Abstract

The purpose of this article is to propose a framework of Social Impact Project Finance (SIPF) for financing infrastructure projects. In the framework, public sector commits to pay performance-based yield for improved services, which in turn motivate private investor to better construct and manage infrastructure assets. By embedding social impact performance criteria, SIPF has an endogenous incentive mechanism that can align perspectives of public and private sectors, while traditional project finance lacks. SIPF can also play a critical role in achieving sustainable infrastructure, because all three components of sustainability (social, environmental and economic) can be easily embedded as impact factors in the framework. In addition, it could be well customized for governments globally to address their own problems, such as carbon emission or congestion reduction. Private investor can also benefit from higher yield, liquidity, and tax break. With this innovative interdisciplinary initiation of impact finance and project finance, there will be significant opportunities to not only create a new format of impact-based project delivery methods, but also show us a prospective way to securitize and deliver public services under clear supervision in the future.

Keywords: impact finance; infrastructure financing; project finance; public private partnership.

1. Introduction

A new multilateral development bank, Asian Infrastructure Investment Bank, has been proposed by China recently to provide finances for infrastructure projects in the Asia Pacific region. According to Asian Development Bank, Asia will need an USD 8 trillion fund for national infrastructure from 2010 to 2020 [1]. Likewise, American Society of Civil Engineers (ASCE) reported a cumulative infrastructure funding deficit of USD 1.1 trillion by the end of 2020. It is predicted that underinvestment in the transportation, water, energy, and port infrastructure projects will bring a loss of USD 3.1 trillion in GDP to the U.S. economy [2]. Organisation for Economic Cooperation and Development (OECD) also estimated that global investment in infrastructure, which needs to be financed from extra-budget sources, is approximately USD 25 trillion in the period until 2030 [3]. Amid the backdrop of debates on global warming and emission reduction, the idea of sustainable infrastructure came out as a supernova and quickly put extra fiscal pressure on governments. What does not change is the insufficient budget, the International Energy Agency (IEA) estimated that it requires USD 45 trillion to adapt to the effects of climate change over the next 40 years by 2050[4].
Infrastructure is deteriorating globally, consequently imposing huge costs on our society due to lower efficiency and increasing accidents. Substantial rehabilitation and construction is urgently required, from transportation systems to sanitation facilities [5]. In the mean time, developing countries need even broader sectors of infrastructure initiation. As demand considerably surpasses investment, clearly, there is a massive infrastructure funding gap that challenges governments. However, public finances and traditional financing sources are increasingly under strain, especially after the 2008 financial crisis. New regulations, such as Basel III, will further constrain the liquidity. Public funding sources as well as methods obviously cannot meet the demand of investment [6]. Fortunately, abundant potential sources of financing can be found for infrastructure demand. Institutional investors such as mutual funds, pension funds, insurance companies, and endowments could play an important role in financing infrastructure projects in the future [7][8]. Total assets held by institutional investors in the OECD area alone were already over USD 70 trillion at the end of 2010 [9]. Moreover, there is a near perfect match between institutional investors seeking to invest in long-term assets and the corresponding need for long-term financing of infrastructure investment. Although there are regulatory and other barriers in the future, in order to maintain sustainable and efficient infrastructure service, new financing methods that can encourage additional funding sources such as institutional investors are needed.

The purpose of this article is to propose a framework of Social Impact Project Finance (SIPF) for financing infrastructure projects where public sector commits to pay performance-based yield for improved services, which in turn motivate private investor to better construct and manage infrastructure assets. And why SIPF may help addressing global infrastructure financing gap will also be explained. In this paper, a quick review will be given on the state-of-art infrastructure investment vehicles, securitization of project loans, as well as social impact bond. Then SIPF will be defined, and the framework of SIPF will be structured and proposed as a solution to the massive infrastructure deficit.

2. Existing infrastructure financing approaches and investors’ perspective

2.1. Existing infrastructure financing approaches [10]

Infrastructure investments in nature are attractive to institutional investors, for example pension funds, as infrastructure projects are long-term investments that can match the long-term pension liabilities. Moreover, infrastructure investments can produce predictable and stable cash flows in a very long period of time. In addition, infrastructure assets could hedge pension funds’ sensitivity to inflation. Finally, because of the low correlation of infrastructure with traditional asset classes, pension funds are increasingly looking at infrastructure to diversify their portfolios. Nowadays, there are various financing instruments and investment vehicles available for them to get exposure to infrastructure investment.

Primary vs. secondary market: primary market is for financing initiation of an infrastructure project, including procurement, construction, and delivery. It can also be described as a brownfield project in public private partnership. Secondary market refers to the operation phase of an infrastructure project, or a greenfield project in public private partnership. Typically, the primary market is more risky along with higher potential return. It also needs a heavy initial investment form the investors. Investors who are interested in primary market usually concern about the potential of growth, while the secondary market investors are focusing on stable cash flows from infrastructure operation service.

Equity vs. debt finance: like companies, infrastructure projects are also financed through a combination of equity and debt, usually with high leverage. Investors can get exposure by buying either stocks of a listed infrastructure company or bonds offered by such companies. In addition, traditional project finance loans also belong to debt financing.

Public vs. private companies: infrastructure companies can also be categorized by public-traded (listed on the stock market) and private-traded (unlisted). Public-traded companies are more transparent and liquid than private companies, while private companies typically have less correlation with other assets and thus provide better diversification for investors.
Direct vs. indirect investment: direct investment refers to direct holding of target company’s equity or debt, while indirect investment can be achieved via other infrastructure specialist funds. For example, investors can invest in such exchange-traded funds (ETFs) that bundle the shares of these companies together by sector or region. There are also dedicated infrastructure funds, with first one set up in the mid 1990s in Australia. For public companies, equity can be easily acquired on the stock exchange. But for private companies, it takes effort to find opportunities.

2.2. Investors’ perspective

With so many investment vehicles available, allocation on infrastructure assets by institutional investors has been limited, only 1% of total asset under management of pension funds [10]. A flat allocation of 1% results in USD 0.7 trillion to infrastructure investments. An increase to 3% would imply an allocation of about USD 2.1 trillion, which can definitely help bridge the funding gap [9]. A significant area to look into is how to access and encourage this funding.

Further investigation was carried out to determine why infrastructure investment vehicles appear less attractive to institutional investors. Private sector investors are always interested in participating in stable, predictable and profitable investment opportunities. A survey conducted by OECD research team points out barriers for institutional investors to investment in infrastructure market. These barriers include: lack of liquidity; transparency; and political commitment over the long term. There are also hurdles from the investor’s side, for example, lacking of expertise in infrastructure, problem of scale of funds, short-termism of investors, etc. [11].

3. Securitization

In order to overcome above-mentioned hurdles, securitization is needed to enhance transparency by creating an open market of such products, to increase liquidity of infrastructure financial products, and to invite not only long-term investors but also short-termism investors into that liquid market. Therefore, it is crucial to securitize infrastructure financial products, even though the market has not recovered its appetite for structural financial products like collateralized debt obligations.

In a typical securitization transaction, the issuer who generates large volumes of receivables raises capital by selling some or all of those receivables to a special purpose company (SPC), securitizing to financial product and selling in package to the investors in capital market [12]. Figure1 shows the how to securitize project finance loans. Let us assume there is typical project finance under Public Private Partnership (PPP). Public partner and initial equity provider together set up an SPC, the only purpose of the company is to deliver the project. The company acquires capital from the lenders as normal project finance. The lender may want to refinance and take the next deal. So it finds investment banks and tries to get the project loans securitized. This time the lender sets up a SPC, exclusively for issuing the securities. The reason an additional SPC is needed is because the investors do not want to be responsible for any other businesses of the lender than this single project. This SPC II provides this isolation. Securitization helps to improve liquidity by cycling the money between the banking system and capital market. The lender then gets refinanced and moves on to the next project, instead of holding the project loan for decades.
4. Social impact bonds

Before introducing SIPF, a recent topic in financial industry, Social Impact Bonds (SIBs) is examined. It inspires us to design a performance-based impact financing method for infrastructure projects. According to SocialFinance’s definition, social impact bond, also known as pay-for-success financing, is a contract with the public sector in which it commits to pay for improved social outcomes. [13] In other words, it is a performance based financial arrangement that encourages private funding for social programs, with funds raised from investors to provide social service providers with the working capital to deliver their services. It works like this: First, a public sector problem is identified. Then government finds investors who are interested in such social project. Investors provide capital to SIB intermediary, which is also known as a special purpose company. SIB intermediary then provides working capital to NGOs or companies to implement the program. In this way, NGOs/companies have the money to implement social programs, which might not happen without such arrangement. At last, after independent evaluation is conducted, government pays principle and interest to investors only if expected impact achieved by the program.

There are some key advantages of SIB arrangement that we need in our new infrastructure financing method. First, it taps into new funding opportunities by introducing private investor from capital market. Second, private investors are in charge of funding a program’s delivery and operations. Third, public sector commits to paying the investor only if the program achieves better social outcomes, and government can enjoy cost savings from improved...
outcomes. Last but not least, it can be flexible enough to be designed to be very profitable to attract private investors. SIB clearly shows us a way to encourage private funding for social good. So we are exploring this idea to finance infrastructure projects, trying to create a financing framework with both liquidity and potential profitability, by combining the idea of SIB as well as securitization.

5. Social impact project finance for infrastructure

We are defining SIPF as a financing method of infrastructure projects by which public sector makes commitment to pay additional yield for improved infrastructure services, or other social impacts, which in turn motivates the private sector to better design, construct, operate, and maintain infrastructure assets.

The framework of SIPF is shown in figure 3. First, when an infrastructure project is needed, the government or public authority sets up an SPC and signs concession to authorize the project exclusive to the company. Second, investment banks come in to help the company offering SIFBs to investors, signing contracts among multiple-parties. The contracts specify impact factors of target infrastructure project and the benchmarks required by the public sector. The SPC raises funding and starts to build/manage the infrastructure, reaching out the contractors. In the mean time, it still can borrow money from banks as usual if needed. Another thing we want to highlight here is that the SIFBs investors are responsible for making strategy of the project company, voting the board of directors of the SPC, etc. In this way, they can act like equity holders to influence the SPC to achieve impact requirement. The key of this mechanism is to separate interests into two parts, basic yield and impact yield. Basic yield can be fixed or floating above any benchmark interest rates, for example London Interbank Offered Rate. Moreover, the algorithm of impact yield should be specified in the contract case by case.
As an example, the project is a toll road operation and maintenance, and the impact factor is simply satisfaction rate of the user. If the project company manages to provide better service to the user, the government will get a satisfied feedback from the users. Then the investors will not only receive the basic interests (a fixed rate of 2% for example) but also the impact yield (5% at most for example). The potential high capital return of impact yield and secured basic return of basic yield will urge the investors to provide better infrastructure service and social outcomes, working as an endogenous incentive mechanism. Moreover, multiple impact factors can be implemented in the contracts to make it more practical for large-scale infrastructure projects.

Ideally, this is a multiple-win solution: Public sector can be satisfied because all components of sustainable infrastructure projects, including acceptable social, economic, and environmental impacts, can be embedded as impact factors in the framework. Moreover, SIPF can not only improve public service by taking advantage of private sector’s effectiveness, but also fund infrastructure projects globally via capital market. At the same time, private investors will have an easily tradable investment tool with attractive returns, diversification effect, and low default risks. It also offers them an opportunity to make a positive impact to the society as well as tax benefits along with impact investment. Most importantly, one of the major issues in public private partnership is the alignment of public private perspectives. The endogenous mechanism in SIPF can help aligning perspectives of both public and private sectors, by linking the impact factors to impact yield, and bring virtuous cycle to the relationship. The users can also enjoy better infrastructure service because of the higher efficiency of private sector. Moreover, due to the performance-based mechanism, taxpayers do not need to pay if the impact requirements are not achieved. In other words, they only pay for success.

The next issue is to check whether this new financial product is attractive enough for institutional investors, especially for pension funds. The main preference of investors is for stable, predictable, and profitable investments, which can be satisfied by the combination of stable basic yield and profitable impact yield. Impact investment can also provide investors tax benefits and, of course, social impact to society. Moreover, income-producing infrastructure asset itself usually offers useful characteristics, including long-term, predictable income streams, low correlations to other asset classes, relatively lower default risk. Finally, securitization can also help our new approach to have a liquid and transparent market, compared to the traditional project finance market.

6. Conclusion and future research

Numerous studies have been conducted on involve institutional investors to finance infrastructure projects, but very few provide specific ideas of innovative financing methods. We are presenting a framework of social impact project finance that could be a solution for infrastructure funding problem. It shows the potential of funding as an innovative framework that can be very attractive to investors. By embedding social impact factors and yield, it has an endogenous incentive mechanism that can align perspectives of public and private sectors. It may also play a critical role in achieving sustainable infrastructure, because all three components of sustainable infrastructure (social, environmental and economic) can be easily embedded as impact factors in the framework. There are absolutely some key challenges that we are going to face, including risk allocation among different parties, potential conflicts and resolution among participants, valuation/pricing of the financial product, etc. It is crucial for us to look at these challenges and try to answer them in our future research.

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