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# Undergraduate Dissertation
DEGREE IN BUSINESS ADMINISTRATION & MANAGEMENT

# Title: Comparison of the performance obtained by shadow toll concessionaires in Spain and the UK.


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## DISSERTATION INFORMATION

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## ABSTRACT

In this dissertation, a comparison between companies under Public Private Partnerships of shadow toll has been made among projects developed in Spain and the UK. A deep analysis is shown to better understand the implementation of shadow toll mechanism which is becoming globally popular nowadays, commonly applied to the construction and operating of roads. Through this study, the past and current performance of these concessionaires, as well as the private sources of finance compared to the public ones, have been analysed by country. This, joint to a complete characterisation of them serve to build a worthwhile comparison. The findings of this study support the hidden motives recent studies pointed out about the concept "Value for Money" applied in the UK but not in the case of Spain, which focus its purpose on deferring the impact on public budgets. As a conclusion, the latter country has still a long way to go in order to apply this mechanism with the aim to contribute to the welfare state, following the leader.

## RESUMEN

En este trabajo, se ha llevado a cabo una comparación entre empresas gestoras de Colaboraciones Público-Privadas de peaje sombra y proyectos desarrollados en España y Reino Unido. Se muestra un análisis exhaustivo para comprender mejor la implementación del mecanismo de peaje sombra que está haciéndose globalmente popular en la actualidad, siendo comúnmente aplicado en la construcción y explotación de carreteras. A través de este estudio, el rendimiento pasado y actual de estas concesionarias, así como las fuentes de financiación privadas comparadas con las públicas, han sido analizados. Esto, junto con una completa caracterización de las mismas sirve para construir una comparación de interés. Los resultados de este estudio

apoyan los motivos ocultos que recientes estudios señalaron sobre el concepto de "*value for money*" aplicado en Reino Unido, pero no en el caso de España, que centra su propósito en diferir el impacto en los presupuestos públicos. Como conclusión, este último aún tiene un largo camino por recorrer para aplicar dicho mecanismo con el objetivo de contribuir al estado del bienestar, siguiendo al líder.

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# 1. INTRODUCTION

The aim of my dissertation is to make a deep comparison of the different performance obtained by the companies involved in shadow toll along the several years of its implementation in Spain and the UK.

Having known that this type of toll is becoming more popular among countries within Europe and in the rest of the world, I decided to focus my attention on Spain and the UK since the latter is the forefather of this mechanism and counts with a grounding that could serve as a model. Moreover, *Spain is recognised as a major international construction player and together with the UK are, by far, the largest users of private finance in roads* (Acerete et al., 2010).

Previous studies about this topic show the main differences between both countries, the regulation framework, introducing the concept "Value for Money" in the case of UK or the hidden motive of deferred payment in the case of Spain. Moreover, a different way of understanding direct taxes due to opposite cultures (direct tolls are frowned upon in the UK) or the main advantages and disadvantages this mechanism implies.

All of them have been the trigger to go deeper into the data available in the following pages. Using accounting and financial data has been possible to look at this topic from a different point of view, making the comparison based on different ratios and other tools for the analysis.

Once analysed the profitability and general performance got due to having applied this type of PPP, as well as its funding sources compared to the public ones, I am going to make a detailed comparison of them after having established some clear patterns by country, despite having seen the disparity among concessionaires within both countries.

## 2. THEORETICAL FRAMEWORK

Before starting the analysis, it is necessary to introduce the theoretical framework I am going to apply and what was the trigger of my recent study. It should be highlighted the few sources of information and data available while researching about shadow toll, which denotes its lack of *ex post* analysis, more noticeable in the case of Spain.

We can frame shadow toll within the recent increasing trend of incorporating the private sector in order to cover public services as it is the mechanism incorporated in which is known as Public Private Partnerships (PPP). It could be *another case of 'privatising the benefits and nationalising the costs'* (Acerete et al., 2010), since profits are assumed by the private operator while if losses arise, the public administration is usually in charge of them. as the Spanish experience demonstrates. The state bears the cost but also the downside risk if projects do not work out as expected.

Shadow toll consists on the indirect management of one infrastructure (roads) by which a project involving the construction, maintenance and operating of the infrastructure, is transferred to a private consortium for a fixed period of time by contract (Vassallo Magro et al., 2010) and it is paid by the corresponding public administration accordingly to the use (traffic) done by, in this case, drivers. It implies that the licensee reward comes from the public administration, on behalf of the users.

As it is stated in previous literature like the thesis of "Eficiencia y Costes de Infraestructuras viarias. Estudio comparativo Cataluña-Europa" (Perelló Ibarra, 2014), shadow toll has benefits but also drawbacks that are explained in the following paragraphs.

<u>Advantages:</u>

- Shadow toll allows to finance important investments without the immediate withdrawal of the big amount of money by the public administration; then, it is usually distributed along 30 years. Therefore, it has low impact in the public deficit and the short-term indebtedness.
- Projects that would not have been possible in any other way due to budgetary restrictions can be carried out. Social benefits are anticipated thanks to shadow toll mechanism.
- Savings appear if we compare this mechanism to direct toll, since toll collection requires installation and administration costs.

- Better management of these infrastructures is fostered due to incentives to the concessionaires, according to their quality and efficiency in construction and operating.
- It implies a better quality since there is integration of all phases of design, construction and operating. It leads also to higher technical efficiency.
- Reduction in budgetary deviations, due to risk transfer of the construction, and terms, since the licensee only starts receiving payments when the road is in operation.
- There is equality in payments since they are determined according to its usage and quality service.
- Shadow toll allows deferment in public accounting whenever construction and obtaining income risks are transferred to the concessionaire. Therefore, public administrations focus on contracts design in order to transfer risk as much as possible.

Disadvantages:

- The future public budgets end up being committed to shadow toll since it entails long periods of time. It is translated into less flexibility in case any contingency arises. It is a fact that public administrations are investing over their current budgetary possibilities.
- It implies higher financing costs in comparison to issuing public debt which is the common method to fund these infrastructures. They are high due to the risk transfer from the public administration to the concessionaire.
- Real distribution of risks and costs may fall more on taxpayers and users and less on the financiers than the apparent distribution would suggest. (Shaoul et al., 2008).
- Shadow toll leads to higher transaction costs derived from the preparation and control of the complex contracts linked to a long period of time which requires predictions of high scope and detailed studies before the implementation of these projects. Moreover, the variables upon which payment is established require measurement devices.
- Public administrations could be financing infrastructure investments that are not socially justifiable. Therefore, shadow toll can be used to hide the real cost of

the corresponding infrastructure. This mechanism does not make sense if deferred accounting becomes its hidden motive as it seems to be in Spain.

All in all, in order to know if shadow toll is worthwhile, the risks that the administration avoids and the efficiency improvement it implies should be higher than the financing and transaction costs derived from this mechanism.

If we take a look at the past, regulation has been more prone to this kind of PPP in the UK, which is the forefather of shadow toll mechanism. This country counts with the pioneering Private Finance Initiative (**PFI**) as framework, which was the name of the government's policy to formally regulate PPP, fostering the higher participation of the private sector in the public infrastructures. DBFO (Design, Build, Finance and Operate) is the name given to the management model which was more common within this increasing trend. Therefore, it denotes its higher experience and grounding in order to start applying shadow toll in mid-1990s, becoming a global player in the PPP sector (Acerete et al., 2010). On the contrary, Spanish regulation did not take it into account until more recent years; it was implemented once it was shown it was working well in countries as the UK. This latter country was used to toll concessions for private operators since 1967 (Acerete et al., 2010) and it starts in the late 1990s in Madrid and Murcia, although Catalonia has been the region in which it has been more intensively applied.

The apparent different underlying reasons behind its implementation by country should be pointed out. While the UK applied it since early 1990s due to the lack of popularisation of using direct tolling, and with the aim of contributing to the social welfare; Spanish public administrations have been criticised by its hidden motivation of deferred accounting as regards to public budget. It should be highlighted that shadow toll concessions have been fostered by the Spanish Ministry of Public Works as an alternative to the maintenance and exploitation of the road infrastructure as it is the case of first generation state dual carriageway roads which also includes its modernisation.

It is crucial to highlight within this framework the concept known as "Value for Money" upon which the UK justifies the risk transfer (and cost) to the private sector; that is to say, the cost is bore by the state by means of annual payments. Thus, this analysis is being implemented in the UK in order to justify the application of shadow toll. On the contrary, in the case of Spain, there is an important lack of detailed studies before starting the projects and, furthermore, they are not representative in which

concerns to medium and long term, putting at risk the welfare of future generations that will have to pay for it.

This methodology, known as "Value for Money", consists on comparing the Net Present Value of the total expenditure that supposes a PPP project to the administration, along its complete useful life, against the Public Sector Comparator (PSC), which is the cost that would result from developing this project by the traditional system. If the cost of the PPP is lower than the one obtained through PSC, the project will be socially profitable and this option will be chosen. Thus, the higher the Value for Money, the better since it represents the difference between both (Vassallo Magro *et al*., 2010).

In addition to this key concept, *accountability to citizens* is also crucial to justify the *turn to private finance* in order to be able to assess *the financial viability of both the projects and their operators.* It becomes problematic since there is a *lack of consistent, comparable and understandable financial information* regarding PPP in the road sector (Shaoul et al., 2008).; thus, it generates doubts about the final destination of public expenditure due to the indirect control of them by the public administration.

The newness related to this form of toll is the different way of measuring and establishing payments from the public administration, since the latter is the one paying for the road and not the drivers as users. Here, comparison between both countries is meaningful again. On the one hand, the payment is based upon traffic volume in Spain with the difficulty of measuring the Average Daily Traffic (ADT). On the other hand, the system applied in the UK depends on quality service, extremely linked to licensee performance, which makes more sense since the concessionaire is paid according to its road management.

Nowadays, the revival of PPP is taking place after some years of evident shortage of capacity in the market for PPP/PFI finance during the credit crunch due to the economic crisis. This fact led to changes in policies and risk transfer, in the UK, to make them more attractive. Therefore, this revival could be absorbing future public funds without evidence of clear efficiency.

Since it is well known that *PPP are dependent on a fourth 'P' – politics* (DLA Piper 2004), it implies a limitation for the poorer countries in which the level of public investment is less significant and therefore, they continue being less developed in terms

of infrastructures. On the other hand, in developing countries, shadow toll could be limiting the efficient usage of future public funds.

Going further, this system should contribute to sustainable development, taking into account not only the short-term, as it does the current financial Value for Money assessment, but the medium and long term assuring that it contributes to sustainable development. Thus, its impact on environment and society at large should also be evaluated.

To conclude, *PPP projects should be judged on their individual merits and only selected when considered the most appropriate and viable solution (Colverson, 2012).*

# 3. METHODOLOGY

In this section, the scope of my research and all the methods applied are briefly explained, as well as their main drawbacks.

First of all, a **description of the sample** has been made. The companies have been characterised by region, date of contract signature, operational period, capital value (measured in millions of euros) and length of the road. Furthermore, it is also shown a financial structure made by the sources of funding and another one indicating its predominating term. A list with the complete name of all the companies has been introduced at the beginning of the next section and a table with their main features has been included in appendix 1 in order to know relevant data about the concessionaires under study.

**Profitability ratios** which are relevant regarding the evaluation of the financial performance of shadow toll projects, have been calculated in section 4.2. The information has been got from the annual financial statements for the different years and companies involved in shadow toll for both countries, Spain and the UK.

- ROA (Return on Assets) = $\frac{\text{EBIT}}{\text{Average Net Assets}}$

This ratio, also known as Return on Investment (ROI), is an indicator of how profitable a company is relative to its total assets. The percentage displayed gives an idea of how efficiently these companies are managing their assets (investment) in order to generate annual earnings, measured as Earnings Before Interest and Taxes.

- Financial profitability = $\frac{\text{EBT}}{\text{Average Equity}}$

This second ratio which makes reference to the financial profitability indicates how much earnings before taxes a company generates with the money shareholders have invested on it, that is to say, the amount of Earnings Before Taxes returned as a percentage of shareholders' equity.

Furthermore, other **ratios for general analysis** on liquidity, solvency, gearing and compliance of golden rule have been calculated in section 4.3.

- Liquidity ratio = $\frac{\text{Current Assets}}{\text{Current Liabilities}}$

This first general ratio, better known as "current ratio" within liquidity analysis, shows the ability of a company to pay back its liabilities with its assets in the short-term. It points out its financial health. A ratio under one indicates that it cannot face its current obligations if they become due in a short period of time, although it does not necessarily lead to bankruptcy. On the contrary, a relevant high ratio may not be a good indicator since having more short-term investment is not profitable and it could suppose an opportunity cost for the company which would not be managing well its resources. This ratio is highly correlated to the working capital figure, whose interpretation also depends on the sector.

- Solvency ratio = $\frac{\text{Assets}}{\text{Liabilities}}$

This second general ratio determines the ability of a company to meet its obligations. Having more assets than liabilities is the desired situation, that is to say, a concessionaire with this ratio over one. In addition, it should be framed in this particular sector under study in order to better know the real situation of each concessionaire.

- Gearing ratio = $\frac{\text{Liabilities}}{\text{Equity}}$

The third general ratio refers to the balance of internal and external resources in a company. It measures the existing financial leverage; thus, the degree to which the activity of these concessionaires is financed by own funding against creditors. In this case, the ideal structure would be framed by one third of external resources and the rest corresponding to the own financing.

- Golden rule = $\frac{\text{Equity+Non Current Liabilities}}{\text{Non Current Assets}}$

Regarding the compliance of the golden rule, it demonstrates the degree to which a company is able to finance its permanent investment with its permanent resources. Therefore, this ratio should be higher than one in order to fulfil this rule.

All in all, all these ratios have been individually calculated by concessionaire. Then, an average of each one of the relevant years selected for the analysis shows the overall situation by country. With this technique, developing a **general comparison** has been possible.

The main drawback is that most of the companies involved only count with information until 2014 or 2015, added to the different accounting regulation between both countries

and, in the case of Spain, the change of the General Accounting Plan in 2007. Besides, the UK counts with a high experience along the years due to the fact that it was the country which first implemented this type of tolls in the late eighties. Therefore, a selection of crucial years was made in order to make the profitability and general comparison as accurate as possible.

Going deeper on the **different accounting regulation** existing in both countries, it should be highlighted the lack of information in the UK. While the average length of the annual reports of Spanish concessionaires is more than sixty pages, the length of the British ones is around fifteen pages. This, added to the fact that one third of the pages of the latter ones are not useful, points out the difficultness of working with this kind of reports and their financial statements. Since this data is not commonly under study, getting figures from the reports along the years and among several companies has been a tedious work.

In the next section, 4.4, a detailed analysis of the **different sources of funding** has been made. The aim is to see the difference for both countries if they would have developed the road projects by themselves, issuing debt, and the private financing cost that they actually suppose for the concessionaires under PPP following shadow toll mechanism. To calculate the latter, the following formula has been applied:

$$\text{Financing cost (interest)} = \frac{\text{Total Interests}}{\text{LT interest rate with banks and associated companies}}$$

In order to make the comparison, UK and Spain 30-year bond yield has been selected due to the fact that most of the projects under shadow toll last, typically, about 30 years. This particular bond is characterised by the higher return asked by investors since its higher duration implies higher risk coming from the uncertainty towards economic outlook in the next 30 years. Comparing the private financing cost to this bond makes the study more accurate in order to show the difference among both sources of finance. It should be highlighted that if governments would have decided to finance these projects by themselves, they should have issued debt in the form of 30-years bond by the whole amount of required capital to implement them.

The main drawback of this part of the study has been the different operating life of the several concessionaires of both countries. Thus, an average has been applied in order to calculate a global interest rate for each one of the years analysed, making possible to compare it with the bond-yield evolution along all these years. Furthermore, the

comparison would have been more accurate by regions (in the case of Spain) and states (in the case of the UK) since projects are usually implemented within them and due to the differentiated budgets, but finding this kind of data for all regions and all years is almost impossible because not all of them issue debt. Therefore, both national bonds have been selected.

To sum up, comparing the average financing cost of the concessionaires with the state bond yield in the year the concession was awarded has been the procedure I have followed. It is useful in order to analyse the volatility or, on the contrary, stability of financing and to analyse the saving or wasting of public money as regards shadow toll mechanism.

Within the last section 4.5, **SPSS statistical analysis** has been applied. The several concessionaires have been grouped by jointly applying Cluster Analysis and Multidimensional Scaling (MDS) techniques to the variables analysed. Both techniques are devoted to identify homogeneous groups from the wide variety of companies of shadow toll under study. These methods, referred to as "dimensionality-reduction methods", simplify the patterns of association among different objects.

Firstly, Cluster Analysis is a multivariate analysis method particularly appropriate for seeking similarities among individuals or objects, which correspond to the concessionaires in this particular case (named with the specific acronyms indicated at the descriptive analysis in Appendix 1). Clusters were obtained by applying the Ward's method in order to establish groups with high internal homogeneity and as differentiated as possible from each other.

Secondly, MDS is a procedure whose main objective is to find a metrical space, a map containing all the concessionaires, with a certain number of dimensions that will depict the position of the companies according to the distances or proximities between them. Thus, the distance existing between them is an indicator of the degree of relationship. This technique tends to form a kind of 'clouds' built by common elements that may be visually and intuitively grouped. In order to make more understandable MDS, the previous step is also recommended. Focusing on the study, the variables selected to carry out the analysis were:

- Capital value, in millions of €.
- Length of the road, measured in km.

- ROA/ROI (economic profitability) calculated with 2014 data.
- ROE (financial profitability), calculated with 2014 data.
- Liquidity ratio, calculated with 2014 data.
- Solvency ratio, calculated with 2014 data.
- Gearing ratio, calculated with 2014 data.
- Compliance of golden rule, calculated with 2014 data.
- Average financing cost (interest rate).

Finally, the results obtained have been interpreted with Property Fitting (Pro-Fit) analysis. This technique, closely related to multivariate regression analysis, attempts to relate the position of an object in the configuration to the values of the variables for this object. A function relating the value of a variable to the position in space of the company is generated if the variable relates to that position of the concessionaire in the configuration.

# 4. ANALYSIS AND INTERPRETATION OF DATA

## 4.1 DESCRIPTIVE ANALYSIS

First of all, a **descriptive analysis** of each one of the several companies from Spain and the UK, which form the sample under study, has been carried out. The following list shows the complete names out of a total of forty-three concessionaires of shadow toll. Further characterisation, as explained in methodology, is shown in Appendix 1.

**Concessionaires from Spain:**

- Autovía del Noroeste Concesionaria de la Comunidad Autónoma de la Región de Murcia SA
- Ruta de los Pantanos SA
- Autopista Trados 45 SA
- Euroglosa 45 Concesionaria de la Comunidad de Madrid
- Concesiones de Madrid SA
- Autovía de la Mancha Sociedad Anónima Concesionaria de la Junta de Comunidades de Castilla-La Mancha
- Autovía de los Viñedos, SA Concesionaria de la Junta de Comunidades de Castilla-La Mancha
- Autovía del Camino SA
- Carretera Palma-Manacor, Concesionaria del Consell Insular de Mallorca, SA
- Madrid 407 Sociedad Concesionaria SA
- Viastur Concesionaria del Principado de Asturias SA
- Accesos de Ibiza SA
- Ibisan Sociedad Concesionaria SA
- Cedinsa Eix del Llobregat Concessionaria de la Generalitat de Catalunya SA
- Concesionaria Santiago-Brión SA
- Reus-Alcover, Concessionaria de la Generalitat de Catalunya, SA
- Sociedad Concesionaria Puente del Ebro SA
- Autovía del Turia Concesionaria de la Generalitat Calenciana SA
- Autoestrada do Salnés Sociedade Concesionaria da Xunta de Galicia SA
- Autovía del Eresma Concesionaria de la Junta de Castilla y León SA
- Autovía de los Pinares SA
- Autovía del Barbanza Concesionaria de la Xunta de Galicia SA

- Cedinsa d'Aro Concessionaria de la Generalitat de Catalunya SA
- Cedinsa Ter Concessionaria de la Generalitat de Catalunya SA
- Autovía del Pirineo SA
- Eix Diagonal Concessionaria de la Generalitat de Catalunya SA

**Concessionaires from the UK:**

- Road Management Services (Gloucester) Limited
- Connect A30/A35 Limited
- Autolink Concessionaires (A19) Limited
- Road Link (A69) Limited
- Connect A50 Limited
- Road management Services (Peterborough) Limited
- UK Highways M40 Limited
- Connect M1-A1 Limited
- Road Management Services (A13) PLC
- County Route (A130) PLC
- Road Management Services (Darrington) Limited
- Connect M77/GSO PLC
- Claymore Roads Limited
- Sheppey Route Limited
- Connect Plus (M25) Limited
- Connect CNDR Limited
- Highway Management Scotland (M80) Limited

## 4.2 PROFITABILITY ANALYSIS

A profitability analysis has been made by country and company, from an economic and financial point of view. Since most of the concessionaires have been operating during many years, the most significant ones are selected in order to make the analysis:

- 2014, the last year in which data was available for all companies, showing an approximation of the current situation.
- 2009, at the core of the economic crisis.
- 2006, the year before economic crisis took place.
- 2003, the year in which a relevant number of concessionaires started up or were already operating.
- 2000, the first year with available data for Spanish concessionaires.
- 1996, the first year with available data for concessionaires in the UK.

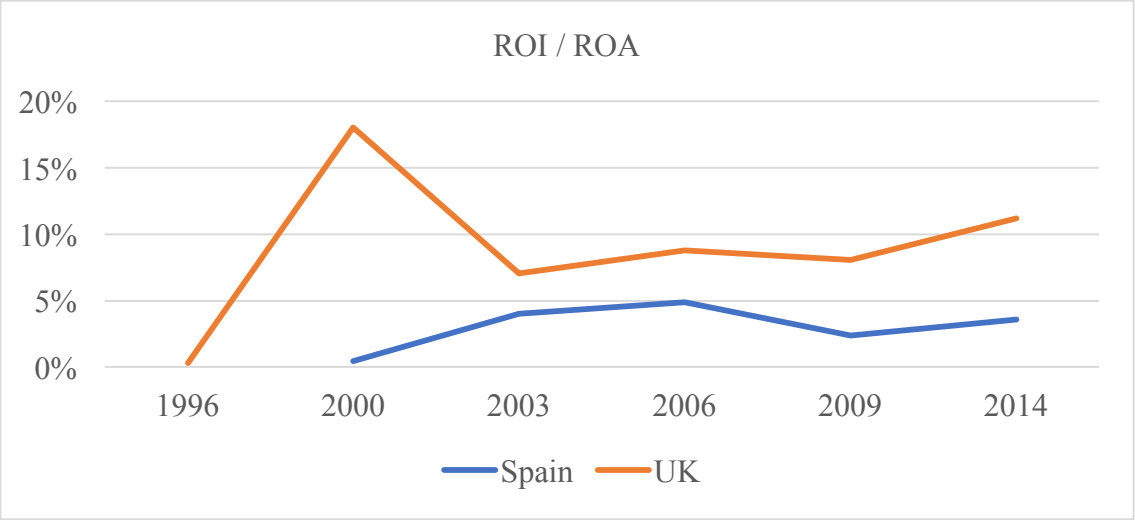
**Economic Profitability**

Focusing on Figure 1 which shows **Return on Investment** by country, it is clear that the UK trend, resulting from the average ratio of all the participating concessionaires, is always above the Spanish one. It means that, broadly speaking, British companies are managing better their assets in order to generate earnings. The latter statement leads to further discussion since this management is complicated to assess.

It is noticeable that the higher profitability is closely linked to the higher experience in shadow toll mechanism coming from the forefather country. It also depends on the different ways of establishing payments from the State. In the UK, as it was further explained in the previous literature section, it is determined in relation to the quality service whose obligation lies on the licensee; whereas in Spain, the performance and corresponding payment is according to the ADT which is not under the concessionaire control. Thus, the British ones show better performance in line with being able to control their periodic rewards.

Looking at the evolution, both trends follow the same path since 2003. Economic profitability has improved with the exception of the years in which the economic crisis took place. It should be highlighted the remarkable high profitability got from the British concessionaires at the beginning of their implementation which coincides with the change of century.

**Figure 1: Average Return on Investment by country.**




Source: own elaboration using Financial Statements data.

Detailed information by concessionaire can be found at appendix 2.

Going deeper into particular cases, *Autopista Trados 45* and *Autovía del Noroeste* are the leaders in Spain referring to ROI assessment, whereas *Autovía del Pirineo* has even negative profitability being unable to generate earnings. Moving to the UK, *Road Link (A69)* and *Road Management Services (A13)* present relevant high ratios while the lower one correspond to *County Route (A130),* being even negative.

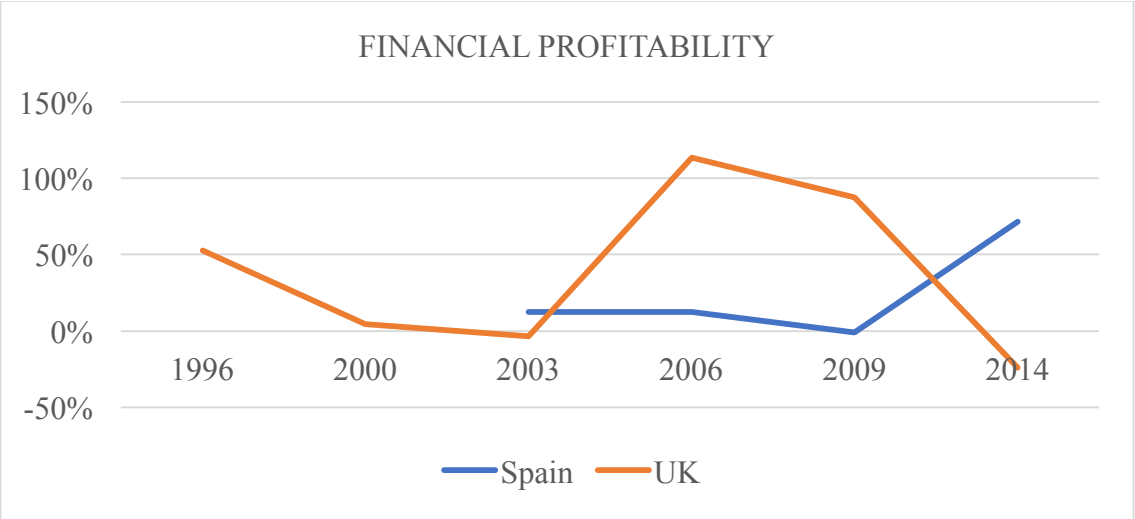
**<u>Financial Profitability</u>**

As regards Figure 2, **Return on Equity** is characterised as volatile, as a general screenshot, if we compare it to the previous ratio. Looking at the years available, Return on Equity has been higher in the case of UK but it has changed in the last years in which the Spanish trend shows an upturn while the British average dramatically declines, not being able on average to generate earnings before taxes with the money shareholders have invested on it. This latter figure is affected by the ratio corresponding to *Connect CNDR* which strongly deviates the average and makes it negative.

The main relevance of this analysis lies on the assessment of the financial viability in terms of ability to generate revenues to recover the full costs involved for the concessionaires over the life of the contract (usually thirty years). As it is seen, averages for both countries do not seem to be stable, this fact is more remarkable in the UK having more years to make the analysis. Looking closer, this average does not reflect accurately the individual situation of these concessionaires which is only alarming for

some of them. Companies that count with a good profitability have improved along the years overcoming the crisis period.

**Figure 2: Average Return on Equity by country.**




Source: own elaboration using Financial Statements data.

Detailed information by concessionaire can be found at appendix 3.

Focusing on particular cases, *Viastur* has a high ROI whereas *Autovía de los Pinares* shows a relevant negative figure among all the Spanish companies. On the other hand, *Road Link (A69)* and *UK Highways M40* are on the top of the UK.

### 4.3 GENERAL RATIOS FOR ANALYSIS

To better know the performance of these concessionaires, ratios for general analysis on liquidity, solvency, gearing and compliance of golden rule have been analysed by country and concessionaire. As in the previous section, the study has been made for the relevant years selected in order to look at the evolution as well as the current situation.

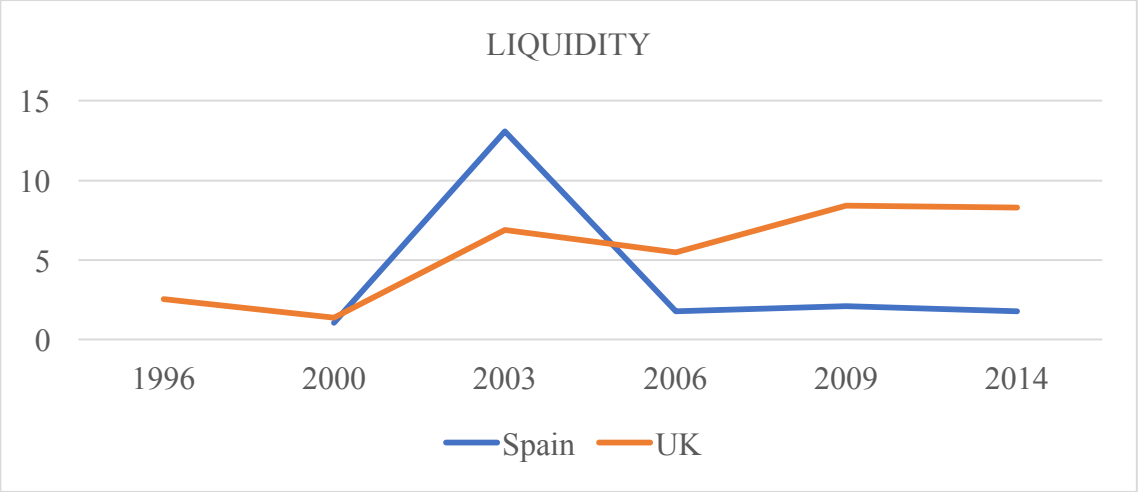
**Liquidity**

As regards figure 3, the evolution of the current ratio by country is shown. It can be seen that, looking at the overall situation, concessionaires in the UK present higher liquidity with the exception of 2003, year in which *Autovía de los Viñedos* strongly distort the average liquidity in Spain (without it, the average would have been 1.53).

Thus, Spanish concessionaires count with a good liquidity situation now but also looking backwards, it even has improved. Considering the ideal figure of this ratio is between 1.5 and 2, the average figure which is 1.78 shows financial health.

On the other hand, companies also have the ability to face their obligations in the UK, looking at the short-term. The high ratios are not a good indicator since they point out the bad management of resources carried out in several of the British concessionaires. It may suppose an opportunity cost since having excessive short-term investment is not profitable at all. The ratio has worsened along the years getting 8.31 in 2014 while it was in a desirable condition in 2000 with 1.39 as average.

**Figure 3: Average liquidity ratio by country.**




Source: own elaboration using Financial Statements data.

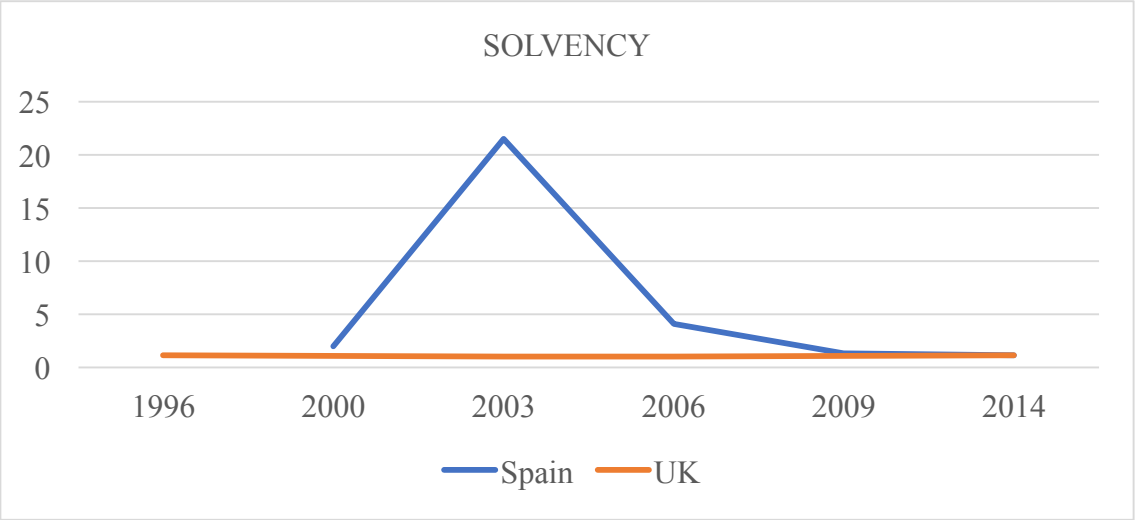
Detailed information by concessionaire can be found at appendix 4.

**Solvency**

Regarding this ratio by country in figure 4, a clear pattern can be identified in the UK. The steady line, which shows the average along the years, points out the stability of the British concessionaires in terms of solvency. Going deeper, *Road Management Services (A13), County Route (A130)* and *Connect M77/GSO PLC* do not even reach the figure of one, that is to say, these concessionaires are not able to meet their obligations with their total investment. The situation of the latter ones has worsened since the economic crisis, although they are close to it.

On the contrary, the Spanish trend is more volatile being always above the British one. Its average presents higher solvency than in the UK, although both are pretty close nowadays (1.17 against 1.16). Again, 2003 should be highlighted because this ratio has the highest figure thanks to *Autovía de los Viñedos* and *Autovía de la Mancha*. As well, it has considerable worsened since the economic crisis arose. Looking at the last available year, *Madrid 407, Autovía de los Pinares, Autovía del Barbanza* and *Autovía del Pirineo* are not able to meet their obligations but the figures are not so far from one.

**Figure 4: Average solvency ratio by country.**




Source: own elaboration using Financial Statements data.

Detailed information by concessionaire can be found at appendix 5.

**Gearing ratio**

If we look at the balance between internal and external resources in figure 5, none of the averages for this ratio of both countries would be at a desirable condition. The

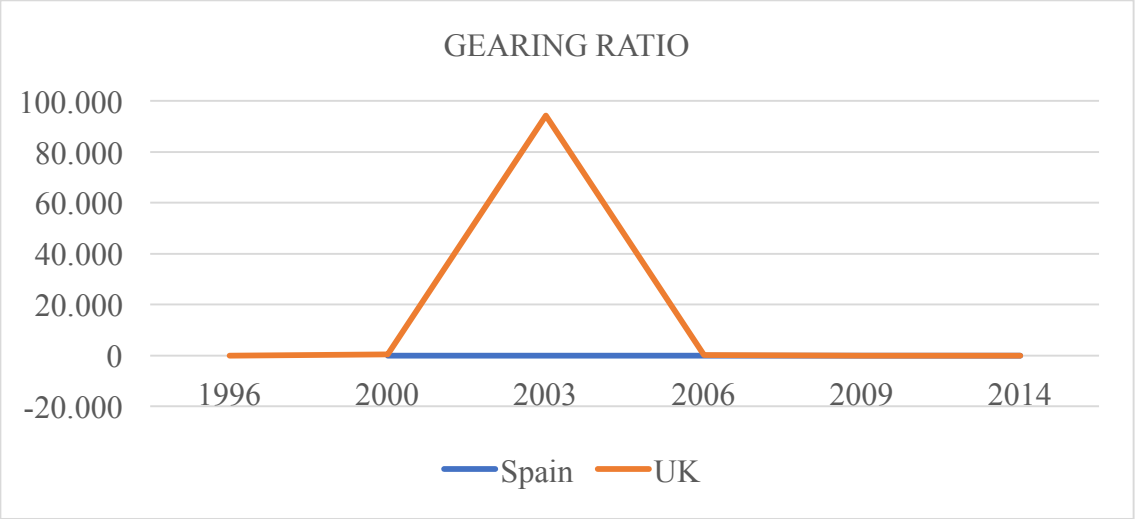
concessionaires are financed by external resources rather than own funding, which indicates they are highly leveraged. The figure is negative in both, during the last years.

Regarding Spain, the evolution is not favourable since the value of the gearing ratio increases along the years, being negative in the last available year due to equity.

The situation is even worse moving to the UK average. British companies are worrying leveraged depending on external resources to survive. 2003 should be highlighted as it reaches the peak, if we look at the evolution, due to the low equity the concessionaire *Claymore Roads* has.

None of them present a ratio lower than one as it is the desirable figure. Focusing on this specific sector, it involves high investment and it requires being remarkably indebted.

**Figure 5: Average gearing ratio by country.**




Source: own elaboration using Financial Statements data.

Detailed information by concessionaire can be found at appendix 6.

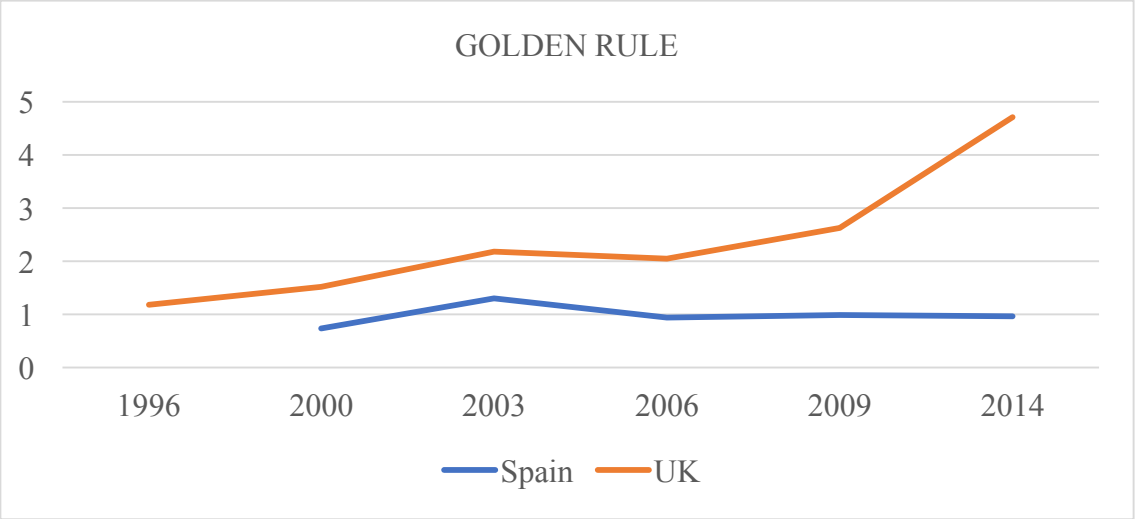
**<u>Compliance of the golden rule</u>**

This last figure about ratios for general analysis focus on the long-term. In general terms, average from the British concessionaires is always higher than the Spanish one. It means that the companies from the UK are more able to finance their permanent investment. While the Spanish trend is more or less steady, we can notice an upward trend looking at the evolution in the UK figures which points out its better situation.

Looking closely, it can be found out that *Road Management Services (A13)* and *Claymore Roads* in the UK and *Viastur, Cedinsa Ter and Autovía del Pirineo* in Spain are far from getting its ratio higher than one if we focus our attention on the outlook.

In both countries, it can be noticed an overall improvement in the compliance of the golden rule.

**Figure 6: Average golden rule ratio by country.**




Source: own elaboration using Financial Statements data.

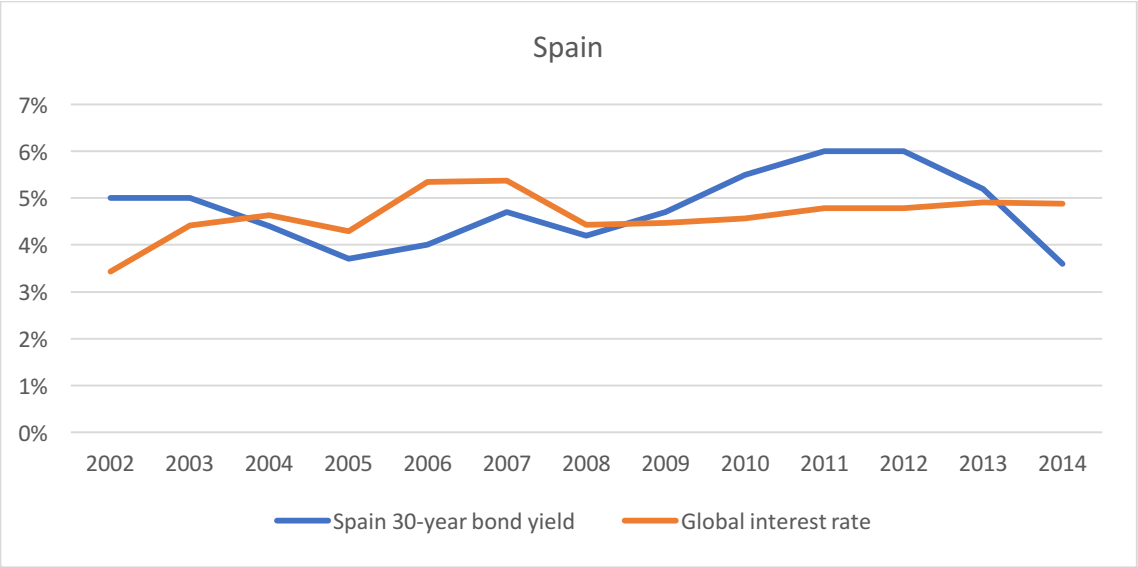
Detailed information by concessionaire can be found at appendix 7.

## 4.4 PRIVATE FINANCING VERSUS PUBLIC FINANCING

As part of my analysis, I have made a comparison between the different sources of finance: public and private. In the following tables, it is shown the 30-year bond yield by country (which represents public funding), since the year the concessionaires under study arose, and the private financing cost represented by the global interest rate which concentrates the cost for all the concessionaires under shadow toll.

On the one hand, focusing on the following figure, the Spanish bond yield fluctuates and so the global interest rate does. There is no clear pattern, sometimes public funding is cheaper as it is usual while other years it turns out to be more expensive than the private one. As it is shown in 2004, 2008, 2009 and 2013, both are pretty closer while in 2002, bond yield is considerable above the global interest rate; on the contrary, 2006 is the year in which the gap is more noticeable being public funding cheaper.

**Figure 7: Public versus private financing in Spain (1999 – 2014).**

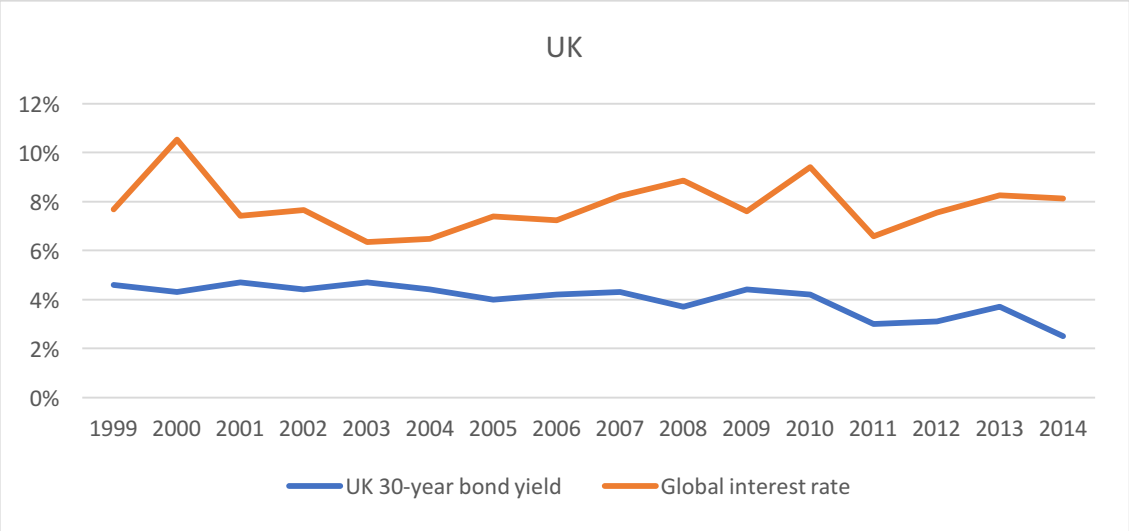



Source: own elaboration using Financial Statements data.

Complete data is available in table 16 within appendix 8.

On the other hand, focusing on figure 8, the UK bond yield follows a steady trend along the years, from 1999 to 2014, while the global interest rate follows a more volatile trend. The clear pattern is that public financing is cheaper than private. It should be highlighted that this is more noticeable in the year 2000, whereas both lines are closer in 2003; and if we look at the last year available, the difference is still remarkable.

**Figure 8: Public versus private financing in the UK (1999 – 2014).**




Source: own elaboration using Financial Statements data.

Complete data is available in table 17 within appendix 8.

All in all, both sources of financing are volatile with the exception of the UK 30-year bond yield which has been less affected by the economic crisis and, thus, it presents a steadier trend. It should also be highlighted the general wasting of public money related to the implementation of shadow toll mechanism. In most of the cases, always in the UK, having financed this kind of projects issuing debt in the same years the concessionaires were awarded, would have led to an important saving if we look at the complete period of around 30 years they last. Only in the Spanish scenario, it would have made sense since public funding is more expensive than private during some years.

Once analysed both types of financing by country, a screenshot of the different patterns has been established. Going deeper, a **breaking down by company** has been made in the following tables. They show an average financing cost (calculated as it was explained in the methodology) along the years of life for each concessionaire, as well as the state bond yield in the year the concession was awarded. Then, a differential of both rates has been calculated, showing how much expensive is private funding compared to the public one, as it is usual. Or, on the contrary, if this differential appears with a negative sign, how much cheaper it is. In the latter case, therefore, shadow toll would make more sense from this point of view.

**Table 1: Public versus private financing by concessionaires in Spain.**

| | Interest rate (financing cost) | Spain 30-year bond yield | % Differential |
|---|---|---|---|
| Noroeste | 5.10% | 5.00% | 0.10% |
| Pantanos | 4.98% | 5.00% | -0.02% |
| Trados 45 | 3.03% | 5.00% | -1.97% |
| Euroglosa 45 | 4.66% | 5.00% | -0.34% |
| Concesiones de Madrid | 5.11% | 5.00% | 0.11% |
| Autovía de la Mancha | 6.03% | 3.70% | 2.33% |
| Autovía de los Viñedos | 4.81% | 4.00% | 0.81% |
| Autovía del Camino | 5.01% | 4.00% | 1.01% |
| Carretera Palma-Manacor | 4.96% | 4.70% | 0.26% |
| Madrid 407 | 3.86% | 4.70% | -0.84% |
| Viastur | 4.06% | 4.70% | -0.64% |
| Accesos Ibiza | 4.06% | 4.70% | -0.64% |
| Ibisan | 4.15% | 4.70% | -0.55% |
| Cedinsa Eix Llobregat | 3.29% | 4.20% | -0.91% |
| Santiago-Brión | 4.39% | 4.20% | 0.19% |
| Reus-Alcover | 5.17% | 4.20% | 0.97% |
| Puente del Ebro | 3.37% | 4.20% | -0.83% |
| Autovía del Turia | 6.81% | 4.20% | 2.61% |
| Autoestrada do Salnés | 3.71% | 4.20% | -0.49% |
| Autovía del Eresma | 5.93% | 4.20% | 1.73% |
| Autovía de los Pinares | 4.69% | 4.20% | 0.49% |
| Autovía del Barbanza | 3.87% | 4.20% | -0.33% |
| Cedinsa Aro | 0.00% | 4.20% | -4.20% |
| Cedinsa Ter | 5.24% | 6.00% | -0.76% |
| Autovía del Pirineo | 6.27% | 6.00% | 0.27% |
| Eix Diagonal | 6.68% | 6.00% | 0.68% |

Source: own elaboration using Financial Statements.

Focusing on the previous table 1, both cases are found looking at Spanish companies. It should be highlighted that the average financing cost for *Ruta de los Pantanos, Autovía*

*del Noroeste* and *Concesiones de Madrid* almost coincide with the bond yield in the year these concessionaires were awarded. In contrast, private cost is much cheaper for *Cedinsa d'Aro* and much more expensive for *Autovía del Turia* and *Autovía de la Mancha* than issuing public debt.

Moving on to the following table 2, as it has been represented in the general screenshot for the UK, public funding is cheaper for all the concessionaires, presenting also a higher gap in contrast with the lower differentials obtained in the case of Spain. Looking at *Claymore Roads* and *Road Management Services (A13)*, this scenario is more remarkable since they have less share of long term debt than the others. The opposite case is found in *Autolink (A19)* and *UK Highways M40*, in which the difference between both sources is less noticeable.

**Table 2: Public versus private financing by concessionaires in the UK.**

| | Interest rate | UK 30-year bond yield | %Differential |
|---|---|---|---|
| Gloucester | 10.32% | 4.60% | 5.72% |
| Connect A30A35 | 8.21% | 4.60% | 3.61% |
| Autolink | 6.83% | 4.70% | 2.13% |
| Road Link (A69) | 10.66% | 4.60% | 6.06% |
| Connect A50 | 16.33% | 4.60% | 11.73% |
| Peterborough | 15.50% | 4.60% | 10.90% |
| UK Highways M40 | 6.81% | 4.60% | 2.21% |
| Connect M1-A1 | 9.14% | 4.32% | 4.82% |
| Road Management (A13) | 18.88% | 4.70% | 14.18% |
| County Route (A130) | 7.32% | 4.70% | 2.62% |
| Darrington | 6.66% | 4.00% | 2.66% |
| Connect M77/GSO PLC | 6.69% | 4.00% | 2.69% |
| Claymore Roads | 20.03% | 4.00% | 16.03% |
| Sheppey Route | 6.99% | 4.30% | 2.69% |
| Connect Plus (M25) | 6.15% | 3.00% | 3.15% |
| Connect CNDR | 8.67% | 3.00% | 5.67% |
| Highway Management (M80) | 6.08% | 3.00% | 3.08% |

Source: own elaboration using Financial Statements data.

## 4.5 STATISTICAL ANALYSIS

With the aim of obtaining more clear conclusions out of a sample of twenty-six concessionaires from Spain and seventeen from the UK, a Multidimensional Scaling analysis has been carried out in function of the performance obtained by the companies. The latter is measured in terms of the variables under analysis that have been already explained in the previous methodology section. This analysis is focused on the current situation since the last year available (2014) has been selected, with the exception of the average financing cost for each one of the objects that form the sample. The resulting scatter plot is shown in the following figure 9.

In order to make more understandable MDS, the Cluster analysis is developed in the next figure 10.

Some clusters can be identified as it is shown in the following figure 9. The full data is summarised in table 3, following the same order and "homogeneous" groups obtained thanks to this analysis.

Out of this statistical analysis, it can be concluded that there is a wide variety of concessionaires within Spain and the UK and a great difficulty is found to establish some clear patterns by country. With the exception of the first, second and third clusters in which Spanish companies predominate, as well as the fifth cluster only formed by British companies, the other groups have no similarity regarding nationality. In the following paragraphs, the main similarities within the several clusters are pointed out.

Focusing on the first cluster, it is characterised by the fact that all companies count with capital value, length, economic profitability and financing cost below the average. They also present bad results regarding liquidity, in general terms (if the ratio is good, they are too indebted), as well as a tight solvency ratio.

Moving to the second cluster, the concessionaires present similar solvency and golden rule ratios, being all of them above one and presenting similar figures.

As regards the third cluster, all concessionaires present capital values relevantly above the average. This group is also characterised by having low economic profitability in relation to the average as it does the financing cost.

The fourth cluster is just compounded by one company, that turns to be the smallest one with poor results in all the variables but solvency, although just only 3 hundredth above

the limit, so it is also on the verge of difficulties. In fact, this company has entered into creditors agreement after 2014.

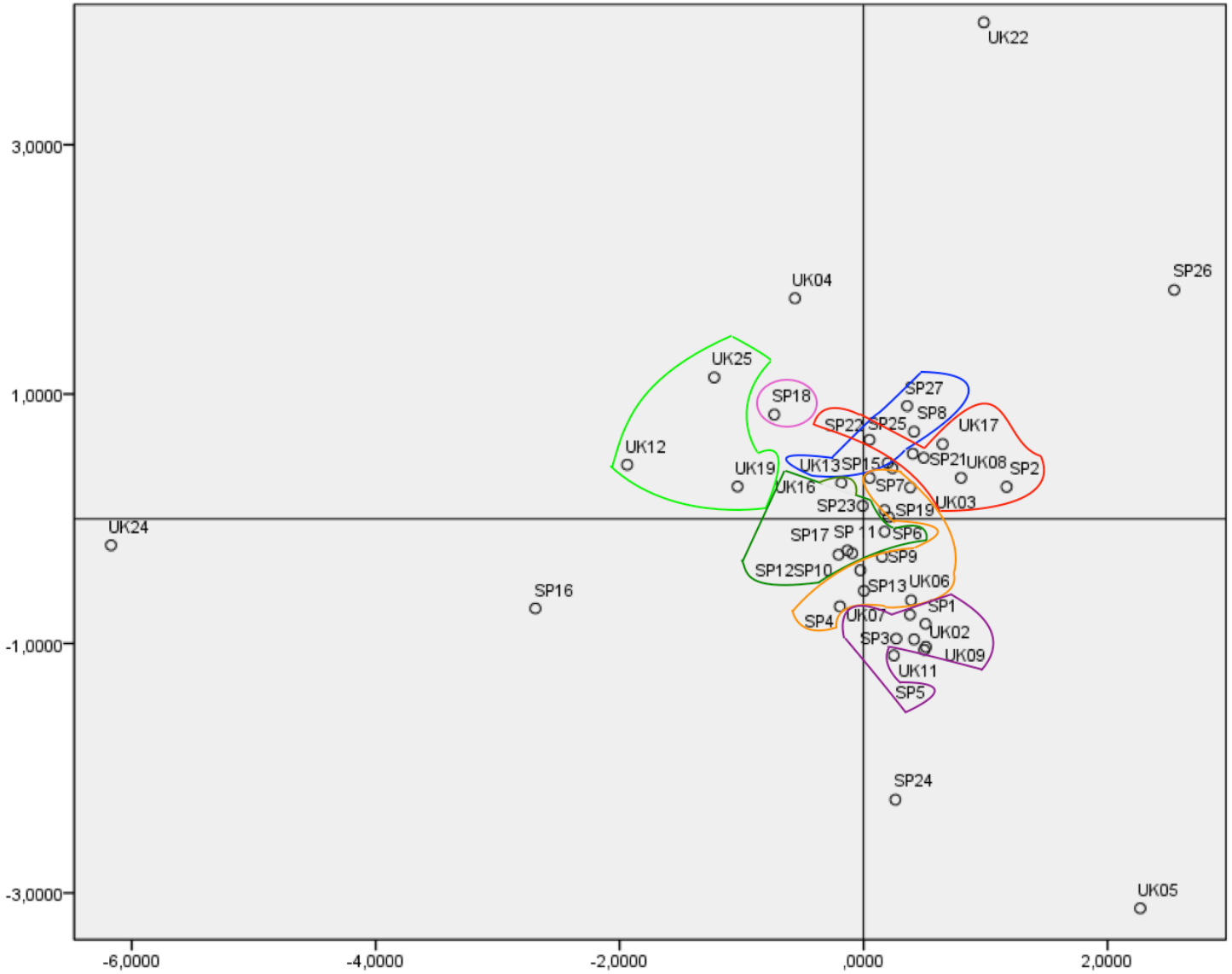
Looking at the fifth differentiated group, these concessionaires are not large, presenting a length below the average. They have bad results in terms of liquidity, since it is too high, and solvency because they barely reach the figure one for this ratio.

Regarding the sixth cluster, it is mainly characterised by the high length of their roads. It is also noticeable that all the companies are below the average in terms of capital value.

From the last cluster, it should be highlighted that most of the them are below the average in terms of length. They count with high economic profitability (all of them, except one, are above the average). This group presents the highest solvency ratios which are considerably above the average. Another good point is noticeable if we look at the low gearing ratios and therefore, low degree of leverage.

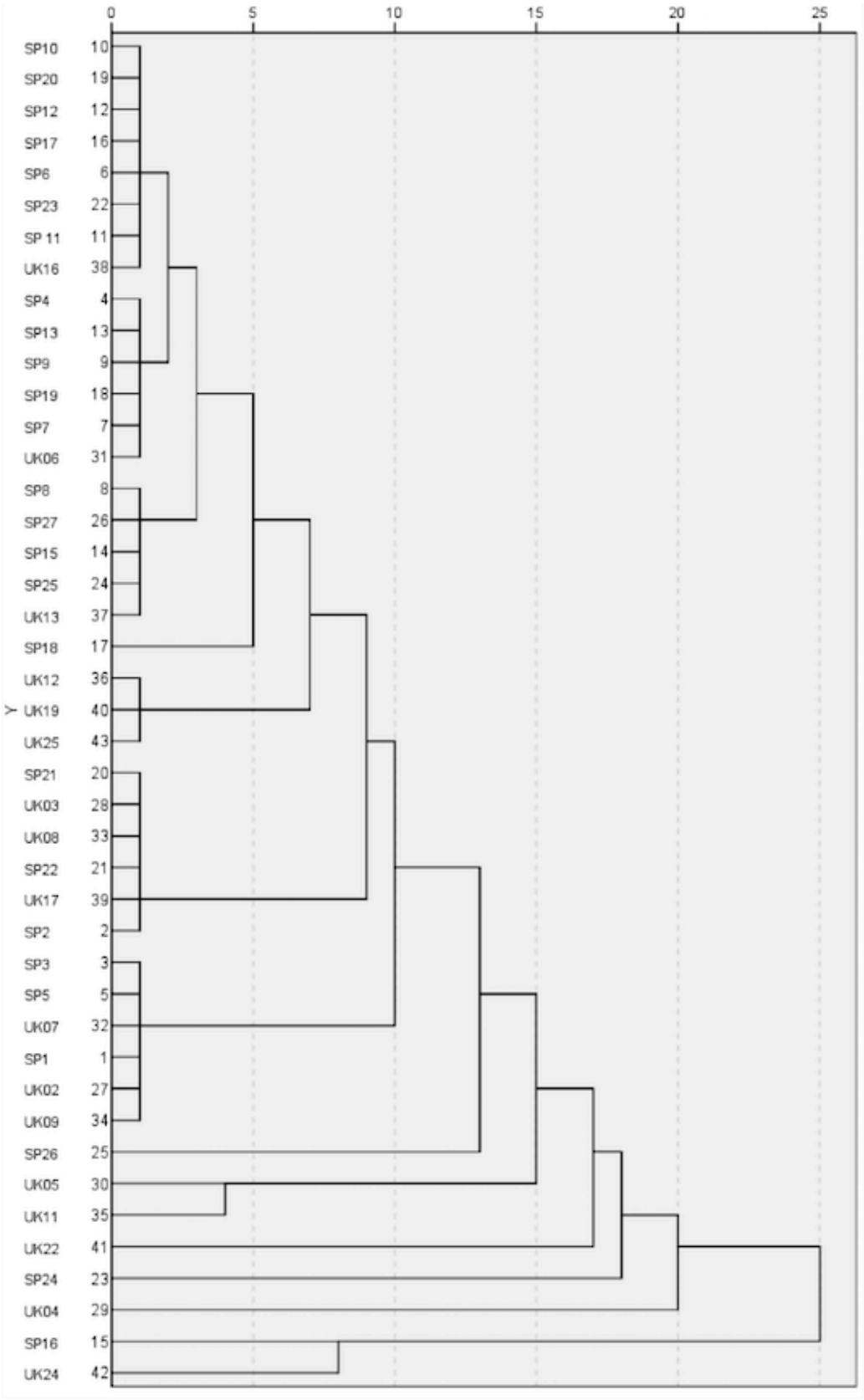
From the following figure 9, it stands out that most of the concessionaires are concentrated around the centre of the graph while it is noticeable that some of them, which are even more difficult to classify within one cluster, are relevantly scattered from the main group.

**Figure 9: Multidimensional Scaling (MDS) Analysis.**




Source: own elaboration.

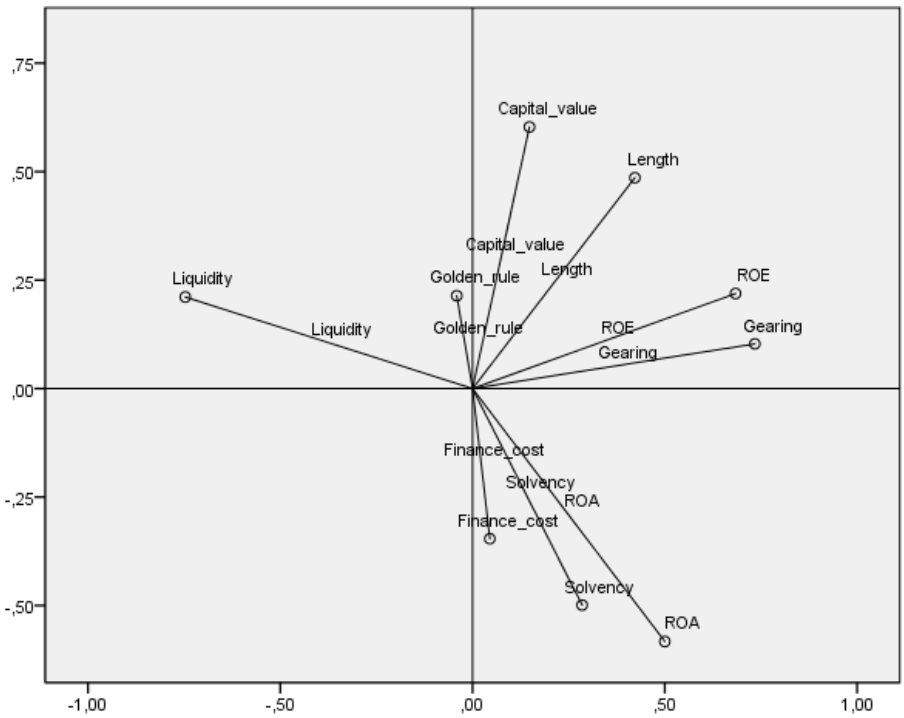
**Figure 10: Cluster Analysis.**




Source: own elaboration using SPSS.

Thanks to the third part of the analysis, the Pro-Fit graph shown in figure 11 allows to establish relationships among the value for each one of the variables and the position of each one of the companies. Therefore, the reasons for the more scattered points, which coincide with the last concessionaires that are not classified within any cluster, can be understood. The highest capital value and length correspond to Connect Plus M25 (UK22). Autovía del Pirineo (SP26) stands out for presenting the highest financial profitability, while Road Link A69 (UK05) has the best economic profitability. Regarding general ratios, Connect CNDR (UK24) has the highest liquidity ratio and Autolink Concessionaires A19 (UK04) has the highest compliance of golden rule ratio. Focusing on Cedinsa d'Aro (SP24), it should be pointed out the highest average financing cost.

**Figure 11: Property Fitting (Pro-Fit) Analysis.**




Source: own elaboration using SPSS.

**Table 3: Data of the variables used for the statistical analysis by concessionaire.**

| | CONCESSIONAIRE | CAPITAL V. | LENGTH | ROA | ROE | LIQUIDITY | SOLVENCY | GEARING | GOLDEN R. | FUNDING C. |
|---|---|---|---|---|---|---|---|---|---|---|
| SP10 | MADRID 407 | 70.30 | 16 | 3.45% | -34.21% | 1.58 | 0.97 | -34.05 | 1.03 | 3.86% |
| SP20 | SALNÉS | 53.60 | 17 | 0.16% | -36.92% | 0.37 | 1.03 | 33.47 | 0.95 | 3.71% |
| SP12 | ACCESOS IBIZA | 74.90 | 7 | 2.63% | 11.45% | 0.57 | 1.09 | 11.46 | 0.95 | 4.06% |
| SP17 | REUS-ALCOVER | 80.00 | 10 | 2.32% | -6.54% | 3.75 | 1.01 | 191.27 | 1.06 | 5.17% |
| SP6 | AUMANCHA | 123.80 | 52 | 6.01% | 43.55% | 3.10 | 1.01 | 133.65 | 1.15 | 6.03% |
| SP23 | BARBANZA | 95.70 | 40 | 2.16% | -17.46% | 0.32 | 0.91 | -11.43 | 0.93 | 3.87% |
| SP11 | VIASTUR | 72.50 | 27 | 1.16% | 179.54% | 0.05 | 0.99 | -160.49 | 0.21 | 4.06% |
| UK16 | CONNECT M77/GSO PLC | 173.79 | 16 | 3.52% | 15.97% | 1.14 | 0.75 | -4.06 | 1.02 | 6.69% |
| SP4 | EUROGLOSA 45 | 86.70 | 8 | 6.18% | 22.99% | 6.45 | 1.35 | 2.89 | 1.34 | 4.66% |
| SP13 | IBISAN | 75.60 | 18 | 6.08% | 20.24% | 3.96 | 1.22 | 4.45 | 1.16 | 4.15% |
| SP9 | PALMA-MANACOR | 117.30 | 44 | 2.75% | 8.46% | 2.31 | 1.28 | 3.55 | 1.04 | 4.96% |
| SP19 | TURIA | 161.20 | 54 | 1.71% | 5.26% | 1.23 | 1.13 | 7.71 | 1.01 | 6.81% |
| SP7 | VIÑEDOS | 200.10 | 75 | 3.33% | 5.93% | 3.74 | 1.12 | 8.53 | 1.08 | 4.81% |
| UK06 | CONNECT A50 | 27.03 | 57 | 14.40% | 60.31% | 1.25 | 1.11 | 9.40 | 1.03 | 16.33% |
| SP8 | CAMINO | 354.60 | 72 | 4.02% | 18.40% | 0.47 | 1.11 | 8.77 | 0.98 | 5.01% |
| SP27 | EIXDIAGONAL | 475.00 | 67 | 2.81% | -16.24% | 1.04 | 1.07 | 14.43 | 1.00 | 6.68% |
| SP15 | LLOBREGAT | 311.00 | 40 | 3.11% | 17.54% | 0.80 | 1.09 | 11.12 | 0.99 | 3.29% |
| SP25 | TER | 348.00 | 49 | 4.21% | -0.42% | 0.13 | 1.16 | 6.13 | 0.40 | 5.24% |
| UK13 | DARRINGTON | 315.39 | 22 | 7.16% | 31.89% | 4.05 | 1.05 | 20.80 | 1.21 | 6.66% |
| SP18 | PUENTE DEL EBRO | 57.20 | 5 | -1.70% | -89.88% | 0.43 | 1.03 | 29.55 | 0.95 | 3.37% |
| UK12 | COUNTY ROUTE (A130) | 125.51 | 15 | -0.20% | 9.23% | 22.42 | 0.92 | -11.99 | | 7.32% |
| UK19 | SHEPPEY ROUTE | 93.97 | 30 | 1.15% | 51.79% | 15.01 | 1.05 | 22.14 | | 6.99% |
| UK25 | HIGHWAY MANAGEMENT (M80) | 411.94 | 18 | 0.58% | 52.27% | 19.40 | 0.99 | -107.90 | | 6.08% |

| | CONCESSIONAIRE | CAPITAL V. | LENGTH | ROA | ROE | LIQUIDITY | SOLVENCY | GEARING | GOLDEN R. | FUNDING C. |
|---|---|---|---|---|---|---|---|---|---|---|
| SP21 | ERESMA | 101.80 | 113 | 2.38% | 9.25% | 1.52 | 1.14 | 7.22 | 0.90 | 5.93% |
| UK03 | CONNECT A30A35 | 96.55 | 102 | 7.47% | 22.06% | 3.12 | 1.08 | 12.64 | 1.30 | 8.21% |
| UK08 | UK HIGHWAYS M40 | 83.67 | 122 | 10.42% | 107.74% | 0.51 | 1.06 | 15.80 | 1.15 | 6.81% |
| SP22 | PINARES | 94.00 | 105 | 1.27% | -130.77% | 1.71 | 0.96 | -27.09 | 1.07 | 4.69% |
| UK17 | CLAYMORE | 79.17 | 143 | 1.29% | 10.12% | 1.10 | 1.01 | 72.14 | 0.00 | 20.03% |
| SP2 | PANTANOS | 69.90 | 159 | 7.97% | 20.23% | 1.07 | 1.40 | 2.47 | 1.01 | 4.98% |
| SP3 | TRADOS 45 | 190.90 | 15 | 11.74% | 30.64% | 3.03 | 1.58 | 1.72 | 1.12 | 3.03% |
| SP5 | CONCESIONES MADRID | 191.50 | 14 | 7.88% | 42.63% | 1.50 | 1.65 | 1.53 | 1.04 | 5.11% |
| UK07 | PETERBOROUGH | 164.77 | 22 | 6.60% | 1.10% | 0.38 | 1.44 | 2.30 | 1.18 | 15.50% |
| SP1 | NOROESTE | 96.30 | 62 | 9.46% | 18.96% | 3.49 | 1.72 | 1.39 | 1.25 | 5.10% |
| UK02 | GLOUCESTER | 141.60 | 52 | 9.20% | 11.50% | 2.98 | 1.81 | 1.23 | 1.27 | 10.32% |
| UK09 | CONNECT M1-A1 | 275.48 | 30 | 13.51% | 22.16% | 3.84 | 1.80 | 1.25 | 1.44 | 9.14% |
| SP26 | PIRINEOS | 219.30 | 67 | -8.27% | 1585.77% | 0.01 | 0.91 | -11.07 | 0.32 | 6.27% |
| UK05 | ROAD LINK (A69) | 11.59 | 87 | 71.69% | 179.35% | 1.43 | 1.70 | 1.43 | 1.17 | 10.66% |
| UK11 | ROAD MANAGEMENT (A13) | 296.59 | 24 | 40.12% | -99.83% | 0.78 | 0.88 | -8.36 | 0.12 | 18.88% |
| UK22 | CONNECT PLUS (M25) | 1272.01 | 196 | 0.51% | 62.20% | 10.99 | 1.04 | 27.97 | | 6.15% |
| SP24 | ARO | 88.30 | 27 | 2.83% | 4.20% | 1.33 | 1.26 | 3.87 | 1.01 | 147.35% |
| UK04 | AUTOLINK | 37.33 | 118 | 3.10% | 91.03% | 15.52 | 1.05 | 18.92 | 40.95 | 6.83% |
| SP16 | SANTIAGO-BRIÓN | 111.10 | 15 | 1.70% | -9.26% | 1.07 | 1.00 | -2646.15 | 1.00 | 4.39% |
| UK24 | CONNECT CNDR | 77.35 | 8 | 0.18% | -1038.46% | 37.40 | 1.00 | -2156.05 | | 8.67% |

Source: own elaboration using Financial Statements data.

# 5. CONCLUSION

Out of the previous analysis, it can be concluded that there is a wide variety among shadow toll concessionaires from Spain and the UK. It has been difficult to establish general patterns by country in order to make a worthwhile comparison of the performance obtained by them. Regardless this possible drawback, focusing on the data obtained from their financial statements by calculating the general ratios and profitability has been the newness of this dissertation, as well as comparing both sources of finance for all of them (public versus private funding). The aim of this study has been giving a different useful approach to the main issues discussed in the previous literature. The main findings, conclusions for the comparison and the possible discussions that should come up, are summarised in the following paragraphs.

It is undeniable that the higher experience of concessionaires from UK, which count with a relevant background, is reflected into better performance as regards economic profitability (higher ROI), in average terms.

Looking at general performance by country:

- Spanish concessionaires count with a good indicator of liquidity while British ratios are high. The latter situation is not profitable when excessive short-term investment appears.
- Spain also counts with better solvency situation, in average terms.
- Both countries present high share of external resources being relevantly leveraged.
- UK companies are more able to fund permanent investment.

Regarding the sources of finance, shadow toll mechanism is not always justified (never, as it has been demonstrated, in the case of UK) by obtaining cheaper private funding than in the case of issuing debt. This fact is related to the cost of risk transfer from the State to the companies in charge of it, but this transfer is questionable in the case performance does not end up being as expected. The latter situation is prone to arise since studies made before the implementation of these projects are not as detailed as they should be in order to avoid bad results, particularly in the Spanish case which has demonstrated that downside risks are borne to the State.

It should be highlighted that Madrid 407, Viastur, Santiago-Brión, Autovía de los Pinares, Autovía del Barbanza, Autovía del Pirineo, Road Management Services (A13),

County Route (A130) PLC, Connect M77/GSO PLC, Connect CNDR and Highway Management Scotland (M80) present negative equity. It means that these concessionaires have higher debt than what they own, that is to say, their liabilities are higher than their assets. This fact does not make sense if we take into account that they provide a service in which users do not have to pay for receiving it directly, only through taxes to the Public Administration, which is the one in charge of making the payments to the concessionaires. It denotes a lack of accurate planning since looking at the current situation of a relevant number of companies, they show that the projects do not work out after some years of implementation. In this line, it is crucial making previous studies since, even in the case investment for these projects is not so high, if roads are located where they are not having a minimum use, problems would arise, as it is the case of the fourth cluster analysed corresponding to Puente del Ebro which does not show good results.

We can address different purposes among both countries, as it has been stated in previous literature. While the UK use shadow toll as a mean to avoid applying the unpopular direct toll and supported by the idea of creating "Value for Money", Spain seems to be only seeking for deferring accounting putting at risk future generations' welfare. Then, a debate, backed by detailed further studies, should arise about the issue of the questionable ability of future generations to cope with the outstanding payments which entail shadow toll and the possible opportunity cost of having to pay for it.

The hidden motive of deferred accounting shows that Spain has still a long way to go, following the forefather of shadow toll, the United Kingdom. Only in the case of assessing value for money and future expectations carefully, this mechanism becomes useful.

The main difficulty that arises while objectively assessing the different ways of measuring and establishing payments, is the lack of information due to commercial sensitivity. It is more accurate to establish it according to the performance of the concessionaires, as it is done in the UK.

The constraint for making a complete assessment of the performance obtained by these companies in order to make an accurate comparison between both countries, it is that we should wait until the concession terms of the road operating companies end to fully analyse the results. Moreover, the lack of transparency arises with shadow toll and it is an important issue to take into account while trying to further analyse the existing data.

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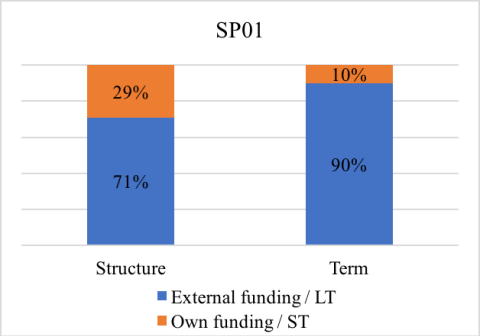
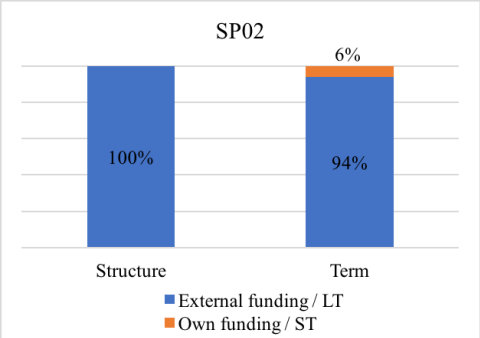
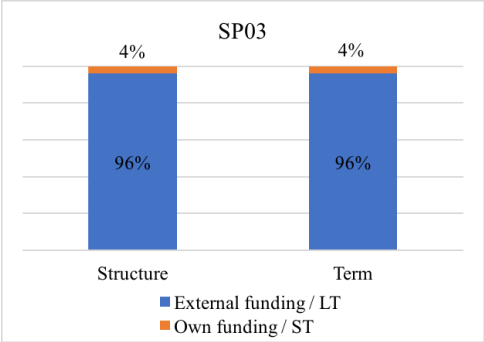
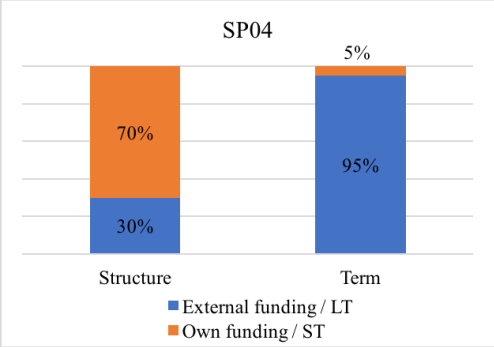
# APPENDIXES

## APPENDIX 1. Characterisation of the concessionaires.

**Table 4: Descriptive analysis and funding structure of the concessionaires.**

| Descriptive analysis | Funding structure |
|---|---|
| **Autovía del Noroeste**<br>Region: Murcia<br>Contract signature: 05/07/1999<br>Operational period: 25 years (since 10/12/2001)<br>Capital value (millions of €): 96.3<br>Road length: 62.2 km |  |
| **Ruta de los Pantanos**<br>Region: Madrid<br>Contract signature: 03/12/1999<br>Operational period: 25 years (since 27/09/2002)<br>Capital value (millions of €): 69.9<br>Road length: 159 km |  |
| **Trados 45**<br>Region: Madrid<br>Contract signature: 28/10/1998<br>Operational period: 29.25 years (since 14/03/2002)<br>Capital value (millions of €): 190.9<br>Road length: 14.5 km |  |
| **Euroglosa 45**<br>Region: Madrid<br>Contract signature: 18/12/1998<br>Operational period: 29.17 years (since 14/03/2002)<br>Capital value (millions of €): 86.7<br>Road length: 8.3 km |  |

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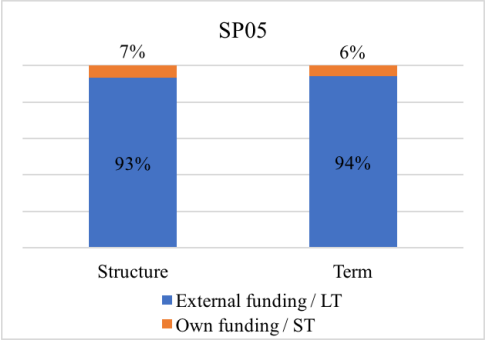
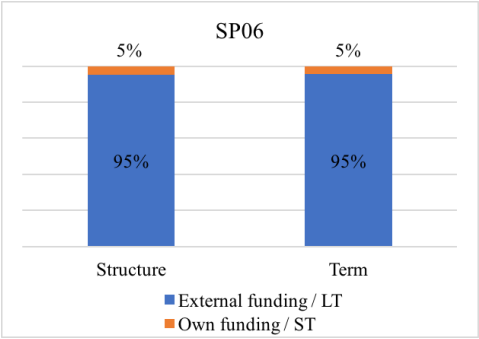
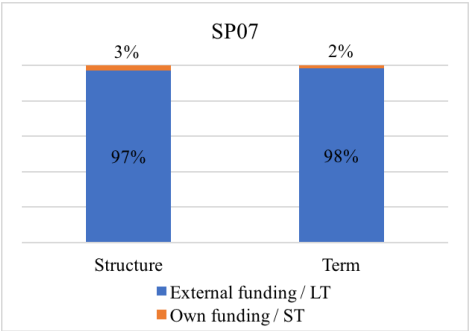
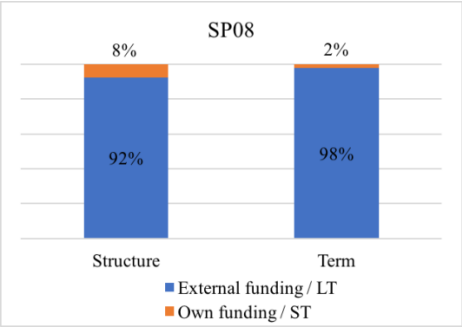
|---|---|
| **Concesiones de Madrid**<br>Region: Madrid<br>Contract signature: 04/12/1998<br>Operational period: 34 years (since 14/03/2002)<br>Capital value (millions of €): 191.5<br>Road length: 14.2 km |  |
| **Autovía de la Mancha**<br>Region: Castilla-La Mancha<br>Contract signature: 18/03/2003<br>Operational period: 30 years (since 28/05/2005)<br>Capital value (millions of €): 123.8<br>Road length: 52.3 km |  |
| **Autovía de los Viñedos**<br>Region: Castilla-La Mancha<br>Contract signature: 24/01/2003<br>Operational period: 25-30 years (since 01/05/2006)<br>Capital value (millions of €): 200.1<br>Road length: 74.5 km |  |
| **Autovía del Camino**<br>Region: Navarra<br>Contract signature: 24/09/2002<br>Operational period: 30 years (since 30/06/2006)<br>Capital value (millions of €): 354.6<br>Road length: 72 km |  |

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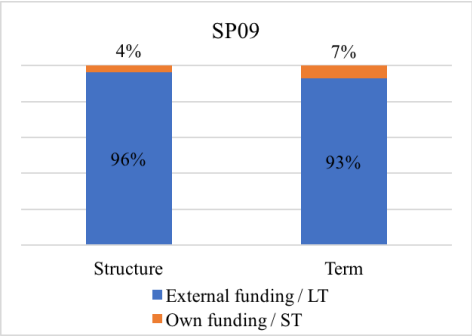
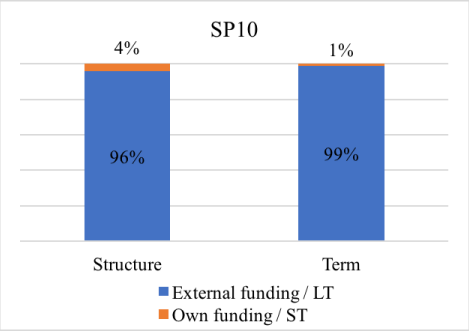
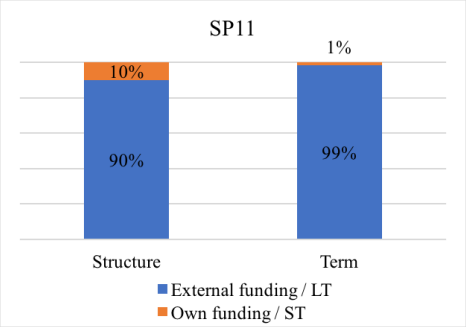
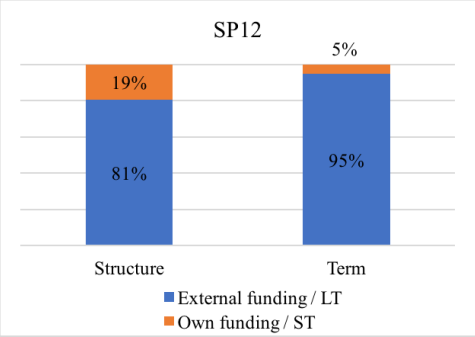
|---|---|
| **Carretera Palma-Manacor**<br>Region: Balearic Islands<br>Contract signature: 03/05/2004<br>Operational period: 38.33 years (since 01/01/2007)<br>Capital value (millions of €): 117.3<br>Road length: 43.7 km |  |
| **Madrid 407**<br>Region: Madrid<br>Contract signature: 01/08/2005<br>Operational period: 30 years (since 03/05/2007)<br>Capital value (millions of €): 70.3<br>Road length: 16 km |  |
| **Viastur**<br>Region: Asturias<br>Contract signature: 09/08/2005<br>Operational period: 30 years (since 13/05/2007)<br>Capital value (millions of €): 72.5<br>Road length: 26.8 km |  |
| **Accesos Ibiza**<br>Region: Balearic Islands<br>Contract signature: 10/06/2005<br>Operational period: 25 years (since 15/07/2008)<br>Capital value (millions of €): 74.9<br>Road length: 7 km |  |

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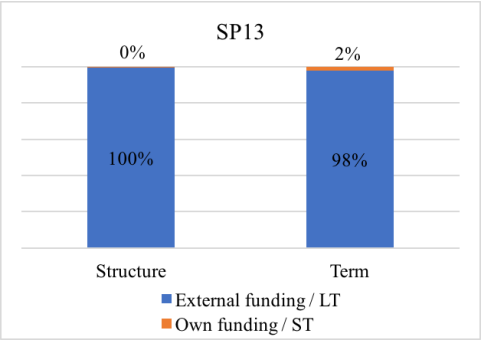
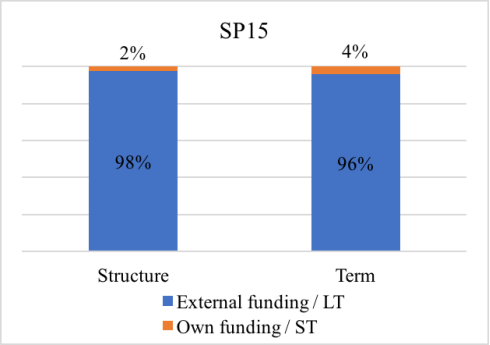
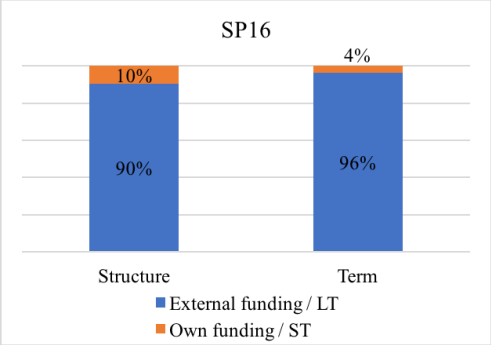
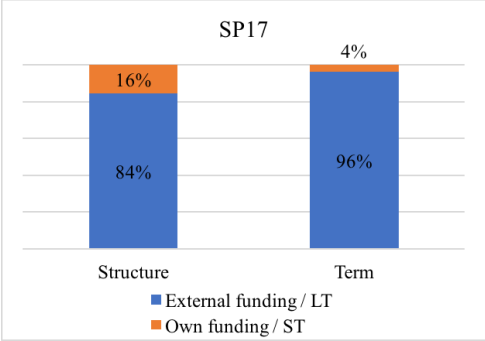
|---|---|
| **Ibisan**<br>Region: Balearic Islands<br>Contract signature: 02/08/2005<br>Operational period: 30 years (since 30/06/2007)<br>Capital value (millions of €): 75.6<br>Road length: 17.5 km |  |
| **Cedinsa Eix Llobregat**<br>Region: Cataluña<br>Contract signature: 10/11/2003<br>Operational period: 33 years (since 01/01/2008)<br>Capital value (millions of €): 311<br>Road length: 40 km |  |
| **Concesionaria Santiago – Brión**<br>Region: Galicia<br>Contract signature: 13/06/2005<br>Operational period: 30 years (since 15/02/2008)<br>Capital value (millions of €): 111.1<br>Road length: 15 km |  |
| **Reus-Alcover**<br>Region: Cataluña<br>Contract signature: 16/01/2006<br>Operational period: 33 years (since 13/06/2008)<br>Capital value (millions of €): 80<br>Road length: 10.2 km |  |

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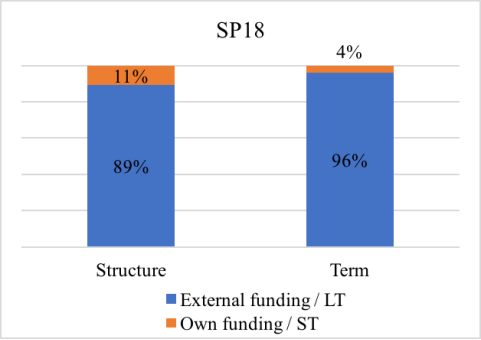
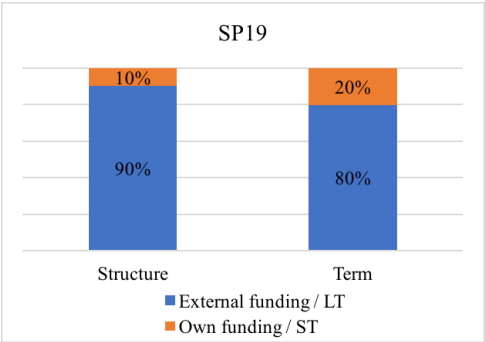
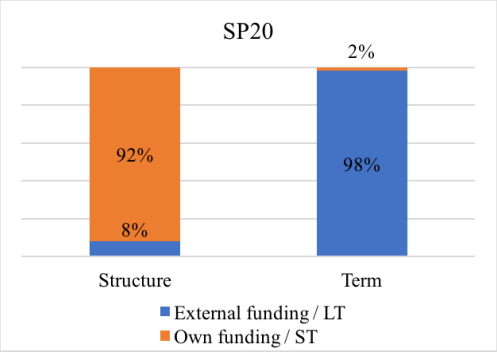
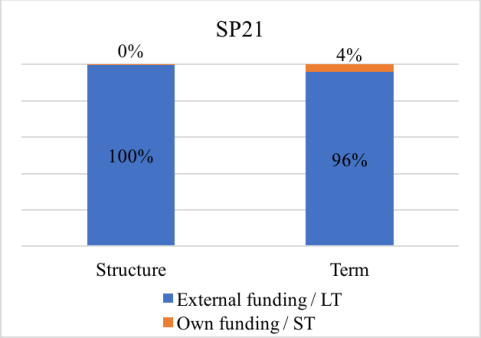
| **Puente del Ebro**<br>Region: Aragón<br>Contract signature: 03/03/2006<br>Operational period: 30 years (since 04/07/2008)<br>Capital value (millions of €): 57.2<br>Road length: 5.2 km |  |
| **Autovía del Turia**<br>Region: Valencia<br>Contract signature: 12/09/2005<br>Operational period: 36 years (since 31/07/2008)<br>Capital value (millions of €): 161.2<br>Road length: 54 km |  |
| **Autoestrada do Salnés**<br>Region: Galicia<br>Contract signature: 13/07/2005<br>Operational period: 30 years (since 23/08/2008)<br>Capital value (millions of €): 53.6<br>Road length: 17 km |  |
| **Autovía del Eresma**<br>Region: Castilla y León<br>Contract signature: 26/04/2006<br>Operational period: 35 years (since 19/09/2008)<br>Capital value (millions of €): 101.8<br>Road length: 113 km |  |

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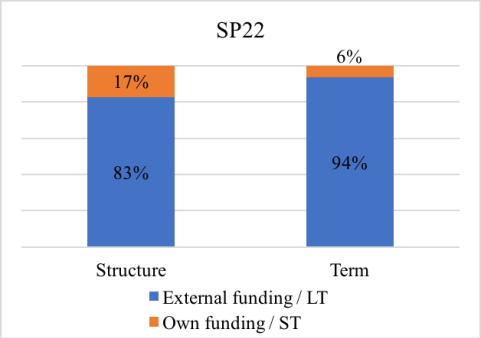
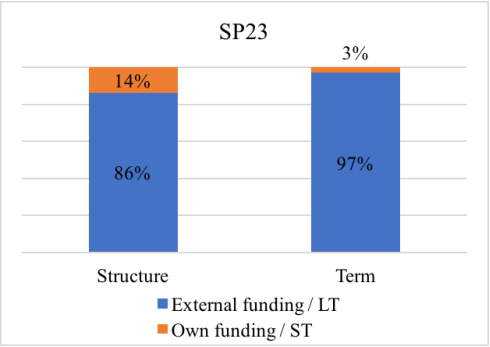
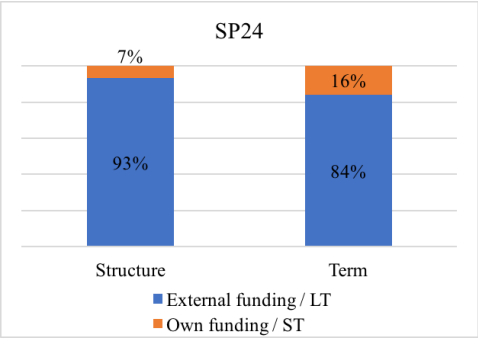
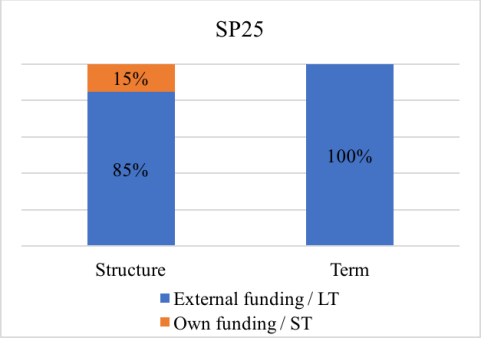
| **Autovía de los Pinares**<br>Region: Castilla y León<br>Contract signature: 23/03/2006<br>Operational period: 35 years (since 24/09/2008)<br>Capital value (millions of €): 94<br>Road length: 104.6 km |  |
| **Autovía del Barbanza**<br>Region: Galicia<br>Contract signature: 13/03/2006<br>Operational period: 30 years (since 15/12/2008)<br>Capital value (millions of €): 95.7<br>Road length: 40.1 km |  |
| **Cedinsa Aro**<br>Region: Cataluña<br>Contract signature: 07/11/2005<br>Operational period: 33 years (since 31/12/2008)<br>Capital value (millions of €): 88.3<br>Road length: 27 km |  |
| **Cedinsa Ter**<br>Region: Cataluña<br>Contract signature: 24/03/2006<br>Operational period: 33 years (since 31/07/2011)<br>Capital value (millions of €): 348<br>Road length: 49 km |  |

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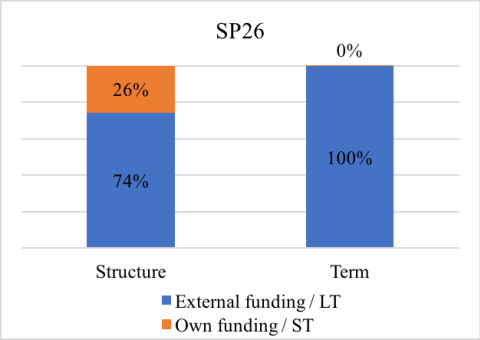
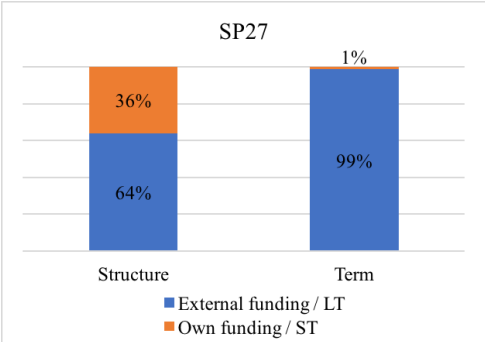
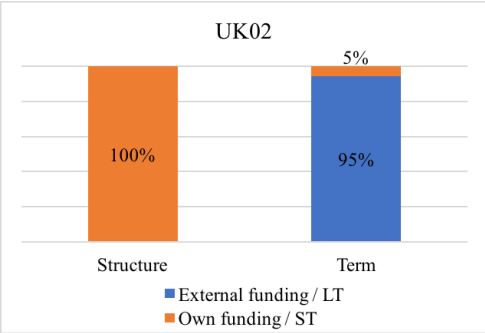
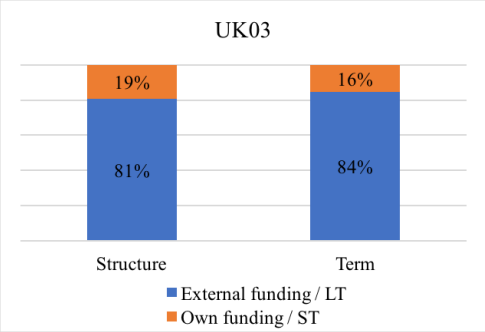
| **Autovía del Pirineo**<br>Region: Navarra<br>Contract signature: 31/07/2009<br>Operational period: 30 years (since 15/01/2012)<br>Capital value (millions of €): 219.3<br>Road length: 67.3 km |  |
| **Eix Diagonal**<br>Region: Cataluña<br>Contract signature: 30/01/2009<br>Operational period: 33 years (since 28/12/2012)<br>Capital value (millions of €): 475<br>Road length: 67 km |  |
| **Gloucester**<br>Region: South West, England<br>Contract signature: 08/02/1996<br>Operational period: 30 years (since 01/04/1996)<br>Capital value (millions of €): 141.6<br>Road length: 52 km |  |
| **Connect A30A35 Limited**<br>Region: South West, England<br>Contract signature: 24/07/1996<br>Operational period: 30 years (since 01/07/1996)<br>Capital value (millions of €): 96.5<br>Road length: 102 km |  |

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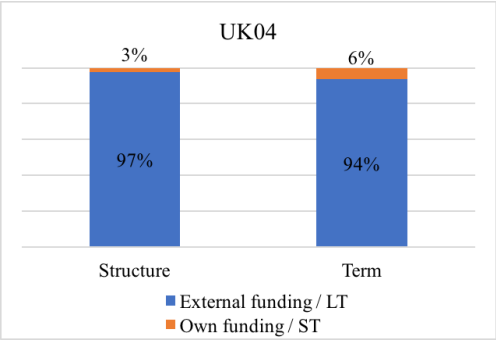
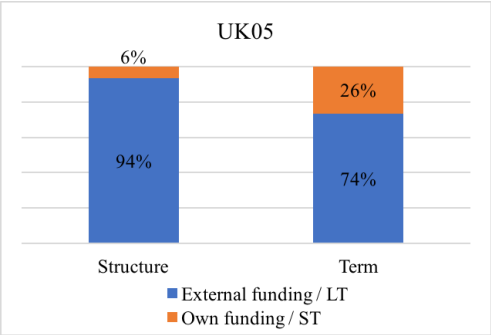
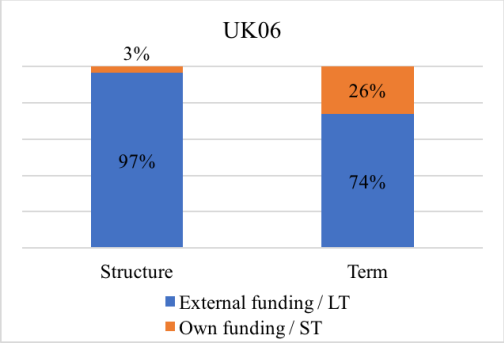
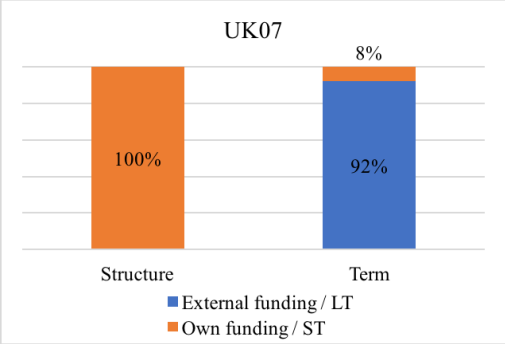
| **Autolink Concessionaires Limited**<br>Region: North East, England<br>Contract signature: 10/1996<br>Operational period: 30 years (since 24/02/1997)<br>Capital value (millions of €): 37.3<br>Road length: 118 km |  |
| **Road Link (A69) Limited**<br>Region: North East, England<br>Contract signature: 12/01/1996<br>Operational period: 30 years (since 01/05/1997)<br>Capital value (millions of €): 11.6<br>Road length: 87 km |  |
| **Connect A50 Limited**<br>Region: West Midlands, England<br>Contract signature: 05/1996<br>Operational period: 30 years (since 01/03/1998)<br>Capital value (millions of €): 27<br>Road length: 57 km |  |
| **Peterborough**<br>Region: East, England<br>Contract signature: 08/02/1996<br>Operational period: 27 years (since 01/10/1998)<br>Capital value (millions of €): 164.8<br>Road length: 22.3 km |  |

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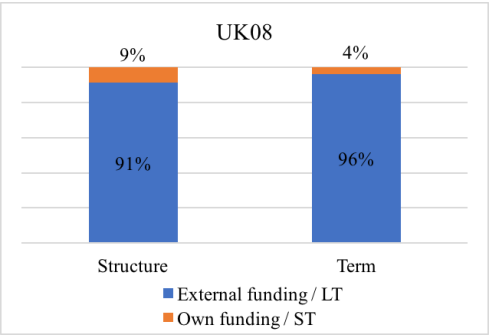
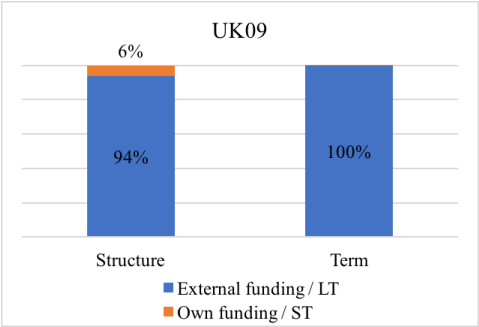
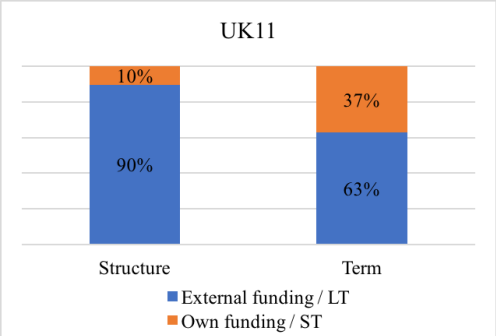
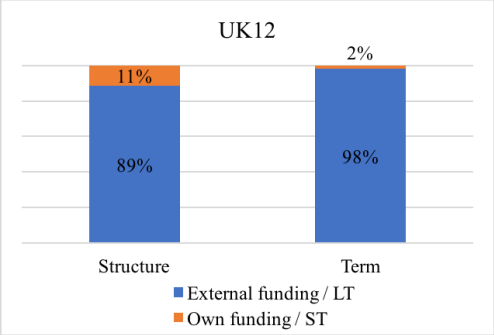
| **UK Highways M40 Limited**<br>Region: South East, England<br>Contract signature: 08/10/1996<br>Operational period: 30 years (since 01/12/1998)<br>Capital value (millions of €): 83.7<br>Road length: 122 km |  |
| **Connect M1-A1 Limited**<br>Region: Yorkshire and the Humber, England<br>Contract signature: 26/03/1996<br>Operational period: 30 years (since 01/02/1999)<br>Capital value (millions of €): 275.5<br>Road length: 30 km |  |
| **Road Management Services (A13) PLC**<br>Region: London, England<br>Contract signature: 12/04/2000<br>Operational period: 30 years (since 11/07/2000)<br>Capital value (millions of €): 296.6<br>Road length: 24 km |  |
| **County Route (A130) PLC**<br>Region: East, England<br>Contract signature: 20/10/1999<br>Operational period: 29 years (since 01/02/2002)<br>Capital value (millions of €): 125.5<br>Road length: 15 km |  |

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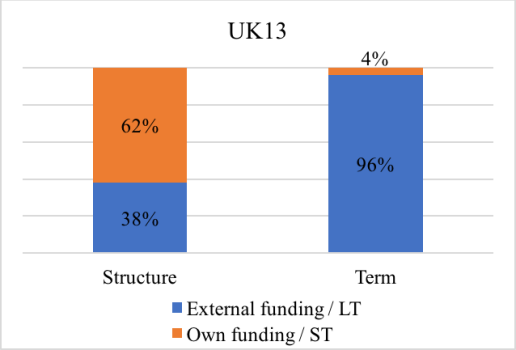
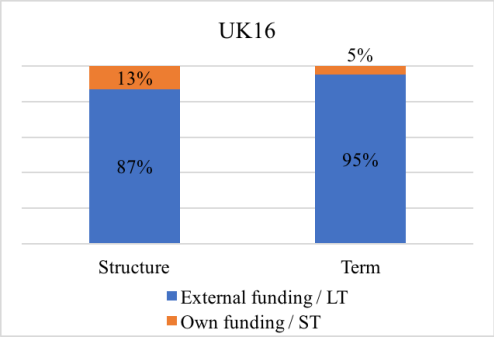
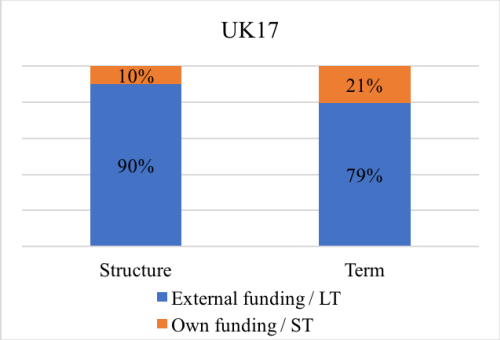
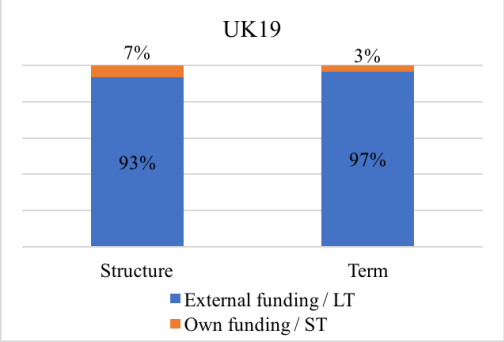
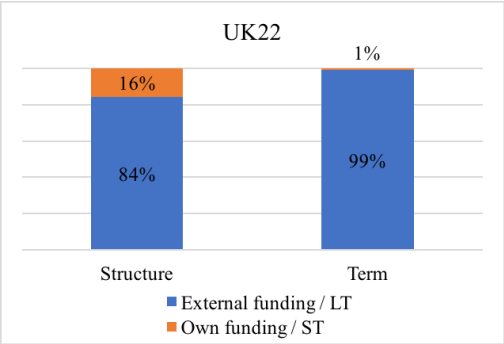
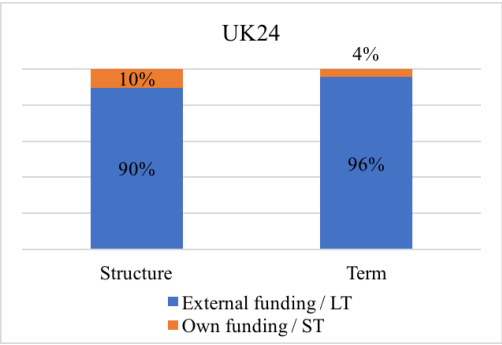
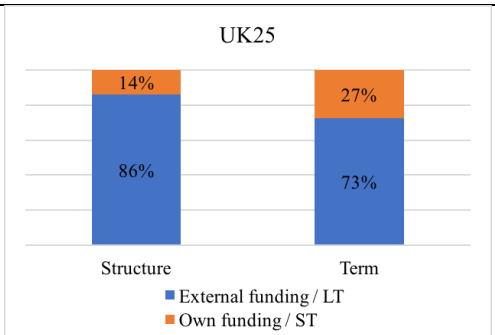
| **Darrington**<br>Region: Yorkshire and the Humber, England<br>Contract signature: 13/02/2003<br>Operational period: 33 years (since 01/05/2003)<br>Capital value (millions of €): 315.4<br>Road length: 22 km |  |
| **Connect M77/GSO PLC**<br>Region: Scotland<br>Contract signature: 07/05/2003<br>Operational period: 30 years (since 02/05/2005)<br>Capital value (millions of €): 173.8<br>Road length: 16.4 km |  |
| **Claymore Roads Limited**<br>Region: Scotland<br>Operational period: 30 years (since 03/09/2005)<br>Capital value (millions of €): 79.2<br>Road length: 143.4 km |  |
| **Sheppey Route Limited**<br>Region: South East, England<br>Contract signature: 19/02/2004<br>Operational period: 30 years (since 01/07/2006)<br>Capital value (millions of €): 94<br>Road length: 30 km |  |

| | |
|---|---|
| **Connect Plus (M25) Limited**<br>Region: National (several regions)<br>Contract signature: 20/05/2009<br>Operational period: 30 years (since 01/09/2009)<br>Capital value (millions of €): 1272<br>Road length: 195.5 km |  |
| **Connect CNDR Limited**<br>Region: North West, England<br>Contract signature: 15/07/2009<br>Operational period: 30 years (since 10/08/2011)<br>Capital value (millions of €): 77.4<br>Road length: 8.3 km |  |
| **Highway Management (M80) Limited**<br>Region: Scotland<br>Operational period: 31 years (since 09/09/2011)<br>Capital value (millions of €): 411.9<br>Road length: 18 km |  |

Source: own elaboration.

**APPENDIX 2. Economic Profitability (ROI) by concessionaires.**

**Table 5: Return on Investment by concessionaires in Spain.**

| | 2014 | 2009 | 2006 | 2003 | 2000 |
|---|---|---|---|---|---|
| Noroeste | 9.46% | 4.74% | 3.63% | 3.45% | 0.44% |
| Pantanos | 7.97% | 5.51% | 3.86% | 3.31% | |
| Trados 45 | 11.74% | 8.37% | 7.23% | 5.64% | |
| Euroglosa 45 | 6.18% | 7.30% | 5.02% | 3.90% | |
| Concesiones de Madrid | 7.88% | 7.99% | 5.42% | 3.73% | |
| Autovía de la Mancha | 6.01% | 6.09% | | | |
| Autovía de los Viñedos | 3.33% | 2.62% | 4.13% | | |
| Autovía del Camino | 4.02% | 3.11% | | | |
| Carretera Palma-Manacor | 2.75% | 0.94% | | | |
| Madrid 407 | 3.45% | 2.03% | | | |
| Viastur | 1.16% | -0.28% | | | |
| Accesos Ibiza | 2.63% | 0.15% | | | |
| Ibisan | 6.08% | 2.91% | | | |
| Cedinsa Eix Llobregat | 3.11% | 1.85% | | | |
| Santiago-Brión | 1.70% | 1.39% | | | |
| Reus-Alcover | 2.32% | 1.45% | | | |
| Puente del Ebro | | -2.09% | | | |
| Autovía del Turia | 1.71% | 1.60% | | | |
| Autoestrada do Salnés | 0.16% | 0.32% | | | |
| Autovía del Eresma | 2.38% | 0.90% | | | |
| Autovía de los Pinares | 1.27% | 0.77% | | | |
| Autovía del Barbanza | 2.16% | 0.19% | | | |
| Cedinsa Aro | 2.83% | 1.68% | | | |
| Cedinsa Ter | 4.21% | 2.79% | | | |
| Autovía del Pirineo | -8.27% | -0.02% | | | |
| Eix Diagonal | 2.81% | -0.36% | | | |
| **Average** | **3.56%** | **2.38%** | **4.88%** | **4.00%** | **0.44%** |

Source: own elaboration using Financial Statements data.

**Table 6: Return on Investment by concessionaires in the UK.**

| | 2014 | 2009 | 2006 | 2003 | 2000 | 1996 |
|---|---|---|---|---|---|---|
| Gloucester | 9.20% | 7.78% | 9.38% | 9.97% | 9.27% | -0.05% |
| Connect A30A35 | 7.47% | 15.37% | 10.99% | 12.69% | 4.87% | 1.13% |
| Autolink | 3.10% | -2.50% | -1.50% | -0.40% | | |
| Road Link (A69) | 71.69% | 43.10% | 37.54% | 25.92% | 16.13% | |
| Connect A50 | 14.40% | 27.10% | 15.89% | 12.25% | 8.98% | 0.38% |
| Peterborough | 6.60% | 7.67% | 8.26% | 9.01% | 9.02% | -0.03% |
| UK Highways M40 | 10.42% | 4.25% | 3.30% | 4.38% | 101.81% | -0.01% |
| Connect M1-A1 | 13.51% | 12.92% | 11.58% | 9.95% | 12.48% | |
| Road Management (A13) | 40.12% | 4.63% | 5.39% | -0.06% | -0.06% | |
| County Route (A130) | -0.20% | 0.64% | 0.76% | 0.77% | 0.00% | |
| Darrington | 7.16% | 3.32% | 6.21% | 0.00% | | |
| Connect M77/GSO PLC | 3.52% | 3.68% | 2.64% | | | |
| Claymore Roads | 1.29% | 1.21% | | 0.00% | | |
| Sheppey Route | 1.15% | 0.21% | 3.71% | | | |
| Connect Plus (M25) | 0.51% | -0.10% | | | | |
| Connect CNDR | 0.18% | | | | | |
| Highway Management (M80) | 0.58% | -0.54% | | | | |
| **Average** | **11.22%** | **8.05%** | **8.78%** | **7.04%** | **18.05%** | **0.28%** |

Source: own elaboration using Financial Statements data.

**APPENDIX 3. Financial Profitability (ROE) by concessionaires.**

**Table 7: Return on Equity by concessionaires in Spain.**

| | 2014 | 2009 | 2006 | 2003 | 2000 |
|---|---|---|---|---|---|
| Noroeste | 18.96% | 11.65% | 8.81% | 11.77% | |
| Pantanos | 20.23% | 17.13% | 10.30% | 7.51% | |
| Trados 45 | 30.64% | 27.40% | 27.66% | 19.12% | |
| Euroglosa 45 | 22.99% | 23.30% | 11.15% | 12.79% | |
| Concesiones de Madrid | 42.63% | 23.99% | 13.46% | 10.19% | |
| Autovía de la Mancha | 43.55% | 12.55% | | | |
| Autovía de los Viñedos | 5.93% | 6.54% | 3.51% | | |
| Autovía del Camino | 18.40% | 11.72% | | | |
| Carretera Palma-Manacor | 8.46% | 1.33% | | | |
| Madrid 407 | -34.21% | 0.68% | | | |
| Viastur | 179.54% | -39.45% | | | |
| Accesos Ibiza | 11.45% | -14.93% | | | |
| Ibisan | 20.24% | -0.71% | | | |
| Cedinsa Eix Llobregat | 17.54% | 2.55% | | | |
| Santiago-Brión | -9.26% | -0.27% | | | |
| Reus-Alcover | -6.54% | -2.90% | | | |
| Puente del Ebro | | -18.10% | | | |
| Autovía del Turia | 5.26% | 4.78% | | | |
| Autoestrada do Salnés | -36.92% | -3.23% | | | |
| Autovía del Eresma | 9.25% | -5.25% | | | |
| Autovía de los Pinares | -130.77% | -18.24% | | | |
| Autovía del Barbanza | -17.46% | -68.18% | | | |
| Cedinsa Aro | 4.20% | 3.19% | | | |
| Cedinsa Ter | -0.42% | 0.25% | | | |
| Autovía del Pirineo | 1585.77% | | | | |
| Eix Diagonal | -16.24% | | | | |
| **Average** | **71.73%** | **-1.01%** | **12.48%** | **12.28%** | |

Source: own elaboration using Financial Statements data.

**Table 8: Return on Equity by concessionaires in the UK.**

| | 2014 | 2009 | 2006 | 2003 | 2000 | 1996 |
|---|---|---|---|---|---|---|
| Gloucester | 11.50% | 8.34% | 21.89% | 25.47% | 20.61% | |
| Connect A30A35 | 22.06% | 135.77% | 69.08% | 58.38% | 59.51% | 69.96% |
| Autolink | 91.03% | 58.94% | -30.63% | 24.14% | | |
| Road Link (A69) | 179.35% | 124.17% | 131.09% | 115.23% | 77.68% | |
| Connect A50 | 60.31% | 542.89% | 593.06% | 111.60% | -127.54% | 35.46% |
| Peterborough | 1.10% | 5.13% | 10.26% | 14.23% | 12.31% | |
| UK Highways M40 | 107.74% | 20.98% | -27.30% | 6.55% | 7.68% | |
| Connect M1-A1 | 22.16% | 48.96% | 150.37% | 179.51% | -19.18% | |
| Road Management (A13) | -99.83% | 0.28% | | 0.00% | | |
| County Route (A130) | 9.23% | 111.73% | -64.68% | -172.61% | | |
| Darrington | 31.89% | 37.49% | 210.05% | | | |
| Connect M77/GSO PLC | 15.97% | 35.02% | 211.70% | | | |
| Claymore Roads | 10.12% | 18.69% | 158.48% | -400.00% | | |
| Sheppey Route | 51.79% | 42.17% | 39.66% | | | |
| Connect Plus (M25) | 62.20% | 100.00% | | | | |
| Connect CNDR | -1038.46% | | | | | |
| Highway Management (M80) | 52.27% | 106.56% | | | | |
| **Average** | **-24.09%** | **87.32%** | **113.31%** | **-3.41%** | **4.44%** | **52.71%** |

Source: own elaboration using Financial Statements data.

**APPENDIX 4. Liquidity by concessionaires.**

**Table 9: Liquidity ratio by concessionaires in Spain.**

| | 2014 | 2009 | 2006 | 2003 | 2000 |
|---|---|---|---|---|---|
| Noroeste | 1.72 | 1.33 | 1.24 | 1.18 | 4.32 |
| Pantanos | 1.40 | 1.29 | 1.27 | 1.23 | 1.48 |
| Trados 45 | 1.58 | 1.48 | 1.32 | 1.33 | 1.28 |
| Euroglosa 45 | 1.35 | 1.35 | 1.41 | 1.30 | 1.51 |
| Concesiones de Madrid | 1.65 | 1.35 | 1.64 | 1.47 | 1.21 |
| Autovía de la Mancha | 1.01 | 1.14 | 1.30 | 38.38 | |
| Autovía de los Viñedos | 1.12 | 1.23 | 1.26 | 125.62 | |
| Autovía del Camino | 1.11 | 1.19 | 1.14 | 1.50 | |
| Carretera Palma-Manacor | 1.28 | 1.34 | 1.51 | | |
| Madrid 407 | 0.97 | 1.10 | 1.30 | | |
| Viastur | 0.99 | 1.04 | 1.19 | | |
| Accesos Ibiza | 1.09 | 1.14 | 1.19 | | |
| Ibisan | 1.22 | 1.27 | 1.47 | | |
| Cedinsa Eix Llobregat | 1.09 | 1.13 | 1.25 | | |
| Santiago-Brión | 1.00 | 1.14 | 1.21 | | |
| Reus-Alcover | 1.01 | 1.15 | 3.05 | | |
| Puente del Ebro | | 1.18 | | | |
| Autovía del Turia | 1.13 | 1.19 | 1.52 | | |
| Autoestrada do Salnés | 1.03 | 1.39 | 4.08 | | |
| Autovía del Eresma | 1.14 | 1.14 | 3.49 | | |
| Autovía de los Pinares | 0.96 | 1.12 | 1.61 | | |
| Autovía del Barbanza | 0.91 | 1.02 | 8.93 | | |
| Cedinsa Aro | 1.26 | 1.12 | 2.88 | | |
| Cedinsa Ter | 1.16 | 1.32 | 48.79 | | |
| Autovía del Pirineo | 0.91 | 1.27 | | | |
| Eix Diagonal | 1.07 | 4.57 | | | |
| **Average** | **1.17** | **1.35** | **4.09** | **21.50** | **1.96** |

Source: own elaboration using Financial Statements data.

**Table 10: Liquidity ratio by concessionaires in the UK.**

| | 2014 | 2009 | 2006 | 2003 | 2000 | 1996 |
|---|---|---|---|---|---|---|
| Gloucester | 2.98 | 3.04 | 3.52 | 3.27 | 2.31 | 3.66 |
| Connect A30A35 | 3.12 | 1.04 | 1.11 | 1.24 | 0.62 | 0.86 |
| Autolink | 15.52 | 15.01 | 9.78 | 21.14 | | |
| Road Link (A69) | 1.43 | 1.60 | 1.05 | 1.31 | 1.74 | |
| Connect A50 | 1.25 | 1.93 | 0.36 | 0.31 | 0.19 | 2.69 |
| Peterborough | 0.38 | 3.58 | 4.03 | 4.62 | 2.23 | 6.57 |
| UK Highways M40 | 0.51 | 2.90 | 1.87 | 4.10 | 3.05 | 1.44 |
| Connect M1-A1 | 3.84 | 2.78 | 3.38 | 4.41 | 1.20 | 0.08 |
| Road Management (A13) | 0.78 | 0.13 | 0.17 | 0.12 | 0.83 | |
| County Route (A130) | 22.42 | 31.26 | 6.89 | 32.24 | 0.35 | |
| Darrington | 4.05 | 3.59 | 2.28 | 6.21 | | |
| Connect M77/GSO PLC | 1.14 | 2.45 | 4.24 | | | |
| Claymore Roads | 1.10 | 25.73 | 19.20 | 3.69 | | |
| Sheppey Route | 15.01 | 19.61 | 18.58 | | | |
| Connect Plus (M25) | 10.99 | 1.00 | | | | |
| Connect CNDR | 37.40 | | | | | |
| Highway Management (M80) | 19.40 | 18.97 | | | | |
| **Average** | **8.31** | **8.41** | **5.46** | **6.89** | **1.39** | **2.55** |

Source: own elaboration using Financial Statements data.

**APPENDIX 5. Solvency by concessionaires.**

**Table 11: Solvency ratio by concessionaires in Spain.**

| | 2014 | 2009 | 2006 | 2003 | 2000 |
|---|---|---|---|---|---|
| Noroeste | 1.72 | 1.33 | 1.24 | 1.18 | 4.32 |
| Pantanos | 1.40 | 1.29 | 1.27 | 1.23 | 1.48 |
| Trados 45 | 1.58 | 1.48 | 1.32 | 1.33 | 1.28 |
| Euroglosa 45 | 1.35 | 1.35 | 1.41 | 1.30 | 1.51 |
| Concesiones de Madrid | 1.65 | 1.35 | 1.64 | 1.47 | 1.21 |
| Autovía de la Mancha | 1.01 | 1.14 | 1.30 | 38.38 | |
| Autovía de los Viñedos | 1.12 | 1.23 | 1.26 | 125.62 | |
| Autovía del Camino | 1.11 | 1.19 | 1.14 | 1.50 | |
| Carretera Palma-Manacor | 1.28 | 1.34 | 1.51 | | |
| Madrid 407 | 0.97 | 1.10 | 1.30 | | |
| Viastur | 0.99 | 1.04 | 1.19 | | |
| Accesos Ibiza | 1.09 | 1.14 | 1.19 | | |
| Ibisan | 1.22 | 1.27 | 1.47 | | |
| Cedinsa Eix Llobregat | 1.09 | 1.13 | 1.25 | | |
| Santiago-Brión | 1.00 | 1.14 | 1.21 | | |
| Reus-Alcover | 1.01 | 1.15 | 3.05 | | |
| Puente del Ebro | | 1.18 | | | |
| Autovía del Turia | 1.13 | 1.19 | 1.52 | | |
| Autoestrada do Salnés | 1.03 | 1.39 | 4.08 | | |
| Autovía del Eresma | 1.14 | 1.14 | 3.49 | | |
| Autovía de los Pinares | 0.96 | 1.12 | 1.61 | | |
| Autovía del Barbanza | 0.91 | 1.02 | 8.93 | | |
| Cedinsa Aro | 1.26 | 1.12 | 2.88 | | |
| Cedinsa Ter | 1.16 | 1.32 | 48.79 | | |
| Autovía del Pirineo | 0.91 | 1.27 | | | |
| Eix Diagonal | 1.07 | 4.57 | | | |
| **Average** | **1.17** | **1.35** | **4.09** | **21.50** | **1.96** |

Source: own elaboration using Financial Statements data.

**Table 12: Solvency ratio by concessionaires in the UK.**

| | 2014 | 2009 | 2006 | 2003 | 2000 | 1996 |
|---|---|---|---|---|---|---|
| Gloucester | 1.81 | 1.39 | 1.17 | 1.14 | 1.12 | 1.00 |
| Connect A30A35 | 1.08 | 1.07 | 1.07 | 1.05 | 1.03 | 1.02 |
| Autolink | 1.05 | 1.04 | 0.95 | 0.93 | | |
| Road Link (A69) | 1.70 | 1.54 | 1.27 | 1.18 | 1.19 | |
| Connect A50 | 1.11 | 1.05 | 1.02 | 1.02 | 1.01 | 1.01 |
| Peterborough | 1.44 | 1.34 | 1.17 | 1.13 | 1.14 | 1.00 |
| UK Highways M40 | 1.06 | 1.10 | 1.02 | 1.04 | 1.06 | 1.93 |
| Connect M1-A1 | 1.80 | 1.16 | 1.03 | 0.96 | 1.01 | 1.06 |
| Road Management (A13) | 0.88 | 0.89 | 1.00 | 1.00 | 1.00 | |
| County Route (A130) | 0.92 | 0.99 | 1.00 | 1.00 | 1.03 | |
| Darrington | 1.05 | 1.02 | 1.01 | 1.00 | | |
| Connect M77/GSO PLC | 0.75 | 0.91 | 0.98 | | | |
| Claymore Roads | 1.01 | 1.01 | 1.00 | 1.00 | | |
| Sheppey Route | 1.05 | 1.01 | 1.00 | | | |
| Connect Plus (M25) | 1.04 | 1.00 | | | | |
| Connect CNDR | 1.00 | | | | | |
| Highway Management (M80) | 0.99 | 0.99 | | | | |
| **Average** | **1.16** | **1.09** | **1.05** | **1.04** | **1.06** | **1.17** |

Source: own elaboration using Financial Statements data.

**APPENDIX 6. Gearing ratio by concessionaires.**

**Table 13: Gearing ratio by concessionaires in Spain.**

| | 2014 | 2009 | 2006 | 2003 | 2000 |
|---|---|---|---|---|---|
| Noroeste | 1.39 | 3.05 | 4.24 | 5.64 | 1.02 |
| Pantanos | 2.47 | 3.45 | 3.75 | 4.40 | 2.10 |
| Trados 45 | 1.72 | 2.08 | 3.12 | 3.03 | 3.60 |
| Euroglosa 45 | 2.89 | 2.83 | 3.44 | 3.74 | 1.96 |
| Concesiones de Madrid | 1.53 | 2.89 | 1.88 | 2.24 | 4.70 |
| Autovía de la Mancha | 133.65 | 6.97 | 3.59 | 0.03 | |
| Autovía de los Viñedos | 8.53 | 4.26 | 3.89 | 0.01 | |
| Autovía del Camino | 8.77 | 5.20 | 6.92 | 2.00 | |
| Carretera Palma-Manacor | 3.55 | 2.98 | 6.12 | | |
| Madrid 407 | -34.05 | 10.42 | 3.35 | | |
| Viastur | -160.49 | 26.26 | 5.13 | | |
| Accesos Ibiza | 11.46 | 6.96 | 5.28 | | |
| Ibisan | 4.45 | 1.13 | 2.12 | | |
| Cedinsa Eix Llobregat | 11.12 | 7.56 | 4.00 | | |
| Santiago-Brión | -2646.15 | 7.16 | 4.86 | | |
| Reus-Alcover | 191.27 | 6.87 | 0.49 | | |
| Puente del Ebro | | 5.50 | | | |
| Autovía del Turia | 7.71 | 5.40 | 1.94 | | |
| Autoestrada do Salnés | 33.47 | 2.54 | 0.32 | | |
| Autovía del Eresma | 7.22 | 7.37 | 0.40 | | |
| Autovía de los Pinares | -27.09 | 8.63 | 1.65 | | |
| Autovía del Barbanza | -11.43 | 41.94 | 0.13 | | |
| Cedinsa Aro | 3.87 | 8.34 | 0.53 | | |
| Cedinsa Ter | 6.13 | 3.16 | 0.02 | | |
| Autovía del Pirineo | -11.07 | 3.72 | | | |
| Eix Diagonal | 14.43 | 0.28 | | | |
| **Average** | **-97.39** | **7.19** | **2.92** | **2.63** | **2.68** |

Source: own elaboration using Financial Statements data.

**Table 14: Gearing ratio by concessionaires in the UK.**

| | 2014 | 2009 | 2006 | 2003 | 2000 | 1996 |
|---|---|---|---|---|---|---|
| Gloucester | 1.23 | 2.54 | 5.85 | 7.14 | 8.69 | |
| Connect A30A35 | 12.64 | 13.41 | 14.61 | 20.28 | 36.96 | 54.50 |
| Autolink | 18.92 | 27.93 | -18.22 | 14.05 | | |
| Road Link (A69) | 1.43 | 1.85 | 3.66 | 5.64 | 5.35 | |
| Connect A50 | 9.40 | 21.43 | 52.25 | 46.91 | 155.55 | 71.32 |
| Peterborough | 2.30 | 2.93 | 5.96 | 7.79 | 10.83 | |
| UK Highways M40 | 15.80 | 10.31 | 45.87 | 25.39 | 17.28 | 1.08 |
| Connect M1-A1 | 1.25 | 6.32 | 36.37 | 102.68 | 123.13 | 16.11 |
| Road Management (A13) | -8.36 | -8.82 | 212.55 | 685.25 | 2265.36 | |
| County Route (A130) | -11.99 | -88.79 | 66531 | 1345.72 | 38.14 | |
| Darrington | 20.80 | 40.95 | 125.62 | 4808.46 | | |
| Connect M77/GSO PLC | -4.06 | -10.66 | -42.57 | | | |
| Claymore Roads | 72.14 | 75.42 | 207.69 | 1123326.80 | | |
| Sheppey Route | 22.14 | 81.68 | 1540.06 | | | |
| Connect Plus (M25) | 27.97 | -975.61 | | | | |
| Connect CNDR | -2156.05 | | | | | |
| Highway Management (M80) | -107.90 | -199.16 | | | | |
| **Average** | **-122.49** | **-62.39** | **203.93** | **94199.68** | **295.70** | **35.75** |

Source: own elaboration using Financial Statements data.

**APPENDIX 7. Compliance of the golden rule by concessionaires.**

**Table 15: Golden rule by concessionaires in Spain.**

| | 2014 | 2009 | 2006 | 2003 | 2000 |
|---|---|---|---|---|---|
| Noroeste | 1.25 | 0.99 | 1.04 | 0.87 | 0.26 |
| Pantanos | 1.01 | 1.03 | 1.02 | 0.83 | 0.36 |
| Trados 45 | 1.12 | 1.08 | 1.06 | 1.06 | 1.07 |
| Euroglosa 45 | 1.34 | 0.99 | 0.93 | 1.06 | 0.91 |
| Concesiones de Madrid | 1.04 | 1.05 | 0.95 | 1.06 | 1.07 |
| Autovía de la Mancha | 1.15 | 1.09 | 1.02 | 1.00 | |
| Autovía de los Viñedos | 1.08 | 1.08 | 1.05 | 3.93 | |
| Autovía del Camino | 0.98 | 1.06 | 0.96 | 0.51 | |
| Carretera Palma-Manacor | 1.04 | 0.97 | 0.80 | | |
| Madrid 407 | 1.03 | 1.00 | 0.96 | | |
| Viastur | 0.21 | 0.19 | 0.99 | | |
| Accesos Ibiza | 0.95 | 1.06 | 0.80 | | |
| Ibisan | 1.16 | 1.68 | 047 | | |
| Cedinsa Eix Llobregat | 0.99 | 1.11 | 0.86 | | |
| Santiago-Brión | 1.00 | 1.09 | 1.16 | | |
| Reus-Alcover | 1.06 | 1.04 | 0.69 | | |
| Puente del Ebro | | 1.02 | | | |
| Autovía del Turia | 1.01 | 0.81 | 0.80 | | |
| Autoestrada do Salnés | 0.95 | 1.03 | 0.85 | | |
| Autovía del Eresma | 0.90 | 1.07 | 0.97 | | |
| Autovía de los Pinares | 1.07 | 1.00 | 1.06 | | |
| Autovía del Barbanza | 0.93 | 1.00 | 1.05 | | |
| Cedinsa Aro | 1.01 | 1.05 | 0.76 | | |
| Cedinsa Ter | 0.40 | 0.91 | 1.23 | | |
| Autovía del Pirineo | 0.32 | 0.30 | | | |
| Eix Diagonal | 1.00 | 0.85 | | | |
| **Average** | **0.96** | **0.98** | **0.93** | **1.29** | **0.73** |

Source: own elaboration using Financial Statements data.

**Table 16: Golden rule by concessionaires in the UK.**

| | 2014 | 2009 | 2006 | 2003 | 2000 | 1996 |
|---|---|---|---|---|---|---|
| Gloucester | 1.27 | 1.19 | 1.14 | 1.11 | 1.09 | 1.27 |
| Connect A30A35 | 1.30 | 1.01 | 1.02 | 1,02 | 0.98 | 0.96 |
| Autolink | 40.95 | 17.32 | 12.43 | 11,85 | | |
| Road Link (A69) | 1.17 | 1.17 | 1.02 | 1,11 | 1.21 | |
| Connect A50 | 1.03 | 1.27 | 0.21 | 0,16 | 1.09 | 1.08 |
| Peterborough | 1.18 | 1.20 | 1.18 | 1,14 | 1.03 | 1.56 |
| UK Highways M40 | 1.15 | 1.16 | 1.07 | 1,16 | 1.16 | 1.32 |
| Connect M1-A1 | 1.44 | 1.22 | 1.21 | 1,21 | 1.01 | 0.89 |
| Road Management (A13) | 0.12 | 1.08 | 1.07 | 1,03 | 5.22 | |
| County Route (A130) | | | | | 0.78 | |
| Darrington | 1.21 | 1.14 | 1.09 | 1,96 | | |
| Connect M77/GSO PLC | 1.02 | 1.05 | 1.06 | | | |
| Claymore Roads | 0.00 | | | | | |
| Sheppey Route | | | | | | |
| Connect Plus (M25) | | | | | | |
| Connect CNDR | | | | | | |
| Highway Management (M80) | | | | | | |
| **Average** | **4.71** | **2.62** | **2.05** | **2.18** | **1.51** | **1.18** |

Source: own elaboration using Financial Statements data.

**APPENDIX 8. Public versus private financing.**

**Table 17. Public versus private financing in Spain (2002 – 2014).**

| | Spain 30-year bond yield (public financing) | Global interest rate (private financing) |
|---|---|---|
| 2002 | 5.00% | 3.43% |
| 2003 | 5.00% | 4.41% |
| 2004 | 4.40% | 4.63% |
| 2005 | 3.70% | 4.29% |
| 2006 | 4.00% | 5.34% |
| 2007 | 4.70% | 5.37% |
| 2008 | 4.20% | 4.42% |
| 2009 | 4.70% | 4.48% |
| 2010 | 5.50% | 4.56% |
| 2011 | 6.00% | 4.79% |
| 2012 | 6.00% | 4.78% |
| 2013 | 5.20% | 4.91% |
| 2014 | 3.60% | 4.88% |

Source: own elaboration.

**Table 18: Public versus private financing in the UK (1999 – 2014).**

| | UK 30-year bond yield (public financing) | Global interest rate (private financing) |
|---|---|---|
| 1999 | 4.60% | 7.69% |
| 2000 | 4.32% | 10.52% |
| 2001 | 4.70% | 7.43% |
| 2002 | 4.42% | 7.65% |
| 2003 | 4.70% | 6.36% |
| 2004 | 4.40% | 6.49% |
| 2005 | 4.00% | 7.40% |
| 2006 | 4.20% | 7.23% |
| 2007 | 4.30% | 8.24% |
| 2008 | 3.70% | 8.86% |
| 2009 | 4.40% | 7.60% |
| 2010 | 4.20% | 9.40% |
| 2011 | 3.00% | 6.59% |
| 2012 | 3.10% | 7.54% |
| 2013 | 3.70% | 8.26% |
| 2014 | 2.50% | 8.14% |

Source: own elaboration.