by Darrat (1988).

These two papers explain how the stock prices change before government spending shock and before government revenue shocks. The studies show that in spending shocks the general effects are not as significant as they expect. However, these shocks create a positive and persistent impact on productivity, a negative impact on private investment and, most important, lead to a quick fall in stock prices. On the one hand, in a revenue shock case, the effect is really the opposite because the effect on stock markets and private investment is positive. Nevertheless, as studied in other papers (Bernanke and Kuttner, 2003) the anticipated policies have less impact as a policy that is known and applied in the right moment. Aligning this study with the Darrat (1988) one, only the 90-days interest rate and inflation rate have significant impacts on stock returns (for example, if the government increases the VAT, it will have the effect of increasing the inflation rate).

It is also shown by Darrat (1988) that fiscal policy action could potentially increase the profit of a diligent investor, but this probability in getting profitable opportunities could decrease if the number of investors using this mechanism to improve their profit (using fiscal policy information) increase.

3 - Data

The purpose of this study is not only to understand if the state budget proposal effect is significant in the Portuguese market but also how it affects industries and companies, namely if there is any industry/company more (less) affected by state budgets than the others. Therefore, to analyze the proposed subject of study I use daily stock prices from 46 Portuguese companies. All the Portuguese companies belong to the Portuguese Stock Index 20, an index that monitors the performance of the major listed companies in Portugal.

The original data (stock prices and index prices) are obtained through the Bloomberg terminal and NYSE Euronext and composed by daily returns from the 1st September 1998 up to 10th October 2013 with a range of observations depending on the Portuguese company, i.e. the Galp entrance in PSI 20 was only in 2006, so the number of sample will be smaller than other company that belong to PSI 20 since 1998.

For this study, I also analyze 15 government budget proposals since the government budget of 1999, published in 1998, until the government budget of 2013, published in 2012. In order to understand one of the most important issues presented in state budgets - how the government distributes and rationalizes its money for ministries – I decide to include variables that represent the government expected expenses for each ministry. The main objection here is to comprehend how a variation in expected expenses allocated to each ministry in a determined year will influence industries.

The remaining information – state budget timing process, legislative election years, and presidential election years, and information about parliamentary majority - was obtained from the official Portuguese Parliament web site, a Portuguese governmental online database.

Focusing on state budget process the three most significant and decisive moments are when state budget proposal is published for the first time to general knowledge of the public, when it is discussed and accepted in the Parliament by political parties and when it is promulgated by the President of the Republic before the confirmation of the existence of law. To understand the influence of these important moments in stock returns, only two dummies are created to represent an "event window" with twenty one days [-10; 10] (where day 0 will be the day when it is

published and when it is approved) to include all rumors and effects of state budget proposals.

It is my expectation that a significant and positive market reaction may happen in the period of the publication and the approval of the government budget indicating the anxiety of investors towards a potential external event that may increase the stock market returns. Having this in mind, if we expect an increase in stock returns, the investors' plan will be to invest before these two events take place (if they have opportunity to do it).

To include information about legislative and presidential election years and parliamentary majority by political parties in the regression aims to analyze how it could be important to perceive if these variables can also influence stock returns beyond the influence of the state budget that has been studied. Stock returns can be influenced by these variables through the expectations and confidence created by the investors. It is also important to highlight that the legislative power creates the government budget and the executive power (President of the Republic) promulgates that document. So, I believe that the Nation's choice to both legislative and presidential election will be also important combine these variables with others government budget variables. Therefore, these data will correspond to dummies in the regression.

Finally, using Bloomberg database I define 8 sectors that would drive the collection of data and the subsequent division of the sample: basic materials, consumer services, financials, industrials, oil and gas, technology, telecommunications and utilities. I assume as limit for a statistically reliable individual industry analysis the existence of, at least, one stock per year in each industry listed since 1998. This statistic constrain led me to the rejection of technology sector and oil and gas sector. This exclusion decreased the number of sectors considered to a total of 6 sectors, adding the other group constituted by oil and gas and technology industry.

In terms of descriptive statistics for the full sample results and for each sector these are computed individually with companies' returns between 1998 and 2013. I start by computing the average of stock returns, the maximum and minimum stock return value, the standard deviation of stock returns and the skewness and kurtosis that are represented in Table 1.

The full sample results and all sectors, excluding the basic materials sector presents negative stock returns on average. Additionally, when testing if the average is equal to 0 only basic materials and financial sector present the rejection of the null hypothesis ($H_o: \mu = 0$). All distributions can be either positively or negatively skewed and are leptokurtic (higher peak and more volatility). This last characteristic corroborates the behaviors of stocks returns from PSI 20. The volatility is considerable and the returns have various positive and negative peaks. The negative skew is represented by the overall test, consumer services and financial sectors. The remaining sectors – basic materials, industrials, telecommunications, utilities and others – are positively skewed.

4 - Methodology

It is important to highlight that the impact of an event on stock prices is measured by the short term changes in stock prices under the rational financial market hypothesis.

The efficient market hypothesis theory states that the stock prices on financial markets fully reflect all the relevant information. The market relevant information covers also all information about government budgets that is reflected on stock market prices. In this way, assuming that the market is efficient, investors are neither able to make abnormal returns based on the collected information since the stocks are traded on their fair price nor outperform the market.

All data acquired for study are organized in a Panel Data. This data set combines two dimensions – the cross section and time series – in which for each company there are multiple observation at different point of time.

Panel data are most useful when there is a suspect that the outcome variable depends on explanatory variables which are not observable but correlated with the observed explanatory variables. Here, I have present an unbalanced panel data. This is a panel data where there are a different number of observations in for each cross section unit. In this study what happens is that each company unit has a different number of observations over time, that is $T_i \neq T_j$, and the total number of observations for this panel data is $n = \sum_{i=1}^{N} T_i$.

To conduct this study and understand the short term impact of government budget proposal on Portuguese equity markets, I follow the method of ordinary least squares (OLS). For that, I start by defining the regression, a general linear model that estimates returns as function of market, industry and state budget factors. The following formula illustrates the regression:

$$\begin{aligned} Y_{it} = \alpha + \beta_1 MR_{it} + \beta_2 GBP_{it} + \beta_3 GBA_{it} + \beta_4 LE_{it} + \beta_5 PE_{it} + \beta_6 M_{it} + \\ + \beta_7 B_{it} + \beta_8 MGES_{it} + \beta_9 MND_{it} + \beta_{10} MFA_{it} + \beta_{11} MF_{it} + \beta_{12} MFneg_{it} + \\ \beta_{13} MIA_{it} + \beta_{14} MJ_{it} + \beta_{15} MECO_{it} + \beta_{16} MAE_{it} + \beta_{17} MEDU_{it} + \beta_{18} MH_{it} + \\ \beta_{19} MESS_{it} + \beta_{20} MC_{it} + \beta_{21} OM_{it} + \varepsilon_{it} \ , \end{aligned} \tag{1}$$

Where MR represents the market log return; GBP and GBA are dummies which represent a period of event window [-10, 10] when the state budget is published by the Ministry of Finance (GBP) and when is approved by political parties (GBA); the LE and PE dummies are an annual variable that will be equal to 1 in legislative election years and executive election years, respectively, and 0 when not; M typify a dummy variable which is 1 in years that there is an political party majority in the Parliament; B is a dummy which represent, when equal to one, surplus government budgets. All remain dummy variables (MGES, MND, MFA, MF, MIA, MF, MECO, MAE, MEDU, MH, MESS, MC and OM) are all ministries there are in the Portuguese government and are defined in Table 2. The main purpose of these dummies is to study the companies reaction before a variation of the money applied in each ministry. So, each dummy will be equal to 1 when the variation $\left[\Delta = \left(\frac{y_t}{y_{t-1}}\right) - 1\right]$ in each ministry between the current year and the previous one is higher than 5%.

Initially the regression of this study includes both positive and negative variations for each ministry. However, when computing these variables almost all variables that represent negative variations are omitted because of the colinearity, with the exception of the MFneg variable. So, I decide to compute the regression (1) only with a negative variation variable of the Ministry of Finance in the way that it creates significant effects to several sectors.

ε_{it} is the residual term, which in the OLS procedure consists in so choosing the values of the unknown parameters that the residual sum of squares ($\sum \varepsilon_{it}^2$) is as small as possible:

$$\min \sum \varepsilon_{it}^2 = \sum (Y_{it} - \alpha - \sum \beta_i X_{it})$$

To compute the regression used for this study all observations that are organized in a panel data are put all together and if do not make any distinction between cross section and time series we can run a regression over all the data using OLS model, which is called Pooled OLS regression. To OLS estimators be unbiased and consistent, the regressor should satisfy exogeneity assumption. This assumption is reflected in the following expressed requirement by the error expected values conditioned to X values

(independent variables) in which the error term should not be correlated with each explanatory variable in all time periods: $E[\varepsilon_{it}|X] = 0$.

The Pooled OLS regression ignores panel data structure of the data and simply estimates α and βs:

$$\begin{pmatrix} \hat{\alpha}\ ols \\ \hat{\beta}\ ols \end{pmatrix} = (X'X)^{-1}X'Y,$$

Where X represents the vector of independent variables and Y represents the vector of dependent variables.

A hypothesis test is also computed to verify if the sample data is influencing the dependent variable, bringing consistent and simple answers to this study. This test may be stated as follows: *"Is a given observation compatible with some stated hypothesis or not?"* So, in a practical way I will be able to test if independent variables are explanatory variables to companies' returns variable. The hypothesis test is represented by the following expression:

$$H_0: \beta_l = 0, l = 1, 2, \dots, 21$$
$$H_\rho: \beta_l \neq 0, l = 1, 2, \dots, 21\ ,$$

Where 21 is the number of explanatory variables.

The way to control and minimize the risk is through the confidence interval. The confidence interval is defined by σ (the level of significance) that, for higher values of σ, higher will be the probability to commit a type I error (occur when the null hypothesis is true, but is rejected). So, for lower values of σ, more truthful will be the results of the study. In this study will be limited to 95%.

5 - Empirical Results

In this section I explore the results of my study. To interpret the impact of a government budget proposal on the stock returns, I use mainly the Student's t-test to interpret if the null hypothesis is significant or not.

5.1 Full Sample Results

A summary of outcomes is illustrated in Table 3 where it is possible to observe the full sample results. When analyzing all 46 companies that belong to PSI 20 between 1998 and 2013, I am able to reach the conclusion that when a government budget proposal is published, companies' stock prices grows on average 0,33%, which is statistically significant at a 95% confidence level, while the event when the government budget is approved by political parties in the Parliament has an insignificant impact for Portuguese companies. Certain newspapers, such as *O Económico*, justify the positive impact of stock markets before the publication of the government budget owing to the expectation of PSI 20 companies getting an adequate public debt for the Portuguese context.

Looking to the impact of legislative and presidential elections, the presidential election is the only one that represents a positive and significant impact on stock returns. Presidential elections have a stronger impact on stocks than Legislative elections. This fact might happen because despite the fact that the prime minister and his council of ministers creates laws, the President of the Republic is the one that has the last answer because holds the executive power. Before laws created (state budget proposal) by the council of ministries, they will only be executed when promulgated by the President of the Republic in the case he thinks is the best decision to make. The president could also send the proposal law to preventive control of constitutionality or interpose politically.

The dummies about Majority and Budget belong to the regression with the aim of discover and understand if the existence of political party majority in the Parliament and a positive or negative annual state budget affect the stock returns. However, when testing the null hypothesis of no effect is possible to understand that both dummies do not represent a statistical significance impact on Portuguese stocks.

Considering the test with all PSI 20 companies in 15 years and analyzing the positive results is possible to understand there are not many significant reactions before investment changes in ministries. In fact, there are only two ministries which create a positive and significant impact in this overall test. One of the ministries is the Ministry of Economy (MECO dummy). This dummy is a variable that influences stock prices, because the higher the positive variation on investment in Ministry of Economy, the higher the returns for the investors of consumer services sector. Indeed, more money to this ministry means more support in sectors like trade, tourism, industry and services which represent the majority of companies in this sample. On the one hand, there is another ministry that affects positively and significantly the overall test which is a dummy that symbolize other ministries. This dummy includes positive variations on the Ministry of Youth and Sport and Ministry for Social Equipment.

Besides that, there is also a Ministry that creates a negative effect in this study which is represented only by the Ministry of Culture. Before more money invested in that Ministry stock prices will decrease significantly. In fact this Ministry is not considered as an important ministry and one of the reasons is because it is not directly linked to sectors presented in this study. Due to the previous reason companies will not receive any directly advantage from the investment on that ministry.

The remaining dummies that represent conditional tests between positive and negative variations in resources assigned for each ministry are statistically insignificant at the 5% level. This outcome matches with the idea of Christ (1968) which argues that the government budget restraint is not the most impactful restraint to companies.

5.2 Comparing Industries

In this study, I also perform a secondary study, which consists of comparing the previous results but this time among industries, in order to assess if the reactions are different from industry to industry. The sectors that take part in this study are industries that belong to PSI 20 which are basic materials, consumer services, financials, industrials, others (include oil and gas sector and technology sector), telecommunications and utilities.

Beginning with variations that create positive effects on sectors is needed to mention which of them react significantly. Besides the conditional tests, the event when

the government budget is published is the only one generating a positive effect in sectors like basic materials, consumer services and telecommunications (Table 4 and 5). When looking to conditional tests, several PSI 20 sectors react positively and significantly to higher or lower investments in Portuguese ministries such as the Ministry of Internal Administration, the Ministry of Economy, the Ministry of Foreign Affairs, the Ministry of General Expenses of the State, the Ministry of Finance, the Ministry of Education and the Ministry of Culture, among others.

The basic materials and industry sectors are the sectors that react in a positive and significant way before an increase in the money invested by the State in the Ministry of Internal Administration (Table 4 and 5). In fact, the Internal Administration has as function to define and execute policies to ensure the safety of citizens and their own goods, the public order and peace and assist the population in case of disaster. The majority of companies integrated in the basic materials sector are companies targeted to paper pulp which are dependent on environment in which a forest fire could destroy the business. The same happens with industrial companies related to cement and cork. So, basic material and industrial companies will assure more protection on their core business in the face of an investment in the Ministry of Internal Administration which will provide the possibility to improve methodologies to prevent some risks for these sectors, for example, forest fire.

Through the observation of the Table 5 is possible to understand that the industrial sector reacts positively and significantly to higher investments by the State to the Ministry of Education. The industrial sector performance is largely driven by supply and demand for building construction and the demand for manufactured products. In our days to be possible for companies to offer industrial products with higher quality is increasingly demanded have skilled workers. For that, it is necessary a big investment by the Ministry of Education to provide the population with the best professional qualification. Many policies were implemented by the State and by the Ministry of Education with this purpose and the results have been positive with an increase of qualified population and with *know-how*.

The industrial sector has another source for its significant and positive reactions which is through the Ministry of Finance (Table 5). Before positive variations on this ministry the reaction on industrial companies is accompanied by an increase in their

stock prices. Indeed, the Ministry of Finance ensures the protection of industrial companies and that is why the reaction by this sector is positive. However, there is other sector, where the reaction is the opposite to the reaction of industrial companies. In consumer services sector the stock prices increase but before a decrease in the investment in the Ministry of Finance by the State.

Additionally, in the MECO dummy the higher the positive variation on investment in Ministry of Economy, the higher the returns for the investors of consumer services sector (Table 5). Indeed, this sector is related to trade, services and industry activities which matches with the main function of the Ministry of Economy in implementing policies related to these areas and others. When well implemented it could be an added value for the consumer services sector.

As for Portuguese consumer services companies that exports a large proportion of its production an investment in the Ministry of Foreign Affairs by the Portuguese State could be very helpful in companies like these and that is why consumer services stock returns increase before more resources invested in that ministry (Table 5). Actually, the main function of this ministry is to execute the external policy in order to promote development cooperation and connection of the Portuguese community to the world. Therefore, for consumer services companies like Jerónimo Martins that has its business expanded for other countries, the Ministry of Foreign Affairs is a good way to improve international trade agreements or even create new agreements with other markets. However, for companies which their objective is only the Portuguese market, with trade agreements, these companies can have partnerships with other countries and expand their business for foreign countries.

Focusing now in the negative and significant reactions in Portuguese sectors through the investment on Portuguese ministries only three sectors - the consumer services, industrial and financial sector – are affected negatively. Additionally, also the publication of the government budget affects negatively only one sector –the financial sector.

The consumer services sector (Table 5) proved to be a sector which is very (and the most) influenced by political decisions when talking about government budgets. Analyzing the negative effects in this sector is possible to confirm that are the Ministries of Finance, Education and Health that generate these reactions.

An increase over 5% in the investment to the Ministry of Finance and Education leads to a reduction of the stock returns of consumer services sector. This reaction by the consumer services reveals the opposite interest between this industry and the State. The health care dummy when representing the positive variations creates also negative reactions. The Ministry of Health is one of three ministries where the State invests more in order to ensure that citizens have access to health, to improve the quality of the services provided to them and ensure the National Health Service's economic and financial sustainability. However some articles (Saúde em análise, Deloitte, 2011) confirm that this Ministry does not spend in efficient way its resources (one good example is the existence of reimbursed medicinal products when they are free in health centers) and it is a consistent justification for the negative impact on stock returns.

The industrial sector (Table 5) has only a negative effect before the Ministry of Economy. In fact, the higher the investment in this ministry the lower will be the stock prices in companies of this sector in which despite the functions of the Ministry of Economy include the support for this sector, the truth is that it not create advantages for this sector.

To conclude the analysis about negative reactions, the financial sector is characterized by benefits from additional investments when the business cycle is in an upswing. In contrast with other industries, the financial industry (Table 6) is the only one where reacts negatively before a government budget proposal publication. Knowing that is the Ministry of Finance that defines and drives the financial policy, the main objective of the financial policy is to ensure that all financial transactions comply with the government's requirement regarding internal control, financial liability and the management of financial risks in which the financial institutions has an important role. In this way, a negative variation in the Ministry of Finance, which could lead to a contractionary financial policy, is one way to financial companies have lower perspectives to the following year which in this sense the stock prices will decrease. In fact, I realize that before a decrease in the resources invested by the State in the Ministry of Finance, financial companies react significantly and with a negative impact. However before positive variations there is not significant effects in this industry and this situation reveals to be a practical example that *"Bad is stronger than Good"* (Bauweister, Bratslavsky, Finkenauer and Vohs (2001)). This means that negative

actions has a stronger and more persistent impact that positive situations. The remaining variables that belong to the regression do not affect significantly financial stock returns.

As referred in Belo and Gala (2012) and Pastor and Veronesi (2012) studies the government is the entity that set the *"rules of the game"* in which the companies operate and when analyzing the results of this study I really understand their point of view. With the government budget the State set several laws and impose limits on the resources distributed by ministries and the functioning of companies is statistically influenced by these actions, as seen before.

Finally, with the outcomes of telecommunications, utilities and others sectors are possible to conclude that any of the variables affect significantly these stock returns.

6 - Conclusion

The main objective of this study is to scrutinize if there is a significant relationship between government budget results and stock returns for 46 Portuguese companies from PSI 20 since 1998 until 2013. As a secondary analysis, we intended to see if this relationship was different from industry to industry.

Throughout the study, it is able to prove, with a certain degree of confidence, that there is a relation between the two variables. I find some global significance that stock returns are higher in a period between [-10, 10], when the government budget proposal is published to its discussion and its approval in the Parliament (where the day 0 correspond to the day when it is published). However, the event that seems more decisive, that correspond to the moment when the government budget proposal is voted to approve or reject by political parties in the Parliament, is the one that do not influences significantly the Portuguese stock returns.

Also, due to the fact that legislative and executive power has an important role since the creation until the execution of a government budget, it is added to the regression as Presidential and Legislative elections in order to understand how these two variables influence stock prices. After analyzing the results, it is possible to prove that in the global study, presidential elections make the stock returns react positively, which is a good new to the investors. Nevertheless, the same effect is not visible when analyzing industry by industry. When focus in legislative elections, the impact reveals insignificant in global analysis and by industry.

The empirical evidence suggests that government budgets influence the stock returns not only through the moments when is published but also given the decisions that are inserted into documents. Through a conditional test, variations in the resources invested every year by the government in all Portuguese ministries was computed, between positive and negative variations, when comparing with the investment done in the previous year. The results evidence that positive variations in the Ministry of Economy and other ministries results on significant increases on stock returns, however with the Ministry of Culture the results are the opposite.

In terms of difference between sectors, we were able to conclude that the impact on stock returns differs from sectors to sectors. Four in seven industries reacts

significantly to the publication of the government Budget, which only one reacts negatively (the Ministry of Finance). The consumer services sector proves to be the most volatile sector in front of government budgets. It reacts positively when is spent more money in the Ministry of the General Expenses of the State, of Foreign Affairs, of Economy and other ministries, in which is with the Ministry of Economy where the reaction by the sector is higher and more significant. There is also a positive reaction in this sector but before a negative variation on the investment by the State in the Ministry of Finance. However, this industry reacts negatively when the resources increase in Ministry of Finance, Education and Health. These variations are justified mainly because of different interests between the State and the companies that belong to the industry. In fact, all consumer services companies are private companies which reinforce this idea. In the case of industrial sector the main reaction is directed to the Ministry of Internal Administration (positive impacts before positive variations). Like the previous sector, also in basic materials, the Ministry of Internal Administration makes this industry to react positively to positive variations in the ministry. For the financial sector, the Ministry of Finance is the only one that influences significantly this sector. The telecommunications, utilities and others industries prove not react to variations in ministries.

In conclusion, with this dissertation is possible to understand how government budgets performance affects the returns of Portuguese companies.

References

Afonso, A., Sousa, R. M., 2009. *The macroeconomic effects of fiscal policy*. Portuguese Economic Journal, 10 (1), 61-82.

Baltagi, B. H., 2005. *Econometric analysis of panel data*. John Willey & Sons Ltd, 5th edition.

Bashir, T., 2013. *Impact of behavioral biases on investors decision making: Male vs female*. IOSR Journal of Business and Management, 10 (3), 60-68.

Basistha, A., Kurov, A., 2006. *Macroeconomic cycles and the stock market's reaction to monetary policy*. Working paper. Available at: http://www.be.wvu.edu/divecon/econ/basistha/basisthakurovpaper.pdf

Baumeister, R. F., Bratslavsky, E., Finkenauer, C., Vohs, K. D., 2001. *Bad is stronger than good*. Review of General Psychology, 5 (4), 323-370.

Belo, F., Gala, V. D., Li, J., 2011. *Government spending, political cycles, and the cross section of stock returns*. Journal of Financial Economics, 107 (2013), 305-324.

Bernanke, B. S., Kuttner, K. N., 2003. *What explains the stock market's reaction to the federal reserve policy?* Federal Reserve Bank of New York, Working paper. Available at: http://www.federalreserve.gov/pubs/feds/2004/200416/200416pap.pdf

Boyd, J. H., Hu, J., Jagannathan, R., 2005. *The stock market's reaction to unemployment news: Why bad news is usually good for stocks*. The Journal of Finance, 60 (2), 649-672.

Brooks, C., 2008. *Introductory econometrics for finance*. Cambridge University Press, 2nd edition.

Christ, C. F., 1968. *A simple macroeconomic model with a government budget restraint*. Journal of Political Economy, 76 (1), 53-67.

Coate, S., Morris, S., 1995. *On the form of transfers to special interests*. Journal of Political Economy, 103 (6), 1210-1235.

Darrat, A. F., 1988. *On fiscal policy and the stock market*. Journal of Money, Credit and Banking, 20 (3), 353-363.

Davis, G. F., 2011. *Politics and financial markets*. Oxford Handbook of Sociology of Finance, working paper. Available at: http://webuser.bus.umich.edu/gfdavis/Papers/Davis_11_Handbook_of_finance.pdf

Deloitte, 2011. *Saúde em análise: Uma visão para o futuro*. Available at: https://www.deloitte.com/assets/Dcom-Portugal/Local%20Assets/Documents/PSLSHC/pt(pt)_lshc_saudeemanalise_04022011.pdf

Grenee, W. H., 2003. *Econometric analysis*. Pearson Education, Inc. Upper Saddle River, New Jersey, 5th edition.

Gujarati, D. N., 1995. *Basic econometrics*. McGraw-Hill International Editions, Economic Series, 3rd edition.

Neves, J. L. C., 2007. *Introdução à economia*. Verbo, 8th edition.

Pástor, L., Veronesi, P., 2012. *Uncertainty about government policy and stock prices*. The Journal of Finance, 67 (4), 1219-1264.

Appendices

Table 1: Descriptive Statistics

	Average	Maximum	Minimum	St Deviation	Skewness	Kurtosis
Full Sample	-0.013%	37.817%	-86.152%	2.217%	-2.158	157.020
Basic Materials	0.039%	16.550%	-16.253%	1.845%	0.427	10.425
Consumer Services	-0.009%	27.898%	-86.152%	2.258%	-2.513	119.609
Financials	-0.050%	31.178%	-81.109%	2.439%	-7.914	422.786
Industrials	-0.006%	37.817%	-20.710%	2.084%	0.717	20.952
Telecommunications	-0.010%	17.158%	-18.014%	2.175%	0.244	8.560
Utilities	-0.004%	12.733%	-17.969%	1.715%	0.114	10.586
Other Sectors	-0.063%	37.665%	-23.362%	2.939%	1.845	28.870

This table presents the descriptive statistics results of the overall study, basic materials sector, consumer services sector, financial sector, industrial sector, telecommunication sector, utilities sector and other sectors. In this test I include descriptive statistics such as mean, maximum and minimum values, standard deviation, skewness and kurtosis on the basis of stock returns. The sample period starts in September of 1998 and ends in October of 2013.

Table 2: Abbreviations

MR	Market Return
GBP	Government Budget - Publication
GBA	Government Budget - Approval
LE	Legislative Elections
PE	Presidential Elections
M	Majority
B	Budget
MGES	Ministry of the General Expenses of the State
MND	Ministry of the National Defense
MFA	Ministry of Foreign Affairs
MF	Ministry of Finance
MF (-)	Ministry of Finance (before negative variation)
MIA	Ministry of Internal Affarirs
MJ	Ministry of Justice
MECO	Ministry of Economy
MAE	Ministry of Agriculture and Environment
MEDU	Ministry of Education
MH	Ministry of Health
MESS	Ministry of Employment and Social Security
MC	Ministry of Culture
OM	Other Ministries (Ministry of Science)

This table represents the abbreviations present along the dissertation.

Table 3: Full Sample

Full Sample			
Government Budget Publication	**0.0006** **0.030****	MF (-)	0.0004 0.302
Government Budget Approval	0.0001 0.734	MIA	0.0003 0.466
Legislative Elections	0.0006 0.175	MJ	-0.0004 0.543
Presidencial Elections	**0.0016** **0.017****	MECO	**0.0009** **0.018****
Majority	-0.0001 0.658	MAE	-0.0001 0.914
Budget	-0.0009 0.091*	MEDU	-0.0008 0.354
MGES	0.0020 0.075*	MH	-0.0005 0.336
MND	0.0002 0.417	MESS	0.0005 0.166
MFA	0.0020 0.125	MC	**-0.0015** **0.037****
MF	-0.0012 0.168	OM	**0.0025** **0.048****

This table presents results of the full sample. In this test are included Stock prices of all 46 companies belonging to Portuguese Stock Index between 1998 and 2013. The Symbols ***, ** and * represent the statistical significance at 1%, 5% and 10% significance levels, respectively (two-tailed). The sample period starts in September of 1998 and ends in October of 2013.

Table 4: Basic Materials Sector

Basic Materials			
Government Budget Publication	**0.0016** **0.022****	MF (-)	0.0001 0.875
Government Budget Approval	0.0000 0.97	MIA	**0.0019** **0.015****
Legislative Elections	0.0000 0.974	MJ	-0.0013 0.409
Presidencial Elections	0.0008 0.679	MECO	-0.0010 0.362
Majority	0.0006 0.329	MAE	0.0023 0.247
Budget	0.0004 0.73	MEDU	-0.0004 0.841
MGES	0.0050 0.07*	MH	-0.0013 0.306
MND	-0.0008 0.23	MESS	-0.0006 0.44
MFA	0.0032 0.338	MC	-0.0014 0.492
MF	-0.0019 0.403	OM	0.0060 0.061*

This table presents results of the basic materials. In this test are included stock prices of 6 basic materials companies belonging to Portuguese Stock Index between 1998 and 2013. The Symbols ***, ** and * represent the statistical significance at 1%, 5% and 10% significance levels, respectively (two-tailed). The sample period starts in September of 1998 and ends in October of 2013.

Table 5: Consumer Services and Industrial Sector

Consumer Services				Industrials			
Government Budget Publication	**0.0016** **0.004*** **	MF (-)	**0.0023** **0.006*** **	Government Budget Publication	-0.0005 0.331	MF (-)	-0.0009 0.301
Government Budget Approval	0.0008 0.129	MIA	-0.0006 0.464	Government Budget Approval	-0.0008 0.174	MIA	**0.0033** **0.000*** **
Legislative Elections	0.0010 0.431	MJ	-0.0013 0.375	Legislative Elections	0.0006 0.533	MJ	-0.0010 0.497
Presidencial Elections	0.0026 0.073*	MECO	**0.0031** **0.00*** **	Presidencial Elections	0.0002 0.885	MECO	**-0.0026** **0.014** **
Majority	-0.0004 0.428	MAE	0.0025 0.192	Majority	-0.0002 0.768	MAE	-0.0028 0.134
Budget	-0.0010 0.472	MEDU	**-0.0057** **0.004*** **	Budget	-0.0016 0.218	MEDU	**0.0057** **0.005** **
MGES	**0.0058** **0.027** **	MH	0.0001 0.942	MGES	-0.0032 0.169	MH	-0.0013 0.346
MND	0.0001 0.865	MESS	0.0015 0.069*	MND	0.0000 0.965	MESS	-0.0005 0.580
MFA	**0.0076** **0.009*** **	MC	**-0.0053** **0.00*** **	MFA	-0.0057 0.053*	MC	**0.0037** **0.025** **
MF	**-0.0048** **0.011** **	OM	**0.0076** **0.013** **	MF	**0.0044** **0.029** **	OM	-0.0015 0.597

This table presents results of the consumer services and industrial sector. In this test are included stock prices of 14 companies belonging to Portuguese Stock Index between 1998 and 2013. The Symbols ***, ** and * represent the statistical significance at 1%, 5% and 10% significance levels, respectively (two-tailed). The sample period starts in September of 1998 and ends in October of 2013.

Table 6: Financial Sector

Financials			
Government Budget Publication	**-0.001281** **0.018****	MF (-)	**-0.00224** **0.03****
Government Budget Approval	0.000085 0.883	MIA	0.0012503 0.228
Legislative Elections	0.001080 0.252	MJ	0.0006599 0.662
Presidencial Elections	0.001199 0.337	MECO	-0.001012 0.199
Majority	-0.000725 0.238	MAE	-0.000408 0.826
Budget	-0.000435 0.709	MEDU	0.0007153 0.716
MGES	0.001539 0.522	MH	-0.001067 0.422
MND	-0.000364 0.609	MESS	-0.000193 0.853
MFA	0.000270 0.926	MC	-0.000373 0.797
MF	-0.000914 0.628	OM	0.0013643 0.64

This table presents results of the financial sector. In this test are included stock prices of 8 companies belonging to Portuguese Stock Index between 1998 and 2013. The Symbols ***, ** and * represent the statistical significance at 1%, 5% and 10% significance levels, respectively (two-tailed). The sample period starts in September of 1998 and ends in October of 2013.