Introduction to Fixed Income Markets

Introduction to Bonds

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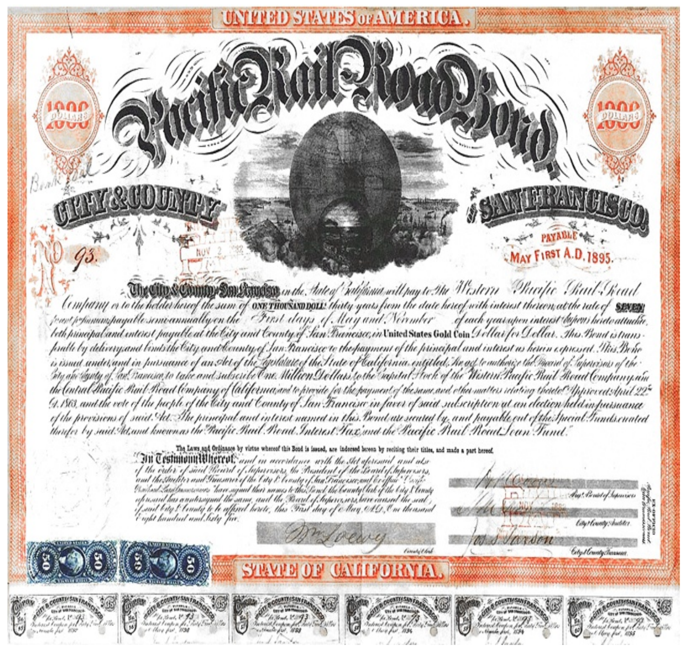
Outline

- Introduction to Bonds
  - Terminology
  - Structure
  - Classification: Cash Flows, Issuer, Maturity

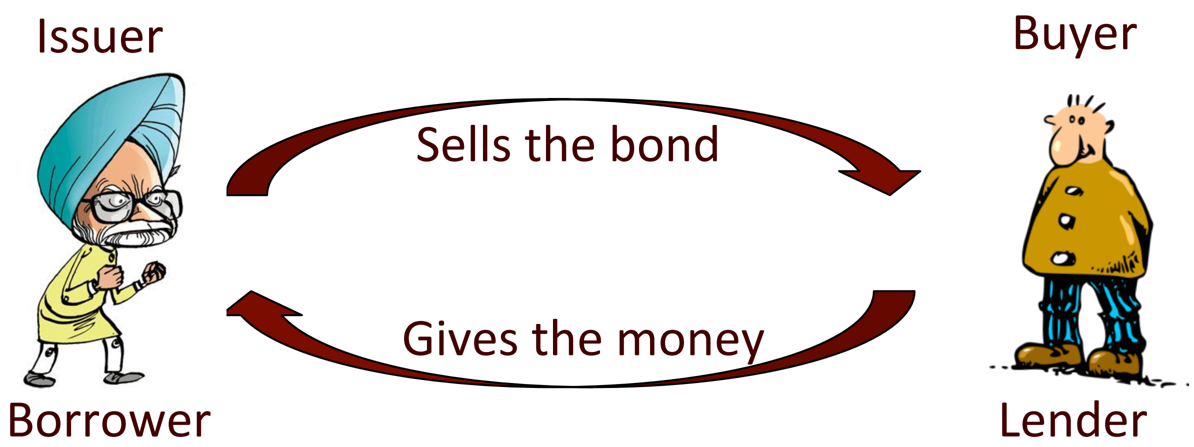
Bonds: Introduction

- A bond is a formal contract to repay borrowed money with interest at fixed intervals



- Bond buyer gets cash flows at different times from the seller.
- Cash flows are not fixed but are clearly defined.

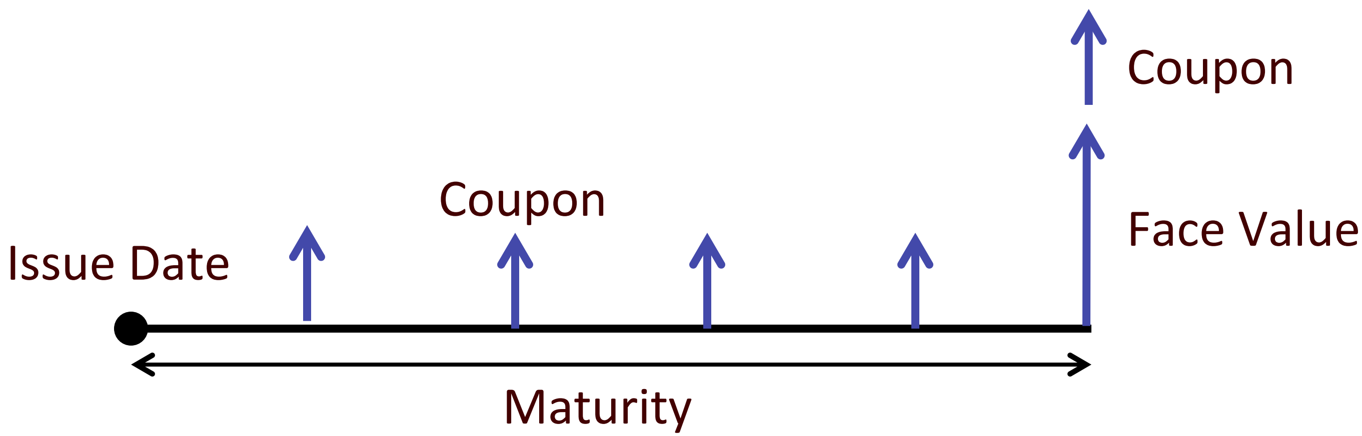
Bonds: Terminology



- Face Value: Amount of money received at maturity. (apart from coupon)
- Maturity: Time for which the bond is active.
- Coupon Rate: Coupon Rate * Face Value is the coupon received every year.
- Coupon Schedule: Dates at which coupon is received.

Bonds: Structure

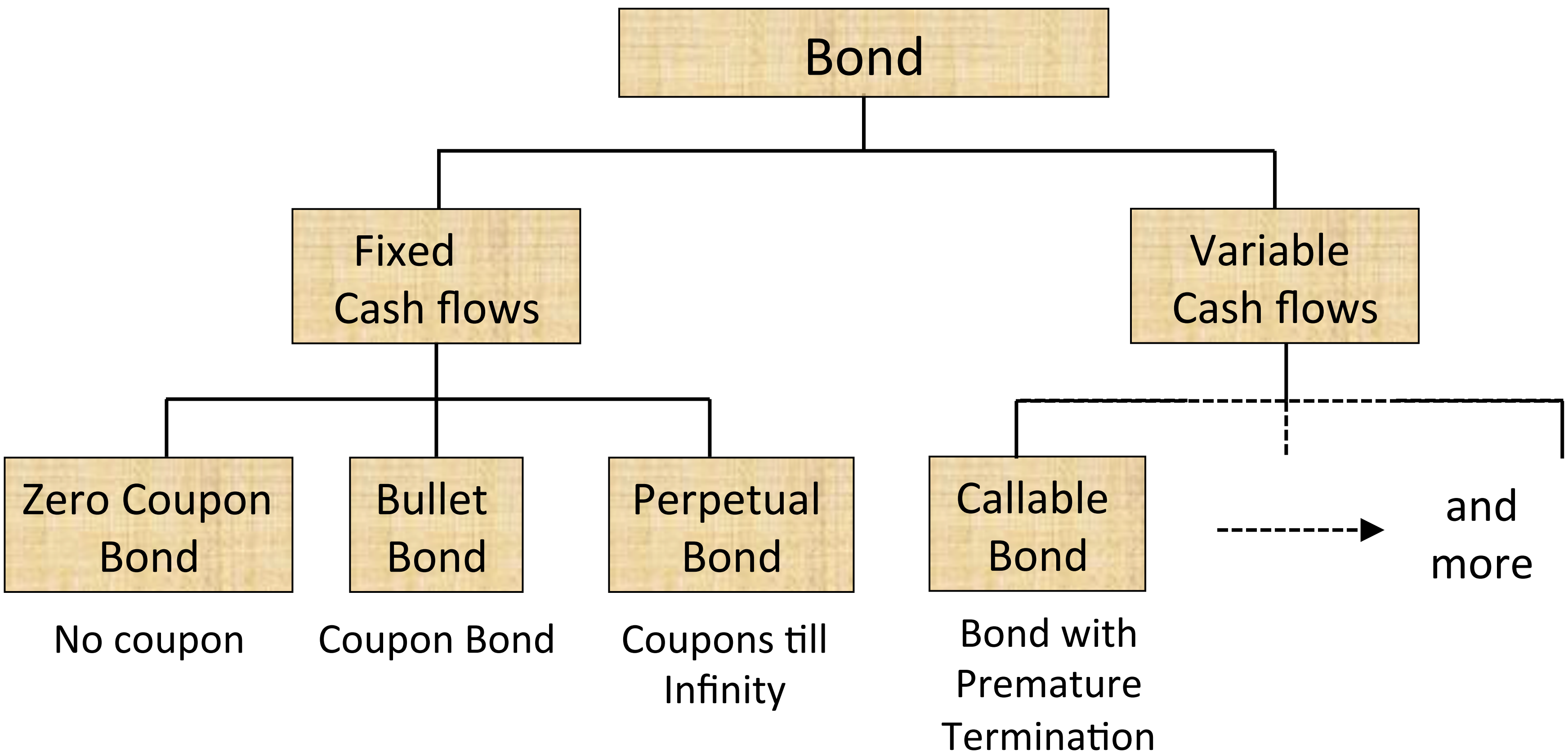
- Bond can be visualized as a series of cash flows.



- Bond with an above structure is called a Bullet Bond.
- Cash flows of a bond can be variable as well.
- Cash flows of a bond can also be probabilistical depending upon certain events.

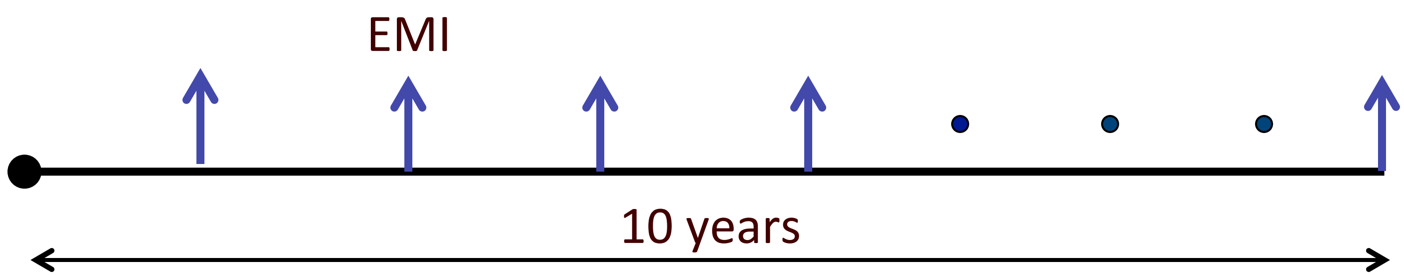
Bond Classification: Cash Flows

- Cash Flows in a bond are well defined.
- Based on the cash flows, bond can be classified as:



Bond with Embedded Options

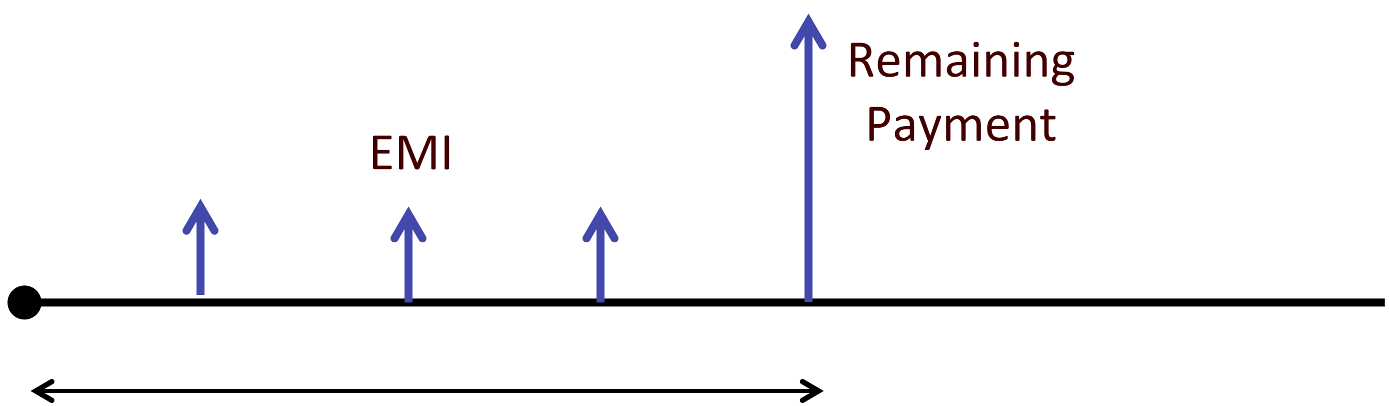
- Bonds can have embedded options which may terminate the bond in between depending on some future event.
- Suppose 'A' has taken a loan from 'B' of Rs 10 lacs for 10 years at a rate of 10% which has to be paid in monthly installments.
- For 'B', the bond (cash flows expected from 'A') look like.



- Suppose there is a clause under which A has an 'option' of prepaying the loan at any coupon date.
- How would the bond (cash flows) look to B?

Bond with Embedded Options

- Case 1: Interest Rates keep on rising
  - It wouldn't be wise for 'A' to 'call the bond' (prepay the loan) as the new loan would be at a higher rate.
  - Bond cash flows would remain same as before.
- Case 2: Interest Rates go down
  - 'A' can take a new loan ('refinancing') at a lower rate to prepay the earlier loan.
  - Cash Flows depends upon when the bond is 'called'.



Bond with Embedded Options

- Bonds in which the option of terminating the bond is with the issuer is called Callable Bond.
- Bonds in which the option of terminating the bond is with the buyer is called Puttable Bond.

- Callable Bonds have higher coupons than bullet bonds:
  - Investors (buyer) would not prefer that the issuer (borrower) has the option to prepay the loan.

- Puttable Bonds have lower coupons than bullet bonds:
  - As the bond can be terminated by the investor, they are willing to pay extra for this ‘option’.

Bond Classification: Issuer

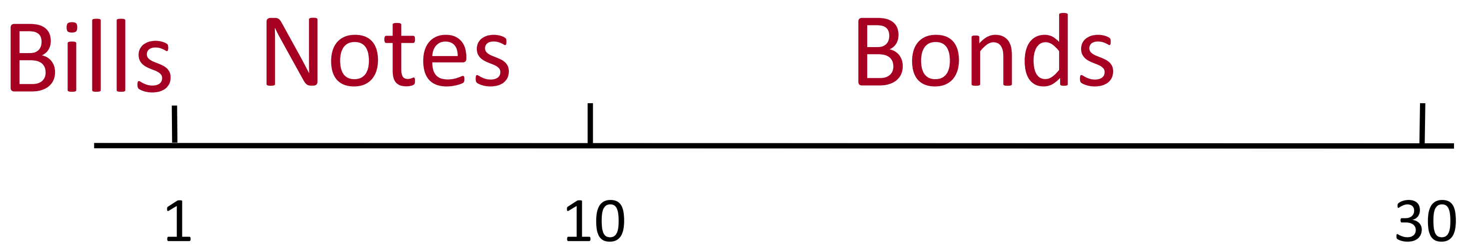
- Cash Flows in a bond are well defined.
- Based on the cash flows, bond can be classified as:

- Bond
  - Government Bonds
    - Treasury Bond — Treasury Issued
    - Municipal Bond — Local Government Issued, Tax Free
  - Corporate Bonds — Corporate Issued
  - Securitized Bonds
    - Agency Bonds — Issued by Government backed agencies, MBS
    - Non Agency Bonds — Issued Privately CMO, CDO, ABS

Bond Classification: Maturity

- Bonds can be classified based on the maturity.

- Bills: Maturity less than 1 year.
- Notes: Maturity between 1 year and 10 years.
- Bonds: Maturity more than 10 years.



Market Conventions

- Financial Markets evolved in the age bereft of calculators.
- Calculations were done manually and it took a lot of time to quote the price.
- To avoid calculations, year started having 360 days and month having 30 days!!!
- Sadly some of such bizarre conventions are still persisting.

- Examples:
  - 30/360 Convention
  - Act/360 Convention
  - Act/Act Convention
  - And Many More ☹