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Do Political Factors Affect the Risk of Local Government Default? Recent Evidence from Spain

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ABSTRACT High levels of debt, provoked by a situation of economic and financial crisis, constitute a major threat to the financial sustainability of governments in the euro zone and in many other parts of the world. This delicate state of public finances also affects local governments and has led researchers to study the variables that influence the volume of bank debt. However, few have specifically analysed the causes of local government default, although it has provoked spending cutbacks and tax increases in many countries. The aim of this paper is to examine political factors that may increase the risk of local government default. Using a logit model for panel data and applying the Basel II rules, we studied the financial performance of large local Spanish governments for the period 2006-2011. Our empirical findings reveal four political factors that may increase the risk of default (the mayor'sknowledge of finance and economics, a low percentage of women councillors, a left-wing ideology and ideological alignment with the regional government).These findings are of great interest for stakeholders who may be affected by local government default, including voters, taxpayers, users of public services, managers, policymakers, financial institutions, creditors, fiscal authorities and central government.

KEYWORDS: • default risk • credit risk • bank credit • political factors • local governments

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1 Introduction

The deterioration of public finances during the economic crisis has led various international organisations to identify high levels of debt as a major threatto the financial health of governments (EU 2015; IMF 2014; Worldwide Bank Group 2014). According to numerous international pronouncements, as a result of the crisis rising government debt may endanger the viability and financial sustainability of public services (NAO 2013; IFAC 2013; FASAB 2014; LGA 2015).

Accordingly, high levels of debt and the ensuing risk of government default constitute an issue of major concern in the eurozone (EU 2012; EC 2011) and in many other parts of the world (US Department of the Treasury 2013; FASAB 2014, NAO 2013; IFAC 2013; FASAB 2014; USAID 2011). During the crisis, government defaults provoked downgrades by credit rating agencies, increased risk premiums, public spending cuts and tax increases in countries such as Portugal, Greece, Italy, Ireland and Spain (Navarro et al. 2015; Bastida et al. 2014; Moody's 2013).

In view of this critical situation, researchers have studied the nature of the bank loans obtained by public institutions in many different countries and contexts, and have identified various demographic, socioeconomic and financial explanatory factors (Balaguer-Coll et al. 2015; Mahdavi and Horton 2014; Capalbo and Grossi 2014; Bastida et al. 2014; Cabaleiro et al. 2013; Pérez et al. 2013; Guillamón et al. 2011; León et al. 2010).

However, despite the serious difficulties encountered by some governments in repaying their loans (IMF 2014; Worldwide Bank Group 2014; EU 2015 2012) as yet little research has been conducted into determining the factors that influence the risk of default (Gómez and Herrero 2011). Some authors have identified financial and demographic variables as determinants of governmental fiscal stress 2012; Carr and Karuppusamy 2010; Benito et al. 2010) and financial/fiscal, socioeconomics and political variables as explaining factors of levels of debt in local governments. The previous research did not examine the association of political factors and default in local governments. Nevertheless, previous research has indicated the timeliness and interest of analysing the influence of political factors on the financial management by local governments during the crisis period (Navarro et al. 2015; Balaguer-Coll et al. 2015; Brusca et al., 2015; Rodríguez et al., 2014; Bastida et al., 2012; Geys and Revelli 2011; Gómez and Herrero 2011).

The aim of this paper is to examine whether political factors contribute to increasing the risk of local government default. To do so, we analyse variables related to the mayor's profile, that of the government and political environment. In

view of the insolvency problems facing many European local governments, this research could be of interest to voters, financial managers, policymakers, creditors, taxpayers, users of public services, banks, fiscal authorities and other stakeholders. Our findings provide information that is relevant to decision making in areas such as voting, financial planning, loans, payment deferrals, the financial sustainability of public services and taxation. In particular, analysis of the political factors aggravating the risk of default is very important for citizens, as voters need to know whether their choice of political party will affect the solvency of the local government and, therefore, may provoke cuts in government spending or tax increases as necessary policies to repay loans and to ensure the viability of public services.

Our empirical study was conducted with respect to 148 large municipalities in Spain, for the period 2006-2011, using a panel data logit analysis of the political variables associated with the probability of default, calculated according to the New Basel Capital Accord or Basel II rules (BCBS 2006). This particular sample was selected because, during the financial and economic crisis, large local and regional governments in Spain presented levels of debt and of gaps between income and spending that were among the highest of all the countries in the eurozone (EU 2012; Moody's 2013). Moreover, in Spain, recent opinion polls indicate that the political class is considered to be one of the main problems facing the country (Centre for Sociological Research, 2014).

2 Measuring the risk of local government default by the Basel II rules

The identification of political factors that are relevant to the risk of local government default is a contribution to previous research in this field (Geys and Revelli, 2011; Gómez and Herrero, 2011; Navarro et al., 2015). Taking into account that the banks are major creditors of local governments, such a contribution should focus on the analysis of bank loans, the high volume of which is of great concern to citizens, voters, taxpayers, financial managers, policymakers, financial institutions and other stakeholders (IMF 2014; Navarro et al. 2015; Bastida et al. 2015; Cabaleiro and Buch, 2015; Moody's 2013).

Accordingly, our study examines the bank credit risk of local governments as an indicator of their default risk which is assessed in terms of the default probability of each local government. Following Castrén et al. (2010)and Gordy (2003) we analyse credit risk in terms of the default probability as this parameter provides warning signs of vulnerability and can enable local governments to foresee and prevent a financial debt crisis (Agnelloand Sousa 2011). Moreover, the study of loan risk can provide useful information for voters to choose a government that will adopt policies to avoid default risk and therefore unpopular measures such as spending cuts or tax increases.

This analysis is especially revealing and relevant to countries like Spain where the crisis caused by the housing bubble affected the functioning of the banking system and had a major impact on the public sector. During the crisis local government revenues from construction activity fell sharply and social spending increased provoking large budget deficits and rising bank debt leading to liquidity problems and insolvency downgrading by credit rating agencies and difficulties in the credit market (Guillamón et al. 2011; Bastida et al. 2014; Navarro et al. 2015).

The risk of bank credit default by local governments is usually measured byr eference to the Basel II rules (BCBS 2006) according to which the greater the credit risk the stricter the capital requirements that should be applied as a provision against the risk of default. Circular 3/2008 of 22 May issued by the Bank of Spain in 2008 adapted the Spanish rules in accordance with Basel II setting capital requirements for banks. Local government debt is of crucial importance in determining these requirements due to the considerable exposure to risk presented in many cases.

The adaptation of the Basel II rules to the Spanish legal framework provides two methods for estimating credit risk. In the first known as the standardised approach local governments are included in the category *Exposures to regional governments and local authorities* and the judgment of external rating agencies (such as S&P Moody's Fitch and DBRS) is used to assess credit risk weighting factors and capital requirements. Under the second method – the internal ratings-based approach – local governments are included in the *Institutions* category of risk exposure and the default probability the loss given default the risk weighting factors the maximum loss that a loan might produce and the value at risk for a 99.99% confidence level are calculated.

Under Basel II default probability is calculated on the basis of the bank's exposure to local government default. The credit risk premium is the sum of the risk premiums for expected loss and for unexpected loss. The first of these elements is determined by parameters set out in the Basel II rules including default probability and severity.

In summary under the Basel II rules the default risk of local governments is measured by estimating the credit risk based on default probability. This consideration is of great interest in studies of the policies adopted by governments subject to high levels of bank debt. A reliable measure of local government default risk enables citizens voters creditors managers and other stakeholders to determine whether the characteristics and profiles of their political representatives imply a risk of default which would undermine the financial health of the local government and threaten the viability and financial sustainability of public services.

3 Research methodology

3.1 Sample selection

Our empirical study focuses on large local governments in Spain. This country was selected for analysis because institutions (EU 2012; IMF 2014) and previous research papers (Navarro et al. 2015;Balaguer-Coll et al. 2015;Bastida et al. 2014) have concluded that the bank debt of Spanish local and regional governments is very large and that there is a worrying gap between income and expenditure. This critical financial situation which has provoked major cuts in public services has led the central government to adopt legislation such as the Local Government Rationalisation and Sustainability Act No. 27/2013 and the Budgetary Stability and Financial Sustainability Act No. 2/2012. It has been argued that the analysis of factors relevant to public debt is especially interesting in countries like Spain so that policy makers can learn from the experience of the crisis and thus avoid such financial problems in the future (Alcaraz et al. 2014; Navarro et al. 2015).

Our study sample is comprised of large local governments in line with previous studies of municipal finance (Alcaraz Quiles et al. 2014; Bastida et al. 2014; Guillamón et al. 2011). Following the criteria of the Local Government Modernisation Act No. 57/2003 we selected 148 municipalities each with more than 50000 inhabitants taking data for the period 2006-2011.

This sample is appropriate for our research goal for the following reasons: a) we considered a study period ranging from three years before the onset of the crisis until three years after this time, following the approach adopted by authors as Pérez et al. (2013) and Navarro et al. (2015); b) the introduction to the Local Government Rationalisation and Sustainability Act No. 27/2013 states that large local governments face significant problems of insolvency and shortcomings in their financial management; c) these governments have a large volume of bank debt (Bank of Spain 2014; Navarro et al. 2015); d) the EU (2012) and credit rating agencies such as Moody’s (2013) have observed that the financial situation of large local governments in Spain is among the most worrying in the eurozone; e) these governments account for over 38.7% of all local spending and represent about 56% of the Spanish population providing a wide range of services including public transport sewage treatment waste disposal and sports facilities (IGAE 2014;FundaciónLa Caixa 2014); f) the accounting system used by large local governments in Spain is considered to be more revealing and complete than that employed by smaller municipalities which contributes to the representativeness and consistency of the financial data considered (Ministry of Finance and Public Administration 2013) .

3.2 Dependent variable

According to the Basel II rules and Circular 3/2008 of the Bank of Spain a loan to local government is considered to be in default when there is reasonable doubt that the municipality can meet its financial obligations. Among other circumstances worsening solvency is revealed by an inadequate economic or financial structure negative equity continuing losses generalised late payments insufficient cash flow to pay debts inability to obtain additional financing or a situation of official receivership. Therefore, and following the criteria set out in the corresponding Spanish legislation and in previous research papers on the financial analysis of local governments (Moody's 2013 2012;Navarro et al. 2015; Pérez et al. 2013) we consider a local government to be in default when it meets at least one of the conditions or financial indicators stipulated below:

- Default 1: Cash surplus for overheads<0 (Index of cash surplus). Addressed in Article 193 of the Revised Text of the Local Government Finance Act. For information on this item we consulted various sources in the following order of preference: (a) the Court of Auditors through its accountability website; (b) the external audit body for the autonomous community to which the municipality belongs; (c) the local authority's own website.
- Default 2: Legal borrowing limit (capital or current debt) exceeding 110% of current revenues as considered in Article 53.2 of the above Act. For information on this variable we consulted the virtual office of local authorities administered by the Ministry of Finance and Public Administration.
- Default 3: Solvency (current assets/current liabilities) <1. This indicator of solvency is commonly used in financial analysis. For information on this variable we consulted the same sources of information as for Default Condition 1.
- Default 4: Gross budget savings (current revenue – current expenditure) <0 as considered in Article 53.1 of the above Act. For information on this variable we consulted the above-mentioned virtual office for financial coordination with local authorities.

Therefore, our dependent variable is the default probability of the local government in question calculated using the Basel II rules according to the four financial indicators stipulated above. As well as following the Spanish rules on debt limits for local governments we chose these four indicators of default because they are in line with the recommendations of the BCBS (2006) the International Convergence of Capital Measurement and Capital Standards of the Bank for International Settlements (June 2004) and Circular 3/2008 including local governments with respect to loan exposure to central governments central bank institutions and private companies. As in the model created by Spanish legislation

the first two of these texts consider that there is a reasonable doubt as to whether financial obligations will be met when among other circumstances the debtor's solvency worsens as revealed by an inadequate economic or financial structure negative equity continuing losses generalised late payments insufficient cash flow to pay debts inability to obtain additional financing or a situation of official receivership.

3.3 Independent variables

Previous studies (Brusca et al.,2015;Cabaleiro and Buch, 2015; Benito et al., 2012; Gómez and Herrero 2011; Geys and Revelli 2011; García et al. 2011; Beland Miralles 2010; Benito et al. 2009) have shown that political factors can affect the financial behaviour of governments. In this respect three specific types of variables have been identified: the mayor's profile that of the government and the consolidation of the political environment. The parameters addressed in the mayor's profile include personal characteristics such as gender and the level and type of education received. The profile of the government refers to factors such as political competition and fragmentation the percentage of women councillors and the strength and ideology of the governing party. Finally, the consolidation of the political environment refers to the context in which local government decisions are adopted including its stability the ideological alignment between local government and regional and state governments and the number of years the governing party has been in power. Other political variables such as the age of the mayor or councillors as well as their previous experience could have been used, but such information was not available for the local governments in our sample.

With respect to the profile of the mayor variables such as gender and educational background have been studied in previous research. As indicated by Ryan et al. (2005) it may be useful to observe the differences in leadership styles between men and women and their implications for innovation in local governments. On the other hand, Massolo (1991) and Guillamón et al. (2011) found no evidence of any influence of the mayor's gender on the evolution of municipal debt. However, these studies did not analyse the default risk or other characteristics of the mayor and so for this empirical study we chose to include three possible explanatory variables with respect to the mayor: gender (male/female) level of academic studies (university graduate or otherwise) and academic profile (studies related to economics or otherwise).

Secondly five variables were selected to represent the political profile of the local government. As concerns political competition (government by absolute majority or in coalition) previous studies have reported conflicting findings. Some authors (Benito et al. 2012; Benito et al. 2010; Ashworth et al. 2005) have concluded that political competition tends to increase the tax burden deficit and government debt

while reducing available resources thereby aggravating the default risk. In contrast Guillamón et al. (2011) found no evidence of any such relationship with the volume of government debt.

In addition, numerous studies (Cabaleiro and Buch, 2015; García et al. 2011; Guillamón et al. 2011; Lago and Lago 2009; Ryan et al. 2005; Ashworth et al. 2005) have concluded that greater political strength is associated with higher levels of debt and deficit. However, Galli and Padovano (2002) found that less political strength leads to more borrowing and therefore greater difficulty in meeting loan maturities. It would therefore be interesting to examine whether the political strength of local government affects its default risk. To do so we follow the approach adopted in previous studies (Garcia et al. 2011; Guillamón et al. 2011; Ashworth et al. 2005) using the Herfindahl Index which is calculated by dividing the number of councillors belonging to the governing party by the total number of councillors in the municipal corporation.

The degree of political fragmentation is another variable that has been analysed. Geys and Revelli (2011) Vlkerink and Hann (2001) and Roubini and Sachs (1989) have concluded that increased fragmentation can cause budget deficits and therefore aggravate municipal debt. Accordingly, we study the specific influence of this variable on default risk measuring it as the ratio between the number of parties with seats in the municipal assembly and the total number of councillors.

Another aspect of political interest is that of gender. It has been reported (Piotrowsky and Van Ryzin 2007; Jennings 1983) that male councillors have a more active political commitment than their female counterparts. Furthermore, Geys and Revelli(2011) concluded that a higher proportion of women in the governing party is associated with higher tax revenues although Guillamón et al. (2011) found no evidence of a relationship between councillors' gender and the volume of debt. Although these studies did not analyse the influence of the percentage of women councillors on the risk of municipal default their findings suggest that this variable may be of interest which led us to select it for analysis.

Another variable that has been analysed in previous research is the political ideology of the governing party (conservative/progressive) (Brusca et al., 2015; Cabaleiro and Buch, 2015; Bastida et al., 2012). In this respect Balaguer-Coll et al. (2015),Garcia et al. (2011), Bel and Miralles (2010) and Tellier (2006) all concluded that left-wing parties are more likely than centrist or right-wing ones to adopt expansionary spending policies thus leading to increased borrowing requirements and greater difficulties in meeting repayment obligations. However, Ashworth et al. (2005) indicated that left-wing parties tend to borrow less while other authors have found no evidence of any influence of political ideology on spending (Geys and Revelli 2011) or on the level of deficit (Lago and Lago 2009).

As a complement to the above research we considered it interesting to study specifically whether a given political ideology might aggravate the default risk of local governments as this particular influence has not been analysed previously.

As regards variables related to the consolidation of the political environment Solé-Ollé and Sorribas-Navarro (2008) reported the existence of a positive relationship between ideological alignment between different levels of government (central regional and local) and the volume of transfers received which could lessen the need for borrowing and thus reduce the risk of insolvency. On the other hand, Bastida et al. (2009) measured a negative influence of this ideological alignment on spending and tax revenues while Gómez and Herrero (2011) found that this variable had no impact on financing at different levels of government. Therefore, although previous research findings are not conclusive they highlight the importance of studying the influence of ideological alignment on default risk. Accordingly, we selected two variables for analysis: ideological alignment between local and regional government and ideological alignment between local and central government.

Finally, with respect to the permanence of the governing party in power Bunch (1991) concluded that this variable was positively associated with the volume of debt while Grilli et al. (1991) reached the opposite conclusion. In view of these conflicting results we decided to study the relation between this variable and the risk of local government default.

The above considerations are summarised in Table 1 which lists the ten political variables analysed in our empirical study indicating how they were measured the data source and the expected sign of the statistical relation obtained for the probability of default according to previous research findings. Based on authoritative pronouncements according to which debt spending and income can be considered as interrelated dimensions of government sustainability (LGA 2015; FASAB 2014; IFAC 2013; NAO 2013)we hypothesise that a greater volume of debt and/or budget deficit increased costs and reduced revenues might all increase the risk of local government default as they would reduce the resources available to meet maturing bank loans thus favouring insolvency.

Table 1: Description of political variables

Variable	Abbreviation	Stated as	Source	Expected estimator sign (β)
Mayor's Profile				
Mayor's gender	GEN	Dummy variable. (1) Female; (0) Male	Ministry of the Interior http://www.infoelectoral.mir.es/	-
Indicator of the educational background of the mayor – university degree?	*STUDY*	Dummy variable: (1) University degree; (0) Otherwise.	Municipals website.	-
Type of university studies completed by the mayor - related to economics?	ECO	Dummy variable: (1) Economics-related university degree; (0) Otherwise	Municipals website.	-
Government's Profile				
Absolute majority	*COMP*	Dummy variable. (1) Absolute majority; (0) No absolute majority.	Ministry of the Interior http://www.infoelectoral.mir.es/	-

Variable	Abbreviation	Stated as	Source	Expected estimator sign (β)
Index of political fragmentation	*FRAG*	Ratio of the number of parties represented in the municipal corporation to the total number of councillors. Continuous variable between 0 and 1.	Ministry of the Interior http://www.infoelectoral.mir.es/	-
Indicator of political strength	*HER*	$\sum_{i=0}^{n} \frac{S_i^2}{S^2}$ S_i= Councillors belonging to party "i" (in power) S= Total number of councillors in the municipal corporation. Continuous variable between 0 and 1.	Ministry of the Interior http://www.infoelectoral.mir.es/	-
Index of female councillors in the municipal corporation	*COUNw*	Continuous variable between 0 and 1	Ministry of the Interior http://www.infoelectoral.mir.es/	-

Variable	Abbreviation	Stated as	Source	Expected estimator sign (β)
Political sign	*IDEO*	Dummy variable: (1) Progressive (BNG; IU; PA; PSOE); (0) Conservative (CC; CiU; PDEAL; PNV; PP; PAR)	Ministry of the Interior http://www.infoelectoral.mir.es/	+
Political Environment consolidation				
Ideological alignment between local and regional government	*REG*	Dummy variable: (1) Alignment; (0) No alignment.	Ministry of the Interior http://www.infoelectoral.mir.es/	-
Ideological alignment between local and central government	*STATE*	Dummy variable: (1) Alignment; (0) No alignment.	Ministry of the Interior http://www.infoelectoral.mir.es/	-

3.4 Statistical methodology

To measure the probability of loan default by a local government we assigned a value of 1 to municipalities that meet one or more of the conditions previously defined for default and a value of 0 otherwise analysing data from a sample of 148 Spanish municipalities for the period from 2006 to 2011. These data were comprised of the values corresponding to the dependent variable (default probability as an indicator of default risk) and to our ten independent variables which reflect the political factors selected for analysis.

According to the literature discrete choice models are appropriate when the study goal is to analyse the determinants of the probability of an individual economic

agent choosing a particular course of action within a set of options and such models have been used in many cases to explain the factors underlying the probability of loan default (Huyghebaert et al. 2014; Jacobson et al. 2013).

Logit panel data can be used to establish the correlation between unobserved factors over time and to eliminate the bias arising from the existence of unobservable and time-invariant heterogeneity among individuals (Train 2003). These characteristics are relevant for our purposes as they closely fit the characteristics of our sample.

In the present study the dependent variable is binary according to its description and we have a data panel for the period 2006-2011. Therefore, a conditional random-effects logistic regression can be used for the study sample composed of 148 local governments. In this analysis we used the random effects logistic regression procedure available in the software package Stata 12.0.

The random intercept logit model was chosen for several reasons. First to control and model the unobserved heterogeneity in our data. For instance, the model also provides intra-class correlation i.e. a percentage of the variance of the dependent variable that is due to individual unobserved characteristics. Second it allows for subject-specific interpretations and inferences. Third this model has been applied previously to analyse financial sustainability in government entities where debt is a key element (Solé-Ollé and Sorribas-Navarro 2012; Schaltegge and Torgler 2006).

However, this model is sensitive to possible subject-level confounding that can produce inconsistent estimates. Nevertheless, random effects can be used to remove the restrictions on the distribution of errors corresponding to the fixed effects mode albeit at the expense of imposing a parametric specification for the conditional distribution of the unobservable individual effects.

Under the theoretical framework based on the discrete choice model proposed by McFadden (2001) and McFadden and Train (2000) for each observation *i* there may be *j* alternatives at time *t* given a deterministic indirect utility function of alternative *j* that can be captured by the explanatory variables which are specified as follows:

$$Y_{it} = \alpha_i + X_{it}\beta_i + \varepsilon_{it}$$

where α_i represents the constant term X_{it} represents a vector of explanatory variables that affect the probability of default each year and ε_{it} is a random term. Y_{it} is a dummy variable that equals 1 if at time *t* the local government *i* is in default and 0 if at time *t* it is not:

$$Y_{it} = \begin{cases} 1 \text{ if local government } i \text{ defaults} \\ 0 \text{ if local government } i \text{ does not default} \end{cases}$$

To deal with the particular structure of these municipal data – longitudinal data structure and random time effects – a logit panel data model is used to estimate the probability that a local government *i* will default at time *t*. As shown by Train (2003) this can be computed as follows:

$$Prob(Y_{it} = 1) = \frac{\exp(\alpha_i + X_{it}\beta_i + \varepsilon_{it})}{1 + \exp(\alpha_i + X_{it}\beta_i + \varepsilon_{it})}$$

The test specification designed by Hausman (1978) contrasts two regressions one in which the problem of correlation (fixed effects) is corrected and one (random effects) in which it is not. If the differences between the two are not significant this could mean that no correlation correction is needed. On the other hand, if the differences are very large correlation problems must be addressed and fixed effects should be used (Gujarati 2004).

Finally, the model implemented in this study meets all the requirements of the Basel II regulations for statistical models used to calculate the probabilities of loan default.

4 Analysis of empirical results

We now examine the results of the random effects logistic regression analysis performed on the data related to the period 2006-2011. According to these results in 486 cases (54.73%) a loan default occurred and in 402 (45.27%) there was no default.

Based on the Basel II rules and default indicators, using the definitions pointed out in section 2 on default risk and taking the results for the period 2006-2011, we find that the local governments with the highest probability of default (PD) were Castelldefels(PD=90.99%) Marbella (PD=90.37%) and Torrent (PD=88.63%) while those with the lowest probability were Gijón (PD=8.13%) Cartagena (PD=10.36%) and Irún (PD=12.37%). The explanatory variable presenting the highest degree of uniformity was COUNw (with a standard error of 0.0109121) while the ECO variable (with a standard error of 0.2251017) presented the most heterogeneous development.

Taking these results into account Table 2 shows the estimated coefficients transformed into odds ratios (OR) or Exp(β) of the conditional random-effects logistic regression of the final model together with the statistical significance and other relevant statistics.

Table 2: Variables included in the final model

Variable	Coef. (β)	Std. Err.	Exp (β)
ECO	0,532984 (*)	0,2251017	1,704010
COUNw	-0,305011 (***)	0,0109121	0,737114
IDEO	0,535823 (***)	0,1613214	1,708855
REG	0,813490 (**)	0,1557505	2,255767
Cons	-1,39932 (***)	0,4681596	
Log likelihood: 286.12			
Wald Chi-square: 89.52; sig.:0.000			
Chi-square: 39.52; sig.:0.000			
Hausman (1978) Test: 12.11: sig.: 0.1297			
(*), (**),(***), represent significance at the 10%, 5% and 1% level			

According to the coefficients obtained one of the political variables has a negative influence and another three have a positive influence on the probability of local government default. Thus of the ten political variables selected only four are statistically significant. By the groups of factors considered our results show that those associated with the profile of the local government (two of which were significant namely the proportion of women councillors and the political ideology of the governing party) exert a greater influence on the probability of default than factors related to the profile of the mayor and on those related to the consolidation of the political environment each of which only has one significant variable.

Our empirical results show that the variable ECO (the mayor has an economics-related university degree) is statistically significant (+0.532984)thus supporting the hypothesis that if the mayor has an academic background in economics this can heighten the possibility of local government default. The sign obtained in our model is contrary to the expected sign shown in Table 1 (negative) reflecting the assumption that a mayor with training in economics could use the expertise acquired to adopt control measures and limit the risk of default. This result implies a novelty on prior research (Guillamón et al 2011) which found no evidence of the influence of mayor's gender on the volume of debt. By contrast our results support that academic profile on economic can provoke mayor's behaviour riskier about default.

Furthermore, our empirical evidence suggests that the COUNw variable (percentage of women councillors) with a coefficient of -0.305011 is inversely related to the default probability which is in accordance with the expected sign shown in Table 1. This finding implies that increasing the proportion of women councillors could help reduce the risk of local government default. These results extend and are in line with those of Geys and Revelli (2011) who found that this

variable was positively related with tax revenues meaning that more resources would be available to meet loan payments thus reducing the risk of default.

Furthermore, although Guillamón et al. (2011) did not observe a relation between this variable and the volume of debt our results show that it does have a specific influence on the default risk of the existing bank debt. This finding leads us to deduce that the inclusion of more women in the local government corporation would help consolidate municipal finances as it would reduce the default risk and does not appear to increase the volume of debt.

The IDEO variable (ideology of the governing party: progressive or conservative) is also significant (+0.535823)and its sign is in accordance with that proposed in previous research indicating that progressive governments have a greater default probability than conservative ones and therefore are more likely to present default risk.

As spending and debt are two essential dimensions of financial sustainability (IFAC 2013; FASAB 2014; LGA 2015) this result represents a new contribution to knowledge in this field. Various authors have concluded that the financial performance of progressive governments can provoke an increase in the volume of spending (Bel and Miralles 2010; Bastida et al. 2009; Tellier 2006) and debt (Balaguer-Coll et al. 2015; García et al. 2011;Benito and Bastida 2004). Our results develop the above findings by providing specific evidence that the policies of left-wing parties as well as raising levels of spending and debt may also lead to higher levels of default risk.

The REG variable (ideological alignment between the governing party in local government and that in the regional government)is shown to have a positive influence on default probability with a value of +0.813490. The positive sign of this coefficient suggests that this ideological alignment is associated with an increased risk of local government default possibly due to less prudent behaviour by local managers relying on financial assistance from the regional government. This result which has a contrary sign to that expected (see Table 1)is a new finding contradicting previous studies according to which governments that are ideologically aligned spend less(Bastida et al. 2009) and receive more income in the form of capital transfers (Solé-Ollé and Sorribas-Navarro 2008) than governments whose ideology conflicts with that of the regional government.

We obtained no empirical evidence of any influence of the following political variables which according to prior research might have been significant: the mayor’s gender and completion or otherwise of university studies (Guillamón et al. 2011; Massolo 1991);political competition (Ashworth et al. 2005); fragmentation and political strength (García et al. 2011);ideological alignment

between local government and central government (Guillamón et al. 2011; Bastida et al. 2009; Solé-Ollé and Sorribas-Navarro 2008); and number of years that the same political party has been in power (Bunch 1991; Grili et al. 1991). These findings indicate that policy decisions by governments that lead to higher levels of debt and spending do not necessarily contribute to an increased risk of default as the factors influencing the default probability do not always coincide with those which influence borrowing and spending.

Finally, as regards the goodness of fit the Wald statistic highlights the joint significance of the variables included in the model as it requires us to reject the null hypothesis that the coefficients are equal to zero. Furthermore, the results of the Hausman test (1978) confirm that the model must be estimated by random effects and not by fixed effects as it establishes the null hypothesis that there is a correlation between the latent effects (or number of observations) and the predictors included in the model.

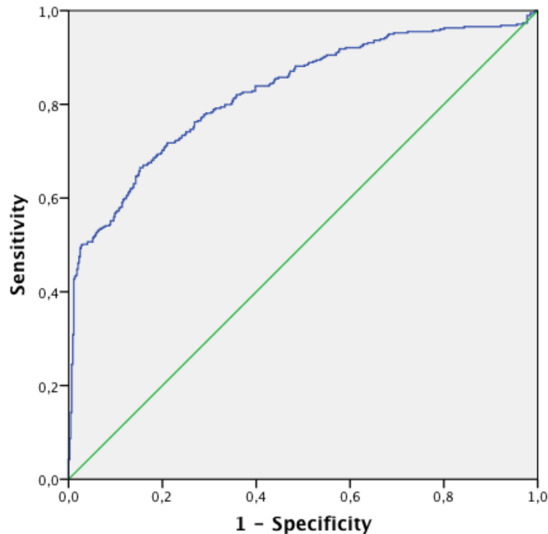
From the correlation matrix shown in Table 3 it can be seen that the correlations among the explanatory variables included in the final model are very small which confirms that there is no relationship among these variables that would account for the event studied. We conclude therefore that the results obtained are robust and reliable.

Table 3: Correlation matrix

	ECO	COUNw	IDEO	REG
ECO	1.0000			
COUNw	0.0602	1.0000		
IDEO	0.0836	-0.0994	1.0000	
REG	0.0117	0.0513	0.2485	1.0000

As can be seen in Figure 1 the ROC (receiver operating characteristic) curve of the model approaches the upper right corner of the graph which confirms that the model discriminates sufficiently well between the two groups of local government.

Figure 1: ROC Curve



ROC Area	Std. Err.	Asymptotic Normal 95% conf. interval	
0.7568	0.0249	0.7293	0.7828

The classification matrix i.e. the table of estimated versus observed values (Table 4) shows the degree of accuracy of the classification obtained. It can be seen that for an optimal cut-off of 0.44 an accuracy of 69.26% is obtained in the correct classification of the database items confirming the acceptable level of predictive accuracy achieved.

Table 4: Classification matrix (per cent)

Observ.		Prediction		
		Y		Correct percentage
		Non-Default	Default	
Y	Non- Default	266	136	66.17
	Default	137	349	71.81
Overall percentage				69.26

Optimal cut-off: 0.44. Sens.: 66.00%; Spec.: 71.96%

5 Conclusions

In the eurozone and in many other parts of the world the economic crisis that began in 2008 has led to high levels of government bank debt becoming a major threat to the financial sustainability of the public sector and to the viability of public services. In many countries problems of government insolvency have led to sharp increases in their risk premiums reduced scores assigned by credit rating agencies and difficulties in accessing the credit market thus jeopardising government services and benefits a situation that is of great concern to voters financial managers policymakers users of public services taxpayers governments public employees and other stakeholders.

This critical financial situation which has particularly affected local governments in countries such as Spain has led researchers to focus on analysing the factors that influence levels of debt government spending deficit financial health and fiscal stress and to discover determinant factors of a demographic socioeconomic and financial nature. However, until now insufficient research attention has been paid to identifying political factors that may provoke government insolvency although some studies have commented on the interest and timeliness of examining the profile of the mayor that of the governing party and the nature of the political environment as factors relevant to the financial position of local governments.

Based on a sample of 148 large Spanish local governments and analysing data for the period 2006-2011 this paper advances our understanding of the influence of political factors on the risk of local government default through a statistical analysis of the association between the default probability based on Basel II rules and ten political variables.

The results obtained enable us to identify four political factors that may increase the default risk of local governments as follows: the mayor having studied an economics-related university degree the presence of a low proportion of women councillors in the municipal corporation the left-wing ideology of the governing party and its ideological alignment with the party in power in the regional government. These empirical results imply that the factors associated with the profile of the local government have a greater impact on its default risk than those of the mayor's profile or those concerning the political context. However, we have not been able to study the influence of other variables used in previous literature such as the age and experience of mayors and councillors.

These findings are very useful for decision-making for diverse stakeholders. First the identification of these political factors provides voters with relevant information with which to choose leaders and political parties whose behaviour will be less likely to risk situations of local government default and therefore

avoid jeopardising the financial sustainability of public services the imposition of spending cuts reduced government benefits or increased taxes as has happened in recent years in eurozone countries such as Spain, Portugal, Greece, Italy and Ireland. However, the proper interpretation of these findings requires to know that the financial decisions of local governments generally have long-term effects, and not only shor-term. Therefore, these risk factors are also caused, at least partially, by financial decisions from previous years.

Second knowledge of these four significant factors is very important for financial planning managers – who must ensure the municipality is able to repay its loans – and for financial institutions and other creditors in their decisions regarding loans and payment deferrals. Third these findings may help national governments local politicians and fiscal authorities apply financial discipline and thus reduce risk premiums improve credit rating agency scores and facilitate access to the bank credit market thus ensuring the viability of public services.

The results presented in this paper represent an advance on the findings of previous research. Studies have suggested that if the mayor has an economics-related university degree this might favour more prudent municipal behaviour and thus a reduced risk of local government default as the knowledge and expertise acquired could facilitate the adoption of control measures to avoid insolvency. However, our results contradict this view showing that the mayor's economics-related proficiency may in fact heighten the risk of local government default.

Furthermore, our findings extend those of previous studies which have reported the favourable effect on tax revenues of the presence of a higher proportion of women councillors in the municipal corporation but did not study the relation between this variable and the default risk. Our results show specifically that increasing the percentage of women councillors can help reduce default risk although previous studies have concluded that this variable does not affect the volume of bank debt.

Another novel contribution of our empirical results concerns the relation between the left-wing ideology of a governing party and increased levels of debt spending and budget deficit. We show that a local government with this ideology may aggravate the risk of default. Moreover, although previous studies are not unanimous regarding the impact of ideological alignment between the governing party in the local and regional governments our findings show that such an alignment may contribute to increasing the default risk of the local government.

Following pronouncements by IFAC, FASAB, NAO and LGC according to which debt spending and income are three interrelated dimensions of government financial sustainability our findings show that the influence of some political

factors on bank debt government spending and revenues from taxes and transfers does not always impact on the risk of local government default. In fact although previous research suggests a possible effect of some political variables on this default risk we found no evidence of any such influence of the following factors: the mayor's gender political fragmentation in the municipal corporation the political strength of the governing party ideological alignment between the governing party in local government and that in the central government and the number of years the governing party has been in power.

Finally our findings led us to identify the following areas of interest for future research in order to extend this study of the effect of political factors on the risk of local government default: a) a comparative analysis of the influence of political variables in different local governments in countries belonging to the Anglo-Saxon continental European and Nordic cultures of government; b) a study of the impact of political variables taking into account the size of each municipality obtaining data from large small and medium-sized municipalities; c) a statistical analysis of the joint influence of political socio-economic demographic and financial factors; d) deepen the causes by which mayors with greater economic training have behaviour riskier about default; e) identification of the causes of the effect of ideological alignment between the governing party in local government and that in the regional government on increased risk of local government default.

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