CENTRE FOR FINANCIAL MANAGEMENT

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EDITOR: DR. PRASANNA CHANDRA

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ARTICLES /CASES

1. SOME ASPECTS OF INFRASTRUCTURE FINANCING

It is instructive to look at the following aspects that are especially relevant to infrastructure financing: viability gap funding, hybrid annuity model, takeout financing, securitisation, zero coupon bonds, InvIT and India infrastructure Finance company Limited.

Viability Gap Funding

A major constraint for India's infrastructure sector is inadequate finance. Apart from the overall difficulty in raising funds, some projects, though economically worthwhile and necessary, may not be financially viable.

To promote such projects, the government has designed Viability Gap Funding (VGF). It represents a grant to support projects that are economically justified but not financially viable. The VGF scheme was launched in 2004 to support PPP projects. VGF is administered by the Ministry of Finance and a provision for it is made in the budget on a year- to – year basis.

VGF grants are given only for infrastructure projects where the selection of the private sector sponsors is through a process of competitive bidding. The VGF grant is disbursed contribution required for the project.

VGF is usually limited to 20 percent of the total capital costs of the project. VGF is generally provided from the government's budgetary allocation. Sometimes, it is provided by the statutory authority owning the project asset. If the sponsoring Ministry/ State Government/ statutory entity wants to provide assistance in addition to the stipulated amount under VGF, the same will be restricted to a further 20 percent of the total project cost.

The lead financial institution for the project is entrusted with the responsibility for periodic monitoring of the project against agreed milestones and performance levels for the purpose of disbursing the VGF grant.

Hybrid annuity Model

In 2011–12, more than two-thirds of infrastructure projects were under the PPP mode. For large road projects, the PPPs became the default option. But difficulties in land acquisition, environment clearances, and inadequate equity base of concessionaires caused delays and litigation, casting a shadow over the PPP model.

PPPs now seem to have gained their relevance again, at least in the roads sector, thanks to a change in the terms of business between the government and the concessionaires. From a build operate transfer (BOT) model, most road projects are now being executed under the hybrid annuity model (HAM).

The HAM is a hybrid of BOT annuity and EPC models. Its salient features are as follows:

- The government contributes 40 percent of the project cost in the first fives years through equal annual payment. The remaining 60 percent is paid as variable annuity amount after the completion of the project, based on the value of the asset created.

- The developer has to raise the balance 60 percent of the project cost in the form of equity and loans.
- The developer does not have the toll right. The National Highways Authority of India (NHAI) has the responsibility for revenues collection.

Thus, under the HAM model, while the private partner bears the construction and maintenance risk as in the case of BOT (toll) model, the government shares a portion of financing risk.

Delhi – Meerut Expressway Delhi – Meerut Expressway (Delhi Section) is India's first infrastructure project under the Hybrid Annuity Model, built by the Welspun Group. Inaugurated by Narendra Modi on May 27,2018 , it is India's first 14 lane expressway completed within 18 months. It is a green expressway with vertical gardens and solar panels and has coloured cycling track and coloured footpath.

Takeout Financing

Banks have played a pivotal role in financing infrastructure projects in India. However, for a sustained cycle of infrastructure financing, completed projects should attract alternate funding as shown below.

Project stage-bank Financing → Post completion → refinancing → released funds → Fresh funding.

Takeout financing is a mechanism for financing longer duration projects by banks which are primarily interested in granting medium-term loans of 5–7 years. The longer-duration loan is taken out of the books of the financing bank within a pre-determined period by another institution, thus preventing asset-liability mismatch for the bank. After taking out the loan from the bank, the institution could offload it to another bank or keep it on its books.

Securitisation

Securitisation involves packaging a designated pool of assets (mortgage loans, consumer loans, hire purchase receivables, and so on) and issuing securities which are collateralised by the underlying assets and their associated cash flow stream. Securitisation is originated by a firm that seeks to liquefy its pool of assets. Securities backed by mortgage loans are referred to *as mortgage backed securities*; securities backed by other *assets are called asset based securities*.

Securitisation offers the following benefits:

1. It enables a lender (a bank or financial institution) to liquefy the receivables on its balance sheet. Apart from providing liquidity, it helps the lender in improving its asset- liability management.

2. For investors, securitisation provides an additional avenue of investment in quality paper backed by cash flow.
3. From the point of the financial system, securitisation links the capital market with the banking system. By converting loans into tradable debt securities, it improves the depth and liquidity in the debt market. It also spreads credit risks better in the financial system.

Zero Coupon Bonds (ZCB)

India needs to deepen its debt market so that infrastructure projects can tap a wide variety of bonds. One such instrument that needs fillip is the zero coupon bond (ZCB).

A deep discount bond does not carry any coupon rate but is issued at a steep discount over its face value. It is also referred to as 'zero interest (coupon) bond' or just a 'zero'. For example, the industrial Development bank of India issued deep discount bonds in 1996 which had a face value of ₹2 lakh and a maturity period of 25 years. The bonds were issued at ₹5300.

Deep discount bonds appeal to issuers interested in conserving their cash flows during the life of the bonds. On the other side of market, they appear attractive to investors who want to protect themselves against the reinvestment rate risk. Remember that the imputed interest on a deep discount bond is automatically reinvested at a rate equal to its yield to maturity. As Finnerty says: "With zeros, interest is effectively reinvested and compounded over the life of the debt issue at the yield to maturity at which the investor purchased the bond." this feature of deep discount bonds may be used by financial institutions in managing their liabilities.

A major disadvantage of deep discount bonds is that they entail a balloon payment at maturity. The issuer may experience difficulty in arranging for such a large payment and hence investors may be expected to bear a higher risk.

InvIT

InvIT, or Infrastructure investment trust, works like a mutual fund. An InvIT is designed to pool small sums of money from a number of investors to invest in infrastructure assets that generate cash flows over a period of time, a portion of which is distributed as dividend to investors.

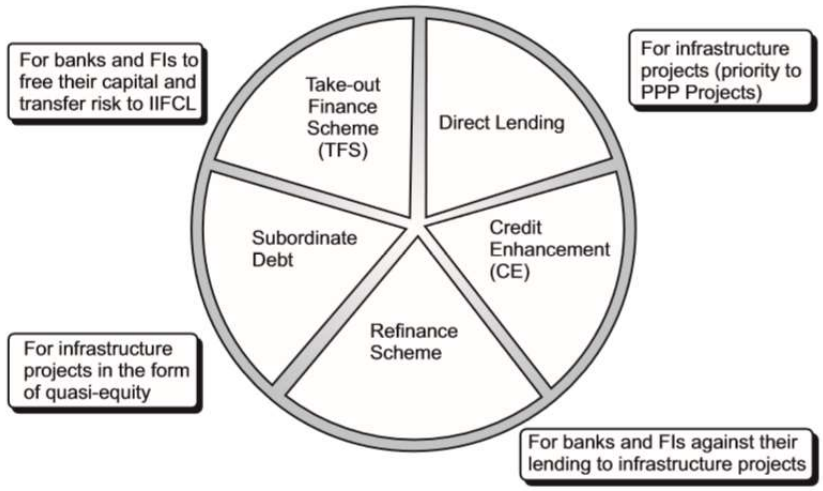
InvIT are regulated under the SEBI infrastructure investment trust regulation, 2014. There are four parties to an InvIT —sponsors, investment managers, project managers, and the trustee. The infrastructure company interested in raising funds from the public will form the InvIT as the sponsor and appoint an investment manager to manage the assets and investments of the InvIT. The investment manager oversees the project manager who executes the project. Finally, the sponsor will also appoint a trustee.

India Infrastructure Finance Company Limited (IIFCL)

Set up by government of India, IIFCL provides long-term finance for viable infrastructure projects through the following modes:

- Long-term debt
- Refinance to banks and financial institutions for loans with tenors exceeding 10 years
- Any other mode approved by the government. IIFCL's mandate is to give overriding priority to PPP projects.

The present offerings of IIFCL are as follows:



2. A CASE STUDY OF INDIRA GANDHI INTERNATIONAL DELHI AIRPORT*

Prasanna Chandra

For modernising the Delhi airport, the airport authority of India initiated the process to involve private sector through global competitive bidding. the GMR consortia emerged as the successful bidder.

Delhi international airport Limited (DIAL) was incorporated as a private limited company under the companies act 1956 on March 1, 2006, as the special Purpose vehicle to operate, maintain, develop, and modernise the Delhi airport. initially, the equity contributions were as follows: GMR group (50.1%), airport authority of India (26%), Fraport ag (10%), Eraman Malaysia airports (10%), and India Development Fund (3.9%). in May 2006, the management of the airport was handed over to the DIAL. Construction started in 2007 and Phase 1a of the construction was commissioned in 2008. the initial term of the concession is 30 years and it is extendable for another 30 years.

DIAL decided to award the contract for constructing the Terminal Runway and other associated works on 'Design and Build' basis using 'Cost Plus' basis to meet stiff time lines—it may be mentioned that 42 months were available for the entire construction but the project was completed in 37 months. Under the 'Design and Build' approach both design and construction proceed parallely. it is meant to fast track the project.

The bids for construction were invited from reputed construction companies in December 2006 on 'Open Book' concept which envisages design, specification, review and finalisation and bid procurement parallely to save time. Out of fifteen respondents, Larsen and Toubro was chosen on the basis techno-commercial evaluation. It was awarded both the design and construction jobs for unity of command and better coordination.

For Phase-1, DIAL board approved a project cost estimate of ₹8975 crore. The estimate was simply a 'guesstimate' based on available cost design which lacked reliable information and was meant to achieve financial closure. Exhibit 1 shows the project cost break-up and sources of finance. The firmed up cost estimate, however, was ₹12718 crore. The increase in project cost estimate and its financing is shown in Exhibit 2

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* Adapted from chapter 11 of Nand Dhameja and Sarika Dhameja *Infrastructure Development and Financing*, viva books, 2016.

Exhibit 1 Project *Cost Break-up and Sources of Finance: Basis of Financial Closure*

Cost Break-up		*Sources of Finance*	
Description	*Amount (₹ crore)*	*Sources*	*Amount (₹ crore)*
T1, T2 and Initial CWIP	762	Equity	1,250
Runway / Taxiway / Apron / Lighting	1,765	Debt Domestic	3,650
Terminal 3 and Associated Building	4,669	ECB*	1,336
Preliminary, Preoperative and IDC	1,279	Lease Deposits / Trade Deposits	912
Delhi Metro	350	Development Fee (DF) – Funding Gap	1,827
Upfront Payment to AAI	150		
TOTAL	8,975	TOTAL	8,975

*External Commercial Borrowing

Exhibit 2 *Increase in Project Cost Estimate and its Financing*

(Figure in ₹ crores)

Particulars		*Amount*
Project Cost Revised		12718
Initial		8975
Increase in Project Cost		3743
Sources to Finance Increase		
Additional Development Fee (DF)		1654
Other Sources:		
Additional Equity Contribution	1250	
Lease Deposit	559	
ECB	280	2089
Total Additional Means of Finance		3743

The contract with Larsen and Toubro was on cost plus basis and the estimated contract sum was ₹5,400 crore which included a fee @20.2%. The Operation, Management and Development agreement (OMDA) had stiff penalties for delays as the project had to be completed before the commonwealth games to be held in New Delhi.

- **KPMG Comments**

In May 2010, the government appointed engineers India Limited (EIL) and KPMG as auditors to audit the project cost.

The important observations of KPMG are described below.

- The key reason behind the increase in the project cost estimate was the design-build approach adopted by DIAL, and also due to unforeseen scope additions (Delhi Metro, ATC tower etc).
- On the issue of risk mitigation, steps undertaken by DIAL to prevent cost escalation were not entirely compliant with international best practices and at no stage was the project cost capped and the risk of escalation shared with the Engineering Procurement and commissioning (EPC) contractor.
- The contract terms with the EPC contractor did not have any incentives and penalties to enable better control on cost and the PMC did not look at the cost escalation aspect with reference to initial estimate of project costs.
- The increase in project cost was not communicated to the Ministry of civil aviation (MoCA) and AAI on a regular and proactive basis.
- The gross Floor area (GFA) exceeded the mandated one and no prior approval was taken from the DIAL board for the same. Further, the GFA per Peak Hour Passenger (PHP) of t3 was higher than most leading airports in the Asia Pacific region.

B. SNIPPETS

1. Disciplined Intuition

People's confidence in their intuition is not justified by their ability as they do not know the limits of their expertise. This seems to be very true in the domain of finance.

A major problem with intuitions is that they come too fast and before we realize we begin to confirm them.

Given the fallibility of intuition, there is a need to discipline it. Daniel Kahneman proposed the idea of disciplined intuition or delayed intuition.

The way to discipline or delay intuition is to look at one thing at a time independently but reserve your judgment till you have looked at everything. Then close your eyes and form a judgment. According to Kahneman, "What comes to your mind after that exercise is going to be much more valid than the intuition that you might form if you don't go through the disciplined process."

Disciplined intuition is a kind of thinking or analysis that is very systematic and rigorous. It helps you overcome associative coherence or 'halo effect,' the tendency to form a global impression and then derive the specifics, instead of reasoning in the opposite direction.

2. Impact of Modern Corporate Finance

Modern corporate finance has had a tremendous impact on the business world. Compared to their predecessors of 50,30, or even 20 years ago, today's senior executives have a better understanding of how their strategies and performance have a bearing on the market valuation of their companies. CEOs, irrespective of their formal training in finance, have a working understanding of discounted cash flow, return on capital, cost of capital, and valuation multiples. This understanding and focus on valuation has led to a notable improvement in corporate returns.

3. Challenge for Analysts of Durable Assets

Durable assets (real estate, precious metals, diamonds, collectibles, and so on) feature prominently in households' investment portfolios.

Despite their economic significance, it is a challenge for analysts to form expectations of the financial returns on durable assets. It is hard to estimate their risk exposure and the cost and benefits of carrying them may affect equilibrium returns. As Christophe Spaenjers put it: "For example, both houses and artworks are indivisible (leading to investor under- diversification) and illiquid, and they are costly to maintain, store, and

insure. Moreover, some of these assets also provide their owners with a non- financial utility dividend that can be hard to measure."

4. Bubble Investing: Learning from History*

William N. Gotezmann defines a bubble as a boom (a large, rapid increase in market prices) followed by a crash (a large, rapid decline in market prices,).

He defines a boom in two ways: (1) A single year in which the market increase by 100%, and (2) A period of three years over which the market increases by 100%.

He defines a crash in two ways: (1) A drop of 50% in the following year, and (2) A drop of 50% over the next five years.

He examined the frequency of large, sudden increases in market value in a broad panel of world equity market data extending from the beginning of the 20th century. He found that the probability of a crash conditional on a boom is only slightly higher than the unconditional probability. As he put it, "The chances that a market gave back its gains following a doubling in value are about 10%. In simple terms, bubbles are booms that went bad. Not all booms are bad."

*William N. Goetzmann, "*Bubble Investing*: Learning from History."

5. Common Features of Bubbles

Bubbles seem to share seven common features:

1. A rapid change in fundamentals based usually on new technologies that alter the prospects of productivity and growth.
2. A long series of positive asset returns.
3. While experienced and informed investors drive the initial phase of an asset boom, inexperienced and less informed investors drive prices subsequently when the "greater fools" theory dominates
4. The growing interest in market spurs the development of new investment vehicles that facilitate the flow of funds to the market.
5. Credit expands to enable leveraged positions, although it is unclear whether credit expansion is demand- driven or supply driven.
6. There is increased supply of the asset of interest. In equity markets, there is a surge of initial public offerings (IPOs).
7. Government policy often plays a contributory role altering the fundamentals, encouraging new investors, and easing credit conditions.

PART C: WIT AND WIDSOM

1. HUMOUR

- On her birthday, a young woman woke up after an afternoon nap and told her husband, "I just dreamt that you will give me a pearl necklace for my birthday: What does it mean?"

  The husband replied, "You will know tonight."

  When the husband came home that evening he brought a gift- wrapped package for his wife. Delighted, she opened it only to find a book titled, "What the Dreams Mean."
- A man went to his priest in 1946 and said, "Father, I want to confess that I have sinned. During WW II I hid a refugee in my attic." The priest consoled, "Well, that is not a sin."

  The man said, "But I collected 20 pounds for every week he stayed." The priest replied, "Yes, you overcharged him but it was for a good cause."

  The man said, "Thank you father for your comforting words. But I have one more question.."

  The priest asked, "What is it my son?"

  The man said, "Should I tell the refugee that the war is over?"

2. WISE SAWS

- Advances are made by answering questions. Discoveries are made by questioning answers Bernard Haisch.
- Imagine how hard physics would be if particles could think! Murray Gell- Man, Physics Nobel Laureate.