



**Uncertainty in Long-term  
Service Contracts:  
Franchising Rail Transport  
Operations**

# **Uncertainty in Long-term Service Contracts: Franchising Rail Transport Operations**

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## Foreword

Transport infrastructure is a major enabler of economic development. In the drive to refurbish or build, governments worldwide have turned to the private capital market for financing. The primary narrative behind this push is the huge stocks of private capital that are available, while public financing capabilities are said to be limited and insufficient.

The almost exclusive vehicle of private investment in transport infrastructure, including social infrastructure, is Public-Private Partnerships (PPPs). In the context of PPPs, two important aspects have received little attention.

First, sufficient attention has not been given to the role of suppliers. The focus of governments and Intergovernmental Organisations has been on resolving the challenges to private investment from the viewpoint of investors: reducing the uncertainty they face and enabling them to price risk more efficiently by establishing infrastructure as an asset class.

However, looking only at investors gives an incomplete view of the total cost of the risk transferred from the public to the private sphere. In PPPs, investors transfer some of the major risks they are not comfortable bearing to design, construction, maintenance, and operations contractors.

Suppliers, too, face uncertainties and are unable to efficiently evaluate price risk. In such cases, the base cost of the initial investment – and of subsequent services – may be much higher than they might have been, and not just the cost of their financing.

Uncertainty arises from the difficulties to accurately estimate the cost of construction, maintenance, operations, and financing. But it also stems from “unknown unknowns” (the so-called Knightian uncertainty). For instance, changes in weather patterns or paradigmatic technological shifts, the timing and impact of which are unclear, will influence what infrastructure is needed and where.

So what can policy makers do to reduce the cost of inefficient risk pricing of suppliers? Where does this put PPPs? How can public decision makers reconcile long-term uncertainty with private investment in infrastructure? Who should bear long-term uncertainty in projects: the public or the private sector?

These were some of the guiding questions for a Working Group of 33 international experts convened by the International Transport Forum (ITF) in September 2016. The group, which assembled renowned practitioners and academics from areas including private infrastructure finance, incentive regulation, civil engineering, project management and transport policy, examined how to address the problem of uncertainty in contracts with a view to mobilise more private investment in transport infrastructure. As uncertainty matters for all contracts, not only those in the context of private investment in transport infrastructure, the Working Group’s findings are relevant for public procurement in general.

The synthesis report of the Working Group was published in June 2018. The report is complemented by a series of 19 topical papers that provide a more in-depth analysis of the issues. A full list of the Working Group’s research questions and outputs is available in Appendix 1.

## Acknowledgements

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## Table of contents

Executive summary .....	6
Introduction .....	8
Market overview .....	8
Market analysis .....	11
International comparison of profitability of the rail passenger services market.....	11
Comparison of profitability of the rail passenger services market versus other markets .....	13
Tendering process analysis.....	15
Lessons learned and recommendations .....	18
Conclusion.....	19
Notes.....	20
References .....	21
Appendix 1. Research questions and outputs of the Working Group on Private Investment in Infrastructure .....	22

## Executive summary

### What we did

This paper examines the effects of risk and uncertainty in public transport contracts for rail passenger services against the background of the European Union's declared aim to liberalise railway markets. Lessons from markets where competition has already been introduced, such as the United Kingdom and Germany, may help to avoid mistakes. The paper analyses the profitability of the operators, first by focusing on the return on sales and the return on capital employed rates in the markets overall. This is followed by a more in-depth review of the profitability of individual operators. The results are compared with return rates from other private transport companies. In addition, a typical tendering procedure is examined and the average duration of the individual steps calculated. Analyses of the importance of the price in the award decision of public transport authorities follow. They draw on data from the Civity tendering database, which contains information on all passenger rail tenders in Germany since 2012. Finally, the paper reviews the process of participating in a bidding process from the operators' point of view to understand their decisions.

### What we found

Risk and uncertainty stem from exogenous and incalculable factors. This leads to inefficient risk pricing of private bidders in a public tender and consequently inefficient contract outcomes. Public authorities tendering services, therefore, need to be clear about potential risk factors in the project and transparently communicate these to interested bidders. They also have to anticipate external risk factors wherever possible, since a private operator cannot handle this external risk efficiently. Experience with public transport tenders demonstrates the potential consequences of handing over external risks to private operators, namely insolvencies in a market with diminishing profit rates.

In the typical award decision, price is weighted with 90%. Bidders thus have to calculate their offers either as low as possible, with low-risk mark-ups which pose a risk for insolvency (if the exogenous risk is not taken over by the public authority) or with high-risk mark-ups, making it virtually impossible to win a tender. This issue is reflected in the fact that most publicly-owned companies are operating in the market with profit rates close to zero, as private investors either do not bid due to the high uncertainty or bid with high-risk mark-ups. But for an efficient outcome, competition with as many privately-owned bidders as possible is necessary. The foundation for this must be laid by a public tendering authority.

### What we recommend

#### Provide clear market management

Market management by the public authority has to include transparent pre-information in clear, timely, binding and comprehensive information packages for operators. Both the public authority and the

bidders need to be clear about the existing risk factors and which of them are suitable to be handed over to a private operator.

#### **Offer adequate timeframes in tender procedures to lower the risk of poor calculations**

The public authority has to offer adequate timeframes for operators to prepare and calculate their bids, thus reducing the risk of insufficient bids and ill-calculated risk mark-ups. This will reduce the risk of a selected operator failing.

#### **Keep exogenous risks with the public authority**

Handing over exogenous risks to a private operator will always lead to inefficient risk pricing and should be avoided. A public authority should exclude external risk factors from the tender. Additionally, the public authority can usually handle the risk across several projects, which means better risk diversification. A rail operator might, for example, lose half his market volume from losing just one a contract, but would still have to pay for his rolling stock.

#### **Avoid making price the solely decisive selection criterion**

Price accounts for at least 70% of the selection criteria in all tendering procedures analysed for this study. Half of the projects were awarded based on the lowest price only. On average, the price accounts for 90% of the decisions. This leads to insufficient risk mark-ups and carries the risk of operator failure and potentially high costs for the public purse for maintaining a service and replacing the operator.



## Introduction

The following contribution to the OECD Working Group on Private Investment in Transport Infrastructure deals with the handling of risk and uncertainty in long-term contracts for public transport services handed over to the private sector. In our analysis, we set the focus on liberalised passenger railway markets, where operating contracts are tendered out by public authorities to privately organised companies. These contracts and the topic itself differs a bit from other contributions to the Working Group as it is not in the context of a single large investment in an infrastructure project with all its risks. Due to the long timespans of 10 to 15 years for contracts for public transport services and the huge investments necessary, the market accounts for several billion euros per annum in Europe. In this market, risk and uncertainty are arising from exogenous factors and parameters that cannot be influenced by the operators. This leads to the question: who should deal with the risk and how to implement this in the calculation? The following analysis, which is based on own data and experiences at Civity Management Consultants, will shed light to the profitability of the operators, the tendering procedures and the award decision of the public authority. It will give some answers to questions for the public transport sector with respect to uncertainty and its effects on market outcome for long-term contracts for rail passenger services, but can also contribute to other issues discussed in the Working Group. For a better understanding and preparing the context, the paper starts with a short market overview before going into the analysis.

## Market overview

In Europe, competition in the passenger railway markets really started in 1988, when Sweden separated its infrastructure from operations and started tendering for non-commercial services. Thereafter, in the time from 1994 to 1997, competition started in the United Kingdom in a more radical approach, after the government opened the market for private companies and decided to divide the former national operator British Rail into 25 franchises and offered them for sale. In 1996 Germany followed and the German federal states opened their markets for private operators with tendering procedures for regional connections. Some other EU-member states followed with some selected procedures thereafter (Nash, 2016).

Generally, we have to differentiate competition for contracted services tendered out by the state or a public transport authority (PTA) (competition for the market) from competition initiated by private companies operating trains under open access conditions, i.e. on their own costs and risk parallel to other operators (competition within the market). The focus of this paper lies on competition for contracted services tendered out.

Today we observe a strong competition for tendered services in the railway markets in the United Kingdom, Sweden, Germany, and partly in Denmark and the Netherlands. Competitions of two or more operators on commercial routes in an open market exist especially in Italy and the Czech Republic, and partially in Germany. In other European countries the markets are more in a starting phase of

competition. Regarding that most of the European railways are subsidised, the competition of tendered train services will be the most important form of competition so that we want to focus on that and due to the high market volume in Germany and the UK especially on these countries (Nash, 2013). The differences in the market structure of these both are that in Germany only regional connections are tendered (which are mostly subsidised) while long-distance trains are fully liberalised under open access competition but not subsidised and not at all tendered. In the UK, nearly all train connections are part of a tendering process (Nash, 2016). The regional connections in Germany are tendered by regional PTAs and usually the tender includes a couple of routes or lines sometimes split up in two or more lots. In the UK, most of the routes are typically tendered out by a central government authority.

The aim of the open market and the tendering processes is first to gain more efficiency and to lower subsidy cost for the state by awarding contracts to the operator which offers the requested service at the lowest costs and, second, to reach a higher quality in service by competition of different operators who want to be successful in the bidding process (Beck, 2013). This is not only a positive development for all users of public transit, getting a higher service quality and lower fares, but also for taxpayers as it is saving public money. For the PTAs it is crucial to choose adequate award criteria to achieve the best results, because the contract outcome always depends on the conditions defined in the tendering process.

Experiences in Germany and the UK shows that these aims can be reached, e.g. in the UK the overall subsidy in the first period of franchising reduced from over GBP 2 billion in 1997 to less than GBP 1.5 billion in 2002, with an increase to nearly GBP 2 billion in 2003. Compared to the passenger train km offered, which rose from 376 million to 446 million in the same period, the subsidy decreased by 20% from 1997 to 2003 (Cowie, 2009). In Germany the development is quite similar, as e.g. the public costs per train kilometre slightly reduced from EUR 11.15 per train kilometre in 2002 to EUR 11.07 in 2014, while the per passenger rate reduced from EUR 0.18 to EUR 0.14 per passenger kilometre in the same time. Also it is notably, that from 2002 to 2014 the part of the per train kilometre costs which is for the train operations decreased from EUR 4.69 to EUR 3.28, which equals a decrease of around 30%. Additionally, we observe increases in the driven volume and ridership. From 2002 to 2014 the average load has grown by 28%, while the annual volume of driven train kilometres has grown also by 9%. Overall, this leads to an increase of passenger kilometres by 40%. This increased ridership is also a result of the implementation of competition in the German regional transport (BAG SPNV, 2015).

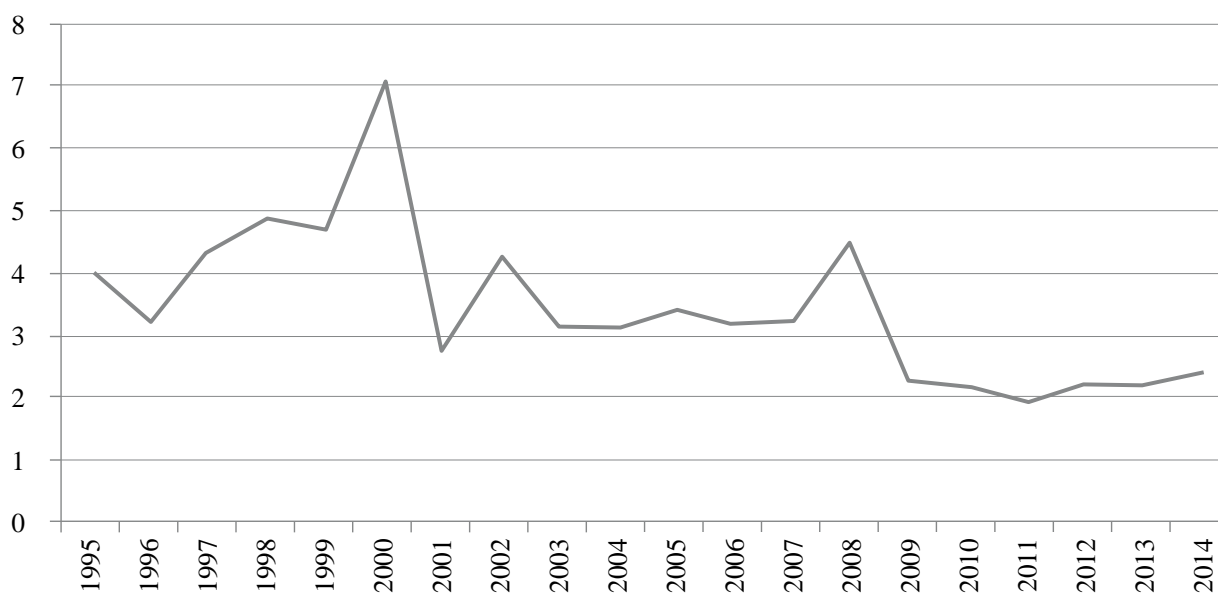
But other experiences also show, that in some cases the contracted operator fails, which implicates significant public costs for maintaining the service and re-tendering. A PTA should always bear in mind these costs in the case of a failing operator, and should include this into its own risk assessment. In the past, there were several cases where operators overbid and could not fulfil their public transport services contract or tried to buy out because they calculated too tight or overestimated the revenues. Other operators went bankrupt because they were not able to remain profitable with the subsidy levels they calculated in the bidding process.

A remarkable example from Germany is the case of the FLEX Verkehrs-AG, which participated in 2002 in a bidding process for a regional train line in northern Germany operating on the route Hamburg – Flensburg (- Padborg). After winning the contract (with a requested subsidy lower by half compared to the former operator) the FLEX Verkehrs-AG got bankrupt eight months after starting operations in August 2003. This bankruptcy was due to bad information about ticket revenues and too optimistic calculations (Beck, 2006).

An example from the UK is the East Coast Mainline, one of the most important railway lines in Great Britain, with services from Edinburgh to London. The route was the first time operated under a public

service contract from 1996 to 2005 by Sea Containers, after they won the tendering process. In 2005, after re-tendering, Sea Containers got a new seven-year contract for operating the route (Railway Gazette, 2005). But this time they were too optimistic; in 2006 they struggled and realised that they overbid for the franchise and the government decided to strip off the contract and operated the route on public costs until the re-tendering process finished (BBC, 2006). In 2007, after the re-tendering, the Department for Transport awarded the franchise to National Express, which started operating the route under the name National Express East Coast (NEXE). In the following two years they realised as well that they overbid and tried to renegotiate the contract. This, and the economic crisis, led to NEXE running out of cash by the end of 2009 and the Department for Transport established a public company for operating the service (BBC, 2009). This company operated the route for about six years until the private company Virgin Trains East Coast started their operations in February 2015 after winning the new tendering process. As of now, Virgin struggles also to operate the route and admitted that they have overbid with their offer to pay GBP 3.3 billion over the contract time (Guardian, 2017a), so that the government will end up the franchise earlier than planned and is thinking about renationalising the East Coast route (Guardian, 2017b; 2018).

**Figure 1. Average number of bids in the year of contract award decision (Germany)**



Source: Wettbewerber-Report Eisenbahn 2015/2016 (mofair/NEE).

By investigating the operations of contracted rail services in the past and setting the point of view to the tendering processes we can conclude that contracting out passenger railway services can have a huge impact on subsidies and on the operating quality, but also bears (incalculable) risks for operators, which, combined with uncertainty, leads to strong barriers for market entry. Through, other operators' poor experiences, risk awareness has grown in the last years. The result of this development can be seen by taking a look at the average number of bids on public transport lots tendered by PTAs, for example in Germany as shown in Figure 1. There we can see that in the last 20 years the average number of bidder's rises up to seven per lot in 2000, but afterwards falls to three or four. Since 2009 we can observe a constant level of two bids per lot. Note that Germany is by far the biggest European passenger rail services market, with a market volume of about EUR 10 billion per year in tendered services (HSH, 2017).

In general this is a poor development, as low participation in bidding processes leads to lower competition and thus to suboptimal contract outcomes from a PTA point of view. Consequently, the PTAs need to attract additional operators to reach the better contract outcomes. The analysis on why the participation in the bidding processes decreased over the past and how PTAs may solve this with respect to risk and uncertainty is discussed below.

## Market analysis

### International comparison of profitability of the rail passenger services market

After giving a short introduction of the market, we want to understand why, in general, a decreasing number of bids can be observed. In particular, we are interested whether risk and uncertainty are influencing factors in the examples illustrated above. Therefore, we analysed the profitability of the market and the means for operators and potential bidders. Thereafter, we take a look on the bidding process to understand how an operator gains the rights to operate a certain route or network with the aim to find out which solutions may be used by PTAs to reach more bids by switching into the bidder's perspective.

The following section analyses market profitability. Therefore, we carried out an analysis of the contracting markets especially in Germany, but also in the UK, to better understand the chances and risks of operating a railway franchise. For our analysis, we calculated the return on sales (RoS) and the return on capital employed (ROCE) rates for some German and UK train operating companies (TOC), based on a methodology proposed by Böttger (2014). For the German TOCs, we used the data from their annual reports officially published according to German law. For other TOCs as well as non-TOCs, we used the data published in the annual reports on the respective websites.

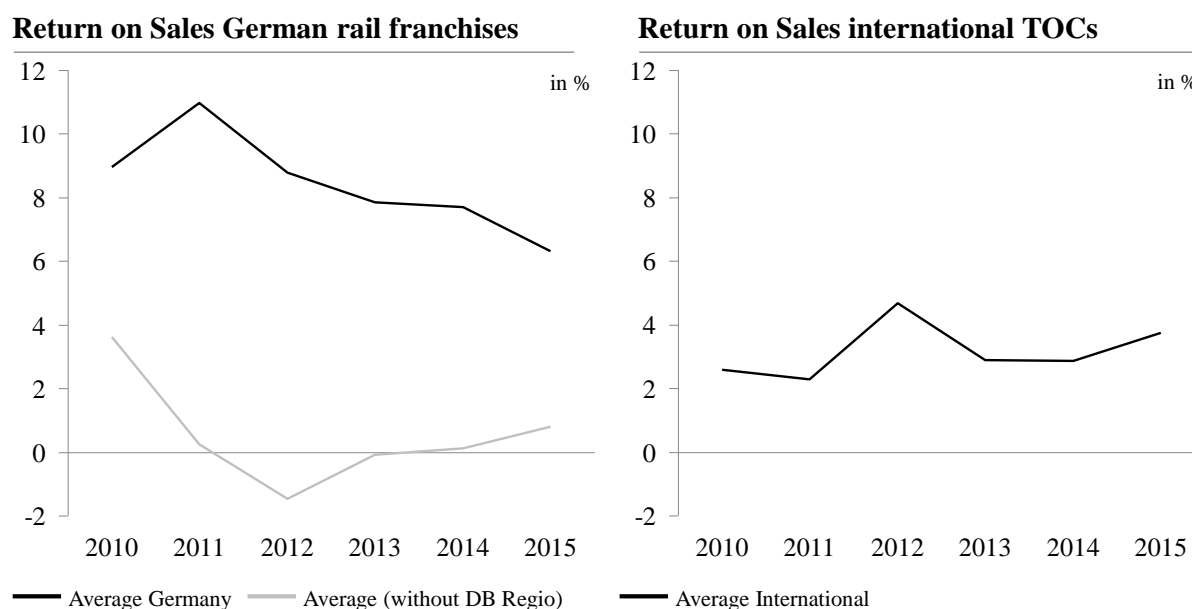
The use of the two key indices (RoS and ROCE) helps us to assess the robustness and sustainability of the businesses. It also indicates the attractiveness of this market for potential investors. The return on sales is a usual indicator to compare the profitability of operators and is calculated by dividing net profit by revenue.

In addition, we used the return on capital employed in addition to the return on sales, because it is an important indicator for intense capital investment markets, in this case the rail passenger services market with huge investments in the rolling stock, for example. It reflects the profit compared with the invested capital. It is usually measured by dividing the earnings before interest and tax (EBIT) by the capital employed, i.e. the capital investment that is necessary for a business, usually calculated as total assets minus current liabilities. To make the ROCE of companies comparable, it is necessary to adjust the capital employed by the leasing obligation. The leasing obligation is not part of the balance sheet, but long-term leasing obligations (e.g. for financing rolling stock) should economically be seen as part of the capital employed, otherwise the ROCE would be biased. Therefore we adjusted in our calculation the ROCE by the published leasing obligation. In some cases, companies calculate and publish the RoS and

ROCE figures in their annual report. In this case we directly used them after ensuring that the ROCE is correctly adjusted by leasing obligations.

We now take a look at the return on sales rates in the market. Therefore we calculated the average RoS for German rail franchises in each year spanning 2010 to 2015, as well as the average RoS of international TOCs.<sup>1</sup> As the German market has a big outlier with DB Regio (the former monopolist and state-owned operator, which still operates under numerous former directly awarded contracts), we calculated two graphs: one including DB Regio and one without. The results are shown in Figure 2. The black line indicates the average RoS and the grey line in the left hand side diagram the average RoS excepting DB Regio.

Figure 2. Profitability of operators (Return on Sales)

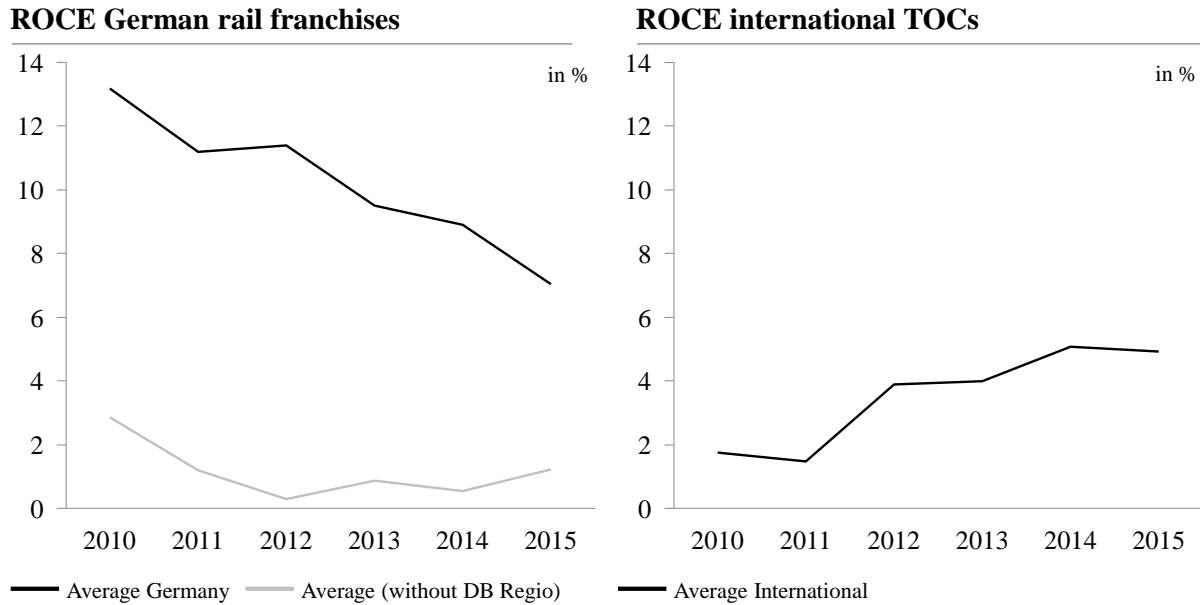


Source: Annual reports, own representation.

From this graphic we can draw off that the average RoS in the German market declines since 2011 from about 10% to 6% in 2015 and without the outlier DB Regio the RoS shrank from 4% to approximately 1%. In comparison, the international market (DB Regio) shows a quite similar RoS of international TOCs between 1% and 4%.

In the next step we shall take a look to the ROCE rates. Similar to the RoS, we calculated the average rates for each year for the timespan from 2010 to 2015, for the German market with and without DB Regio. These are shown in Figure 3. There we see an analogical development to the previous graphs. In the German market, we can observe a strong decline of the ROCE rate from nearly 14% to around 8%, while without DB Regio the ROCE rates are more or less constant on a low level between 0% and 3%. The ROCE of the international TOCs shown on the right hand side, are slightly increasing, but the level is near the German TOCs without DB Regio.

Figure 3. Profitability of operators (Return on Capital Employed)



Source: Annual reports, own representation.

These analyses show that, regardless of the country being analysed, the profits in the market are quite low. Thus, the German market is not a special case or extremely different from other countries, and so the solutions derived from German tendering data in the following are also (partly) valid for other countries.

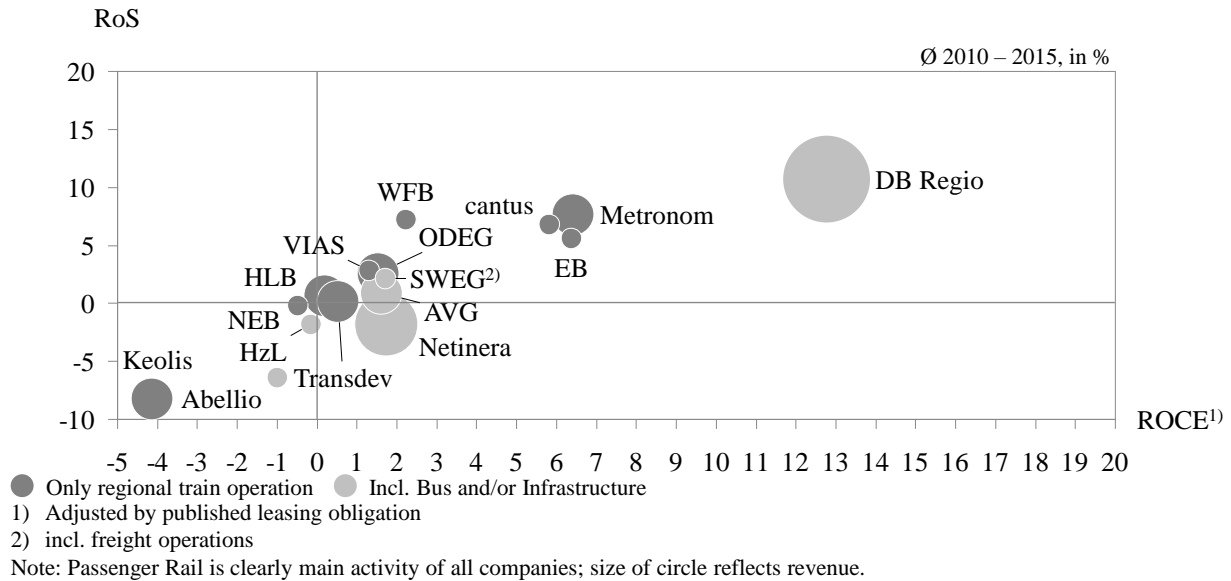
### Comparison of profitability of the rail passenger services market versus other markets

To get a better view on the different companies and to see what Figures 1-3 mean for the profitability of every single operator, we put the average RoS and ROCE from 2010 to 2015 for each operator on the German market in one single diagram (see Figure 4). The darker grey circles only include regional train operation and the light grey coloured companies include some bus transport or infrastructure operations, but regional passenger rail transport is by far the main business of all shown operators. The size of the circle reflects the revenue cluster.<sup>2</sup>

We can see that most of the operators are in a range of maximum 3% RoS and ROCE. Major operators like Abellio or especially Keolis have a negative RoS. The only major outlier is DB Regio, which is a special case, as explained before. Beside them, there are only three to four companies that operate constantly profitable and stand out of the big cluster which is around the origin of the diagram. In this Cluster are especially the bigger companies with higher market volume and revenues which have a RoS of zero or even below zero (over a five-year period) like Netinera, Transdev or Abellio.

From these and the previous figures we can conclude that it is extremely difficult to operate on a robust profit base in the market for tendered rail passenger services, what leads to the fact that the market is not very attractive for new market entrants, also because there exists a lot of market entry barriers like long-term contracts (see following section), high investments or market regulations (see Beck, 2011).

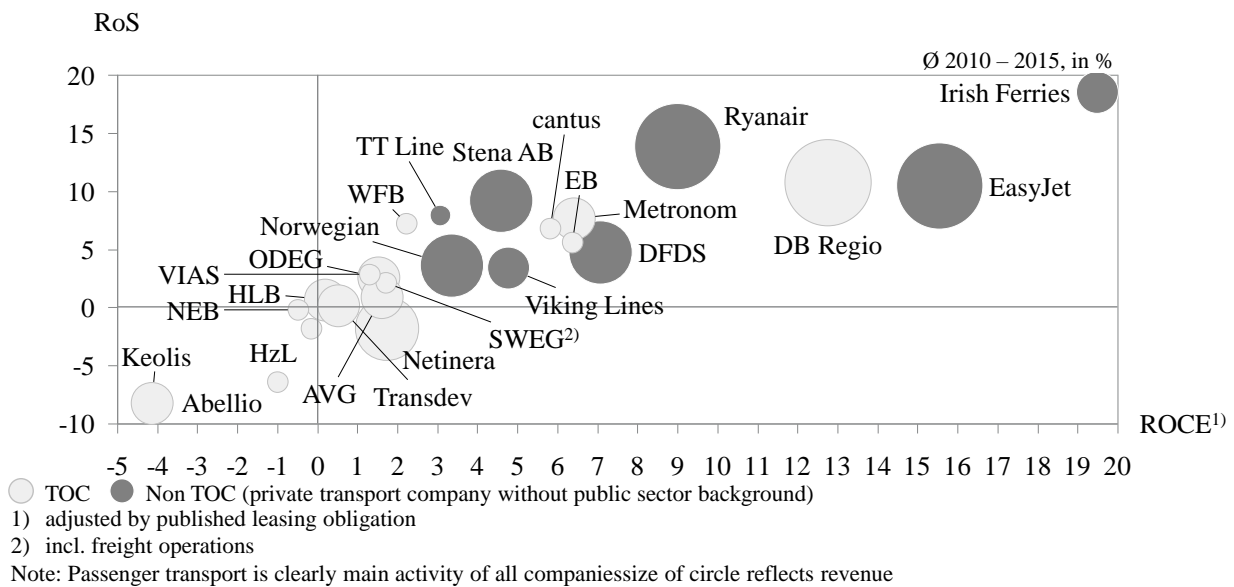
Figure 4. Profitability of operators (Return on Sales and Capital Employed)



Source: Annual reports, Civity analysis, methodology based on Böttger (2014).

Compared to the risk faced by TOCs and potential TOCs, the expected RoS presumably needs to be higher than the rate currently observed. Regarding this, it isn't surprising that many operators are subsidiaries of other state carriers (e.g. Abellio, Keolis, Netinera), fully (e.g. AVG, HzL, HLB) or at least partly (e.g. Metronom) in public hands, as they are not under a high profit pressure like fully privately-owned companies.

Figure 5. Profitability of rail vs. other (private) operators (Return on Sales and Capital Employed)



Source: Annual reports, Civity analysis, methodology based on Böttger (2014).

After focusing on the (German) rail passenger transport services market, we now compare the previously shown companies with some private companies in fully liberalised transport sectors (air and ferry services). The companies shown here are fully privately owned (without any public background), what will give us the opportunity to assess the return rates in the market for long-term contracted rail passenger transport services in comparison to highly competitive, non-contracted (fully flexible) passenger transport markets.

Figure 5 shows that we used the same representation like in Figure 4 and added in dark grey colour the additional privately-owned transport companies for air and ferry services, while the companies from Figure 4 are now shown in a lighter grey. The size of the circle reflects the revenue cluster<sup>3</sup> again. It can be seen, that the added private companies from other transport services markets operating mostly on a higher profit base than the TOCs. Even if some TOCs (e.g. EB, Metronom) are in between the newly added non-TOCs, on average the non-TOCs are closer to the level of DB Regio than of the majority of the TOCs. It shows that for private investors other markets seem to be more attractive as the return rates are higher than the contracted (German) rail passenger services market.

All in all we conclude that the profitability of the operators in the tendered passenger rail transport services markets is comparatively low. Nevertheless, there are some outliers, especially bigger (formerly) state-owned companies who are operating a large volume under multiple contracts and are in the position to share the risk by diversifying their portfolio or are at least not economically dependent from one single contract. But given the fact that a new market entrant faces high investment costs together with a very specific and difficult market from a regulatory and technical point of view and the risk to lose the business after the end of the contract with return rates close to zero, it is not surprising that only a few completely privately-owned companies are operating in this market.

## **Tendering process analysis**

After dealing with the profitability and market analysis before, this paper aims to answer some of the questions about how to get into the market and what conditions a company has to expect if they want to take part in a bidding processes for a public transport contract. Therefore, we first analyse the steps of the bidding process and the time allowed for each step. Subsequently, we show the decision criteria used by the PTAs and on what a bidding company should focus on.

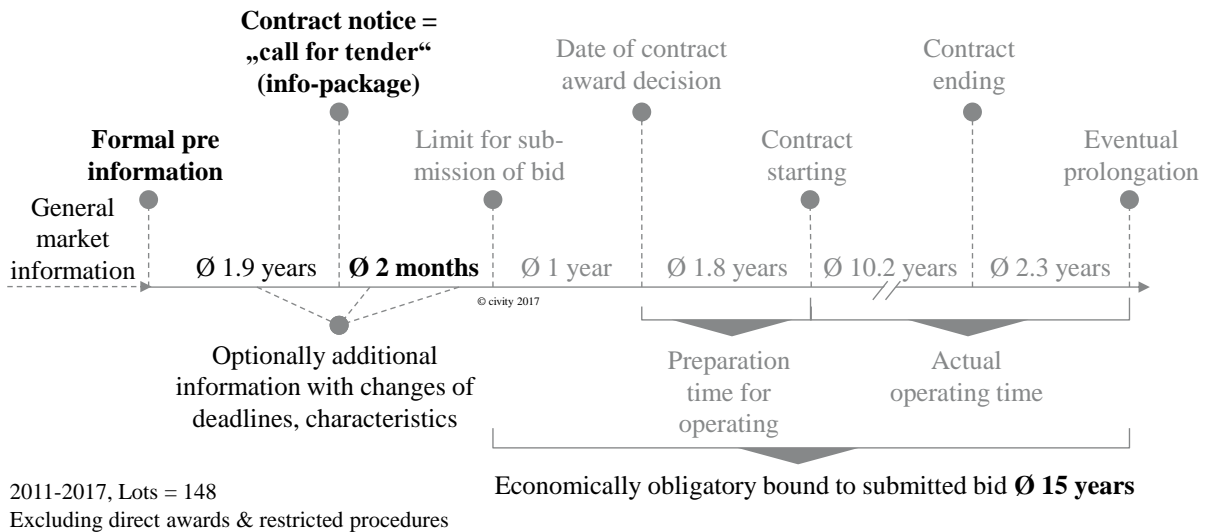
To conduct this analysis, we used the Civity public transport tendering database which includes all tenders of the German railway market with information about the relevant data like the specific dates of contract award decisions, the type of procedure, the contract length, possible prolongation, train kilometres per contract year, number of bids, awarded TOC, award decision criteria etc. By analysing this data, we are able to make statements about average time allowed for tendering steps (in Germany) and the decision criteria used by the PTAs.

First, the bidding process consists of up to seven steps which are shown in Figure 6. From our analysis of 148 lots of public tenders in the past five years we calculated the average time which is usually given between these steps. This shows that there is a long time period of nearly two years between the first



formal pre-information of a tender coming up and the contract notice in which the PTAs opens the competition by the call for tender (at this point the complete and relevant information package is available). After this, the possible interested operators have only around 60 days to complete their calculations and set their offer for a contract which usually lasts for 10 years or, including preparation of operations and possible prolongations, up to 15 years. This means that interested companies need to think about taking part in a tender and preparing well before the real bidding process by gathering all relevant information, because otherwise they will not be able to complete a full offer in 60 days. Given this fact, it is not a surprise that operators taking part in those procedures risk, at the very least, making mistakes when calculating their offers in such a short time. After the competition closed and the PTA received all bids, one full year may pass by until the PTA finally publishes its awarding decision. Note, in 20% of the cases we observed a prolongation of the bidding time, which in consequence leads to a shorter PTA decision period.

Figure 6. Average time for tendering steps in Germany

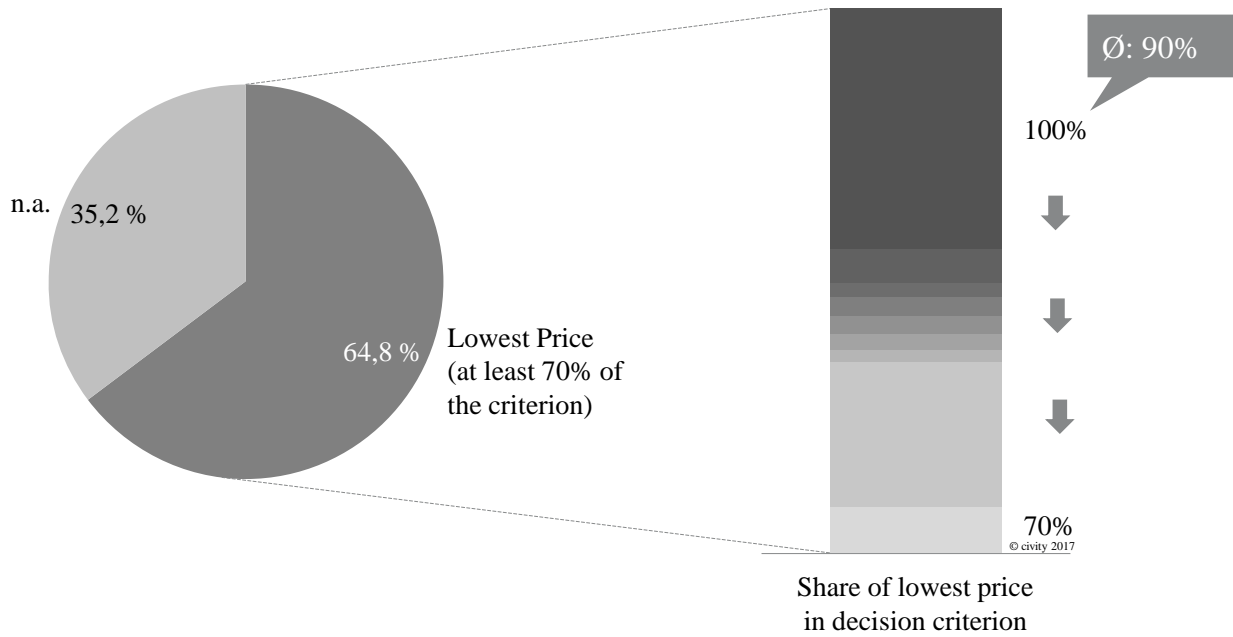


Source: TED Data, Civity analysis.

Operations are usually starting two years after the award decision. This time is crucially needed by the operators to prepare. In the past, we often observed a start of operations that failed due to a timeframe for preparation that was too tight. The contract ends after a given length, which is usually around ten years. In around 20% of the tendered contracts there exists a prolongation period that can be used by the PTAs, so that the contract will expand by usually two to three years.

It is important to note, that the overall economically bound time of a submitted bid in consequence is 15 years, while the time to calculate and to prepare the bid for the operator is about two months. On the one hand, this shows how long the planning horizons in this industry are and, on the other hand, how short the time is to predict the development for this long time period.

Figure 7. Selection criteria for awarding rail franchise



Source: TED Data, Civity analysis.

In addition to the steps of the tendering process we analysed the criteria set by the PTAs in tendering procedures under which they make the contract award decision. This information is crucial for all participants because they need to know what the PTA requests and on what characteristics their offer should focus. The analysis of the tendering procedures in Germany with selection criteria published is presented in Figure 7. It shows that the price is responsible for at least 70% of the decision. For these cases, in nearly every second case, the price is the only criterion on which the decision is based. Overall, on average the price accounts for 90% of the weighted decision criteria. Other regularly-used criteria are quality improvements (going beyond the required standard), more personnel on the trains (as required) or environmental friendly production. This inevitably leads to a strong focus on calculating as little costs as possible, with the result of a higher risk to underestimate the real costs due to exogenous factors in a long contract period and a low risk mark-up (or overestimate the revenues). On the one hand, from a (short-term) tax payer’s point of view, it might be correct that the price is a significant aspect of the award decision as the tendering procedure should lead to lower subsidies. On the other hand, this increases the risk of unprofitable bids and less quality due to bidders increased attempts towards money saving decisions. Bidders are required to set their full priority towards price reduction, with an increasing risk to overbid. As usually only the lowest bid wins the contract, this bid is consequently the one with the highest risk of financial failure. This means, that PTAs need to decide wisely the weight of their multiple criteria to ensure robust bids and service quality as well as attractive prices for their treasury.

## Lessons learned and recommendations

Taking into account the market development and the market structure, the profitability of its operators compared to other markets, the tendering process and the decision criteria of PTAs, several lessons learned can be derived.

Before a tendering procedure begins and potential bidders may decide whether to take part or not, the first essential point for the success of the project is the project itself. This means that in preparation of a tendering procedure a PTA needs to clearly decide in which way it wants to handle the risk or what parameters should be set in a tendering procedure. It has to make sure that the project is economically rational and well-designed from a bidder's point of view. If this is given for a project, a PTA may think about how to implement and which elements of the value chain should and should not be produced by a private company.

If these issues are solved and a PTA starts a tendering procedure, the potential bidders are going through a process of several steps on their own where they decide, if the specific project is an interesting one compared to other business opportunities or if they decide to drop out. This process is like a funnel, where all potential competitors' who are interested in the market are starting on the top. From time to time there are major decision points, where those who are still interested in the tender proceed, and those who are no longer interested decide to drop out. The single steps are more or less similar to the steps of the tendering process seen in Figure 6. In addition, before this process starts with the formal pre-information, there is a level of general market information. Based on these, all potential TOCs including all potential investors decide whether they, in general, are interested and probably enter the market or not. This general market information is driven by informal market studies, experiences of other companies and additional publicly-available information. After this first step, all interested companies are interested TOCs and now have to decide to take part in a specific tender. This decision is step-by-step based on the information given by the PTAs through the formal pre-information and the contract notice which include all relevant documents (usually for a fee). The details and the reliability of these information is decisive for the companies to take part in the tender and to submit a bid; the PTA can only chose the best performing operator among those who submit a bid.

In this process we can see that clear and binding information is crucial for the competitors' because otherwise they do not enter the market at all (step 1) or decide at a certain point of a tendering process to drop out and maybe use their workforce to participate in another tender (following steps). In order to receive as many bids as possible, which is necessary for an effective competition procedure, it is desirable that as many companies as possible take part in the bidding process and hand in a proposal. The task for the PTAs then is to minimise the number of companies that drop out in the process.

Another reason for operators to drop out is the increasing market volume, if the number of operators is not increasing in the same manner, the existing TOCs cannot take part in every competition, so that they again have to decide in which procedures they want to participate. This results, more or less, in a competition between different PTAs, what some German PTAs have already realised (e.g. BEG, 2016).

Beside the quality of information that a PTA should give to potential operators, there are some more important variables a PTA can influence in order to attract more bidders and receive a better, more efficient, tendering result. This includes award decisions based on more than one criterion, adequate timeframes in the bidding process and, with regard to handle the operators risk of high, long-term investments, solutions of financial support. The last point is currently an important one for the German

market as there does not exist any well-established rolling stock operating company (ROSCO) or similar structure in the UK or Sweden which owns and maintains rolling stock and leases this to operators. For this reason, some German PTAs developed different models to lower the financial risk to reduce the market entry barriers for potential new operators. This includes resale guarantees at the end of a contract, capital guarantees to reduce the investment costs and even some PTAs started buying the rolling stock themselves and afterwards leasing the necessary carriages to the winning operator.

Altogether it becomes clear that a contracting authority has to implement a clear market management that includes the declared key factors in order to achieve as many robust bids as possible and an efficient result.

## Conclusion

It becomes clear that operating passenger rail transport is associated with high investments in rolling stock, significant market entry barriers, as well as long-term contracts combined with uncertainty and limited return rates. On the one hand, this leads to only a few private companies contributing to the tendering procedures alongside several publicly owned ones. On the other hand, the interest in single tendering procedures is low, resulting in very few bids per procedure. The existing risk from investing in rolling stock and starting a TOC business under a public service contract for rail passenger services, which occurs from the long perspective and the uncertainty of exogenous parameters changing in the contract time, needs to be reduced or taken over by the PTA in order to attract more bidders to receive a higher value of the competition. Moreover, it is never an efficient solution to hand over these exogenous risks to a private operator. Because of the high uncertainty the risk is incalculable and this leads to either too high risk mark-ups, which makes it inefficient to operate for a private company, or to a low but not sufficient risk mark-up (otherwise the operator will not win the tender anyway), which bears the risk of a failing operator with a lot of costs to be taken over by the PTA thereafter.

In addition it needs a clear strategy and market management of the public authorities which includes transparent, clearly, timely and binding pre information, comprehensive information packages for operators, adequate timeframes for operators to prepare (and calculate) their bids as well as price (and economic pressure) not being (almost) the only selection criteria. Furthermore it is important to support operators in financing the rolling stock, either with capital or resale guarantees or by leasing the rolling stock to the operators.

## Notes

1 Mainly from Europe, including Go-Ahead Rail, First Group Rail, Connexxion, Eurostar and others.

2 Four revenue clusters are existing: 1. Up to EUR 100 000, 2. Up to EUR 500 000, 3. Up to EUR 1 000 000, 4. Above.

3 Four revenue clusters are existing: 1. Up to EUR 100 000, 2. Up to EUR 500 000, 3. Up to EUR 2 000 000, 4. Above.

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## Appendix 1. Research questions and outputs of the Working Group on Private Investment in Infrastructure

### Introduction: Getting the basics right

*What are the economic characteristics of infrastructure? What is infrastructure and what are operations? What are the models of private participation in infrastructure and through which significant private investment actually takes place?*

Makovšek, D. (2019), “What is Private Investment in Transport Infrastructure and Why is it Difficult?”, Working Group Paper, International Transport Forum, Paris.

*Can private investment improve productive efficiency? Improve project selection? Close the infrastructure funding gap? Have other positive effects when it is private?*

Makovšek, D. (2019), “The Role of Private Investment in Transport Infrastructure”, Working Group Paper, International Transport Forum, Paris.

*What have the private investment trends in transport infrastructure been over the last 20 years? How much of that was foreign private investment?*

Mistura, F. (2019), “Quantifying Private and Foreign Investment in Transport Infrastructure”, Working Group Paper, International Transport Forum, Paris.

### Defining the challenge: How uncertainty in contracts matters

*How does uncertainty affect risk pricing? Beyond investors, do suppliers in PPPs also have issues with risk pricing? How does its transfer to the private sector affect competition? What does uncertainty mean for the public vs. private cost of financing?*

Makovšek, D. and Moszoro, M. (2018), “Risk pricing inefficiency in public–private partnerships”, *Transport Reviews*, 38(3), 298-321.

*Is uncertainty also an issue in long-term services/operations contracts?*

Beck, A. et al. (2019), “Uncertainty in Long-term Service Contracts: Franchising Rail Transport Operations”, Working Group Paper, International Transport Forum, Paris.

*What is the competition for large transport infrastructure projects in the EU Market? Is there a difference between traditional procurement and PPPs?*

Roumboutsos, A. (forthcoming), “Competition for Infrastructure Projects: Traditional Procurement and PPPs in Europe”, Working Group Paper, International Transport Forum, Paris.

## Addressing uncertainty for suppliers: the construction phase as example

<i>Adversarial vs. collaborative procurement – is collaborative contracting the future?</i>	Eriksson et al. (forthcoming), “Collaborative Infrastructure Procurement in Sweden and the Netherlands”, Working Group Paper, International Transport Forum, Paris.
<i>What lessons in dealing with risk and uncertainty were learnt in Danish mega projects from Storebaelt to Femernbaelt?</i>	Vincentzen, L. and K. S. Andersson (2018), “Risk Allocation in Mega-Projects in Denmark”, Working Group Paper, International Transport Forum, Paris.
<i>What can governments do in the short run to reduce inefficient pricing of risk by construction contractors?</i>	Kennedy et al. (2018), “Risk Pricing in Infrastructure Delivery: Making Procurement Less Costly”, Working Group Paper, International Transport Forum, Paris.

## Addressing uncertainty in long-term contracts in the absence of continuous pressure for efficiency

<i>What is the public sector organisational counterfactual on which private investment should seek to improve?</i>	Holm, K.V. and T.H. Nielsen (2018), “The Danish State Guarantee Model for Infrastructure Investment”, Working Group Paper, International Transport Forum, Paris.
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## Partial fixes to the Private-Public Partnership approach

<i>How would an organisational structure consisting of PPPs come close to a network-wide management approach? What benefits would it yield?</i>	Vassallo, J. (2019), “Public-Private Partnerships in Transport: Unbundling Prices from User Charges”, Working Group Paper, International Transport Forum, Paris.
<i>Should the public or the private side bear the cost of long-term uncertainty? How could we design a PPP contract to avoid hold-up due to incomplete contracts?</i>	Engel et al., (forthcoming), “Dealing with the Obsolescence of Transport Infrastructure in Public-Private Partnerships”, Working Group Paper, International Transport Forum, Paris.

## Long-term strategic approach

<i>How do the PPP and regulated utility model (RAB) compare in terms of efficiency incentives?</i>	Makovšek, D. and D. Veryard (2016), “The Regulatory Asset Base and Project Finance Models”, International Transport Forum Discussion Papers, No. 2016/01, Paris.
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*What basic considerations underlie the choice between a PPP and RAB approach?*

Hasselgren, B. (forthcoming), “Risk allocation in Public-Private Partnerships and the Regulatory Asset Base Model”, Working Group Paper, International Transport Forum, Paris.

*Which are the preconditions a country would need to take to establish a RAB model on a motorway network? Is user-charging a must?*

Alchin, S. (forthcoming), “A Corporatised Delivery Model for the Australian Road Network”, Working Group Paper, International Transport Forum, Paris.

*From the investors’ point of view, does a RAB need to be fully reliant on user-charging?*

Francis, R. and D. Elliot (2019), “Infrastructure Funding: Does it Matter Where the Money Comes From?”, Working Group Paper, International Transport Forum, Paris.

*Incentive regulation can also yield perverse incentives. Can the capex bias be managed?*

Smith, A. et al. (2019), “Capex Bias and Adverse Incentives in Incentive Regulation: Issues and Solutions”, Working Group Paper, International Transport Forum, Paris.

*Does it make sense to pursue hybrid solutions between PPP and RAB?*

Zhivov, N. (2018), “The Thames Tideway Tunnel: A Hybrid Approach to Infrastructure Delivery”, Working Group Paper, International Transport Forum, Paris.

## Uncertainty and private investment mobilisation in transport infrastructure

*What lessons can we draw from recent attempts to mobilise private investment in infrastructure in the aftermath of the global financial crisis?*

Makovšek, D. (2018), “Mobilising Private Investment in Infrastructure: Investment De-Risking and Uncertainty”, Working Group Paper, International Transport Forum, Paris.

### Synthesis

ITF (2018), *Private Investment in Transport Infrastructure: Dealing with Uncertainty in Contracts*, Research Report, International Transport Forum, Paris

# Uncertainty in Long-term Service Contracts: Franchising Rail Transport Operations

This paper examines the effects of risk and uncertainty in public transport contracts for rail passenger services. It draws on experiences from the United Kingdom and Germany that offer valuable lessons on how uncertainty for contractors could be reduced. The paper is part of a series of 19 papers and a synthesis report produced by the International Transport Forum's Working Group on Private Investment in Transport Infrastructure.



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