Financing Infrastructure Projects: Project Finance and Cost of Capital Conundrum

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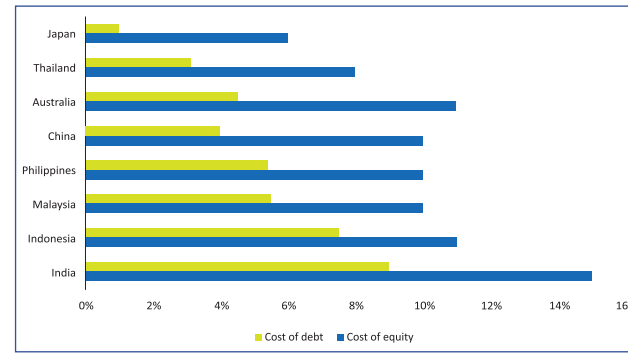
Infrastructure is a key determinant for the growth potential of the economy. Infrastructure development gives multiplier effect to the economy and new infrastructure will be pivotal to the availability of safe drinking water, housing-urban and rural sanitation, access to health facilities and other vital resources. According to McKinsey Global Institute (2014), the projected portion of infrastructure funding in GDP must be increased approximately from 3.8 per cent to 5.6 per cent worldwide. On similar lines, the National Infrastructure Pipeline (NIP) in India detailed the roadmap of infrastructure development across sub-sectors by outlining an investment plan of over INR 100 lakh crore ($1360 bn) over the next five years.

Infrastructure investments require "certain" large initial investments and "uncertain" long term risky payoffs. This means that in order to maximize the value of infrastructure assets for both equity and debt investors, the cost of capital needs to be optimized. Cost of capital is a function of risk-reward and opportunity cost trade-offs sought by investors when they give capital. Simply put, there are theoretically just two ways to optimize cost of capital. One of them would be to reduce the riskiness/volatility around projected cash flows and the second being bringing in more diversified investors, thus optimizing the demand for compensation for unsystematic/project specific risk. It is clear from Exhibit One that the cost of both debt and equity capital in India is high when compared to similar countries in APAC region.

Thus, access to diversified sources of capital and investors means lower cost of capital. Now I look into the sources of funds and instruments, apart from sovereign budgets to study their impact on cost of capital. I would not be focusing on funds available through budgetary allocations as with the onset of COVID-19 and associated disruptions, the financing of infrastructure via Centre and State budgets would be constrained.

Exhibit One: Cost of Capital (Typically for renewables) in India versus APAC region



Source: Tata CleanTech Capital Research

Cost of capital and diversified pool of infrastructure investors

Several innovations in financial products available to fund infrastructure, policy and regulatory guidelines and other such interventions have worked towards bringing in diversified investors towards bridging the infrastructure financing gap. This has led to a reduction in the cost of capital of infrastructure projects. I will now critically examine a few of these sources.

Bank financing has been a major source of funds for infrastructure projects. Outstanding credit to

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infrastructure sector, as a percentage of gross non-food credit, by banks was 15% until fiscal year 2016. Only due to rising non-performing assets in the banking sector, driven by declining asset quality, this share declined to 12% in the fiscal year of 2019. Power and Roads contributed to 70% of the outstanding bank infra credit. Though it is easy to see that dependence on bank funds, on paper, does not solve the access to the low cost *long term* funds problem, but bank financing does have its own advantages. Bank financing revalidates the project economics (credit decisions require due diligence on the contractual bundle and banks create escrow or Trust and Retention mechanisms for trapping project cash flows), provides effective monitoring support and is cheaper and easier to renegotiate than bond financing. Syndicated loans on common loan documentation means that credit and syndication risk is diversified and the cost of capital is thus reduced.

Why bank funding was so important, typically in early project stage, is because of a lack of depth and width in bond markets. The domestic debt market in India amounts to about 67% of the Indian GDP while the size of India's corporate bond market is a mere 16% of the same. Infrastructure projects in the under-construction stage are typically rated at BB or below, signifying the high risk in funding these projects and therefore these projects do not seem attractive to bond investors who are skewed towards top-rated and financial sector entities. Similar constraints on rating prevent pension and insurance companies to directly invest in highly leveraged infrastructure projects.

The proposed, *Development Financial Institution,* created with an aim of funding infrastructure projects, may be able to attract low cost funds with its dedicated corpus and sovereign backing. Though in theory, funds from Infrastructure Development Funds (IDFs) can refinance initial bank loans, in practice, a steady pipeline of operationally efficient infrastructure projects is unavailable. Banks are further hesitant to hold onto such assets, if the projects are doing well.

Infrastructure and Real Estate Investment Trusts (InvITs and REITs) solve this problem of investment in operational assets (thus limiting construction risks) and need to pass 90% of income as dividends. They are likely to play a significant role in future, bringing in diversified investors to infrastructure assets.

In addition to this, new Multilateral Development Banks like the New Development Bank, Asian Infrastructure Investment Bank are also investing in bankable projects, in addition to Asian Development Bank and International Finance Corporation. The norms for External Commercial Borrowings, Foreign Direct Investment, Foreign Institutional Investor route and offshore rupee bonds have also been eased to provide additional economical funds to infrastructure assets.

With the above discussion, we can easily conclude that decks have been cleared and significant steps have been taken to reduce cost of capital by bringing in diversified sources of capital and investors to invest in infrastructure assets.

However, unless equal attention is paid towards bringing down the risk around cash flows of infrastructure assets, the assets would still not be able to satisfy the returns expected by debt or equity investors. If the value of infrastructure asset drops below the value of debt, the developer is most likely to default. This may bring us back to another series of Non-Performing Assets, though the sectors may differ now.

Project Finance, High Leverage and Risk Allocation

The common method for financing infrastructure assets is Project Finance. According to Esty et al. (2014), "Project Finance involves the creation of a legally independent project company financed with equity and non-recourse debt to finance a single purpose capital asset, usually with a limited life". Project Finance involves investment in an asset solely based on asset's capacity to generate returns, but due to non-simplicity in the application, there is no formal agreed-upon concept of PF (Srivastava and Kumar, 2010, Pinto, 2017).

The basic building blocks of Project Finance structures are the Creation of Separate Entities;

Concentrated Equity Holding Pattern; Usage of Non-recourse Debt; High Leverage; and Usage of Contractual Structure (Srivastava and Kumar, 2010; Pinto, 2017). Thus, Project Finance structures provide a mechanism to separate the new investment from existing block, thereby removing the problem of asymmetric information and using non-recourse debt with no additional charge on existing balance sheets. It is easy to see why highly leveraged project finance is a preferred financing mechanism. In theory, assets in the infrastructure sector are "Utilities" and thus have sure off takers/buyers. If there is a contractual agreement with a buyer (like in power projects), cash flows are definite and can be escrowed. This means that the projects can be supported by high debt ratios, as guaranteed cash flows are just sculpted around debt repayments with suitable reserves built in. As cost of debt capital is generally lesser than equity capital, the weighted average cost of capital comes down.

The above theory will work perfectly if all risk that comes to the cash flow is optimally allocated to counter-parties through contracts, hedging, insurance or securitization and the contractual counterparts behave as would be expected. However, if the contractual counter-parties do not behave as expected or the project faces construction delays, then the expected cash flows would not materialize and project finance lenders would start to face repayment stress, as they are bound by non-recourse/limited recourse debt.

The paper now investigates further into information asymmetries that create problems in risk allocation and sharing between several project parties and counter-parties. In a perfect world, high debt driven Project Financing increases equity value. Perfect covenant monitoring by bankers precisely show the picture of cash utilization while capturing the associated cash flows.

However, I present in Table One, two scenarios that exist for Project Finance. In the first scenario, the project is executed under perfectly symmetric information sharing amongst the key stakeholders, which include the Government, Corporate Sponsor, Bank and the Public at large. Under ideal conditions, the project would create value.

In the second scenario, I present more realistic scenarios, keeping in sight the "Information asymmetry" that exists between the key sponsors with respect to the nature of returns along with the risks faced by the project.

Table One: Information Asymmetry and project finance

Stakeholder One: Public Body /Government	
Scenario One: Information about risk and return is perfectly symmetric amongst key stakeholders	*Scenario Two: Information about risk and return is asymmetric amongst key stakeholders*
1. Decides to commercialize an Infrastructure asset only when there is an economic need and there is strong possibility of sure off take of the service.	1. Sometimes commercialization of an asset is a political decision rather than economic decision. So a concession may come out for a six lane highway, where traffic is not even good for a successful four lane highway.
2. Invites bids on a well thought out and drafted Concession Agreement wherein bidding process, criteria and scoring methodology is clearly laid out.	2. Request for Proposals or Quotations are sometimes not well thought out leading to litigations on the Bidding Process or criteria.
3. Important risk mitigators like, State support agreements, substitution agreements and Termination benefits are clearly listed and enforceable.	3. Too many riders and conditions on Termination Benefits in case the asset becomes stressed or Substitution agreements makes it difficult for the Concessionaire or bankers to derive any benefit.
4. Get clearances in place and sort out land acquisition issues.	4. Clearances from several agencies like environment, forest etc. are delayed and land acquisition issues are not yet clearly sorted by policy.
Stakeholder Two: Concessionaire/Corporate/Project Company	
1. Private sector calculates a fair bid value for the concession keeping in mind the negative and positive externalities and additional income streams that the project would generate.	1. Overbidding of projects is a concern and corporates frequently ask for sweeteners post winning a bid.

2. Private sector is comfortable loading the project with upfront equity and remains "skin in the game", till the time the project gets commissioned and starts generating cash flows.	2. Most of the time the quality of equity infusion is suspect and the equity may sometimes come in the form of subordinated debt. Also the sponsors seldom bring in upfront equity, matching equity infusion with the drawdown schedule of bankers.
3. Private sector is able to raise capital following the three principles: Right Kind (Instruments such as Bank Debt or Bonds) Right Amount(Optimum Debt equity ratios) and in the Right Sequence(that matches the assets with the financing instruments).	3. The sources of debt and equity finance is limited in the light of the lack of breadth and depth of bond markets. (This issue though is now addressed by policy; execution remains to be tested). Even risky projects are loaded with huge bank debt and risk shedding to bankers' balance sheet acts as a major incentive for sponsors.
4. In case the asset becomes stressed, private sector participates in the restructuring efforts and handholds the project till the time it starts producing cash flows again.	4. Sponsors fail to bring in fresh equity, competent management or in some cases even a viable business plan when assets become stressed. In some extreme cases it is the sponsors who are overeager to park stressed assets in the restructuring mechanism.
5. They present Financial Information to the bank correctly and on time. The debt contracts are respected.	5. Early warning signal are often camouflaged and the sponsors may take one last gamble on debt. Debt contracts and covenants are often breached as there is hardly much at stake personally for the promoters.
Stakeholder Three: Banks/Financial Institution/Fund Providers	
1. Have the right skill sets to appraise the contractual bundle around the project finance.	1. Many banks join the syndicate project loans on the strength of lead banks appraisal skills and Information memorandum. This results in often missing the signals that emerge in the monitoring process.
2. Every Project loan is appraised on its merit after a careful analysis of risk and interest and fee based yield that the loan is likely to produce. The loan is priced on the risk it brings to the capital.	2. Banks often carry forward existing corporate relationships and project finance often becomes a "relationship" product. The loan is priced more or less keeping the competition in mind rather than risk.
3. Understand the sector and offer repayment schedules only after sculpting it with cash flows of the sector.	3. Banks often give aggressive repayment schedules and the right kind of reserves are often not built up during the project payback.
4. Banks easily get refinancing and avoid all Asset Liability Mismatches on the balance sheet.	4. Mechanisms are available in the form of Infrastructure debt funds, securitization etc., but banks are often reluctant to let go of good assets.
5. Banks don't face the problem of moral hazard.	5. Difficult to say, but at the end of the day, often the Government recapitalizes the bank after severe losses.
Stakeholders Four : Members of Public	
Infrastructure projects under PPP framework are highly visible and the fact that their end users are members of public means that the Public understands and accepts the nature of User charges and is willing to adhere to the tariffs fixed by Government agencies.	In reality, the tariff for infrastructure projects are easily subject to adverse public opinion and political opportunism when their fee is considered too high or services unsatisfactory.

Source: *Adapted from Srivastava (2015), Journal of Structured Finance*

The table clearly shows that any of the above can trigger a less than expected cash flow and thus the infrastructure asset may quickly lose value for the equity holder. This triggers default. What it also means is that on one hand though, cost of capital for Infrastructure finance may be brought down by bringing in diverse sources of capital and investors with a diversified portfolio, but on the other hand, if the pipeline of investible projects is not maintained and the risk around cash flows continues to remain unmitigated or unallocated to suitable counter-parties, the resultant impact on cost of capital will not differ significantly.

Conclusion and Suggestions

The paper points out that there is significant progress in diversifying sources of capital by bringing in policy

level changes and innovation in products. However, the obstacle of lack of investable projects remains. As pointed out, sometimes projects are not properly designed and contractual arrangements imply a distribution of risks and returns that create the wrong incentives among the various partners. I believe that greater involvement of private investors and the design of economically rational financing structures can mitigate such problems. It will also improve the efficiency and success of infrastructure projects. However, creating a pipeline of suitable projects requires a coherent and trusted legal framework for infrastructure projects (Ehlers, 2014). Regulatory/ political risk is among the greatest concerns of private investors. But even where solid legal frameworks exist, institutions can still fall short of best practices. Positive efforts are needed to correct this.

In this regard, the recently announced Development Financial Institution will have a huge role to play. It needs a practice of recording and disseminating the best practices and contractual arrangements of successfully implemented projects. This may be implemented in a sector-wise fashion and would then serve as a blue print for transaction documents for any new project in that sector. While the establishment of such practices and institutions may take time, their development would significantly contribute in realizing enormous efficiency gains and enable governments to successfully undertake a larger number of infrastructure projects.

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BANK QUEST THEMES

The themes for "Bank Quest" are identified as:

1. July – September, 2021: Evolution & future of Monetary & Fiscal Policies – Sub Themes: Regulatory Framework, Monetary Framework, Fiscal Framework.
2. October – December, 2021: International Financial Centers.
3. January – March, 2022: Effective resolution of stressed assets.