



Is there scope for a new project bond market in Europe? A promising opportunity for promoting transnational infrastructure*

AREA: 2
TYPE: Case

89

¿Es posible un Mercado de Project Bonds en Europa? Una oportunidad para la promoción de infraestructuras transnacionales

É possível um Mercado de Project Bonds na Europa? Uma oportunidade para a promoção de infra-estruturas transnacionais

AUTHORS

Raúl C. Rosales¹
Senior Banker, Energy,
European Bank for
Reconstruction and
Development (EBRD)
rosalesr@ebrd.com

José M. Vassallo
Universidad Politécnica
de Madrid, Spain
josemanuel.vassallo@
upm.es

1. Contact author: Senior
Banker, Energy, European
Bank for Reconstruction
and Development (EBRD)
One Exchange Square,
London EC2A 2JN, UK

The European Union recently launched an initiative to foster Public Private Partnerships (PPPs) for delivering Trans-European projects by making long-term project-bonds more appealing to institutional investors. This is achieved through credit-enhancement mechanisms such as partial stand-by liquidity guarantees, or layers of subordinated debt provided by the European Investment Bank. This initiative intends to circumvent the liquidity problems currently endured by commercial banks in Europe to fund megaprojects. In this paper we explore the advantages and drawbacks of this initiative for promoting transnational infrastructure networks in Europe, and analyse its applicability to other economic areas such as Latin America.

La Unión Europea acaba de lanzar una iniciativa para fomentar Participaciones Público Privadas (PPPs) mediante bonos de proyecto más atractivos a inversores institucionales para promover proyectos transeuropeos. Esto se logra a través de mecanismos de mejora crediticia como garantías de liquidez o tramos de deuda subordinada facilitados por el Banco Europeo de Inversiones. Esta iniciativa pretende evitar los problemas de liquidez experimentados actualmente por bancos comerciales en Europa para financiar megaproyectos. En este artículo exploramos las ventajas e inconvenientes de esta iniciativa para promover redes de infraestructuras transnacionales en Europa, y analizamos su aplicabilidad a otras áreas como Latino-América.

A União Europeia acaba de lançar uma iniciativa para fomentar Parcerias Público Privadas (PPPs) através de obrigações de projecto mais atractivas para investidores institucionais para a promoção de projectos transeuropeus. Isto consegue-se através de mecanismos de melhoria crediticia, como garantias de liquidez ou tranches de dívida subordinada disponibilizadas pelo Banco Europeu de Investimentos. Esta iniciativa pretende evitar os problemas de liquidez sentidos actualmente pelos bancos comerciais na Europa para financiar megaprojectos. Neste artigo exploramos as vantagens e inconvenientes desta iniciativa para a promoção de redes de infra-estruturas transnacionais na Europa, e analisamos a sua aplicabilidade a outras áreas como a América Latina.

* The views, findings, and recommendations expressed in this Article are those of the author(s) and do not necessarily represent those of the Institution they work for.

DOI
10.3232/GCG.2012.V6.N3.05

RECEIVED
09.10.2012

ACCEPTED
20.11.2012

1. Introduction

Since the financial crisis started in August 2007, European commercial banks are required to have higher regulatory capital and liquidity standards, whilst most of their economies face the problem of sovereign debt. New regulatory restrictions with the objective to increase the solvency of commercial banks could raise doubts over their capability to finance long term investments. Finding out new financial products to attract Institutional Investors into infrastructure projects could be required in the current European capital markets.

Before August 2007, monoline companies used to provide the credit enhancement for capital markets issues. However, after the credit crunch in August 2008 there have been few deals guaranteed by these companies and it appears that they will not be active for a long time, at least until there is a clear picture about the financial industry regulation. Their role is now starting to be assumed by International Financial Institutions (IFIs) and the recent “Europe 2020 Project Bond Initiative” launched last year is a sound prove of this trend. There is another reason for this Initiative, and this is to be able to afford the Europe 2020 Strategy which foresees large investment needs in Europe –between €1.5 and €2 trillion—for Infrastructure, Energy and Technology. It is expected that the European mechanism for credit enhancing project bonds would allow the minimum threshold of A- required by Institutional Investors to be achieved (Standard & Poor’s, 2011).

This paper intends to respond to the following questions: “Is there scope for a new project bond market in Europe?” and, “what should be the regulatory requirements for this market?” To this end, this paper reviews the current project bond market, analyzing its main drivers, along with a summarized analysis of project finance recovery rates and its ratings. Project finance and other senior debt facilities have become the asset class to be refinanced by project bonds. The issue of the rating is particularly relevant because it affects the reserve requirements of Institutional Investors and its performance.

The new capital markets for project bonds in Europe could be a reference for Latin America to develop the IIRSA Initiative¹. Its main purpose of infrastructure integration would be achieved through the required regulatory framework for capital markets. Latin America commercial banks will also have higher liquidity and capital standards in the coming years, and this could be the right time to follow up the Europe initiative, developing an integrated capital markets.

Life insurance companies and pension funds are considered to be the most important long-term investors, and project bonds could be a good asset to match with their long-term liabilities and a useful tool for financing infrastructure investments. Nevertheless, there is room for regulatory improvement and the introduction of lower economic capital requirements for infrastructure bonds. According to the new framework of Solvency II, a 15 year BBB rated bond will require 25% reserve requirements vs. 13% for a single A rated bond over the same duration. “Omnibus II Directive” to be applicable from 1 January 2014 will implement changes to the current Solvency II. This will make insurers value assets and liabilities at market value, allocate capital to reflect asset’s value short-term volatility, and will increase reserve requirements in long term investments (FitchRatings, 2011).

¹ IIRSA Initiative. <http://www.iirsa.org/>

KEY WORDS
Project Bonds, Solvency II, Project Finance, Infrastructure Financing, Public-Private Partnerships, Europe, Latin America, Trans-European Networks

PALABRAS CLAVE
Project Bonds, Solvency II, Project Finance, Financiación de Infraestructuras, Public-Private Partnerships, Europa, Ibero America, Redes Trans Europeas

PALAVRAS-CHAVE
Project Bonds, Solvency II, Project Finance, Financiamento de Infra-estruturas, Public-Private Partnerships, Europa, América Latina, Redes Trans Europeias

JEL CODES:
F340, G150

2. Infrastructure investment needs in Europe

Since the mid 1980s the Trans-European Networks (TEN) policy has been setting the framework for the development of infrastructure for the smooth functioning of the internal market and for ensuring economic, social and territorial cohesion and improved accessibility. This led to the inclusion of a specific legal basis for Trans-European Networks in the Maastricht Treaty in 1992. Subsequently, in 1996 the European Parliament and the Council adopted the first Guidelines defining the TEN policy and infrastructure planning. Several instruments of the EU budget have been set up to facilitate the implementation of projects. These instruments include the TEN Financial Regulation, the Cohesion Fund, the European Regional Development Fund (ERDF), and more recently the Connecting Europe Facility. In addition to these sources, the European Investment Bank (EIB) has provided loans to TEN projects complying with the requirements imposed by the EU. However, these instruments were insufficient to get these projects off the ground (Proost et al., 2011).

The Green Paper: TEN-T: A policy review - Towards a Better Integrated Trans-European Transport network at the service of the Common Transport Policy (European Commission, 2009) acknowledges that there has been a lack of progress in certain areas. One of them was insufficient finance, most notably access to appropriate long-term private finance. The White Paper: Roadmap to a Single European Transport Area – Towards a competitive and resource efficient transport system (European Commission, 2011) says that Europe needs a ‘core network’ of corridors, carrying large and consolidated volumes of freight and passengers traffic with high efficiency and low emissions. The cost of EU infrastructure development to match the demand for transport has been estimated at over €1.5 trillion for 2010-2030. The completion of the TEN-T (Trans-European Transport) network requires about €550 billion until 2020 out of which some €215 billion can be referred to the removal of the main bottlenecks (European Commission, 2011B). As EU President J.M. Barroso said: “the internal market needs a 21st century core infrastructure network - transport/energy/digital. Combining political decisions, regulatory framework and mixed funding (project bonds) can deliver a big change”². In his speech in 2010, he also proposed the “Europe 2020 Project Bond Initiative” to mobilise the necessary funding required by large EU infrastructure projects.

Public Private Partnerships (PPPs) have always been regarded by the European Commission as a key instrument to draw private financing to promote Trans European Networks. PPPs are mostly implemented to circumvent budgetary constraints, and encourage efficiency and quality in the provision of public infrastructure (OECD, 2008). The latter objective is achieved through the integration of the life cycle of the project including the design, construction, financing and operation phases. Using PPPs has become even more important in the last few years due to the severe budgetary constraints endured by the member states because of the economic recession. However, until 2010, only a limited number of TEN-T projects had been financed through PPPs: the Oresund Bridge, the Perpignan-Figueras rail, and the High-Speed line Paris-Bruxelles/Brussels-Köln-Amsterdam-London (PBKAL) (Steer Davies Gleave, 2011). Some reasons explain this lack of success. On the one hand, investment volumes in TEN-T projects are usually huge. On the other hand, undertaking cross border projects requires agreements among at least two member states that usually have different interests and legal frameworks.

² http://ec.europa.eu/commission_2010-2014/president/news/speeches-statements/pdf/council-201206/presentation-print_en.pdf . Presentation of J.M. Barroso, President of the European Commission, to the European Council of 28-29 June 2012.

Given the challenges faced nowadays by many EU countries to attract new sources of capital, this will be crucial for Europe. The sovereign debt problem will require looking for funding the gap in infrastructure through the private finance initiative/public-private partnership (“PFI/PPP”) model. On the other hand, Basel III will require banks to increase their capital by €600 billion. It will push commercial banks to change their business model, and with respect to project finance transactions they will be required to be financed under a minimum threshold of profitability valued in terms of Risk-adjusted return on capital (“RAROC”).

Although it is expected that banks will continue to be the principal source of long-term financing for the PFI/PPP sector, it is important to bear in mind that the financial industry is changing, banks will be limited in its capability to finance large scale projects as they used to do. “The Europe 2020 Project Bond Initiative considers the credit enhancement of senior project bonds through funded subordinated debt, or an unfunded partial guarantee of senior debt service. It is expected that the Initiative will be capable of credit-enhancing PFI/PPP project bonds from low investment grade to single A ratings”, see (Moody’s Investors Service, 2012).

3. Are project bonds a good option for funding large-scale projects Europe?

Capital markets used to play an important role in financing large scale projects through senior bond issues. However, since the credit crunch in 2007-2008 there has been less appetite for credit risk and an increased pressure on commercial banks’ balance sheets under the new regulatory framework, along with the future implementation of Basel III. There are fewer players than in the past due to the credit crunch and the financial industry consolidation. Additionally, the sovereign debt crisis in western economies is a new ingredient to this complex situation, resulting in the increased demand for the financing of infrastructure projects under PFI/PPP schemes (Moody’s Investor Service, 2011).

One of the first conclusions of the current crisis is that European commercial banks could have to re-think about financing long term investments in the future(Standard & Poor’s, 2012). It is expected they will continue with infrastructure project finance, but not with as much volume as before. The new regulatory framework under Basel III and the new economic capital regulation for commercial banks will shrink their capability for long term investments.

The bubble of liquidity in the early 2000s allowed commercial banks to be very aggressive in terms of loan pricing and long term facilities. Nevertheless, the 2008 credit crunch reduced their influence over the market, and project sponsors and their financial advisors started to explore new sources of funding, from bridge financing to project bonds (Chen, 2009).

This section explores the feasibility of the implementation of project bonds to finance large-scale projects in Europe. First we provide an overview of the project bond market. Second, we analyse the rating drivers for project finance loans. Finally, we describe the Europe 2020 Project Bond Initiative and assess its potential as a means to boosting project finance in Europe.

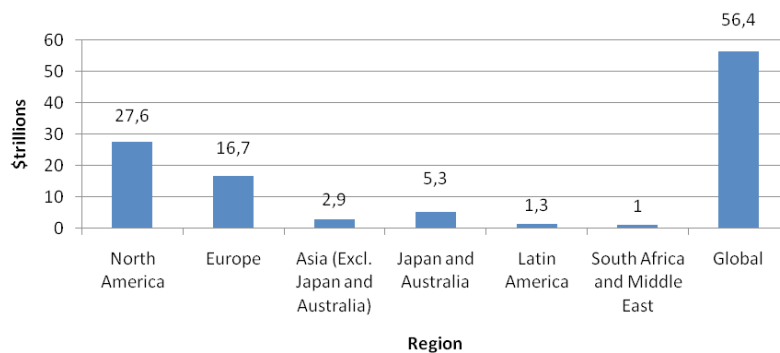
3.1. An Overview of the Project Bonds Market

Up to now project bonds have been mostly used to finance brownfield projects. This way, Institutional Investors look for stable cash-flows to match their funding availability with its long term investment requirements. Mainstream Institutional Investors such as life insurance companies and pension funds are reluctant to take construction risk. They only take construction risk when there are strong completion guarantees to protect bondholders.

Nevertheless, this trend is changing for Institutional Investors in so far as they are required to raise reserve requirements as a result of the new Solvency II to be adopted by all 27 EU Member States from 1 January 2014. Capital requirements are higher on equity and long-term bonds because of pricing volatility and market value, so they have to hold more capital. As a result, capital charges on long dated corporate bonds in comparison with short dated will be higher, and also lower rating levels will imply more capital charges. This will affect the Risk Adjusted Return on Capital, potentially forcing Institutional Investors to move to shorter-dated investments (FitchRatings, 2011).

In order to have an idea about the business volume of Institutional Investors, as of December 2010 they held Assets under Management (AuM) totalling \$56.4 trillion globally, and in Europe this encompassed \$16.7 trillion (See Figure 1). Latin America held AuM by \$1.3 trillion but this region also posted the strongest growth with an increase of 18%.

Figure 1. Global AuM as of Dec. 2010



Sources: BCG Global Asset Management Market.

The main Institutional Investors experiencing growth now are insurance and pension funds. By the end of 2010 Institutional Investors held around 60% of global AuM experiencing growth of 7% which amounted to \$33.5 trillion.

Turning back to the subject of project bonds, we had the opportunity of analysing a data base by Dealogic, providing information on project bond issues with a tenor greater or equal to 15 years over the period from 1st January 2009 to 18th June 2012. In the Data Base made up of 60

project bonds issued since January 2009, 23 were shown to have been issued for a tenor of 15 years whilst 37 were issued for a higher tenor. With respect to the rating, it could be concluded that over 50% (33 out of 60) of those issued have a minimum rating of A- (Standard & Poor's).

3.2. Rating Drivers for project finance loans

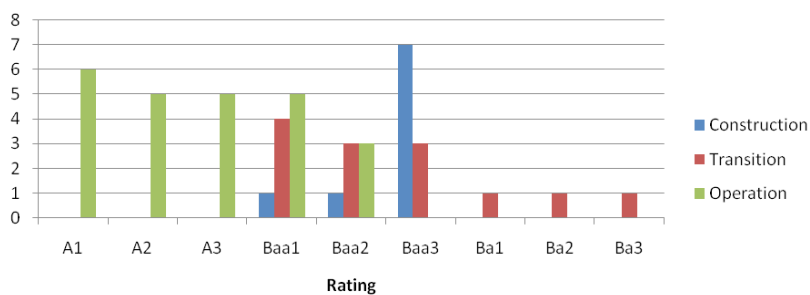
Credit worthiness and particularly “the credit rating” of project finance or senior project bonds is really important for Institutional Investors who look for a minimum rating according to its reserve requirements and performance targets.

Moody’s Investors Service (2012) has developed an industry outlook focused on the PFI/PPP sector which expresses their expectations over the next 12-18 months, highlighting the stable perspective for Europe, the Middle East and Africa (EMEA), based on the strong underlying credit quality asset class and its contractual credit structure. However, there is a direct link between the downgraded underlying rating and the deterioration in sovereign or sub-sovereign credit-worthiness which directly affects off-takers of project finance.

As mentioned, the sovereign debt crisis in EU economies has created an unprecedented situation in capital markets for the euro area periphery in the south of Europe, and volatility in the cost of borrowing which implies a higher cost of funding for sponsors of PFI/PPP projects. At the same time, there is an incremental borrowing cost due to increased capital requirements. Although the report highlights that banks continue to be the main source of funding for these projects, it looks clear that the new regulatory framework for the banking industry will make it less attractive to invest in long term assets (Moody’s Investors Service, 2012).

Figure 2 shows the underlying ratings of Standard & Poor’s EMEA PFI/PPP projects, ignoring the benefit of any uplift for monoline guarantees, where present, and also distinguishes between credit rating in construction, transition, or operation.

Figure 2. Rating distribution of Standard & Poor’s EMEA PFI/PPP portfolio



Sources: Standard&Poor’s.

The risk profile of a PFI/PPP project is different in the construction phase than in the operation phase because the senior debt of project finance is exposed to a higher risk in the former than

in the latter phase. As shown in [Figure 2](#), when PFI/PPP projects have transitioned to the operations phase, the senior debt rating of the project will improve. On the other hand, the risk profile of the project's senior debt depends on the project as a whole.

The rating issue is particularly important because it will be a crucial driver for Institutional Investors to buy new project bonds. In this respect, we have noticed notable country differences. In Canada, most asset class underlying project bonds for PPPs have been A rated by Standard & Poor's while in EMEA most projects are rated BBB. This difference is due to their sound credit worthiness, the highly rated government offtaker, and the important issue that PPPs in Canada benefit from a risk allocation framework.

Relevant credit risk statistics for rating are Default and Recovery Rates (Edward I. Altman, 2003). A study from Moody's analyzing the default and recovery performance of project finance loans, working with a set of 3,533 projects for the period 1983 – 2010, suggest among other conclusions that the risk allocation, incentives structures through covenants, and structural scheme financing have proved project finance as an effective asset class, with an ultimate average recovery rate 79.9% according to Basel II definition of default (Moody's , 2012). The study data set contains 805 projects as PFI/PPP with an ultimate recovery rate of 87% (Basel II) and it concludes some evidence that PFI/PPP is a sub-sector at the low-risk of project finance. If we take into account that project finance is the asset class underlying project bonds issued after the construction phase, it could be suggested a benefit resulting in a lower capital burden for investors in these long-term bonds (Sorge, 2004).

3.3. Europe 2020 Project Bond Initiative

On October 19th 2011 the European Commission (EC) launched a legislative proposal³ for a pilot phase of Project Bonds, with the aim to foster capital markets in Europe and to finance investment in the fields of Infrastructure, Energy and IT (European Commission, 2012). This initiative has two objectives: to reopen debt capital markets as an additional source of financing from Institutional Investors and to help promoters of individual infrastructure projects to increase their debt financing availability. Project bonds are foreseen under the "Connecting Europe Facility" (CEF) which is also part of the "Europe 2020" strategy.

The "Europe 2020 Project Bond Initiative" started once the European Parliament and the Council approved the legislative proposal amending the Trans European Networks (TEN) Regulation and the Competitiveness and Innovation framework Programme (CIP) on 22 May 2012. On 5 July 2012, the European Parliament adopted the proposal for a pilot phase 2012 – 2014 of the Project Bond Initiative.

The Project Bond Initiative would be based on the established risk sharing mechanism between the EC and EIB, such as the existing Risk Sharing Finance Facility (RSFF), the Loan Guarantee Instrument for TEN-Transport projects (LGTT), as well as other EIB/EIF risk sharing schemes (European Commission, 2011).

3. This legislative proposal has its origin in the multi-annual financial framework (MFF) for the period 2014-2020, adopted by the Commission on 29 June 2011, trying to re-unite current financial instruments for strategic sectors under a common legislative framework, the Connecting Europe Facility (CEF).

The Project Bond Initiative is expected to attract Institutional Investors, such as pension funds and insurance companies, who are keen to invest in predictable cash flow generation projects through the credit enhancement of bonds issued by the project company, i.e. the sponsor of the project. The credit enhancement raising senior debt and the implementation of this Initiative would be done through the EIB, see (European Investment Bank, 2012).

The mechanism for this partial credit enhancement of the credit standing of projects is to separate the debt of the project company into a senior debt and a subordinated tranche⁴. Due to the fact that subordinated debt is riskier than senior debt, the EIB and the EU would share the risks involved under the EIB risk sharing mechanism mentioned⁵. The provision of the subordinated tranche increases the credit quality of the senior debt. According to FitchRatings, “the proposed support mechanism (funded or unfunded) are true credit enhancing features, and the potential size of the support up to 20% the senior debt amount, is significant and may justify a multi – notch improvement in rating”, see (FitchRatings, 2011). However, ratings could be affected by the underlined asset class (project finance) or the credit quality of the off-taker. What is more, there is a direct link between the sovereign rating and the project finance rating.

Moody’s (2011) highlights the Europe 2020 Project Bond Initiative, stating that “it would be capable of credit-enhancing senior secured project bonds issued by PFI/PPP project from low investment-grade to single-A ratings”. The credit enhancement could be achieved through a funded subordinated debt, or an unfunded partial guarantee of senior debt service.

Standard & Poor’s (2011) states that, if implemented properly, this Initiative could provide “the credit support either by guaranteeing the debt service payments of such bonds, or by the EU taking a subordinated position in the project”. The guarantee structure provided for credit enhancing would be available during the project’s construction phase, which is not the most attractive phase for investors. If this credit risk mitigation works and is well accepted by the market, this Initiative could be a trigger for the project bonds market and in infrastructure financing in Europe.

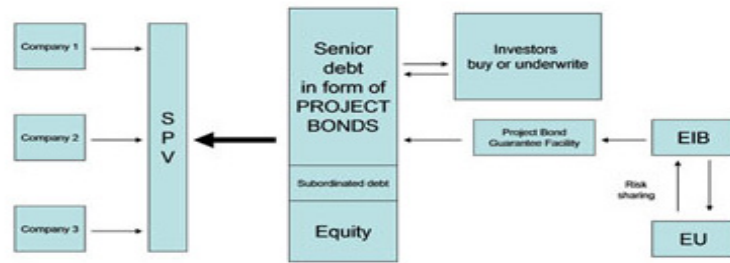
There are many differences between this Initiative and monolines. Among them, it is highlighted that the Initiative is aimed at the A- to AA range, it is based on the EIB’s capacity to deliver subordinated loans and the support would be available during the construction phase. This last point is really important since Institutional Investors are reluctant to take this risk unless this is mitigated through Partial Credit Guarantees or any other form of risk-sharing.

Figure 3 shows the typical Project bond structure under this Initiative in which investors buy or underwrite the Senior debt tranche in form of Project bonds.

⁴ European Commission. Brussels, 19.10.2011. COM (2011) 660 final. Pages 5 – 6. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. “The subordinated tranche can take the form of a loan or a contingent credit line, which can be drawn upon to service the senior debt in case of need or a combination of the two. The support would be available during the lifetime of the project, including during the construction phase, but would not exceed 20% of the senior debt of the project”.

⁵ European Commission. Brussels, 19.10.2011. COM (2011) 660 final. Page 8. “On a project-by-project basis losses are shared by EU and EIB according to fixed percentages. In a first portfolio approach, the EU would absorb the first losses up to a certain pre-agreed percentage and maximum amount and with the EIB absorbing losses thereafter”.

Figure 3: An illustrative example of the structure of Project Bond Initiative



European Commission, 2011.

4. Solvency II to reshape capital markets: its impact on project bonds

The new Solvency II Directive will set out new and stronger requirements on capital adequacy and risk management for the EU insurance industry. It will replace the current solvency requirements under Solvency I introduced in the early 1970s.

Solvency II is expected to affect European insurers in how they allocate their investments, because it will oblige insurers to value assets and liabilities at market value, which requires allocating capital reflected on short-term volatility. Solvency II charges will be driven by the risk of asset-value fluctuations over one year, rather than the recovery value at maturity, which implies for insurers to hold a higher capital. Therefore, the likely effect on insurance companies would be a reassessment of their asset allocation. In order to value the Solvency II economic capital, insurance companies could use the “standard formula” or their “internal model”. Rating agencies recognize that infrastructure financing could provide a high profitability for Institutional Investors. When using the “internal model”, which is an advanced methodology, it seems that the infrastructure debt financing results in lower economic capital consumption than by using the “standard approach”.

Regarding assets charges, Solvency II will be very expensive for equity and long-term bonds, because of the pricing volatility of these assets, requiring the highest capital charges under the new Directive. With respect to corporate bonds, charges will increase with longer maturities and lower rating levels. As an example of this issue, according to FitchRatings, “insurers will face a charge in excess of 30% on 15 year ‘BBB’-rated bonds, and 60% on 8 year ‘B’ -rated bonds”, see (FitchRatings, 2011). This could push insurers to switch long term bonds into shorter term bonds, whilst looking for higher risk-adjusted returns. On the other hand, if insurance companies invest in long term products, mitigating the mismatching risk between the long and short term, it seems that they should have a regulatory advantage. In this sense, it seems that Solvency II

would grant lower capital requirements for these investors, and with respect to diversified portfolios, it appears that there would be a reduction by 25% in reserve requirements. To summarize, the asset liability matching and portfolio diversification should receive a clear and better regulatory treatment by the new Solvency II.

Although the EU Project Bond Initiative under its credit enhancement scheme of funded or unfunded sub-debt for up to 20% of the total project debt issue could ensure that the senior bond debt achieves the rating 'A-', Solvency II could affect the potential demand for project bonds.

5. Conclusions

The new regulatory capital requirements for commercial banks, the current process of disintermediation in the financial industry, the increase in the AuM for Institutional Investors, and the huge investment needs in Europe (€1.5 – €2 trillion) supports project bonds as an asset class for Institutional investments. For sponsors of infrastructure projects in Europe, project bonds could thus be a new, useful and effective source of financing through the capital markets.

The main Institutional Investors involved in this asset class investment are pension funds and insurance companies. Their reserve requirements are regulated by Solvency II Directive. In this respect, the credit enhancement of bonds issued would be a key driver in order to achieve the required rating of these Institutional Investors which is currently at the threshold of A-. Nevertheless an improvement of the new Solvency II Directive would be required to reduce the economic capital burden for Institutional Investors acquiring infrastructure bonds. The internal model used to assess economic capital for infrastructure investments and the matching asset liability, whilst achieving a portfolio diversification effect due to the new asset class of project bonds, should also receive a lower economic capital consumption under the new Solvency II. A regulatory effort in the new Directive could be critical for the project bond market in Europe.

The 2020 Europe Project Bond Initiative is timely but requires being active, flexible and responding to the execution required from capital markets. One of the key drivers of this Initiative will be the established mechanism for credit enhancement to achieve the minimum threshold of A- required by Institutional Investors. If this Initiative is successful, Europe could start taking off with new capital markets for project bonds, which could be attractive for investors from developing markets such as Latin America and many parts of Asia. In this economic framework, International Financial Institutions (IFIs) can play a role providing the credit enhancement whilst they could also provide liquidity acting as the anchor investor in the senior tranche of issued bonds.

References

- Altman, E. I., Brady, B., Resti, A., Sironi, A. (2005) "The Link between Default and Recovery Rates: Theory, Empirical Evidence and Implications". *Journal of Business*, Vol. 78, n.6
- Chen, A. H., (2009) "Rethinking Infrastructure Project Finance". Southern Methodist University.
- European Commission (2009) "Green paper: TEN-T: A policy review - Towards a Better Integrated Trans-European Transport network at the service of the Common Transport Policy". COM (2009) 44 final.
- European Commission (2011A) "WHITE PAPER Roadmap to a Single European Transport Area - Towards a competitive and resource efficient transport system". COM (2011) 144 final. Brussels.
- European Commission (2011B) "Communication from the Commission to the European Parliament, The Council, The European Economic and Social Committee and the Committee of the Regions. A Pilot for the Europe 2020 Project Bond Initiative". Brussels: s.n.
- European Commission (2011C) "Economic and Financial Affairs. An illustrative project example". [Online] Available at: http://ec.europa.eu/economy_finance/financial_operations/investment/europe_2020/projectexample_en.htm
- European Commission (2011D) "TEN-T Networks". [Online] Available at: http://ec.europa.eu/transport/infrastructure/index_en.htm
- European Commission (2012A) "Economic and Financial Affairs". [Online] Available at: http://ec.europa.eu/economy_finance/financial_operations/investment/europe_2020/index_en.htm
- European Commission (2012B) "Economic and Financial Affairs. The Pilot Phase of the Europe 2020 Project Bond Initiative". [Online] Available at: http://ec.europa.eu/economy_finance/financial_operations/investment/europe_2020/index_en.htm
- European Investment Bank (2012) "The Europe 2020 Project Bond Initiative". [Online] Available at: <http://www.eib.org/about/news/the-europe-2020-project-bond-initiative.htm>
- FitchRatings (2011A) "Fitch Ratings: Fitch Comments on EU Project Bonds Initiative", s.l.: s.n.
- FitchRatings (2011B) "Solvency II Set to Reshape Asset Allocation and Capital Markets", s.l.: s.n.
- Moody's Investors Service (2011A) "Europe 2020 Project Bond Initiative", London: s.n.
- Moody's Investors Service (2011B), "EMEA PFI/PPP Sector Outlook 2011", Industry Outlook, London.
- Moody's Investors Service (2012) "Default and Recovery Rates for Project Finance Bank Loans, 1983-2010", Special Comment, s.l.: s.n.
- OECD (2008) "Transport Infrastructure Investment: Options for Efficiency. International Transport Forum". OECD, Paris, France.
- Proost, S. Dunkerley, F. De Borger, B. Gühneman, A. Koskenoja, P. Mackie, P. and Vander Loo, S (2011) "When are subsidies to trans-European network projects justified?" *Transportation Research Part A: policy and practice*, Vol. 45, pp. 161-170.
- Sorge, M. (2004) "The nature of credit risk in project finance". *BIS Quarterly Review*.
- Standard & Poor's (2011) "How Europe's Initiative To Stimulate Infrastructure Project Bond Financing Could Affect Ratings", London: s.n.
- Standard & Poor's (2012) "EU 2020 And Long Term Financing", s.l.: s.n.
- Steer Davies Gleave (2011) "Mid term evaluation of the TEN-T Programme (2007-2013)". [Online] http://ec.europa.eu/transport/infrastructure/midterm_review/doc/final_report_v_to_commission_12_04_2011.pdf