Debt Securitization and Derivatives

Topics

- Concept of Debt Securitization
- Asset Backed Securities
- Mortgage Backed Securities
- Forwards, Futures & Options
- Swaps & Other derivative products

Concept of Debt Securitization

- In the simplest language, debt securitization is a process where companies raise money by pledging the cash-flows from their current and/ or future assets.
- Unlike a traditional loan, in this case, what is given as collateral to secure the debt is the very present and future receipts/ income to be generated from the project *(or from any other project)* for which the loan is being taken.

Types of Debt securitization

- There are 3 types of securitization methods which a company can choose from:
- **Asset Backed Securitization:** In this method, companies pledge their existing assets with the lending institution to secure the loan.
- **Mortgage Backed Securitization:** In this method, loans are secured by real estate, wherein the lender has the right to sell the property, if the borrower defaults.
- **Future Revenue Flow Securitization:** In this, future/ prospective cash flows of the company is pledged as security to raise funds, for example – sale of power, toll revenue, rental income etc.

Securitization- Gaining Importance in Infra Projects

Sector	Future Flow to be Securitized
	Meter rentals
Power	Receivables from bulk consumers
	Phone rentals
	Lease receipt from optical fibers
Telecom	Rentals/user charges
	Toll collection from commercial vehicles
	Airline ticket receivables
Transport Infrastructure	Landing and parking fees for airports
	Revenue from sale of coal, oil, and gas
Coal, Oil & Gas	Royalty from mining and exploration
Urban Infrastructure	Property tax collection

Some key features of future flow securitization

- **Low interest cost:** Securitization provides a low cost financing option to companies.
- **Diversification:** Securitization helps the company in diversifying its funding sources.
- **Uncertain Receivables:** by its very nature, future cash flows are uncertain and depend on various factors like performance of the company, economic conditions, government policies etc.
- **Credit Risk/default risk:** Since future cash flow transactions involves the transfer of receivables that do not exist at the time of granting of the loan, it is necessary for the lending companies to have a thorough understanding about the borrowing company's operational record. The lending company always faces a risk as to whether the future cash flows will in fact be generated as per expectations, or at all.

Scope of securitization and Indian Experience

- The major players in the asset securitisation market in India are expected to be commercial FIs, PSUs, Corporates, Government bodies, Mutual Funds, Pension Funds, etc.
- Securitisation generally pre-supposes that the Originator has a bulk of its assets in the form of self-amortising financial assets, either with or without underlying security.
- It is also imperative that these assets should have a clearly established repayment schedule.
- Moreover, since capital market instruments have a minimum marketable tenure, the receivables underlying the securities should themselves have a sufficiently long tenure, so as not to frustrate the securitisation exercise.

Mortgage backed securities (MBS)

- The securitisation of assets historically began with, and in sheer volume remains dominated by residential mortgages.
- The receivables are generally secured by way of mortgage over the property being financed, thereby enhancing the comfort for investors. This is because mortgaged property does not normally suffer erosion in its value like other physical assets through depreciation. Rather, it is more likely that real estate appreciates in value over time. Further,
  - the receivables are medium to long-term, thus catering to the needs of different categories of investors;
  - the receivables consist of a large number of individual homogenous loans that have been underwritten using standardised procedures. It is hence suitable for securitisation;
  - in the US where it originated, these mortgages were also secured by guarantees from the Government;
  - the receivables also satisfy investor preference for diversification of risk, as the geographical spread and diversity of receivable profile is very large

Meaning of asset backed securities (ABS)- Existing Assets

Auto Loans

- Though securitisation was made popular by housing finance companies, it has found wide application in other areas of retail financing, particularly financing of cars and commercial vehicles.
- In India, the auto sector has been thrown open to international participation, greatly expanding the scope of the market.
- Auto loans (including instalment and hire purchase finance) broadly fulfil the features necessary in securitisation.
- The security in this case is also considered good, because of title over a utility asset. The development of a second hand market for cars in India has also meant that foreclosure is an effective tool in the hands of auto loan financiers in delinquent cases.

Meaning of asset backed securities (ABS)- Existing Assets

Investments

- Investments in long dated securities as also the periodical interest instruments on these securities can also be pooled and securitised. This is considered relevant particularly for Indian situation wherein the FIs are carrying huge portfolios in Government securities and other debt instruments, which are creating huge asset-liability mismatches for the institutions.

Others

- Financiers of consumer durable, Corporates whose deferred trade receivables are not funded by working capital finance, etc are Originators of other asset classes amenable to securitisation. Corporate loans, in a homogeneous pool of assets, are also subject to securitisation

Securitization of infrastructure receivables

- Securitisation of wholesale assets refers mainly to the use of securitisation as a technique for infrastructure funding. The availability of an efficient infrastructure framework is vital to the economic growth and prosperity of any country.
- Traditionally, infrastructure facilities have been developed and provided by Governments and are looked upon as basic privileges of a citizen and have thus been accorded priority for Government investment.
- The Central Government has envisaged that more than 40% of the annual central plan outlay would be for the development of infrastructure.
- In the context of India's size, population, and economic growth, the present infrastructure continues to be inadequate and will require massive incremental investment to sustain economic growth.
- Hence, the participation of private capital in the development of infrastructure (over and above the Government's direct involvement) is essential.

Benefits- Securitization of infrastructure receivables

Securitisation will benefit infrastructure financing because it:

- permits funding agencies whose sector exposures are choked, to continue funding to those sectors.
- permits the participation of a much larger number of investors by issue of marketable securities.
- lowers the cost of funding infrastructure projects; long term funding (a sine quo non for most infrastructure projects) is more feasible in securitised structures than conventional lending.
- facilitates risk participation amongst intermediaries that specialise in handling each of the component risks associated with infrastructure funding (while these may initially be borne by regular financial intermediaries and insurance companies, it is expected that specialised institutions would develop over time).
- shifts the focus of funding agencies to evaluation of credit risk of the transaction structure rather than overall project risk. This is because the other components of project risk (as mentioned above) would be borne by specialised intermediaries, at a fee.

Relevance of securitization in some Infrastructure sectors

- Power
- Roads
- Ports
- Urban Infrastructure

Others

- Future receivables
- Export Receivables
- Forfeiture of concessional finance on exports
- Credit card receivables
- Airline ticket receivables
- Lease rentals

Securitization-The Indian Experience

- Securitisation is a relatively new concept in India but is gaining ground quite rapidly. CRISIL rated the first securitisation program in India in 1991 when Citibank securitised a pool from its auto loan portfolio and placed the paper with GIC Mutual Fund
- Since then, securitisation of assets has begun to emerge as a clear option of fund raising by corporates and a few transactions of well-rated companies have taken place in the country.
- While some of the securitisation transactions which took place earlier involved sale of hire purchase or loan receivables of non-banking financial companies (NBFCs), arising out of auto-finance activity, many manufacturing companies and service industries are now increasingly looking towards securitising their deferred receivables and future flows also.
- Information on past deals is not readily available, as most of them have been bilateral one-to-one and unrated transactions. In the context of rated transactions, CRISIL has rated about 50 transactions till date, with volume aggregating to well over Rs 4,500 crore. Other rating agencies in India, viz., ICRA, DCR and CARE have also been actively involved in the process.

Securitization-The Indian Experience

- Some of the pioneering transactions that have either been concluded or are being structured in this regard are described in the following sections
- Housing Loans
- Auto Loans- Citibank case
- SEB receivables-KEB case
- Future flows
  - Future receivables- L&T case
  - RIICO Case

Asset backed Securities- Risks and Benefits

ABS Benefits

- The benefit for the issuer of an ABS is that the issuer removes these items from its balance sheet, thereby gaining both a source of new funds as well as greater flexibility to pursue new business. The benefit to the buyer—usually institutional investors—is that they can pick up additional yield relative to government bonds and augment their portfolio diversification.

ABS Risks

- While some investors have success with ABS investments, some ABS have historically turned out to be bad investments. It was the meltdown of ABS holding sub-prime mortgages that initiated the Great Recession that began in late 2007.
- Only financially sophisticated, wealthy investors should buy individual asset-backed securities directly. Evaluating the underlying loans requires considerable research and the process of acquiring the necessary data isn't always straightforward.

Differences between ABS Vs MBS

- Asset-backed securities (ABS) and mortgage-backed securities (MBS) are two of the most important types of asset classes within the fixed-income sector.
- MBS are created from the pooling of mortgages that are sold to interested investors, whereas ABS is created from the pooling of non-mortgage assets. These securities are usually backed by credit card receivables, home equity loans, student loans, and auto loans.
- The ABS market was developed in the 1980s and has become increasingly important to the U.S. debt market.
- Despite their apparent similarities, the two types of assets possess key differences.

Asset Backed Securities vs Mortgage Backed Securities	
Asset backed securities are backed by securities such as loans, receivables and leases.	Mortgage backed securities are collateralized by mortgages.
Implications	
Asset based securities use a range of pooled assets such as loans, leases and receivables.	Mortgage backed securities are backed by mortgages.
Development	
Asset backed securities are a relatively new development compared to mortgage backed securities.	Mortgage backed security markets are well established.
Timeframe	
Asset backed securities are typically shorter in duration and more challenging when it comes to predicting cash flows.	Mortgage backed securities are comparatively less risky due to its longer time frame.

Forwards

A forward contract is a private agreement between two parties giving the buyer an obligation to purchase an asset (and the seller an obligation to sell an asset) at a set price at a future point in time.

How a Forward Contract Works ?

- There are two kinds of forward-contract participants: hedgers and speculators.
- Hedgers do not usually seek a profit but rather seek to stabilize the revenues or costs of their business operations. Their gains or losses are usually offset to some degree by a corresponding loss or gain in the market for the underlying asset.
- Speculators are usually not interested in taking possession of the underlying assets. They essentially place bets on which way prices will go. Forward contracts tend to attract more hedgers than speculators

Forwards Vs Futures

- Futures and forwards both allow people to buy or sell an asset at a specific time at a given price, but forward contracts are not standardized or traded on an exchange. They are private agreements with terms that may vary from contract to contract.

- In addition, settlement occurs at the end of a forward contract. Futures contracts settle every day, meaning that both parties must have the money to ride the fluctuations in price over the life of the contract.

- The parties to a forward contract also tend to bear more credit risk than the parties to futures contracts because there is no clearinghouse involved that guarantees performance. Thus, there is always a chance that a party to a forward contract will default, and the harmed party's only recourse may be to sue. As a result, forward contract prices often include premiums for the added credit risk

Exchanges and Commodities Traded

- At present five national exchanges, viz. Multi Commodity Exchange, National Commodity and Derivatives Exchange, National Multi Commodity Exchange, Indian Commodity Exchange Ltd and ACE Derivatives and Commodity Exchange, regulate forward trading in 113 commodities. Besides, there are 16 commodity specific exchanges recognised for regulating trade in various commodities approved by FMC under the Forward Contracts (Regulation) Act, 1952.

Commodities traded on these exchanges comprise:

- Edible oilseeds: Groundnut, mustard seed, cotton seed, sunflower, rice bran oil, soy oil, etc.
- Food grains: Wheat, gram, dals, bajra, maize etc.
- Metals: Gold, silver, copper, zinc etc.
- Spices: Turmeric, pepper, jeera etc.
- Fibres: Cotton, jute, etc.
- Others: Gur, rubber, natural gas, crude oil etc.

Forward Markets Commission

- Headquartered in Mumbai, FMC is a regulatory authority for commodity futures market in India. FMC is the chief regulator of forward and futures markets in India. FMC comes under the Ministry of Consumer Affairs, Food and Public Distribution because futures traded in India are traditionally in food commodities.
- **Functions of FMC**
- To advise the central government in respect of the recognition or the withdrawal of recognition from any association.
- To advise the central government in respect of issues arising out of the administration of the Forward Contracts (Regulation) Act 1952.
- To keep forward markets under observation and to take such action in relation to them, as it may consider necessary, in exercise of the powers assigned to it under the Act.
- To collect and whenever the Commission thinks it necessary, to publish information regarding the trading conditions in respect of goods to which any of the provisions of the Act is made applicable, including information regarding supply, demand and prices, and to submit to the central government, periodical reports on the working of forward markets relating to such goods.
- To make recommendations to improve the organisation and working of forward markets;
- To undertake the inspection of accounts and other documents of any recognised association, registered association or any member of such association whenever it considers it necessary.

Futures

- Futures contracts give the buyer an obligation to purchase an asset (and the seller an obligation to sell an asset) at a set price at a future point in time.
- The assets often traded in futures contracts include commodities, stocks, and bonds. Grain, precious metals, electricity, oil, beef, orange juice, and natural gas are traditional examples of commodities, but foreign currencies, emissions credits, bandwidth, and certain financial instruments are also part of today's commodity markets.
- There are two kinds of futures traders: hedgers and speculators.
- Hedgers do not usually seek a profit by trading commodities futures but rather seek to stabilize the revenues or costs of their business operations. Their gains or losses are usually offset to some degree by a corresponding loss or gain in the market for the underlying physical commodity.

Options

- Calls
- Puts
- American Style
- European Style
- Exchange traded options
- Over the counter options
- Option type by expiration
- Option type by underlying security
- Employee stock options
- Cash settled options
- Exotic options

Calls

- Call options are contracts that give the owner the right to buy the underlying asset in the future at an agreed price.
- You would buy a call if you believed that the underlying asset was likely to increase in price over a given period of time.
- Calls have an expiration date and, depending on the terms of the contract, the underlying asset can be bought any time prior to the expiration date or on the expiration date.
- The owner of a call pays a price to purchase the contract, but isn't obligated to proceed with buying the underlying security.
- If the owner does decide to go ahead and buy the security, this is known as exercising an option.
- The seller of the contract has to sell the underlying security if the buyer decides to exercise their option.

Puts

- Put options are essentially the opposite of calls. The owner of a put has the right to sell the underlying asset in the future at a pre-determined price.
- Therefore, you would buy a put if you were expecting the underlying asset to fall in value. As with calls, there is an expiration date in the contact.
- Put options are one of the two main types of options contracts: the other type being calls. A put is a contract that gives the owner of that contract the right to sell the relevant underlying asset at a predetermined price by a predetermined date.
- The person buying the put contract pays a price to do so and that gives them the right, but not the obligation, to go ahead and sell the underlying security. Doing so is referred to as exercising an option.
- If the buyer of the options contract does exercise their option, then the other party to the contact must purchase the underlying security at the agreed terms.
- Therefore you would buy a call if you felt the underlying security was likely to rise in price, but you would buy a put if you believed the price was going to fall.
- Puts are very flexible and an excellent instrument for leverage as well as a useful hedging tool.

American Style

- The term “American style” in relation to options has nothing to do with where contracts are bought or sold, but rather to the terms of the contracts.
- Options contracts come with an expiration date, at which point the owner has the right to buy the underlying security (if a call) or sell it (if a put).
- With American style options, the owner of the contract also has the right to exercise at any time prior to the expiration date. This additional flexibility is an obvious advantage to the owner of an American style contract.
- Options contracts can all be put into one of two distinct categories – American style and European style.
- These categories having nothing to do with part of the world the contracts are bought and sold in, but relate to the actual terms of the contract.
- An options contract that is American style allows the holder of that contract to exercise their option to buy or sell the underlying security at any time prior to the expiration date.
- Most options traded on the exchanges are American style, and they tend to be far more popular.

European Style

- The owners of European style options contracts are not afforded the same flexibility as with American style contracts.
- If you own a European style contract then you have the right to buy or sell the underlying asset on which the contract is based only on the expiration date and not before.
- All options contracts use one of two distinctive styles; European style and American style. European style contracts must be exercised on fixed expiration dates, while American style contracts can be exercised at any point.
- These two terms are applied entirely based on those characteristics, and are not related to geographical reasons.
- The cost of owning European style options is generally lower than American style options because they are generally less common.

Others

Exchange Traded Options

- Also known as listed options, this is the most common form of options. The term “Exchanged Traded” is used to describe any options contract that is listed on a public trading exchange. They can be bought and sold by anyone by using the services of a suitable broker.

Over The Counter Options

- “Over The Counter” (OTC) options are only traded in the OTC markets, making them less accessible to the general public. They tend to be customized contracts with more complicated terms than most Exchange Traded contracts.

Options type by underlying security

- ***Stock Options:*** The underlying asset for these contracts is shares in a specific publically listed company.
- ***Index Options:*** These are very similar to stock options, but rather than the underlying security being stocks in a specific company it is an index – such as the S&P 500.
- ***Forex/Currency Options:*** Contracts of this type grant the owner the right to buy or sell a specific currency at an agreed exchange rate.
- ***Futures Options****:* The underlying security for this type is a specified futures contract. A futures option essentially gives the owner the right to enter into that specified futures contract.
- ***Commodity Options****:* The underlying asset for a contract of this type can be either a physical commodity or a commodity futures contract.
- ***Basket Options****:* A basket contract is based on the underlying asset of a group of securities which could be made up stocks, currencies, commodities or other financial instruments.

Options type by Expiration

Regular Options:

- These are based on the standardized expiration cycles that options contracts are listed under. When purchasing a contract of this type, you will have the choice of at least four different expiration months to choose from.
- The reasons for these expiration cycles existing in the way they do is due to restrictions put in place when options were first introduced about when they could be traded.
- Expiration cycles can get somewhat complicated, but all you really need to understand is that you will be able to choose your preferred expiration date from a selection of at least four different months.

Weekly Options:

- Also known as weeklies, these were introduced in 2005. They are currently only available on a limited number of underlying securities, including some of the major indices, but their popularity is increasing.
- The basic principle of weeklies is the same as regular options, but they just have a much shorter expiration period.

Options type by Expiration

Quarterly Options:

- Also referred to as quarterlies, these are listed on the exchanges with expirations for the nearest four quarters plus the final quarter of the following year. Unlike regular contracts which expire on the third Friday of the expiration month, quarterlies expire on the last day of the expiration month.

Long-Term Expiration Anticipation Securities:

- These longer term contracts are generally known as LEAPS and are available on a fairly wide range of underlying securities. LEAPS always expire in January but can be bought with expiration dates for the following three years.

Employee stock options

- Employee stock options are basically a form of call options because they give you the right to buy stock in the company that you work for at a strike price, at some point in the future. If you are given them by your employer, they will have a fixed price at which you can purchase company shares. If the company shares go up in value, then you can buy them at the pre-agreed price and effectively make an instant profit.
- These work as good incentives to the employers, as the employers only get any reward out of them if company stock goes up in price. This firstly provides a good motivation to the employer to help make the company a success, and also mean the company only incurs a cost if the company is doing well.
- Employee stock options can be given out in a variety of ways and for a number of different reasons. For example, a company trying to recruit someone they really wanted working for them could offer them as an incentive to join the company. They could also be offered to existing employees as part of their salary, or as a bonus for hitting specific performance targets.

Cash settled options

- Options contracts use one of two forms of settlement; physical settlement and cash settlement.
- Physical settlement is the most commonly used type of settlement; the majority of contracts involve the transfer of the underlying security in the event of the holder exercising. For example, if the holder of a call based on a specific stock exercises then they would buy the relevant stock from the writer of that call at the agreed strike price. Conversely, the holder of a put would sell the relevant stock to the writer.
- Cash settlement is different because no assets, other than cash, are exchanged. If an underlying asset cannot easily be transferred, then cash settlement makes more sense.
- Index options could include cash settlement as an index and not a physical asset. When you buy index options you are essentially betting on the movement of the underlying index.
- If you correctly forecast which way the index will move and you own the relevant type of contract, then you will receive a payment from the contract writer when you exercise.
- Commodity options often use cash settlement options such as transferring physical commodities which can often be impractical and expensive.

Exotic options

- Exotic option is a term that is used to apply to a contract that has been customized with more complex provisions. They are also classified as Non-Standardized options. There are a plethora of different exotic contracts, many of which are only available from OTC markets. Some exotic contracts, however, are becoming more popular with mainstream investors and getting listed on the public exchanges. Below are some of the more common types.
- ***Barrier Options****:* Barrier options are a type of exotic options contract. They are fairly similar to standard types of contract but with an important additional feature – the barrier. The barrier is a fixed price at which the contract is either activated or terminated, depending on the exact terms of the contract.
- Barrier options
  - Knock in and Knock out
  - Up and In
  - Down and In
  - Up and Out
  - Down and Out
  - Double Barrier options

Binary options

- Binary options contracts are known by a number of different names such as all-or-nothing, digital, or even fixed return options.
- They are defined by one specific feature; they pay out a fixed return to the holder if they are making a profit by the time of expiration, regardless of how much profit they have gained.
- They are called binary options simply because there are two possible outcomes – the holder either gets the fixed pay out or loses their initial investment.
- The two main types of options contracts in general are calls, which you would buy if you expected the underlying security to rise in price, and puts which you would buy if you expected the underlying security to fall in price.
- These same categories can be used to classify binary options and the same principles apply; you would buy binary calls on an underlying security you thought would increase in price and binary puts on an underlying security you thought would fall in price.

Buying and Selling Binary options

- Some binary options are available on the easily accessible exchange markets, while others are only available over the counter.
- If you are buying exchange traded contracts then you can use pretty much any broker. For the easiest and cheapest way to trade these binary options you should consider brokers that typically have low commissions and fees and still offer an efficient service.
- If you are buying over the counter, then you might be better off choosing a broker suitable for over the counter transactions.
- ***Chooser Options:*** These were named "Chooser," options because they allow the owner of the contract to choose whether it's a call or a put when a specific date is reached.
- ***Compound Options:*** These are options where the underlying security is another options contract.
- ***Look Back Options****:* This type of contract has no strike price, but instead allows the owner to exercise at the best price the underlying security reached during the term of the contract.

Swaps & Other Derivative Products

- A swap is a derivative contract between two parties that involves the exchange of pre-agreed cash flows of two financial instruments. The cash flows are usually determined using the notional principal amount (a predetermined nominal value). Each stream of the cash flows is called a "leg."

Types of Swaps

- Modern financial markets employ a wide selection of such derivatives, suitable for different purposes. The most popular types include:
  - Interest rate Swap
  - Currency Swap
  - Commodity Swap
  - Credit Default Swap

Swaps & Other Derivative Products

Interest rate swap

- Counterparties agree to exchange one stream of future interest payments for another, based on a predetermined notional principal amount. Generally, interest rate swaps involve the exchange of a fixed interest rate for a floating interest rate.

Currency swap

- Counterparties exchange the principal amount and interest payments denominated in different currencies. These contracts swaps are often used to hedge another investment position against currency exchange rate fluctuations.

Commodity swap

- These derivatives are designed to exchange floating cash flows that are based on a commodity's spot price for fixed cash flows determined by a pre-agreed price of a commodity. Despite its name, commodity swaps do not involve the exchange of the actual commodity.

Thank You