

# “Cutting costs to the bone”: the Portuguese experience in renegotiating public private partnerships highways during the financial crisis

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**Abstract** How can governments renegotiate public private partnerships (PPPs) in order to reduce public expenditures? In 2011, in the aftermath of the financial and sovereign debt crisis, Portugal asked for financial assistance from the European Union, the European Central Bank, and the International Monetary Fund (“the Troika”). Annual payments to PPPs in the highway sector represented one of the major burdens of public finances. Over the last two decades, Portugal used PPPs to close the “infrastructure gap” by building 4000 km of highways. The Troika demanded that the Portuguese government renegotiate these PPPs in order to reduce annual payments by 30%, and to develop a more sustainable model. This paper describes these renegotiations. We also discuss the strategy of these renegotiation, in order to reduce costs focus on the main motivations for the public and private sector to conduct this process. A reduction of 18% on future payments was achieved, by using five main strategies: (1) reduce operational service levels; (2) transfer operational service to the public sector, at a lower marginal cost; (3) increase the period between “major repairs”; (4) reduce private sector profitability; and (5) change the risk allocation. We detail each strategy and analyse their respective impact on total cost reductions. This paper should be useful to both academics and practitioners, as it describes a complex renegotiation process that led to gains for both sides and reduced public payments in one of countries that used PPPs most aggressively worldwide.

**Keywords** Public private partnerships · Renegotiations · Transports · Highways · Portugal

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## Introduction

Over the last two decades, Public–Private Partnerships (PPPs)<sup>1</sup> have emerged as an important instrument for governments to provide public services, as well as construct and maintain infrastructure.

European governments have been particularly active in using PPPs, especially in the transportation sector. A recent study by Roumboutsos (2015) indicates that in 2013, there were more than 1600 PPPs in Europe, with a cumulative investment of €300 billion. PPPs have become increasingly used by governments to meet two main objectives: address the infrastructure gap or the population's need for public services (within budgetary constraints), and bring the private sector's higher level of efficiency to these projects and services (Grimsey and Lewis 2002, 2004, 2005a, b).

In addition to these explicit objectives, PPPs have implicit benefits for many players. PPPs have been used for reasons of economic policy; by bridging the infrastructure gap, PPPs are an efficient way to promote immediate economic growth and maintain or even boost employment levels. Hence, the election cycle—whether national, regional, or local—will work as a strong promoter of PPP usage. Another critical implicit beneficiary of PPPs is the financing institutions, as they lend at a very low risk, particularly when the public sector guarantees payments.

However, PPPs have been subject to substantial criticisms: (1) the real levels of enhanced efficiency are questionable (Glaister 1999); (2) the level of accountability of PPPs is unclear (Broadbent and Laughlin 2003; Froud 2003; Asenova and Beck 2010); (3) efficient government management of incomplete contracting (an unavoidable problem) is lacking (Blanc-Brude et al. 2006, 2009); and (4) the level of Value for Money generation for the public sector is often overestimated (Grimsey and Lewis 2002, 2005a, b).

In recent years, a new criticism about PPPs has emerged: the high number of renegotiations. PPP contracts have frequently been subject to renegotiations; renegotiations occur when specific events (often referred to as “compensation events”) change the financial conditions of the concession. We use the definition of Guasch et al. (2014), whereby “a renegotiation of PPP contracts involves a change in the original contractual terms and conditions, as opposed to an adjustment that takes place under a mechanism defined in the contract.” The PPP renegotiations literature has primarily focused on studying the critical factors in renegotiations and the critical renegotiations trigger. Guasch and collaborators (Guasch 2004; Guasch et al. 2003, 2007, 2008; Guasch and Straub 2006, 2009) used a database of over 1000 observations in Latin America, and analysed the renegotiation conditions and triggers. The Latin America experience was also studied in Estache et al. (2003), Engel et al. (2006, 2009) and Moore et al. (2014). Domingues and Sarmento (2016) collected data from renegotiations in the transport sector at the European level. The Asian experience was studied by Reside and Mendoza (2010). At a more local level, Cruz and Marques (2013a, b) and Miranda Sarmento and Renneboog (2016a) studied the Portuguese experience, Athias and Saussier (2010) and De Brux (2008, 2010) the French experience.

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<sup>1</sup> Despite the lack of consensus regarding the definition of PPPs, we will use the broad and general definition used by the OECD (2008, p. 17), which defines PPPs as *an agreement between the government and one or more private partners (which may include the operators and the financiers) according to which the private partners deliver the service in such a manner that the service delivery objectives of the government are aligned with the profit objectives of the private partners and where the effectiveness of the alignment depends on a sufficient transfer of risk to the private partners*. This definition is broad enough to capture all instances covered by the renegotiations that this paper addresses.

Yet, literature describing the conduct of renegotiations at a more micro-level (i.e., negotiations between government and private companies) level remain scarce.

The existence of renegotiations should be considered a normal and expected occurrence in the context of very long contracts, such as those that define PPPs. The sheer length of these arrangements inevitably leads to incomplete contracts, as it is impossible to anticipate all risks and events, technological, political, demographical, as well as social and environmental changes so far in advance. What the abovementioned literature and this paper are concerned with, however, is with instances with a high rate of renegotiations, or renegotiations that are caused by unexpected<sup>2</sup> events, such as the financial crisis, which required, in the case in question in this paper, a substantial revision of the conditions of the entire portfolio of contracts.

This paper analyses a recent PPP renegotiation process in Portugal that concerned a highway infrastructure-building agreement. This renegotiation process occurred between 2012 and 2015, and the new contracts were signed at the end of 2015. Therefore, this paper only assesses the motivations, the renegotiation process, and the contractual outcomes. Despite the lack of changes to toll prices, the reduction in service levels (although the EU standards were maintained) may have an impact on consumer satisfaction and usage. At this point, it is not yet possible to evaluate such impacts.

Portugal has used PPPs intensively since 1993, primarily to build an extensive highway network of around 4000 km (Cruz and Marques 2011), thus placing Portugal as one of the leading countries regarding highways density, but also in terms of PPP use (Sarmiento and Reis 2012). In 2011, Portugal was forced to ask for financial assistance from the European Commission (EC), the European Central Bank (ECB), and the International Monetary Fund (IMF), together, the three assisting institutions are known as the Troika. The Memorandum of Understanding (MoU) of the financial rescue package included several measures regarding lowering the costs with the PPPs in the highway sector.

The main purpose of the renegotiation was essentially to cut public spending in the existing PPPs in the roads sector, thereby “cutting costs to the bone” by using every possible efficiency improvement in operations and maintenance, along with all the possible resources of negotiation, to reduce costs to the maximum.

It is important to mention that unlike the other renegotiations events that took place in previous years in Portugal, as described in Miranda Sarmiento and Renneboog (2016a), this renegotiation was not due to contractual clauses such as unilateral changes, legal aspects, archaeological findings, low demand, major causes, or other causes that were anticipated in the existing contracts. Our paper addresses a renegotiation that was based on a governmental decision to reduce current and future payments. In order to achieve these reductions, the government had to accept that the terms of service that were originally agreed upon in most of these contracts were excessive. By reducing these terms (e.g., lowering maintenance levels or agreeing to provide portions of the service through public means rather than by the PPP), the government lowered the cost of the PPP, the private partner also saved some costs, and the outcome resulted in a win–win situation, all without compromising the existence of the partnership.

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<sup>2</sup> The term “unexpected” here means extraordinary, and it should be noted that this does not mean unanticipated or unforeseeable. The fact that Portuguese governments used this instrument too aggressively made the contracts (and public finances) extremely vulnerable to events that require renegotiations. Illustrating this point vividly is the immediate imposition of the Troika when the financial assistance program to Portugal started, which stated that that no new PPP contracts could be signed by the Portuguese government.

In this paper, we apply the case-study methodology to the 2012–2015 PPP renegotiations in Portugal. We present how the renegotiation model was designed and what objectives were set up by the government (“[The renegotiation process](#)” section). Our study also shows the outcomes of such renegotiation and how they were achieved (“[The renegotiation outcomes](#)” section) and the policy implications and lessons from this case (“[Policy implications](#)” section).

This paper is novel in three ways. (1) It is rare to see a renegotiation started by the government in order to reduce public payments in transport projects to the private sector. (2) It is even rarer to see this occurrence within the context of financial assistance and in a country that is nearly bankrupt. Even Spain, a country that also used PPPs intensively and that also faced a financial crisis, did not renegotiate its PPPs in order to reduce the public burden (Ortega et al. 2016). (3) No literature currently exists, at least to our knowledge that explains in detail a renegotiation based on these factors, particularly in the transport field.

This case is also relevant because the reduced public payments were achieved with private sector agreement and cooperation. We found an average public payment reduction of 18%. Mainly, this came from reducing service level and postponing major repairs. Those changes did not affect private sector profitability. However, the reduction of public payments was also based on a reduction in shareholder profitability. Nevertheless, this reduction was accepted by the private parties, who maintained the perspective that cooperation was useful for maintaining projects in the long run. However, the main incentive of the private sector was related to the liquidity they expected from reserve accounts in the PPPs. By reducing the amount available in reserve accounts, the shareholders of these PPPs were able to receive a large amount of cash that was only due to them at the end of the project (i.e., in 15–20 years).

Additionally, the paper presents the Portuguese setting, which is one of the most developed PPP settings in the world. The government used this instrument extremely intensively, quickly moving from a stage where there was no expertise in the area, to one where both the private and public sectors have very sophisticated technical, contractual, economic, and financial skills at their disposal. Another advantage of the Portuguese renegotiation case is the relatively small and comprehensive setting, where both sides were able to negotiate in a very transparent environment, since there was very little asymmetry of information. These negotiations were done under the auspices, the supervision, and the scrutiny of the EC, the ECB, and the IMF, which also increased the transparency.

Despite the parochial setting for the negotiations, the quality of the intervenients, the huge scale of the problem relative to the size of the economy, and the outcomes achieved make this case a perfect laboratory for studying this topic. Therefore, we use a case-study methodology, with data that includes official reports from the government and the court of audits, to review and analyse this renegotiation process.

This paper contains policy implications for the transport sector, and particularly for the highway business. It also presents evidence that when both parties are committed to long-term relationships, they are prone to negotiating a better agreement, as this ensure long-term sustainability and value for both. As more countries are facing fiscal constraints, this paper should help academics and practitioners understand and improve PPP renegotiations, and thus increase the efficient use of public resources.

This paper is organized as follows. The “[Literature review on public private partnerships renegotiations](#)” section provides a brief literature review on PPP renegotiations, and mainly focuses on case studies of renegotiations. The “[The Portuguese case](#)” section details the Portuguese context. The “[The renegotiation process](#)” section describes the renegotiation process, thus answering our first and second research questions. The “[The](#)

[renegotiation outcomes](#)” section provides detail on the renegotiation outcomes of this process, answering our third question. The [“Policy implications”](#) section provides lessons and policy implications, responding to research question 4. The [“Conclusions”](#) section provides concluding remarks.

## Literature review on public private partnerships renegotiations

Most of the literature on the renegotiation of PPPs has focused on the determinants (i.e., project, financial, legal, institutional, economic, and political) of the likelihood of the occurrence of a renegotiation. Those studies focus on the probability of a renegotiation, the origin of the renegotiation (government or private partner), or the duration of each renegotiation. These papers tend to be empirical, based on databases of hundreds of renegotiation events, and thus lack an explanation of how a renegotiation process is conducted and the results. There is also a lack of perspective on the managerial and technical aspects of transport sector projects (Gogelia and Talvitie 2011). As mentioned by Domingues et al. (2014), given the understanding that renegotiations are an eventuality, it is crucial in PPP implementation to identify how they may be used as a tool to adapt to uncertainty (Rouboutsos and Pantelias 2015).

Domingues and Zlatkovic (2015) used nine case studies of European PPP studies to review the critical success and renegotiation factors of infrastructure concessions, how and why renegotiations occur in long-lasting PPP projects, and the pros and cons of renegotiation. They found evidence that contractual flexibility is a tool that allows both parties to adapt to uncertainty. Additionally, effective communication mechanisms allow for a better response to unforeseen events, reinforcing the partners’ commitment to delivering a win–win project.

Public finance can be an important determinant of PPPs renegotiations. Economic recessions and budgetary deficits increase the likelihood of contract renegotiations. Most European countries have a binding budget constraint that is due (in part) to the intensive use of PPPs (Kappeler and Nemoz 2010). Nevertheless, most of the literature focusing on public finance in PPP renegotiations address the issue of government-instigated renegotiations to elude spending limits (Engel et al. 2013). Governments use renegotiation to increase spending and shift the burden of payments to future administrations (Engel et al. 2009). Our paper, by contrast, studies the incentive of using renegotiations to reduce current and future public spending, by increasing efficiency, reducing service levels, and reducing costs to the private sector. The Troika that supervised the renegotiations stipulated there could be no further elusion to spending limits or to put these expenditures and debt “off balance sheet”.

In the literature, the Portuguese experience with PPP renegotiation has provided some background to analyze and observe renegotiation processes in detail. Cruz and Marques (2013a, b) found several determinants of PPP renegotiations in the Portuguese context, namely that the complexity of the project (measured by the duration of the contract and the level of the investment) increased the likelihood of renegotiation. However, the existence of a regulatory body and its degree of experience reduced the probability of renegotiations. These results were confirmed by Miranda Sarmiento and Renneboog (2016a). Elections lead to opportunistic behavior from both government and private partners, leading to more renegotiations. A better institutional and legal environment, measured by corruption or rule of law, tends to reduce renegotiations. Also, Portugal, as with many other countries, has failed to produce actual traffic levels that match forecasted levels, increasing the potential for renegotiations (Rose and Hensher 2014; Arbués and Baños 2016).

At a more micro level, several case-studies on renegotiations of PPPs in Portugal exist in the literature. Macário et al. (2015) studied the Fertagus renegotiation and found that the success of the renegotiation process in the Fertagus contract was due to mode-specific factors. It also found that many of the features were not mode-specific in theory, however to successfully translate these findings to other transport modes, some changes should be made to the PPP model that take into account modal specificities and national contexts. Miranda Sarmiento and Renneboog (2016b) used the Fertagus and the Lusoponte case-studies to address why and how are PPP contracts renegotiated. The authors show that marked differences in renegotiation outcomes emerge. In one case study (Fertagus), the private sector asked for financial help and the negotiation outcome was a very balanced agreement. Conversely, renegotiations in a second case (Lusoponte) were initiated by the government mainly for political reasons, resulted in a significant change in the PPP's structure, risk, financing, and returns, and ultimately yielding a large public loss.

## Methodology and data

In this paper, we apply case-study methodology to the 2012–2015 PPP renegotiations in Portugal to understand how the renegotiation was conducted and what measures were taken to reduce the public payments. We also analyse to what extent the initial objectives were achieved and what lessons can be learned from this experience.

The first characteristic of case-studies is that they are appropriated for new areas of research (Eisenhardt 1989). New areas have recent and little knowledge, thus a case study of selected examples can be a useful tool to understand the concepts and the decisions involved in the problem. This type of research can be used to achieve various research aims: to describe phenomena, to develop or test a theory, and to explore areas where the existing knowledge is limited (Cavaye 1996). Therefore, case-studies are useful when “research and theory are at the early formative stages” (Benbasat et al. 1987), and suits the fact that PPPs are a new and recent subject of study, particularly in finance, as academic research is still nascent and many issues still need to be addressed. The advantage of this methodology is that they provide a wealth of detail, give credibility to situations and provide real outcomes. The result theory is often novel, testable, and empirically valid (Eisenhardt 1989).

Case-studies do have limitations. They do not provide the bases for scientific generalization, in spite of the variety of evidence they offer. The goal of the case study is to expand and generalize theories, and not to enumerate frequencies (Yin 2013). Thus can generalize theoretical propositions, but not populations or universes.

This case study analyses the following types of information. We had access to the reports of renegotiations process. Although they are not publicly available, the previous Portuguese government granted us access. We also collect data from the Court of Audits and the PPP unit. Information was collected mainly on the public and private side.

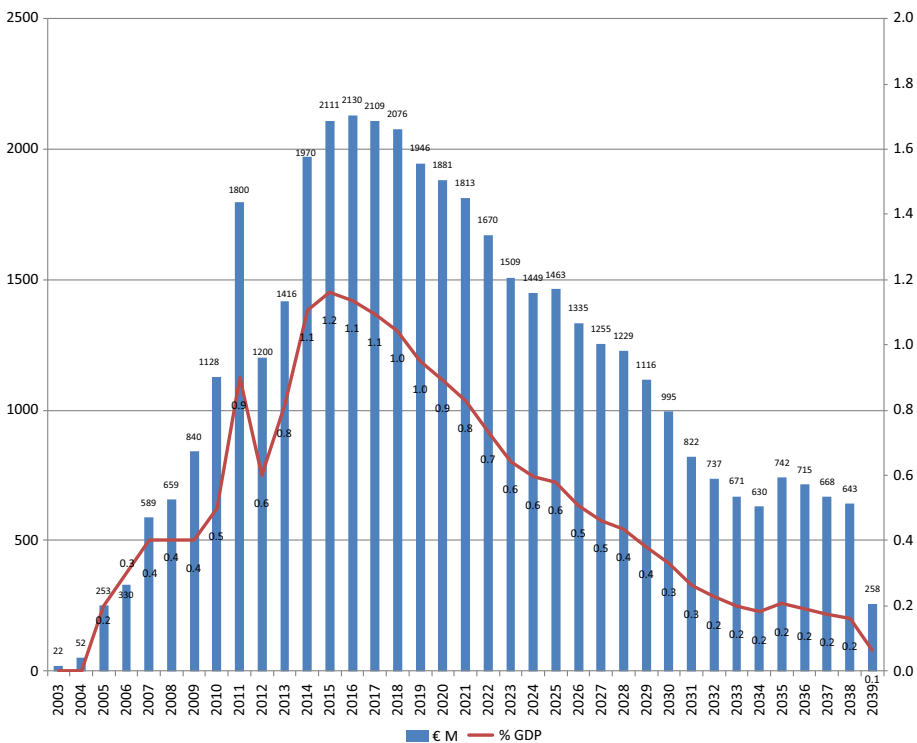
## The Portuguese case

Since 1993, Portugal has used PPPs in four sectors: health, security, railways, and in highways. Of a total of 35 projects, 22 are in the road sector, 10 in the health sector, 2 in railways, and 1 in security. A total of 20 billion € has been invested in these projects, and

the road sector accounts for 18 billion of these investments (Miranda Sarmento and Renneboog 2015). Portugal represents 7% of European investment in PPPs. As Portugal only accounts for 1% of Europe’s GDP, further calculations by Sarmento and Reis (2012) show that Portugal leads in the use of PPPs across Europe. The intensive use of PPPs led to some concerns regarding affordability. The future payments represent an annual effort above 0.5% of GDP until almost 2030, while between 2014 and 2020 these payments will go up to 1% of GDP (Fig. 1). Some authors have raised doubts about the value obtained from investments in these projects (e.g., Sarmento 2010), as the decision to deliver public investment through PPPs is more related to an “off-budget temptation” regarding public investment rather than to efficient public procurement procedures. In fact, the high value of public payments regarding PPPs indicates that governments in Portugal were more concerned about public deficits than with obtaining value for money. Thus, PPPs in Portugal were used with a single purpose: to place public investments outside the consolidation perimeter of public accounts (Sarmento 2010, 2015; Sarmento and Reis 2012; Miranda Sarmento and Renneboog 2015).

As our subject is renegotiations in highway PPPs, this chapter focuses solely on that sector.

PPP highways in Portugal were concentrated in two waves. The first wave of PPPs in the road sector was composed of the SCUTs highways (With SCUTs meaning “no cost to



**Fig. 1** PPP payments in millions € and as percentage of GDP. This figure shows the public payments due by the state to the 35 PPPs, by year, in millions of € (left scale) and % of GDP that this amount represents (right scale), before the 2013–2015 renegotiations. Values until 2014 are observed values, values for 2015 and beyond are forecasts. *Source:* Based on Ministry of Finance data



users”). Road contracting in the first wave was divided into seven separate bidding process that occurred between 1999 and 2001. The SCUTs extend over a total of 930 km of highways originally with shadow tolls, with the public budget stepping into pay private partners in lieu of highway users. Since 2010, the SCUTs no longer operate with shadow tolls but with real electronic tolls, thus users now pay for highway use. The individual concessionaires charge tolls, but these revenues are channelled to the government. In exchange, the concessionaires receive a compensation for availability. These changes have reduced the level of risk to the private sector; revenues were maintained and in some cases increased. These improvements have allowed concessionaires to maintain or even increase their rates of return, despite the fact that their level of risk has been reduced.

After a few isolated projects between 2002 and 2006, the second wave of road PPPs was launched between 2007 and 2008. The Portuguese government awarded seven new highway projects to public bids, under the supervision of the national public roads concessionaire, Estradas de Portugal (EP). EP is an entirely state-owned company that became the concession grantor, thus these roads are usually referred to as “subconcessions.” These projects were completed by 2014, thereafter representing an additional EUR 800 million of annual payments to the government (see Fig. 1). All “subconcession” contracts are similar to the current version of the former SCUTs contracts: the roads have real tolls whose revenues revert to the concession grantor (EP), while the concessionaires receive payments based on availability. An important consequence of this structure is that it ensures that EP starts collecting “market revenues” and stops being funded exclusively through direct contributions from the state budget. By using market revenues, European Union public accounting rules (European System of Accounts 2010) allows the government to exclude EP from the consolidation perimeter of the government, which significantly eases the deficit calculations of the Portuguese government.

When Portugal asked for financial assistance from the Troika, a MoU was signed in which 3 requirements were decided with respect to PPPs: (1) the Portuguese government would commit to not initiating any new PPP contracts; (2) all existing PPP contracts would be subject to specific auditing procedures and consolidated with the public sector deficit as much as possible; and (3) the government would start a renegotiation with the private sector, in order to find solutions that reduced public payments to the SCUTS highways and two additional highways that had been between 2002 and 2006. As of 2012, these nine projects were the ones that represented costs to the public budget. The third wave of highways was still under construction, thus investments in these projects were cut. How the renegotiations for the SCUTS highways and two additional highways were structured and conducted, as well as the results achieved, comprise the remainder of this paper.

## The renegotiation process

To reduce public expenditures from these nine projects, the government started negotiations with the private sector. The nine projects were owned by four groups. “Ascendi”, the major player in PPPs in Portugal (owned by the major construction company and one of the major banks), had five PPPs (“Norte,” “Grande Lisboa,” “Costa da Prata,” “Beira Litoral e Alta,” and “Grande Porto”). Another two projects (“Algarve” and “Norte Litoral”) were owned by the Spanish group Ferrovial (one of the largest three Spanish construction companies). One project (“Interior Norte”) was owned by a French construction group



(Lagarfe) and one (“Beira Interior) was jointly owned by two Portuguese construction companies (“Soares da Costa” and “Teixeira Duarte”).

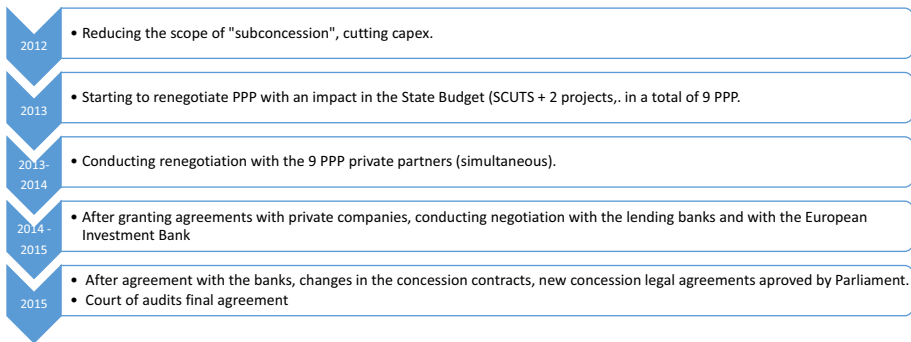
The Portuguese government and a public commission appointed specifically to renegotiate these nine projects analysed several renegotiation proposals. Those proposals were, for instance, to buy the bank debt (at a discounted price), renegotiate the debt, or to create a surcharge tax for these companies or even a unilateral reduction of public payments. All these options were abandoned because of their complexity (in the case of buying financial debt), their legal difficulties (the surcharge tax would violate the principle that taxes be general), or their reputational implications and contract clauses (such as unilaterally reducing payments). A proposal made by Sarmento and Reis (2012), of buying back these concessions using an arbitrage opportunity, was also rejected, due to the initial financial cost (along with the political costs).

Despite the difficulty of the renegotiation process and possible solutions, both parties had a strong interest in reducing the pressure these PPPs placed on the public budget. On the government side, there was the need to cut expenditures in order to reduce the deficit. Politically, it was more useful to cut these costs, than salaries, and pensions. Public opinion was against PPPs and the payments to these projects. Therefore, the government was obliged by the Troika’s MoU, by the fiscal constraints, and by the voters to reduce the fiscal burden associated with these PPPs. On the private side, the initial conditions for renegotiation were favorable at the project level: projects were operating with an availability payment (a fixed rent paid by the public sector), with low interest rates and low overall risk. During the prior 10 years of operation, these project’s profitability was above the expected in the case base. But the shareholders of these firms faced financial difficulties due to the 2008 economic downturn. Therefore, shareholders demanded cash and these PPPs had a substantial amount of cash in their reserve accounts. To the owners of the PPPs, there was the benefit of receiving liquidity 15 years before the end of the contracts, as well as the need to satisfy their shareholders and thus reduce public pressure.

The government’s renegotiation strategy was based on four main objectives: (1) reduce future public payments by 30% annually, to approximately 250 million € year for the next decade; (2) achieve a sustainable regulatory model; (3) align the public and private contractual incentives; and (4) reinforce the contracts to reduce the likelihood of future renegotiations.

The negotiation process had several stages: first, a number of changes that could be accepted by the private sector and produce a reduction in public payments were identified. Second, after identifying the main drivers for cost reduction, negotiations with the nine PPPs started. It is important to mention that the negotiations occurred with all the private players simultaneously, in order to reduce asymmetry and increase transparency. Third, once the bank syndicate and the European Investment Bank agreed with the new MoU’s, new concession agreements were signed. Finally, the concession’s legal bases were changed, and the Court of Audits provide the final confirmation. Figure 2 summarizes the timeline of this process.

The government based its negotiations with the private parties on five main issues, all with the objective to reduce future public payments to PPPs: (1) changing the major repairs clauses; (2) reducing the service levels of Operate and Maintenance (O&M), along with the operational fees that government was paying for companies to collect tolls; (3) transferring O&M to the public sector, through the State Owned Enterprise “Estradas de Portugal”; (4) reducing the private shareholder’s internal rate of return (IRR); and (5) changing the risk allocation matrix. Table 1 summarizes the main drivers of this renegotiation.



**Fig. 2** The PPP renegotiation timeline. This figure shows the PPP renegotiation timeline adopted by the Portuguese government. *Source:* The authors

Changes in the contract regarding major overhauls of infrastructure were one of the main drivers of this renegotiation, as they represented a substantial future financial burden. In order to reduce payments, major overhauls were scheduled in 12 year intervals, instead of the current 8 year intervals. Also, all other future major repairs would be decided by and financially supported by the public sector. This change, and the subsequent reduction of risk to the private sector, was followed by a corresponding reduction in annual payments.

Another major driver of renegotiation was a reduced service level and transferring some O&M to public sector responsibility. This reduction was done under EU legal boundaries for road safety. These reduced service levels mainly focused on small repairs, lighting, patrol, security, and assistance. Both service reduction and service transfer were followed by a corresponding reduction in public payments. The former measure can be regarded as total savings, the latter is only a partial saving, since these services were now transferred to a public company, "Estradas de Portugal," which will incur new costs to deliver them.

To a large extent, the private concessionaires do not have the same capabilities to repair highways across the country as "Estradas de Portugal". As such, their margin on these operations would be reduced, thus they were overcharging for these services. In the hands of "Estradas de Portugal", these repairs should be performed with some efficiency gains. Estradas de Portugal" operates more than 20,000 km of roads. This provides "Estradas de Portugal" a scale effect that it is expected to make its marginal costs lower than the current payments to the private operators in some sub-lanes. Additionally, it is important to mention that these O&M transfers to "Estradas de Portugal" are heavily concentrated in the entering and exit lanes (therefore, lanes connected to the national road network already managed by "Estradas de Portugal"). Finally, it is possible, that PPP companies had incentives to overstate their maintenance costs. Also, it is important to mention only a small part of the cost savings in the O&M reductions are from a transfer of O&M services to Estradas de Portugal. Most of those cost savings are the result of real O&M reductions.

However, some concern regarding these savings must be stressed: There is some evidence (see Beltrão 2013), provided by the Portuguese Court of Audits, that these PPPs were operating with costs that were below the case base. This means that these projects were receiving from the government for O&M services above that they were spending (in what the Court of Audit considers to be financial benefits that are not contractually considered in the base case, which potentiate the private partner to increase profitability without any counterpart to the public sector). Despite the fact that data is not available for such assessment, the reduction in the O&M service, even reducing the public payments to

**Table 1** Main drivers of the renegotiation. *Source:* The authors

Main driver	Comments	Impact on public and private sector returns
Review of the finance model for major repairs	<p>Before renegotiation, major repairs occurred every 8 years, independent of traffic volume (mainly freight) and road conditions</p> <p>Major repairs are no longer previously financed</p> <p>They are only paid if they occur (they no longer are mandatory)</p> <p>They only occur every 12 years, and if the public sector decides favourable</p> <p>The government received 80 M€ from reserve accounts for major repairs</p> <p>Claw-back mechanism to share future savings in major repairs</p> <p>No longer mandatory to increase the number of lanes after traffic reaches a certain volume</p>	<p>Public sector: Reduces costs by reducing the number of major repairs needed (every 12 years instead of 8), thereby receiving 80 M€ compensation</p> <p>Private sector: Neutral (fewer revenues as opposed to fewer costs)</p>
Reduce service levels	<p>Reduce service levels of O&amp;M, negotiated within the boundaries of highway safety laws</p> <p>Original contract service levels were too high, especially in highways with low traffic</p> <p>Reducing service levels will increase efficiency</p>	<p>Public sector: Reducing service levels will reduce public payments</p> <p>Private sector: Neutral (fewer revenues by counterpart of less O&amp;M costs)</p> <p>However, residual gains are possible, as the loss in revenues may be slightly lower than the cost reductions, due to economies of scale</p>
Some O&M is transferred to the public sector through SOE “Estradas de Portugal”	<p>Transferring 1 × 1 lanes to “Estradas de Portugal,” as this SOE already operates the Portuguese non-highways road network</p> <p>This transfer is expected to increase efficiency in these lanes</p>	<p>Public sector: Reduces public payments but increases costs in “Estradas de Portugal.” It is not clear if (and how much) the marginal cost of “Estradas de Portugal” is lower than these payments</p> <p>Private sector: Neutral; fewer revenues by counterpart of less costs</p>
Reducing private sector profitability	<p>Reducing nominal shareholder’s IRR by reducing public payments</p>	<p>Private sector: negative. However, the private sector gained immediate liquidity, as PPPs were allowed to transfer some reserve accounts to their shareholders</p>
Change in the risk allocation matrix	<p>PPP will retain tools payments and deduct those revenues to public payments (tools are public revenues from “Estradas de Portugal”)</p>	<p>Public sector: neutral</p> <p>Private sector: positive impact in PPP cash management. Reduced PPP risk profile will reduce loans risks, improving overall financial conditions</p>

**Table 1** continued

Main driver	Comments	Impact on public and private sector returns
Creation of claw back sharing benefits	Mechanism created to share future savings and benefits from this renegotiation	Public sector: positive, as can increase future revenues Private sector: negative, as future upsides will not be totally appropriated by the companies

This table presents the main drivers of this renegotiation, along with the expected impact on the public sector and on private companies

private sector, may, at the end of the day, be just an alignment with the effective costs of these projects.

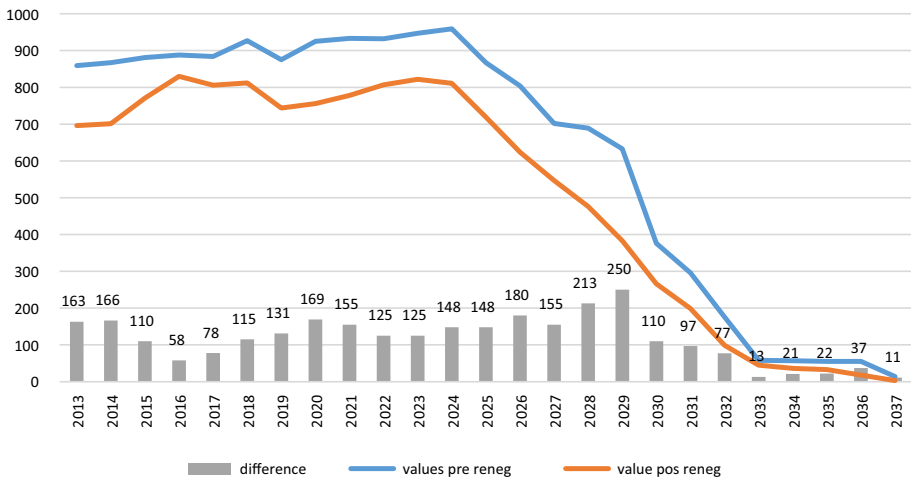
Finally, the major point in this renegotiation was to realistically align the shareholders' profitability, by reducing excessive IRR. This realignment was achieved through an effort from all stakeholders to assure a more sustainable model. However, part of this reduction was compensated to private firms, as the PPPs were allowed to return some reserve accounts to their shareholders. Ultimately, the private companies traded future profitability for a more stable model and immediate liquidity. It may be argued that future profitability could have been seriously compromised by a default of the Portuguese Republic, whose risk was already implicitly incorporated in the IRRs of these projects. By accepting these terms, the private companies were not only assuring immediate liquidity, but also to a certain extent improving the financial viability of the state and hence ultimately reducing the risk inherent to their own contracts.

## The renegotiation outcomes

This renegotiation lowered the Portuguese government's future payments by an average of 18% in total payment terms. Before renegotiation, payments for the time period 2013 through 2031 would have totalled 15.6 billion € (at current prices). This represented a cost reduction of 2.8 billion Euros at current price, as payments now total 12.8 billion Euros. In net present value, using a discount rate of 6% (the legal discount rate for PPPs in Portugal), we have a value of 6.8 billion Euros pre-renegotiation and a value of 5.7 billion Euros post-renegotiation, or a reduction of 16% in Net Present Values terms. Figure 3 presents the differences over time.

By excluding the financial costs of this renegotiation, the scope of the savings was always limited. Currently, debt service (repayments and interests) and capex represent around 60% of the payments from the public to private sector. Therefore, the reduction in payments must be framed in the remaining 40% of the total payments (22% for shareholders returns and 18% to O&M and other costs).

The savings resulted from the reductions in shareholder profitability (40% of the total savings). Shareholders of the nine PPPs saw their returns reduced around 1 billion Euros over the next 15 years, in current prices. The second major source of reduction was changes in the O&M and repairs schedules. This accounted for 34% of the savings, and reduced public payments by 930 million Euros for the remaining period, in current prices. Finally, O&M and other types of savings represented 14 and 11% of the savings,



**Fig. 3** Reduction in public payments. This figure presents the level of public payments prior to renegotiation (data from the 2012 state budget) and after renegotiation. Values in millions of euros. *Source:* Based on Ministry of Finance information

respectively, with a current value of 315 million Euros for O&M and 376 million Euros for other savings. Table 2 summarizes the savings for each PPP.

However, these savings were not uniformly applied across PPPs. The Ascendi group had an overall revenue reduction of 18%, but the “Ferrovial” group only had an overall reduction of 6%. The main reductions came from two isolated PPPs: “Interior Norte” (21%) and “Beira Interior” (30%). Table 3 summarizes these changes in IRR. However, it is important to reinforce that these private shareholders received an immediate compensation in liquidity. Instead of receiving the reserve accounts that would have been mandatory at the end of the contract (15 years in the future), they were able to collect a portion of that cash now. For the “Ascendi” group (in a total of 5 PPPs), the reduction of IRR represented, in NPV, a total of 294 million Euros. However, the immediate liquidity of the group amounted to almost 200 million Euros.

From the consumer’s perspective, toll prices remain unchanged as a result of these renegotiations and thus we do not expect that these new contracts will produce any impact on the usage intensity of these highways. The reduced O&M levels may eventually lead to lowered overall quality and consumer satisfaction. However, these reductions was made under the condition that standard European rules for safety and quality were preserved.

### Policy implications

The case of this renegotiation allows us to look at the dynamics of a renegotiation triggered by the public sector, where the country faced financial constraints and thus entered the renegotiation with the purpose of reducing public payments. This is a rare occurrence and has not yet been illustrated in the literature. As the Portuguese government never considered nationalization or unilateral reduction in PPP payments was never considered to be a valid option, these reductions could only be achieved if the private sector was willing to

**Table 2** Public payment reductions post-renegotiation. *Source:* Based on Ministry of Finance information

PPP	Savings				Total savings	Future payments	Payments (prior to renegot.)	Savings
	IRR	Major repairs	O&M	Other savings				
Costa da Prata	50,776	10,200	36,367	16,995	206,328	687,485	893,813	23%
Grande Porto	275,207	72,681	28,772	32,497	409,157	1,758,771	2,167,928	19%
Beira Litoral e alta	289,846	241,269	37,949	43,031	612,095	2,074,612	2,686,708	23%
Grande Lisboa	115,487	39,405	22,908	30,343	208,143	965,671	1,173,814	18%
Norte	72,909	203,289	91,572	-61,294	306,476	2,672,396	2,978,873	10%
Sub-total for Ascendi	804,225	556,644	217,568	61,572	1,742,199	8,158,935	9,901,136	18%
Algarve	-117,288	52,510	11,126	32,146	84,550	897,487	982,038	9%
Norte Litoral	53,521	62,858	13,209	-68,549	61,039	1,273,730	1,334,769	5%
Sub-total for Ferroviario	-53,404	115,368	24,335	-32,077	145,589	2,171,217	2,316,807	6%
Interior Norte	118,654	144,811	15,211	48,738	328,414	1,217,401	1,545,815	21%
Beira Interior	110,795	118,004	69,336	234,421	532,556	1,289,283	1,821,839	30%
Total	1,087,078	934,827	315,335	376,808	2,748,758	12,836,836	15,585,597	18%
Contribution to reduction	40%	34%	11%	15%	-	-	-	-

This table presents the savings from this renegotiation, according to each category of the negotiation. "Other savings" report (1) other operational revenues, mainly third party revenues such as revenues from renting service stations; (2) changes in taxes and license fees; and (3) changes in net working capital. Values are presented at current prices, in thousands of Euros. Negative values represent an increase in public payments.

**Table 3** Reduction in shareholder profitability. *Source:* The authors

PPP	IRR case base (%)	IRR (real) (%)	IRR after renegot. (%)
Costa da Prata	11.9	13.9	9.3
Grande Porto	11.4	13.8	9.3
Beira Litoral e alta	12.8	17.4	10.5
Grande Lisboa	7.7	7.8	6.3
Beira interior	13.2	14.0	10.0
Norte	11.7	5.0	4.9
Interior Norte	12.2	12.2	10.0
Norte Litoral	6.5	8.5	5.9
Algarve	7.8	10.0	7.2

This table presents the reduction in shareholder IRR. Savings are in thousands of Euros. NPV was calculated at a 6% discount rate (the legal discount rate for PPPs in Portugal)

cooperate. How that cooperation was achieved and what lessons and policy implications can be learned is the purpose of this section.

What motivated the private sector to accept this renegotiation and lower their profits?

First, most of the changes did not affect profitability. Instead, the renegotiations resulted in reduced service levels and altered terms for major repairs. In this case, the adjustment in revenue levels was compensated with a corresponding reduction in costs, and thus the result was mainly neutral from a financial perspective.

Regarding the reduced IRR to shareholders, there is evidence that the private sector accepted this reduction for several reasons. First, the country was facing a potential bankruptcy that would have triggered a default on these projects (as the government would no longer be able to assure future payments). Therefore, the private sector felt compelled to be part of the solution, otherwise the future consequences could undermine the projects. Yet, it should be noted that reduced IRR came mainly from PPPs with national shareholders. The “Ferrovia” projects saw a lower reduction in this driver. We see several motives for this difference, as “Ferrovia” is a very large multinational construction group, while national shareholders are small local groups. “Ferrovia” had several advantages in the negotiation process: (a) “Ferrovia” is less exposed to the Portuguese market, unlike the domestic groups that do not want to confront government and public opinion; (b) the group is less exposed to these projects, as the projects represent a smaller weight in its portfolio; (c) the benefit of anticipating cash from these two projects is lower for “Ferrovia” (due to b) condition); (d) “Ferrovia” have more sources for financing than domestic shareholders; (e) overall, Ferrovia’s IRR was below the IRR of the other concessionaries (with one exception; please see Table 3).

Second, the high level of returns that existed (above 10%) were disproportionate to the current market conditions, where interest rates were near zero. Thus the reduction in IRR is mainly a reduction from a previous value that is now considered too high. Also, the real IRR was higher than the original case-base, which gave the government a strong argument. Finally, the private sector collected two benefits from this reduction: it saw a reduction in the overall risk of the project, and it allowed them to receive immediately liquidity from some of the reserve accounts of these PPPs.

Concerning the IRR reduction, it is important to mention the following, although little data and information is available. By receiving a portion of the liquidity in 2016 that the concessionaires had originally expected just to receive at the end of the projects (2030;



14 years ahead of schedule), the firm's NPV and IRR increased. Thus, it is possible to argue that in addition to the liquidity premium to the shareholders of these firms, the reduction in IRR was mitigated by this anticipation of cash.

This paper draws several policy implications. The public sector was forced to start this renegotiation by external imposition (i.e., the Troika agreement). Yet, it is necessary to stress that this renegotiation increased project efficiency and therefore contributed to a better allocation and efficiency of public resources and higher value for money. This is a renegotiation that allowed the government to correct many pitfalls and errors, both from the original contracts and from previous renegotiations. Also, there was a substantial lack of experience in the beginning of the PPP programs, which led to contracts that may not have had the public sector's best interests at heart. Thus, this renegotiation demonstrated that both public and private sector were further along the learning curve. The same institutional framework (i.e., the same supervision, auditing, and monitoring) can produce vastly different outcomes in terms of the success rate of a PPP or the need for renegotiations.

The fact that the negotiation was performed under high scrutiny also deserves attention. In Portugal, all previous PPP negotiations were conducted in a more conventional fashion and done to further elude spending limits. No external supervision was available until the financial adjustment program imposed this negotiation.

## Conclusions

This paper presents the case of a very unique PPP renegotiation: highway PPP renegotiations in Portugal between 2012 and 2015. Under a financial rescue from the Troika, the Portuguese government was forced to reduce public payments in PPPs. In order for private companies to accept the changes, most of the reductions came from reducing service levels and major repairs. These altered terms had no impact on private firms, as the reduction of revenues was followed by a corresponding reduction in costs. However, there was also a reduction in shareholder profitability (mainly in PPPs with national shareholders, where government capacity to negotiate is higher). This IRR reduction was achieved in part by the private sector accepting that the current IRR level was too high, and that the alternative, namely a sovereign default, would result in the collapse of these projects. But it was also achieved by the private sector receiving liquidity from reserve accounts from PPPs and a reduction in the overall risk of the projects.

This renegotiation proves that when both parties are committed to sustaining current and future relationships, they are prone to negotiating a better agreement, thereby ensuring long-term sustainability and value for both parties. It also showed that PPPs should be renegotiated during the life-time of a 30-year contract, as a way to both respond to changes in the project and to deal with changes in the overall context. External factors such as changing economic conditions or political environments can make the concession characteristics of the original contracts obsolete and require renegotiations.

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## Compliance with ethical standards

**Conflict of interest** On behalf of all authors, the corresponding author states that there is no conflict of interest.

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