amministrativ@mente

Rivista di diritto amministrativo

Pubblicata in internet all'indirizzo www.amministrativamente.com

Diretta da
Gennaro Terracciano, Gabriella Mazzei

Direttore Responsabile
Marco Cardilli

Coordinamento Editoriale
Luigi Ferrara, Giuseppe Egidio Iacovino,
Carlo Rizzo, Francesco Rota, Valerio Sarcone

FASCICOLO N. 11-12/2017

estratto

Registrata nel registro della stampa del Tribunale di Roma al n. 16/2009
ISSN 2036-7821

Comitato scientifico

Salvatore Bonfiglio, Gianfranco D'Alessio, Gianluca Gardini, Francesco Merloni, Giuseppe Palma, Angelo Piazza, Alessandra Pioggia, Antonio Uricchio, Vincenzo Caputi Jambrenghi, Annamaria Angiuli, Helene Puliat, J. Sánchez-Mesa Martínez, AndryMatilla Correa.

Comitato dei referee

Gaetano Caputi, Marilena Rispoli, Luca Perfetti, Giuseppe Bettoni, Pier Paolo Forte, Ruggiero di Pace, Enrico Carloni, Stefano Gattamelata, Simonetta Pasqua, Guido Clemente di San Luca, Francesco Cardarelli, Anna Corrado, Fabrizio Cerioni, Gaetano Natullo, Paola Saracini, Mario Cerbone, Margherita Interlandi, Bruno Mercurio, Giuseppe Doria, Salvatore Villani.

Comitato dei Garanti

Domenico Mutino, Mauro Orefice, Stefano Toschei, Giancarlo Laurini, Angelo Mari, Gerardo Mastrandrea, Germana Panzironi, Maurizio Greco, Filippo Patroni Griffi, , Vincenzo Schioppa, Michel Sciascia, Raffaello Sestini, Leonardo Spagnoletti, Giuseppe Staglianò, Alfredo Storto, Alessandro Tomassetti, Italo Volpe.

Comitato editoriale

Laura Albano, Daniela Bolognino, Caterina Bova, Silvia Carosini, Sergio Contessa, Marco Coviello, Ambrogio De Siano, Fortunato Gambardella, Flavio Genghi, Concetta Giunta, Filippo Lacava, Massimo Pellingra, Stenio Salzano, Francesco Soluri, Marco Tartaglione, Stefania Terracciano.

amministrativamente
Rivista di diritto amministrativo

The comparison of two project financing operations: the Line 5 of the Milan Metro and the London Tube.

di Leonello Marraccini*

Summary

1. Introduction. - 2. Regulations on PPP. – 3. The London Tube. – 3.1. The project. – 3.2. Project Sponsors. – 3.2.1. The Tube Lines consortium. – 3.2.2. The Metronet consortium. – 3.3. The contracts. – 3.4. Costs. –3.5. Results. – 4. Line 5 of the Milan Metro. – 4.1. The project. – 4.2. Project Sponsors. – 4.2.1. Astaldi S. p. A. and Ferrovie dello Stato S. p. A. - 4.2.2.2. Torno Internazionale S. p. A. - Torno Global Contracting S. p. A. - 4.2.3. AnsaldoBreda S. p. A. and Hitachi Rail Italy S. p. A. - 4.2.4. Ansaldo Trasporti-Sistemi Ferroviari S. p. A. - 4.2.5. Alstom Ferroviaria S. p. A. - 4.2.6. Azienda Trasporti Milanesi S. p. A. (ATM) - 4.3. The DBOT contract and other contracts. – 4.4. Grants and fees. – 4.5. The financial structure. – 4.6. Results. – 5. Conclusions. - References. - Webliography.

* Dottore di Ricerca in Diritto Comparato e Processi di Integrazione alla Seconda Università di Napoli

Abstract

Project financing could be considered as a long-term credit scheme for big projects, such as infrastructure,where the granting of loans is completely based on the cashflow of the project.
Recently, project financing has become an interesting subject to be analysed, both from a legal and economic point of view, because it could represent the best solution to involve private capital to finance public infrastructures, especially after the deep economic and financial crisis of 2008, which was particularly strong for Italy, already in a serious economic situation due to the heavy public debt.
In fact, project financing, together with the other Public Private Partnership contracts, could represent a valid alternative capable of combining, on the one hand, public needs and, on the other, private resources. Nevertheless, there are still few infrastructures in Italy today built through this contract.
This paper aims to analyse the reasons why project financing is less developed in Italy.
So, in this essay will be analysed the risks that the public administration assumes in establishing a relationship with the private sector, as well as the characteristics and potential of project finance.
For this reason, it was considered necessary to compare the Italian project for Line 5 of the Milan Metro with a project of a flagship country in this type of operations: the London Tube in the UK.

1. Introduction

Traditionally the Project Financing is described as "*the financing of a given economic entity, which is considered by the creditor as its cash flow and revenue serves as the source to pay the credit back, its assets being the collateral*".[1] This operation could be considered as a meeting point of different legal and economic sectors, that is historically used for building oil extractions plants and infrastructures.

Project Financing was popular before the crisis of 2008, but after this financial meltdown it became even more important in some countries with a huge public debt, as Italy, that has quickly entered in a deep economic recession, because there was a lack of investment in infrastructures and utilities, and Italian and European laws do not allow governments to invest. On the one hand, therefore, it is necessary to promote strategic investments that stimulate the real economy, while on the other hand, politics cannot allow massive public finance interventions.

Nowadays, these investments should be paid through a special form of financing, involving the private sector. Thus, although the Public Private Partnership (PPP) is not a completely new solution, it has recently been examined with great interest by politicians and entrepreneurs to encourage the involvement of private capital in the financing of public infrastructure.

Through Project Financing is possible to build public infrastructures with a different approach, because of the collaboration between the public and the private sector in the interest of the community and no longer as part of the monopoly of the public sector. Project Financing could be an alternative to stimulate the Italian infrastructural development, without violating the restrictions imposed on public debt.

However, the public administration must be prepared to interact with private parties, because information asymmetry often leads to contracts that are not very transparent, with a strong imbalance in the distribution of risks and responsibilities. It is no doubt true that entrepreneurs collaborate with the public administration in a project financing operation mainly to satisfy their own interest, financing an initiative only if it is economically justified and if they will be able to obtain profits through its management; therefore, the public administration is exposed to the risk that the advantages of the private sector outweigh the public interest.

In a few words, through this method of long-term crediting it is possible to inaugurate a new economic season for Italy, but only if the public administration and the action of politics are renewed, following the models adopted by other legal systems, as the English one.

The UK's long tradition in the PPP sector has shown that project finance can be useful not only in financial terms, but also from a managerial point of view, because the public administration uses the preparation and know-how of the private sec-

[1] NEWITT P.K., *Project financing*, Bari, Laterza, 1987.

tor in the design, financing, construction and management of the infrastructure.
Hence, this paper aims to be a channel of knowledge and analysis of the characteristics and capabilities of project finance, referring to the legal and economic situations in Italy and the United Kingdom.

2. Regulations on PPP

The PPP guidelines are set out in the Green Paper on public-private partnerships, in conformity with the principles of competition and equal treatment regulated by the Treaty and the EU directives on contracts and concessions. This document specified that a PPP contract had to have the following features: the long duration of the relationship; the financing of the project guaranteed in whole or in part by the private sector; the strategic role of the private economic operators involved in the project; the distribution of risks between the public and private partners, to be carried out on a case-by-case basis, depending on the ability of the parties to assess, monitor and manage them.
On the 19th of April 2016 the new Italian Public Contracts Code (Legislative Decree 50 of 2016) became effective. This code once again regulated the public-private partnership contracts, intended as a form of synergy between public authorities and private entrepreneurs, with the aim of financing, building or operating infrastructure or providing public services. The operating revenue may come from the fee paid by the granting authority, but also from any other form of financial compensation, such as direct revenue from the operation of the service, with a distinction between the PPP for the realisation of the so-called "cold works" (which do not generate cash flow) and "hot works" (which generate cash flow). It is also expressly written that the transfer of risk to the economic operator involves the effective and substantial allocation to the private contractor not only of the risk of construction, but also of availability[2] or demand[3] for services, in relation to the period of management of the work.
Art. 3, eee) of today's Italian Public Contracts Code regulates public-private partnership contracts, and affirms that these are contracts for consideration, through which one or more contracting authorities assign to one or more economic operators a set of activities consisting in the construction, transformation, maintenance and operational management of a work; in return, the private contractor obtains his availability, or the provision of a service related to the use of the project.
However, in the United Kingdom there is a lack of regulatory legislative discipline, apart from the EU rules on procurement and sector-specific regulations that govern the individual sectors[4]; the Standardi-

[2] Art. 3, letter bbb) of Legislative Decree no. lgs. No. 50 of 2016 establishes that the availability risk must be covered by the private partner/dealer (ex art. 180, paragraph 3 of Legislative Decree no. 50). This risk is linked to its ability to perform the services specified in the contract, both in terms of volume and quality standard.
[3] Art. 3, letter ccc) of Legislative Decree No. 3, letter ccc. No. 50 of 2016, specifies that the demand risk is relative to the different quantities of demand for the service that the private partner / licensee must bear (ex art. 180, paragraph 3, of Legislative Decree no. 50), including the risk that there is no utility.
[4] Such as the Finance Act 2003 (tax exemption for the PFI, which came into force on 1 December 2003), the

sation of PFI Contracts[5] has standardized the PFI (Private Finance Initiative) contracts, which are mandatory for PFI contracts with a capital value of £20 million or more.[6]

There is no public contract code in the UK legal system. Therefore, the discipline of PFI and PPP is mainly based on a set of "non statutory guidance", i. e. soft law acts, such as guidelines, practical notes and recommendations.

The Private Finance Initiative was set up by the UK government in 1992 to reduce public spending. However, it was only between 1996 and 2007 that the Local Government Association set up an organisation, the Public Private Partnership Programme of 1996[7], with the aim of assisting local authorities in implementing PFI projects.

In 1997 the PFI Task Force was set up, which is a government advisory organization with the task of carrying out PFI projects and studying new projects; in the same year, the Project Review Group was set up at local level, chaired by the Treasury Ministry, which was called upon to approve local PFI projects.

Finally, the Greater London Authority Act 1999 was adopted, an act that established the Greater London Authority (GLA), the entity called upon to administer the Greater London districts, especially transport, police and first aid forces, culture, health and the environment.[8]

The public-private company Partnership United Kingdom was created in 2001 to interact with the public and private sectors, while the Major Project Authority of 2007 analyses the larger and more sophisticated PPP projects.[9]

Because of these policies, the PPP in the UK was a huge success and between 1990 and 2009, 67% of European PPP infrastructure projects were carried out in the UK at a value of around €145 billion, while in 2016 alone the total project capital was £59.4 billion.[10]

3. The London Tube

3.1. The project

The project financing operation for the maintenance and renewal of the London Tube is an excellent case study for analysing and understanding the typical issues of a project financing operation in the UK.

In 2003, the Department of Transport concluded three 30-year PPP contracts for the maintenance and renewal of trains,

School Companies Regulations 2002 and the Greater London Authority Act 1999.

[5] The 2007 Standardisation of PFI Contracts 2007 is mandatory for all PFI contracts in England and Wales, except for projects with a capital value of less than £20 million.

[6] There is also the Value for Money Assessment Guidance, a guide to evaluating the economic utility of a project. This guide was drafted by the Treasury Ministry in 2004 and then updated on developments in the PFI sector.

[7] Today it is replaced by Local Partnership, a joint venture between Partnership UK and Local Government Association, aimed at supporting local public authorities for public procurement.

[8] Chapter VII regulates the involvement of the private sector in the construction, renovation, maintenance and operation of railway and metro lines through PPP agreements.

[9] A new Operational Task Force was set up within the United Kingdom Partnership in 2006 to provide advice and support to PFI projects, including through guides and manuals.

[10] Data as of 31 March 2016; on the same date as 2015, however, it was £57.7 billion.

stations, tracks and signalling on the Bakerloo, Central Victoria, Waterloo&City District, Hammersmith and City, Metropolitan and East London, Jubilee, Northern and Piccadilly lines of the London Tube, at the end of a five-year procedure costing £455 million, for a total investment of £15.7 billion over 30 years, of which £9.7 billion over the first seven and a half years.

Even though Transport for London had proposed to finance the works also through the issue of public sector bonds, the Government rejected the proposal because it strongly believed that private sector management was more likely to be effective than public sector contract management, and that the additional costs of this procedure would then be balanced by the future benefits of a better risk control.

Indeed, it is true that a bond option would have saved £ 90 million a year, because the lower borrowing costs, but it is also true that this would have entirely left the risk with the public administration.

A key element in making an initial assessment of the PPP's value for money is the Public Sector Comparator exercise (PSC), that could be defined as the assessed cost of acquired the same service through ordinary procedures, in which the public sector keeps a high level of management responsibility and exposure to risk. In this case, the London Underground estimated the costs to the public administration to procure independently the maintenance, renewal and updating of trains, stations, tracks and signals and the Government agreed that the PPP was the best way to finance the maintenance and renewal of the metro. The chosen financial structure can be defined as horizontally split businesses, because operations and infrastructure maintenance, renewal and upgrading are carried out by separate businesses, with three private companies (Infracos) and one Public sector operator (London Underground).[11][12]

3.2. The Project Sponsors

In this financial operation, London Underground is responsible for day-to-day management (including marketing and ticketing) and security, while the three private infrastructure companies (Infracos) are responsible for the construction, maintenance and renewal of infrastructure.

At the end of the tender procedure, three contracts were concluded with two different private partners. In fact, two PPP contracts were concluded with the Metronet consortium, composed of Metronet BCV and Metronet SSL, while the third was concluded with the Tube Lines consortium. The public partner was London Underground, whose ownership, in July 2003, was transferred from the central government to Transport for London (TfL), directly connected to the Mayor of London. Nevertheless, the Department of Transport still granted £1 billion a year for the operation.

[11] In addition to this solution, the government had considered three other financial structures: a unified public sector company, a unified private sector company, several private companies vertically divided.

[12] NAO, *The Failure of Metronet*, 2009, www.nao.org.uk.

Tube Lines and Metronet had already been selected as the best bidders in May 2001, although contracts were not concluded until December 2002 with the first bidder and March 2003 with the second bidder. The bidders maintained a strong negotiating position for more than a year and a half, because the Department of Transport did not have another alternative. The Metronet consortium companies carried out two thirds of the renovation work and, specifically, Metronet BCV was responsible for the Bakerloo, Central Victoria and Waterloo&City lines, while Metronet SSL was responsible for the District, Hammersmith and City, Metropolitan and East London lines[13], while the Tube Lines consortium operated the Jubilee, Northern and Piccadilly lines.[14]

3.2.1. The Tube Lines consortium

The Tube Lines consortium was founded in the occasion of the London Underground PPP project. Originally its share capital was distributed between Jarvis JNP Limited (part of Jarvis), JNP Ventures Limited (a wholly owned subsidiary of Amey UK Plc) and UIC Transport Limited (a wholly-owned indirect subsidiary of Bechtel Enterprises Holdings Inc., USA).

In 2004, Jarvis sold its shareholding to Amey, which is part of the Spanish company Grupo Ferovial SA, which became the owner of two thirds of the share capital, while the other third was owned by Bechtel. The corporate structure consisted mainly of a holding company, Tube Lines (Holdings) Ltd, a main subsidiary (Tube Lines Ltd) and a financing subsidiary (Tube Lines Finance).

3.2.2. The Metronet Consortium

Just like Tube Lines, the Metronet Consortium was founded for public-private partnership with the London Underground with the equal participation of five companies, W. S. Atkins plc, Balfour Beatty plc, Bombardier Inc. of Canada 3[15], Electricité de France S. A. 4 and Kemble Water Ltd[16].

Metronet was composed of two companies, Metronet BCV and Metronet SSL. Each company had one main subsidiary and one financing subsidiary, but in addition there was also an intermediate non-commercial subsidiary which had only one share of the financing subsidiary. Following a court order, from 18 July 2007 to 27 May 2008 the Metronet Consortium was under special administration and then purchased in 2008 by Transport for London.

3.2.3. The contracts

The contract stipulated that London Underground companies paid Infracos com-

[13] Metronet had to renovate 150 stations by 2012, maintaining and managing 347 trains, 751 km of tracks, 155 stations, almost 200 km of tunnels, crossings and bridges.

[14] With reference to the Jubilee, Northern and Piccadilly lines only, the works concerned signage and about 300 km of tracks, 251 trains, 100 stations, 2935 bridges and other structures, 227 escalators, 71 lifts. http://www.bechtel.com/projects/london-underground-upgrade/

[15] These three companies are public companies.

[16] The last two companies were previously privatised public utilities that served the city of London.

panies largely depending on the results achieved. The total cost was estimated at £15.7 billion over 30 years, of which £9.7 billion over the first seven and a half years. The operation was highly risky and costly, so the Government agreed to increase from 90% to 95%, the amount lenders of £3.8 billion of senior debt would recover in the event of termination. Shareholders invested £ 725 million and, if Infracos companies had met the performance targets, they would have had to earn between 18 and 20% of the return, a premium about 15% above the risk free rate of return of 4,5% at deal close.

Thus, the costs would have to be £ 50 million every seven and a half years for the Metronet Consortium, whereas for the Tube Lines Consortium these costs would have to be £ 200 million for the first period and, then, £ 50 million.[17]

3.4. Costs

Even if the Government agreed to repay 95% of the debt in the event of termination, the rating agencies gave to the debt a BBB grade[18]. Lenders considered the PPP to be very risky and put higher interest rates than those imposed on loans to the public administration.

The costs incurred by London Underground amount to £180 million, including legal, commercial and internal costs, such as those incurred for corporate reorganisation operations before the PPP. Infracos companies believed that they could cover the costs with the fees initially agreed in the contract but, after lengthy negotiations, London Underground had to pay the same additional fees for the Infrastucture Service.

The costs incurred by all bidders, including non-winning bidders, amount to approximately £275 million. The bidders' costs also include success fees to pay staff and other personnel who would otherwise have been used elsewhere.

However, without counting the success fee, Metronet was refunded £65 million, while for Tubeline the refund was £95 million, £20 million more than the sum of the two contracts concluded with Metronet, and this was for various reasons as explained by the Department of Transport.

Firstly, the costs incurred by Tube Lines were higher than those incurred by Metrolines, because Tube Lines was the first one that agrees on the principles of the contract, while the two remaining contracts with Metronet were based on the contract already concluded with Tube Lines, reducing transaction costs on the offers that could be taken over by the other contract. In addition, there were different costs for pre-operational contract activities and the business plan, which were £21.5 million for Tube Lines and only £2.4 million for Metronet, because the former had to draw up supply contracts for subcontractors before the deal was closed, whereas for Metronet this was not

[17] These data do not include the risk of overloading costs incurred to repair subsequent and unforeseen damage, such as cracks or holes in the tunnel.

[18] The reason for this is certainly the risk of the operation and, above all, the high possibility of disagreements on funding by the local and central authorities, as well as the uncertainties given by the periodic reviews scheduled every seven and a half years.

necessary because it already had a supply chain and contracts with suppliers.

3.5 Results

Most of the work was delivered in 2015, but it is likely that Infracos companies will not complete the work before the third review in 2026, the 22nd year after the conclusion of the deal.

In a PPP operation it is essential to have an excellent knowledge of the economic risks of construction, for which it is essential to have a constant update on the progress of the works and the various changes.

Some parts, such as tunnel walls, are particularly expensive and often need to be maintained or renovated, which makes it impossible to determine the exact amount of costs, since it is never possible to determine clearly what the state of the infrastructure is.

A remedy for these problems could be to provide a sort of register of operations, to be periodically updated by inserting what needs to be repaired or replaced. These aspects were not properly planned in the London Tube PPP and soon London Underground began to claim that the cost informations provided by Infracos companies were often unclear, contradictory and inconsistent with what was stated during the offerings.[19] Today, the London Tube PPP is officially considered a failure, probably due to the lack of coordination between London Underground and the refurbishment and maintenance companies.

However, the worst results are the economic-financial ones, because the private partners did not meet the deadlines and exceeded the estimated costs: thus, both Metronet and Tube Lines were nationalised, the first in 2008 and the second in 2010.

Metronet surpassed the predicted cost of over £2 billion and went bankrupt in 2007, following the Greater London Authority Act 1999 procedure. 95% of Metronet's debts were bought by the London Underground with the support of the Department of Transport, which took over a large part of the risk of bankruptcy by paying the huge sum of £1.7 billion. The main reason for Metronet's bankruptcy was the inefficient management of the company, because most decisions had to be taken unanimously by the five shareholders, who were suppliers of Metronet itself; secondly, the Board of Directors changed frequently and never supervised the work of the supplier-shareholders, who had great experience and had much more information on costs than those available to the administration.[20] This information gap made it impossible to supervise costs and performances.

The main reasons for the failure of the project were, in the first place, the failure

[19] For example, Infracos companies, contrary to what had been said during the tender evaluation phase, integrated sums of money for sudden expenses into their generic budgets and, therefore, it had become very difficult to know whether these resources had been used. For this reason, Tube Lines decided to provide the Arbiter with an account of how its general budgets had been spent.

[20] NAO, *The Failure of Metronet*, 2009, p. 6 (https://www.nao.org.uk)

to include contractual clauses linking the conclusion of the contract to the assessment of the solidity and credibility of the structure of the private parties' administration, especially if they operate in the project also as suppliers. This problem has become even more significant once the Department of Transport has taken on the risks because it could not have had any influence on the contract, since it was not a contractual party. Consequently, the supplier partners had excessive power and no real motivation to act in the interest of the project.

A further factor that had a significant impact was the lack of coordination between London Underground, Transport for London and the Arbiter, who was supposed to detect and report on the performance and cost issues of the transaction.[21]

4. Line 5 of the Milan Metro.

4.1. The project

Line 5 of the Milan Metro represents one of the most important investments in public infrastructure of Law N. 443/2001 (Objective 2001 Law). The Line, indeed, crosses Milan from North to West, from Bignami Parco Nord to the San Siro Stadium, with an entirely underground route, with automatic guidance system. on 30 June 2003, the temporary association of companies of Astaldi S. p. A., Torno Internazionale S. p. A., AnsaldoBreda S. p. A., Ansaldo Trasporti-Sistemi Ferroviari S. p. A., Alstom Ferroviaria S. p. A. and Azienda Trasporti Milanesi S. p. A. (ATM, the public transport company owned by the Municipality of Milan) formally proposed the project for the construction of the Garibaldi - Bignami section. On 15 April 2005, the Municipality of Milan published the tender for the final and executive design of the construction and management of the Milan subway line 5 won by the promoters on 17 May 2006, with a total cost of 503 million euro[22].

The contract was signed on 16 June 2006 for a period of 31 years and 9 months. The promoter consortium was replaced by the special purpose vehicle Metro 5 S. p. A., which was composed of the same members of the promoter consortium and had to design, build and manage the project, following the DBOT scheme[23].

On 23 November 2007 the construction of the new line was contracted out to a temporary business association consisting of the Metro 5 shareholders through an EPC

[21] The Greater London Authority Act 1999 established the Arbiter which has to provide advice or directions upon request from one or all contracting parties. In the present case, both functions were carried out at the request of Metronet, Tube Line and London Underground at the time when the first disputes arose. The Act also gave the Arbiter the power to carry out inspections and extraordinary or periodic audits, but the parties decided not to have it report on Metronet's performance in 2005. If the parties had acted differently, requiring the Arbiter to conduct the audit, Metronet's governance and cost issues would have been known in advance. The Arbiter examined Metronet's financial and risk management only in 2006, i. e. three years after the PPP was concluded, and only then did he become aware of the excessive financial exposure.

[22] CAMERA DEI DEPUTATI, *Sistemi Urbani, Monza Metropolitana, Nuova linea metropolitana M5 da Garibaldi a Monza Bettola – Tratta Garibaldi-Bignami compresa variante Stazione Garibaldi F.S.*, 2011, http://www.camera.it/temiap/temi16/2011scheda[095].pdf

[23] *Design, build, operate and transfer*.

contract[24]. This contract provided that Astaldi S. p. A. and Torno Internazionale S. p. A. would deal with the engineering part through a new company founded by them on 10 October 2007, Garbi Linea 5 S. c. r. l., which replaced them in the contract on 25 November 2007.
The companies Ansaldo Breda S. p. A., Ansaldo Trasporti-Sistemi Ferroviari S. p. A. and Alstom Ferroviaria S. p. A., on the other hand, dealt with the technological part of the project through the construction of automatic systems for train driving, signalling, the engineering system and rolling stock; ATM S. p. A. was responsible for the management and maintenance of the underground line for the entire duration of the concession.
The financial contract was concluded on 12 December 2007 with the creditors Dexia, Mediobanca, Societé Générale, Portigon, BNL, Crédit Agricole, Unicredit, Cassa Depositi e Prestiti, MPS and UB.
Later, the second part of the line, namely the San Siro - Garibaldi section, was assigned by the public administration directly to Metro Lilla S. r. l., extending the previous concession, and then recomposing the two concessions into a single agreement signed on 22 December 2014 between the Municipality of Milan and Metro 5 S. p. A. and Metro 5 Lilla S. r. l., which were respectively concessionaires of the first and second sections, with project sponsors in part different from the principle. The financial contract was concluded on 12 December 2007 with the creditors Dexia, Mediobanca, Societé Générale, Portigon, BNL, Crédit Agricole, Unicredit, Cassa Depositi e Prestiti, MPS and UB.
Later, the second part of the line, namely the San Siro - Garibaldi section, was assigned by the public administration directly to Metro Lilla S. r. l. The previous concession was extended and reunited into a single agreement signed on 22 December 2014 between the Municipality of Milan and Metro 5 S. p. A. and Metro 5 Lilla S. r. l., which were respectively concessionaires of the first and second section, with project sponsors in part different from the initial ones. After the bankruptcy of Torno Internazionale S. p. A. in 2010, the other shareholders of M5 S. p. A. at the Shareholders' Meeting held on 28 February 2011 subscribed to the increase in the share capital necessary to continue the work, reducing Torno's shareholding, which will gradually exit from the company.
In 2015, Hitachi Railway acquired from Finmeccanica the business of Ansaldo-Breda S. p. A. and the shareholding that Finmeccanica held in Ansaldo STS S. p. A., 40% of the share capital.
Finally, in 2017 the Astaldi group sold 36.7% of M5 S. p. A. to Ferrovie dello Stato Italiane, after the exam of the Antitrust Authority[25].

4.2. Project Sponsors

4.2.1. Astaldi S. p. A. and Ferrovie dello Stato S. p. A.

Astaldi S. p. A. can be considered the main Italian general contractor in the sec-

[24] Engineering, Procurement and Construction contract.

[25] Measure No 26598 of 4 May 2017.

tor of infrastructures and civil and industrial constructions. The Astaldi S. p. A. group is listed since 2002 in the Stock Exchange and it has recently participated in the construction of the Naples subway, Line C of the Rome underground, the Genoa suburban railway and the extension of the Milan subway (Line 2 from Romolo station to Famagosta station and Line 3 from Zadar station to Maciachini). Astaldi holds a stake in Metro 5 S. p. A. as a project sponsor, since it originally owned 23.3% of the shares, while subsequently acquired the shares of Torno Internazionale S. p. A., thus obtaining a capital of 38.7%. In 2017 Astaldi sold 36.7% of M5 S. p. A.[26] to Ferrovie dello Stato Italiane, maintaining only 2% of the special purpose vehicle.
Ferrovie dello Stato S. p. A. is the holding company of Ferrovie dello Stato S. p. A., which operates mainly in the rail passenger and cargo transport sector, but also in road transport and the supply of logistics services, as well as in the construction and management of railway infrastructure.
This holding company, which is wholly owned by the Italian Ministry of Economy and Finance, also controls the concessionaire for the management of the national railway network and the railway undertaking, the Reti Ferroviarie Italiane S. p. A.

[26] Press release "*Ferrovie dello Stato e Astaldi: firmato accordo per la cessione di M5*",, Rome, 12 December 2016. http://www.astaldi.com/it/comunicati-stampa/ferrovie-dello-stato-italiane-e-astaldi-firmato-accordo-la-cessione-di-m5

With the acquisition of a large part of Astaldi S. p. A.'s shareholding, the FSI group became the first shareholder of Metro 5 S. p. A.

4.2.2. Torno Internazionale S. p. A. - Torno Global Contracting S. p. A.

Torno was a leading construction industry company specialized in transport infrastructure and recently helped to build parts of the underground line in Milan, Naples and Genoa.
The company went bankrupt in 2010; its shares in Metro 5 S. p. A. (15.4 %) were gradually reduced and the other shareholders subscribed to the capital increase.

4.2.3. AnsaldoBreda S. p. A. and Hitachi Rail Italy S. p. A.

This company is the most important producer of mass transport vehicles; it has recently supplied rolling stock for the construction of the Copenhagen metro and participated in the construction of the Brescia, Thessaloniki and Rome underground.
In the past, AnsaldoBreda S. p. A. was 100% owned by the Italian company Finmeccanica S. p. A., but in 2015 the business of AnsaldoBreda S. p. A. was acquired by the company Hitachi Rail, excluding some revamping activities and certain residual contracts, as well as the entire investment held by Finmeccanica in Ansaldo STS S. p. A., equal to 40% of its share capital.
Hitachi Rail Italy S. p. A. (part of the Japanese Hitachi group) can therefore be considered a company born from the evo-

lution of AnsaldoBreda, which owns 7,3 % of the shares in Metro 5 S. p. A.

4.2.4. Ansaldo Trasporti-Sistemi Ferroviari S. p. A.

Ansaldo Trasporti-Sistemi Ferroviari S. p. A. is controlled by Ansaldo STS S. p. A. Group and is specialized in the design, construction, installation, management and maintenance of rail and underground transport as a turnkey provider.

This company has the competence of technological systems engineer/integrator in the sector of turnkey rail and metro transport systems and, in the project of Line 5 of the Milan Metro, has participated since the beginning as a project sponsor, with 24.6% of the shares of Metro 5 S. p. A..

Previously, Ansaldo had participated in the construction of the metro system in Dublin, Birmingham, Copenhagen, Thessaloniki, Genoa, Rome, Naples and Brescia.

As mentioned above, in 2015 the company Hitachi Rail acquired the entire shareholding that Finmeccanica held in Ansaldo STS S. p. A., equal to 40% of the share capital.

4.2.5. Alstom Ferroviaria S. p. A.

Alstom is the Italian subsidiary of the French multinational Alstom SA, which operates in the energy and transport sector providing turnkey rolling stock and signalling systems.

This company participated in the construction of Line 5 of the Milan underground (owning 9,4% of the shares) and in the construction of the Singapore and Lausanne metro.

4.2.6. Azienda Trasporti Milanesi S. p. A. (ATM)

ATM is wholly owned by the Municipality of Milan and manages the public transport service in the metropolitan area and in 46 municipalities in the Province of Milan.

Together with the extension of Line 2 from Famagosta to Assago and Line 3 from Maciachini to Comasina, the construction of Line 5 can be considered the most important of ATM's recent projects, since it holds 20% of the shares in Metro 5 S. p. A.

4.3. The DBOT contract and other contracts

On 14 June 2006, the Municipality of Milan (the licensing authority) signed with the project company Metro 5 S. p. A. the construction and management concession contract with a term of thirty-one years and nine months. With this agreement, the company agrees to design, build, operate and maintain the new line, receiving as payment the revenues from ticket sales. The management of the line lasts for twenty-seven years, while revenues from service are expected to be €724 million.

The contract was only about the route from Bignami to Garibaldi Station, which is six kilometres long and has nine stations. The overall estimated financing requirement was initially estimated at EUR 502.2 million, of which EUR 190 million was covered by the concessionaire and

the financing banks, while the other part was covered by a public contribution.
Nevertheless, at the beginning of 2011, the Municipality of Milan signed a new concession agreement with Metro 5 Lilla S. r. l. for an extension of another seven kilometres (with ten more stations) of Line 5 to the San Siro Stadium, financed in part by the Ministry of Infrastructure and Transport, in part by the Municipality of Milan and, finally, by private individuals, for a total investment value of 872 million euros.
The two concessions were merged into a single agreement signed on 22 December 2014 between the Municipality of Milan, Metro 5 S. p. A. and Metro 5 Lilla S. r. l., and they carried out a fusion by incorporation: at the end of the construction period, which is expected to last for fifty-seven months, Metro 5 S. p. A. will have the management of the new section for twenty-five years and seven months, with expected revenues of more than 1,300 million euro.
Line 5 is now considered to be the first major urban transport project in Italy. It is a project finance with impulse coming from the promoter, with a scheme called DBOT (Design, Build, Operate and Transfer), because after the concession of design, construction, supply and management of the project for a given period, its ownership is transferred to the granting public authority.
Among the other contracts, also noteworthy is the single construction contract signed between SPV and ATI of the constructors and the unitary contract signed between Metro 5 S.p.A. and ATM for the operation of the line.

4.4. Grants and fees

The project is also partly financed by special public funds, both from the State and from the Municipality of Milan, both of which are paid to the concessionaire by the granting authority.
The State funds were paid by the granting authority on the basis of a milestone certification, no later than thirty days after having actually received them from the State, except for the right of the concessionaire to ask for review of the business plan if a delay in the payment of a State grant caused a delayed payment of the milestone certification. On the other hand, the sums of the Municipality of Milan had to be paid within sixty days of the presentation of the same certification.
The granting authority must pay an Availability Fee, six-monthly dues for operating the line, for a predictable quantity of 22 million passengers, with a risk threshold of 32% of the expected flow. ATM is responsible for the provision of the service, maintenance of assets in use and assistance to customers (Operation and Maintenance Contract - O&M). The Municipality of Milan pays an operation fee based on a fixed fee derived from the Economic and Financial Plan, with 2012 base values subsequently indexed.
So, the guaranteed traffic share is 68%, with the commitment of the Municipality to pay a fixed availability fee, not influenced by the number of passengers.

4.5. The financial structure

The project was financed through a combination of private financing, public subsidies and bank financing, but it must be pointed out that for the San Siro - Garibaldi section it was only a bridge financing.
The public funding for the first and second parts of the project consisted of municipal and state grants, while private financing consisted of equity capital (share capital and subordinated shareholder loan) and bank financing facilities.
The cost of the Bignami-Garibaldi section was initially planned at €495 million, of which €183 million was charged to the promoter, but in the agreement signed between Metro 5 S. p. A. and the Municipality of Milan, the cost was updated to €502.2 million, of which €190 million was charged to the concessionaire and the financing banks, with expected revenues of €724 million, but due to many project changes in 2010 the cost became €587 million. For the first section, the first financial closing with credit institutions was signed on 12 December 2007 for a total of 275,6 million euro between Metro 5 S. p. A. and the institutions Dexia, Mediobanca, Societé Générale, Portigon, BNL, Crédit Agricole, Unicredit, Cassa Depositi e Prestiti, MPS and UBI.
For the San Siro - Garibaldi section, the cost initially planned was 795.850 million euro, 391 million euro of which was allocated by the State, 83 million euro by the Municipality of Milan, while a contribution of 321.85 million euro was to be provided by Metro 5 S. p. A. On 2 February 2011, Metro 5 S.p.A. signed a new concession agreement with the Municipality of Milan for the extension of Line 5 of the Milan underground to the San Siro Stadium for €872 million; at the end of the construction period (57 months) the concession holder would have managed the new section for 25 years and 7 months, with expected revenues of over €1,300 million.
The San Siro - Garibaldi route was instead subsidised by two bridge loans signed in the first half of 2014 for a total amount of €100 million, guaranteed by builders and sponsors, pending the structuring of the single financing for the entire Line.
Thus, on 29 April 2015, the financial closing signed with Banca IMI, BBVA, BNP Paribas, Cassa Depositi e Prestiti, Crédit Agricole, MPS, Naxitis, Société Générale, UBI and Unicredit was reached for the refinancing and completion of the entire MM5 line for a total of 430 million euro, maturing in 2035 for the long-term portion. At the same time, the Convention of 2014 became effective, through a fusion by incorporation of the two companies Metro 5 S. p. A. and Metro Lilla S. r. l.
The banks Aviva, Scor Infrastructure Custody, Société Generale, Intesa SanPaolo Vita and UnipolSai have subscribed to the institutional tranche for the issue of bonds for an amount of Euro 150 million, maturing in 2035.
As a result, the total investment of the project, which amounted to more than 1,500 million euro, was financed through a hybrid structure with project financing and tranches of project bonds, equity of the shareholders of Metro 5 S. p. A. and public grants.

4.6. Results

The project for Line 5 of the Milan subway, officially started on July 16,2007 for the Bignami - Garibaldi section, was finally completed in November 2015[27] and is now fully operational with over 100 thousand passengers per day.

The project, named "Transport Deal of the Year 2015" by Project Finance International[28], is considered as a virtuous example of PPP in the Italian public transport infrastructure sector, which is attractive for both the public and private sectors.

The project attracted lenders and investors because of the allocation of risk, public funding, mitigation of demand risk and the presence of a promoter such as the Municipality of Milan. Line 5 is without a doubt the most important financing experience of an Italian urban transport infrastructure built through project financing, because of a mixed financing scheme consisting of bank credit lines and project bonds for institutional investors.

On the other hand, this paper is aimed at pointing out that the project of Line 5 is an unusual project financing, because the public sector took on the construction risk and financed most of the project, almost 54%, contrary to what was foreseen in the original project, 40%[29].

Data confirm that 52.9% of the financing for the Bignami-Garibaldi section was made up of public grants, 40.5% of the bank loan and 6.5% of equity; otherwise, for the Garibaldi-San Siro section, 70.6% of the financing was provided by public grants, 15.9% by bank financing and 13.5% by equity. In addition, the risk of demand was transferred to the public partner.

Furthermore, it is unusual that Astaldi has sold 36.7% of the shares in Metro 5 S. p. A. to Ferrovie dello Stato, because the concessionaire thus became a company with a majority public shareholding (36.7% FS and 20% ATM), in disagreement with the basic principles of proper project finance, which in theory should have the aim of limiting the commitment of public finance.

A proper project financing should carry out a project within a reasonable time frame and with a lower cost for the public administration, compared to its construction with a total public financing and with the assumption of all risks. On the contrary, in the case of Line MM5, the costs for the public sector have been higher than had been planned (also due to numerous variations) and the deadlines for the delivery of the sections have not been respected[30], with almost all the

[27] On 10 February 2013, the seven stations between Bignami-Zara were opened and on 1 March 2014, the Isola and Garibaldi stations were opened. The entire line from Bignami Parco Nord to San Siro Stadio was opened on 29 April 2015, while the Portello and Cenisio stations were opened on 6 and 20 June 2015. The Jerusalem station was opened on September 26,2015 and the Monumental station on October 11,2015. The Tre Torri station was finally opened on 14 November 2015.

[28] Published by Thomson Reuters.

[29] Legge Obiettivo 443/2001.

[30] The Bignami Garibaldi section was supposed to be completed in the summer of 2013 but was fully completed on 1 March 2014, while the Garibaldi-San Siro section had to be completed by April 2015, but was fully opened on 14 November 2015. www.comune.milano.it.

risks of the operation covered by the public administration.
The truth is that private investors do not often invest in Italian infrastructure projects and, in order to attract their interest, public administrations often combine public and private financial resources in an unbalanced way in project financing operations.
In addition, the Italian public administration concludes PPP contracts with an unbalanced allocation of risks caused by information asymmetry with the private partner.
A proper risk-sharing is the basis of a modern international project financing operation, in which banks should have an incentive to invest in infrastructure operations still to be built, with medium and long term economic returns, characterised by a clear legal and economic separation between the assets of the project company and those of individual shareholders.

5. Conclusions

Project finance is not a simple solution, but a complex structure, based both on financial evaluations and on precise and coherent political choices, aimed at attracting the managerial, commercial and innovative skills of the private sector in the design, financing, construction and management of public utility infrastructures and services.
In the case of the London Underground, bankruptcy was inevitable, although the guarantees provided by the public partner were particularly high for UK project financing.
There have certainly been a series of important errors in the stipulation of contracts, in the assessment of economic construction risks, in the monitoring of the progress of works, in the coordination between the London Underground and the companies involved in renovation and maintenance.
In addition, due to cost overruns and deadlines, it became indispensable to nationalise Metronet and Tube Lines, by converting a promising PPP operation into an ordinary in-house management.
Finally, the information gap between the British public administration and the shareholder-suppliers was one of the main causes of bankruptcy, because private partners had a great expertise in the field, and the public administration was not able to monitor costs and works.
It would probably have been necessary to link the conclusion of the contract to the verification of the solidity and credibility of the company administration, especially of those who participated in the project also as suppliers. It would also have been necessary to deal differently with the economic risk, which was too much for the public administration. Finally, miscoordination between London Underground, Transport for London and Arbiter has become crucial to the failure of London Tube's project financing.
The project for Line 5 of the Milan subway also showed a certain procedural and decision-making difficulties, which has extended the time frame.
The relationship between the Italian public administration and private partners has been very bureaucratic and compli-

cated, especially about the definition of design changes, which have been numerous and have significantly increased costs.

It is true that in Italy, Line 5 can be considered an exceptional infrastructure, not only for the two financial closing but also for the issuance of 150 million euro project bonds.

However, this project confirmed that in Italy banks are not willing to finance large infrastructure unless the public administration provides strong guarantees. For these reasons, the project finance of Line 5 of the Milan subway has been structured in such a way as to encourage credit institutions, through very mitigated risks and the massive public contributions, which reach 70.6% for the San Siro - Garibaldi section.

Therefore, it is not surprising that the project financing of the Line 5 involved the banks, considering also that the risk of demand had been entirely allocated to the granting authority, which had to pay a fixed availability fee. On the other hand, the Milan project shows that there is an information gap between the public administration and the private sector, which inevitably leads to the conclusion of contracts with an allocation of risk that benefits almost exclusively the private sector.

The analysis shows that project financing has positive and negative aspects.

A first part of the literature and policy promotes this practice, highlighting the benefits that have often been gained in balancing costs and benefits.

It cannot be denied that the private sector has a higher technical and economic knowledge, as well as a greater capacity for innovation and adaptation in the event of unforeseen events and variations; moreover, the private partner of a project finance is certainly more stimulated to achieve the highest performance goals, reducing waste to a minimum, because the fees are perceived depending on the quality levels achieved. On the other hand, some experts are critical because these operations could be considered a kind of privatization of services that until now have been considered public.

Moreover, the PFI often does not even have a real economic benefit, as it often happens that costs exceed initial estimates due to variants, consultancy costs and, finally, interest rates imposed by banks for the credit of such transactions, which are significantly higher than those that would be required from the public sector.

In a few words, project financing is the best solution only when it is possible to achieve better results than traditional alternatives.

For this reason, the UK Treasury Department has published guidelines and standard agreements to make it easier for public administrations to assess which solutions are the most cost-effective.

The Italian legislator has instead inserted in the Legislative Decree. No. 50 of 2016, an innovative discipline aimed at improving collaboration between public and private authorities. Art. 180 (Public-private partnership) and 181 (Procedures for awarding contracts) of the new Italian Code of Procurement distinguish be-

tween the use of PPPs to carry out "cold" and "hot" works and definitively establish that economic and financial equilibrium is the condition for the correct distribution of risks.
Art. 165 of the Code, moreover, specifically refers to risk and financial equilibrium in concessions, clarifying that in such contracts the operating risk must be transferred to the concessionaire.
The new regulation puts an end to a complicated period of the Italian public-private partnership, during which these contracts were too often used improperly, because the economic and operational risk was almost exclusively transferred to the public partner, as analysed also in the case study of Line M5 of the Milan Metro. Today it would not be possible to give rise to a project finance operation such as Line 5.
It seems appropriate to conclude by summarizing the further problems of Italy and the United Kingdom. The first is the monitoring of project finance operations by public authorities, possible only after careful selection and preparation of the public administration's personnel. Secondly, legal systems must prevent private partners from acting incorrectly, as in the case of changes to projects after contracts have been concluded, which are often deliberately used to increase profits. Finally, it is difficult to conclude project financing contracts for projects with low capital value, because the costs of the tender are excessive. The same is true for operations that need to be changed and innovated frequently, and for renovation and restoration projects for which there is not enough competition on the market.

REFERENCES

AMOROSINO S., *I nodi critici della finanza di progetto in Italia*, in G. Morbidelli (a cura di), *Finanza di progetto*, Torino, Giappichelli, 2004.

CAPUNZO R., *Argomenti di diritto pubblico* dell'economia, Milano, Giuffrè, 2010.

CAPUTO NASSETTI F., *Valutazione e predisposizione del piano economico finanziario: l'asseverazione bancaria e le responsabilità connesse all'asseverazione*, in G. Morbidelli (a cura di), *Finanza di progetto*, Torino, Giappichelli, 2004.

CARTEI G. F. – RICCHI M., *Finanza di progetto e partenariato pubblico-privato, temi europei, istituti nazionali e operatività*, Napoli, Editoriale Scientifica, 2015.

CASELLA F., *Il project financing nel Regno Unito* in Diritto Pubblico Comparato ed Europeo (2005-4).

CELIO M., *L'impatto della nuova normativa sulla finanza di progetto el mercato del PPP in Italia*, in G. F. CARTEI – M. RICCHI (a cura di), *Finanza di progetto: temi e prospettive*, Editoriale Scientifica, Napoli, 2010.

CERRINA FERONI G., *Il partenariato pubblico-privato nelle esperienze del Regno Unito e della Germania* in Id. (a cura di), *Il partenariato pubblico-privato: modelli e strumenti*, Torino, Giappichelli, 2011.

CERRINA FERONI G., *Il project financing in Italia*, in Diritto Pubblico Comparato ed Europeo (2005-4).

CHITI M. P. (a cura di), *Il partenariato pubblico-privato. Concessioni Finanza di Progetto Società miste Fondazioni*, Napoli, Editoriale Scientifica, 2009.

FABI F. –LOIERO R. –PROFITI F. S. E., *Il partenariato pubblico-privato nell'ordinamento giuridico nazionale, comunitario ed internazionale*, Roma, Dike Giuridica Editrice, 2015.

FIDONE G. – RAGANELLI B., *Il partenariato pubblico privato e la finanza di progetto*, in *Commentario al codice dei conratti pubblici*, Torino, Giappichelli, 2010.

FOLLIS M., *Torno in uscita dalla Metro 5 di Milano*, in MF-Il quotidiano dei mercati finanziari del 26 aprile 2011, Class Editori.

GATTI S. – MAURO S., *Milan Metro Line* 5, in *Project Financing in Theory and Practice,* Sec. Ed., London, Elsevier Academic Press, 2013.

GATTI S., *Project Finance in Theory and Practice*, Academic Press, London, 2013.

GIURDANELLA C., *Diritto degli Appalti Pubblici Aggiornato alle novità del nuovo codice appalti 2016*, Cesda, Roma, 2016.

MARRACCINI L., *Il Project Financing in Italia e nel Regno Unito*, Tesi di Dottorato di Ricerca in Diritto Comparato e Processi di Integrazione, XXX° ciclo, Università degli Studi della Campania "Luigi Vanvitelli" - Dipartimento di Scienze Politiche "Jean Monnet", Caserta, 2017.

MESSINA P., *I contratti bancari e finanziari*, Torino, Giappichelli, 2013.

MOCCIA L., *Comparazione giuridica e Diritto europeo*, Milano, Giuffrè, 2005;

MORBIDELLI G., *Il project financing: considerazioni introduttive*, in Diritto Pubblico Comparato ed Europeo (2005-4).

MORBIDELLI G., *Verso una normativa sul finanziamento privato di opere pubbliche*, in U. GORI (cur.), *Il Project Financing*, Bologna, DSE, 1999.

MORI P. A., *Il Partenariato Pubblico-Privato e la realizzazione delle infrastrutture*, in G. F. CARTEI – M. RICCHI (a cura di), *Finanza di progetto e partenariato pubblico-privato, temi europei, istituti nazionali e operatività*, Napoli, Editoriale Scientifica, 2015.

NEWITT P.K., *Project financing*, Bari, Laterza, 1987.

ORUCU E. – NELKEN D. (a cura di), *Comparative Law, a Handbook*, London, Hart Publishing, 2007.

RAVI C. TENNEKOON, *The law and regulation of International Finance*, Bloomsbury Professional, London, 1991.

RICCHI M., *Project Financing e Floating Charge* in Riv. Economia e Diritto del Terziario, Finanza di Progetto problemi e prospettive, Francoangeli, 2005, n. 1.

SAMBRI S.M., *Project financing, la finanza di progetto per la realizzazione di opere pubbliche*, in *Trattato di diritto dell'economica*, diretto da E. Picozza e E. Gabrielli, Padova, CEDAM, 2013.

SARTORI A., *I project bond in Italia: problemi e prospettive*, Centro di Ricerche in analisi economica e sviluppo economico internazionale – Università Cattolica del Sacro Cuore, Milano, 2013.

SARTORI E., *Il Project financing e la segregazione patrimoniale. Profili economico-aziendali*, Tesi di dottorato di Ricerca in Economia e Tecnica della Finanza di Progetto, XX Ciclo – Facoltà di Economia, Università LUISS Guido Carli, Roma.

SIEMS M., *Comparative Law*, Cambridge University Press, 2014.

SPACKMAN M., *Public-Private Partnerships: lessons from the British approach*, in *Economic Systems*, vol. 26, September 2002.
SUR S., *Sur l'obligation de motiver les actes adminiustratifs*, in A.J.D.A., 1974.

TARTAGLIA A., *Servizi e opere di Interesse strategico per la collettività*, in R. BOLICI, M. GAMBARO, A. TARTAGLIA (a cura di), *La ricerca tra innovazione, creatività e progetto*, Firenze University Press, Firenze, 2012.

VACCA A. – SOLUSTRI C., *Il project financing per le opere pubbliche*, Pozzuoli, Sistemi Editoriali, 2003.

VACCÀ C., *Il project financing. Soggetti, disciplina, contratti*, Milano, Egea, 2002.

VARRONE C., *Alcune considerazioni in tema di project financing*, in G. Morbidelli (a cura di), *Finanza di progetto*, Torino, Giappichelli, 2004.

VINTER G. D., *Project Finance*, *A legal guide*, II edizione, Londra, 1998.

VIRGILIO R., *Finanza di progetto nel sistema di realizzazione dei lavori pubblici*, in G. MORBIDELLI (a cura di), *Finanza di progetto*, Torino, Giappichelli, 2004.

ZACCHEO M., *Le società di progetto*, in G. Morbidelli (a cura di), *Finanza di progetto*, Torino, Giappichelli, 2004.

WEBLIOGRAPHY

ALLEN&OVERY, *Standardisation of PF2 Contracts (5) – Another New(ish) approach to public – private partnerships*, January 2013, http://www.allenovery.com/SiteCollectionDocuments/Standardisation%20of%20PF2%20Contracts.pdf

CAMERA DEI DEPUTATI, *La Linea Metropolitana M5 da Garibaldi a San Siro*, http://www.camera.it/temiap/temi16/2011scheda[089].pdf

CAMERA DEI DEPUTATI, *Sistemi Urbani, Monza Metropolitana, Nuova linea metropolitana M5 da Garibaldi a Monza Bettola – Tratta Garibaldi-Bignami compresa variante Stazione Garibaldi F.S.*, 2011, http://www.camera.it/temiap/temi16/2011scheda[095].pdf.

Comunicato stampa congiunto "*Astaldi – Ansaldo STS: firmato il contratto per la linea 5 della metropolitana di Milano*", Roma, 14 giugno 2006, http://www.astaldi.com/sites/astaldi16corp/files/2006_06_14_metro5_milano.pdf

Comunicato stampa congiunto Astaldi – Ansaldo STS: "*Firmato il contratto per l'estensione della linea Metro Milano M5*", Roma, 2 febbraio 2011, http://www.ansaldo-sts.com/sites/ansaldosts.message-asp.com/files/downloads/asts_2011_02_02_milano_linea5_congiunto_astaldi_ita.pdf

Comunicato stampa congiunto: "*Astaldi – Ansaldo STS: firmato il contratto per la linea 5 della metropolitana di Milano*", Roma, 14 giugno 2006 www.astaldi.com/sites/astaldi16corp/files/2006_06_14_metro5_milano.pdf

Comunicato Stampa Finmeccanica – Hitachi: "*Completata la cessione di AnsaldoBreda e Ansaldo STS da Finmeccanica ad Hitachi*", Tokyo, Giappone e Roma, Italia, 2 novembre 2015, http://www.leonardocompany.com/-/closing-hitachi-ansaldobreda-ansaldo-sts

Comunicato stampa: "*Ferrovie dello Stato e Astaldi: firmato accordo per la cessione di M5*", Roma, 12 dicembre 2016. http://www.astaldi.com/it/comunicati-stampa/ferrovie-dello-stato-italiane-e-astaldi-firmato-accordo-la-cessione-di-m5

Comunicazione del 26 marzo 2010 della *Transport Select Committee* https://tfl.gov.uk/info-for/media/press-releases/2010/march/transport-select-committee-confirms-tube-ppp-is-flawed-and-has-failed-to-prove-value-for-money

FINLOMBARDA – REGIONE LOMBARDIA, *PF Focus, la newsletter sul project finance e sulla finanza strutturata*, n. 03 – Dicembre 2007, p. 11. http://www.finlombarda.it/c/document_library/get_file?p_l_id=4194917&folderId=9650995&name=DLFE-46322.pdf

FINLOMBARDA – REGIONE LOMBARDIA, *Public-Private Partnership in Sanità: un possibile schema di contratto di concessione di costruzione e gestione*, Novembre 2007 http://www.finlombarda.it/c/document_library/get_file?uuid=054bc3b6-db82-49ca-9c19-a3eb3e2b6190&groupId=1004759

FORMEZ – DIPARTIMENTO DELLA FUNZIONE PUBBLICA PER L'EFFICIENZA DELLE AMMINISTRAZIONI – DIPARTIMENTO PER LE POLITICHE DI SVILUPPO MINISTERO DELL'ECONOMIA E DELLE FINANZE, *La Finanza di Progetto, esperienze a confronto*, http://valutazioneinvestimenti.formez.it/sites/all/files/La%20Finanza%20di%20Progetto_strumenti%2027.pdf

GIORGIANTONIO C. –GIOVANNIELLO V., *Questioni di economia e finanza: Infrastrutture e project financing in Italia: il ruolo (possibile) della regolamentazione*, Banca d'Italia Eurosistema numero 56, novembre 2009, http://www.esternalizzazioni.it/public/File/ESTERNALIZZAZIONI/Giorgiantonio%20e%20Giovanniello,%20PF,%202009.pdf

H.M. TREASURY, *A Guidance Note for Public Sector Bodies Forming Joint Venture Companies with the Private Sector*, 2001, https://uk.practicallaw.thomsonreuters.com/5-383-6815?transitionType=Default&contextData=(sc.Default)&firstPage=true&bhcp=1

H.M. TREASURY, *Breaking New Ground*, November 1993 http://www.publications.parliament.uk/pa/cm200405/cmselect/cmpubacc/446/446.pdf

H. M. TREASURY, *Local Government Supplement to Standardisation of PFI Contracts, Version 4* https://ppp.worldbank.org/public-private-partnership/sites/ppp.worldbank.org/files/documents/UK_Standardisation%20of%20PFI%20Contracts%20(ver4.2007).pdf

H. M. TREASURY, *Local Government Supplement to Standardisation of PFI Contracts, Version 3*, http://webarchive.nationalarchives.gov.uk/20121204162226/http://www.hm-treasury.gov.uk/d/pfi_sopc4markedup_210307c.pdf

H. M. TREASURY, *PFI: meeting the investment challenge*, July 2003, http://webarchive.nationalarchives.gov.uk/+/http://www.hm-treasury.gov.uk/media/F/7/PFI_604a.pdf

H.M. TREASURY– INFRASTUCTURE AND PROJECTS AUTHORITY, *Case Study: New Tube for London*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/529309/case_study_2016.pdf

H.M. TREASURY, *Infrastructure Procurement: Delivering Long-Term Value*, 2008 http://www.hm-treasury.gov.uk/d/bud08_procurement_533.pdf

H.M. TREASURY, *London Underground Private Public Partnerships*, 2005 www.publications.parliament.uk/pa/cm200405/cmselect/cmpubacc/446/446.pdf

H.M. TREASURY, *PFI: Strengthening Long-Term Partnerships*, 2006 https://wiki.unece.org/download/attachments/23758291/Treasury%20-%20PFI%20Strenghtening%20long%20term%20partnerships.pdf?api=v2

HOUSE OF COMMONS - COMMITTEE OF PUBLIC ACCOUNTS, *Department of Transport: the Failure of Metronet*, 2010 https://publications.parliament.uk/pa/cm200910/cmselect/cmpubacc/390/390.pdf

HOUSE OF COMMONS-COMMITTEE OF PUBLIC ACCOUNTS, *Department of Transport: the Failure of Metronet*, 2010, https://publications.parliament.uk/pa/cm200910/cmselect/cmpubacc/390/390.pdf

KELLAWAY M. – SHANKS H., *Metronet, Tube Lines and the London Underground PPP*, National Statistics, NACC decisions – 24 September 2007, https://www.ons.gov.uk/ons/rel/na-classification/national-accounts-sector-classification/classification-of-metronet--tube-lines-and-the-london-underground-ppp/classification-of-metronet--tube-lines-and-the-london-underground-ppp-.pdf

NAO, *The Failure of Metronet*, 2009, https://www.nao.org.uk/wp-content/uploads/2009/06/0809512es.pdf

ORDINE DEGLI INGEGNERI DELLA PROVINCIA DI ROMA – COMMISSIONE PROJECT FINANCING E PARTENARIATO PUBBLICO PRIVATO, *Quaderni di Project Financing – Il confronto tra appalto e concessione, la valutazione del Value for Money*, https://www.ording.roma.it/archivio/7497-vfmpubblicazione11feb10-online-1.pdf

PALMIERI A. e PARDOLESI R., CARANTA R., FRACCHIA F., ROMANO A., note a Cass. Sez. Un., 22 luglio 1999, n. 500/SU in *Foro.it*, 1999, I, 2487 e 3201

POLITECNICO DI MILANO – DIPARTIMENTO DI INGEGNERIA GESTIONALE, *Secondo Report Italiano sui Mini-Bond. Osservatorio Mini-Bond. Dipartimento di Ingegneria Gestionale*, febbraio 2016 www.osservatoriominibond.it/webportal/docdownload?codice=405

RICCHI M., *Finanza di Progetto, Contributo Pubblico, Controllo ed Equità (Le Concessioni sono Patrmonio Pubblico)*, Documento UFP – CIPE – maggio 2006, http://www.osservatorioappalti.unitn.it/viewFile.do?id=1252054844655&dataId=2136&filename=Testo.pdf

SABATINI M., *Project Financing, un'opportunità solo parzialmente*, Lab-Ip, Laboratorio per l'innovazione pubblica, 2015, http://www.lab-ip.net/project-financing-unopportunita-colta-solo-parzialmente

SANTANGELO E. – ALIMONTI A. – BALDI F.; *Deloitte – Gli investimenti in infrastrutture di trasporto Scelte di finanziamento e spunti di riflessione dai progetti recentemente sviluppati in Italia,* 2017, https://www2.deloitte.com/content/dam/Deloitte/it/Documents/manufacturing/170127_infrastrutture_DEF_WEB.pdf

TRANQUILLI M. – MARASCO P., *La riforma dei contratti pubblici, Il nuovo Codice e la disciplina attuativa. Partenariato Pubblico Privato e Project finance*, www.regione.lazio.it/binary/rl_main/tbl_documenti/INF_ALLEGATOB.pdf

www.allenovery.com
www.alstom.com;
www.ansaldo.com
www.astaldi.com
www.atm.it
www.bechtel.com
www.borsaitaliana.it
www.camera.it
www.cantieri.mit.gov.it
www.codiceappalti.it
www.comune.milano.it
www.deloitte.com
www.finlombarda.it
www.fsitaliane.it
www.gov.uk
www.italy.hitachirail.com
www.italy.hitachirail.com
www.lab-ip.net
www.legislation.gov.uk
www.leonardocompany.com
www.localpartnerships.org.uk
www.nao.org.uk
www.ons.gov.uk
www.ording.roma.it
www.osservatoriominibond.it
www.partnershipsuk.org.uk
www.publications.parliament.uk
www.regione.lombardia.it
www.regionelazio.it
www.tfl.gov.uk