

Indian Association of Alternative Investment Funds (IAAIF)

Swapnil Pawar

Scient Capital

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Quick introduction to hedge funds and the idea of market inefficiencies

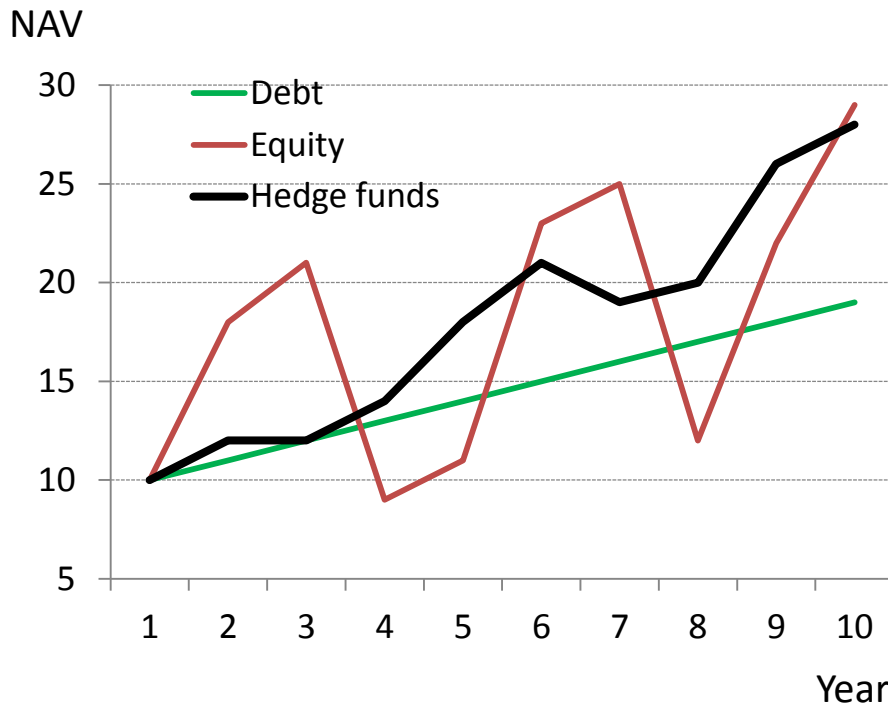
Types of hedge funds

Background to Credit Pricing

Credit arbitrage using bonds or CDS

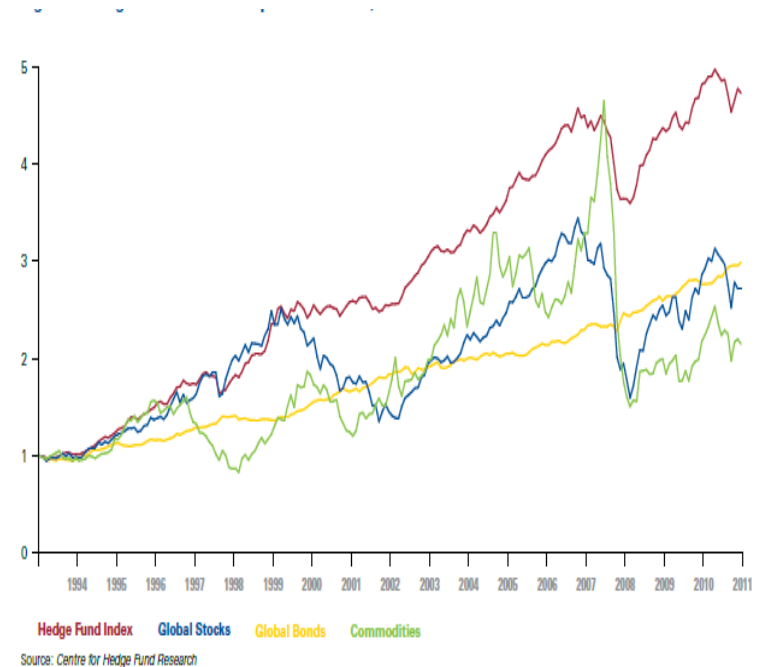
Relevance of Hedge Funds Theory and Practice

Cumulative value of different assets
over time (illustrative)



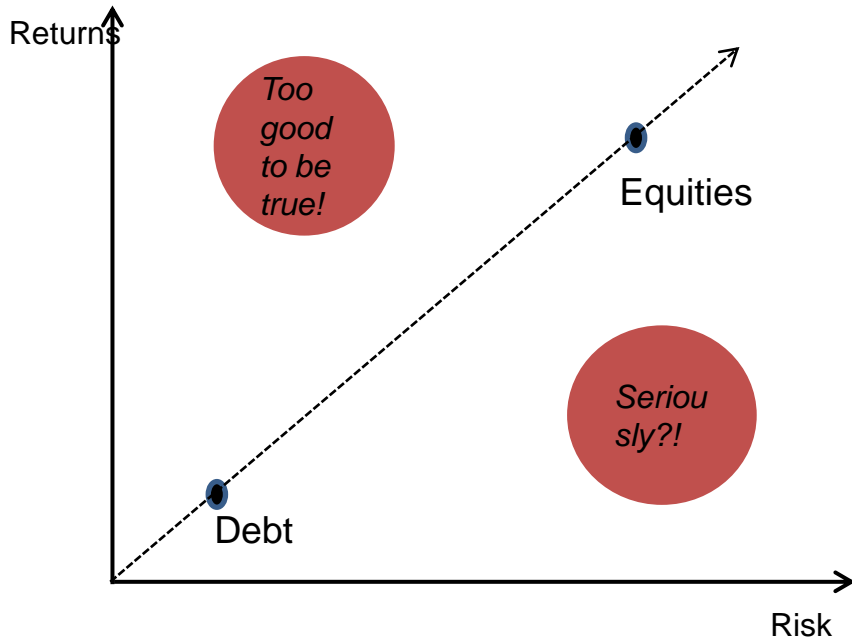
Note: This is a stylized representation for illustration only. It is not based on real numbers.

Cumulative value of different assets
over time (Actual)

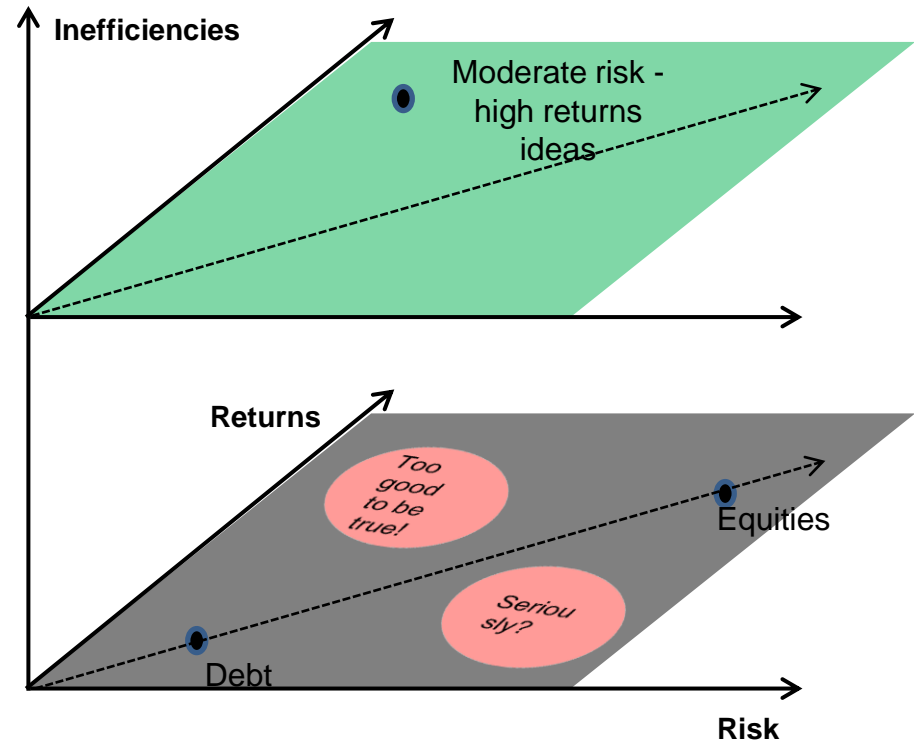


Do Hedge Funds Represent “Free Lunch”?

Capital Asset Pricing Model: The ‘Accepted’ Wisdom on Risks and Returns

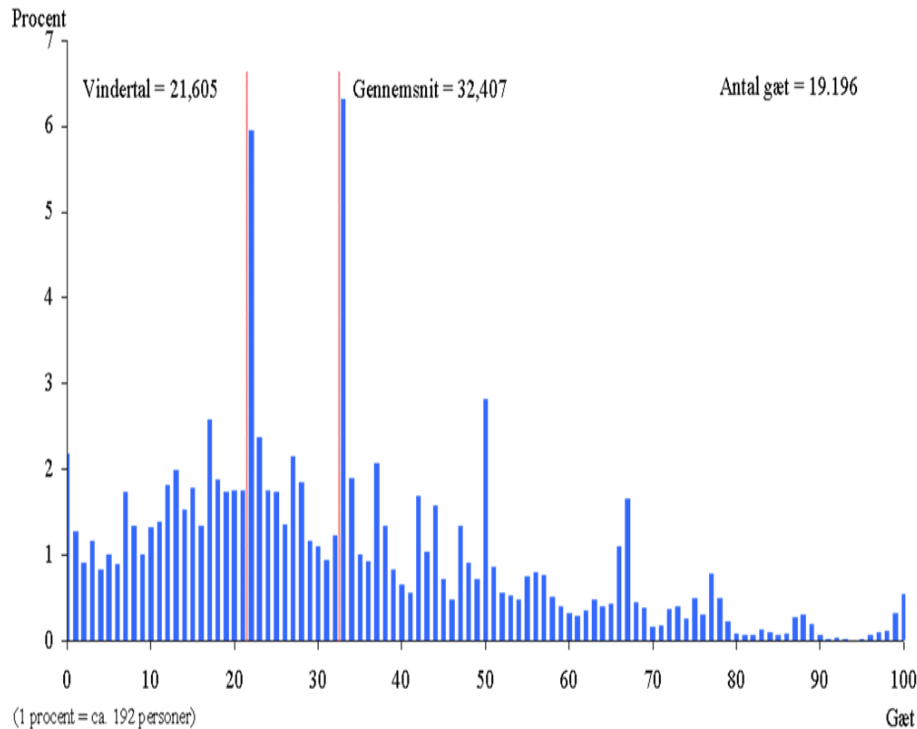


The generally ignored axis of Inefficiencies



Source of Market Inefficiencies: Bounded Rationality

The '2/3rd of Average' Game



***Rationally, everyone should guess 0
Typically, peaks at 33 and 22!***

The Fairness Game

Rs. 100 to be split between two players

Player1 makes offer to Player 2

Player2
Rejects offer

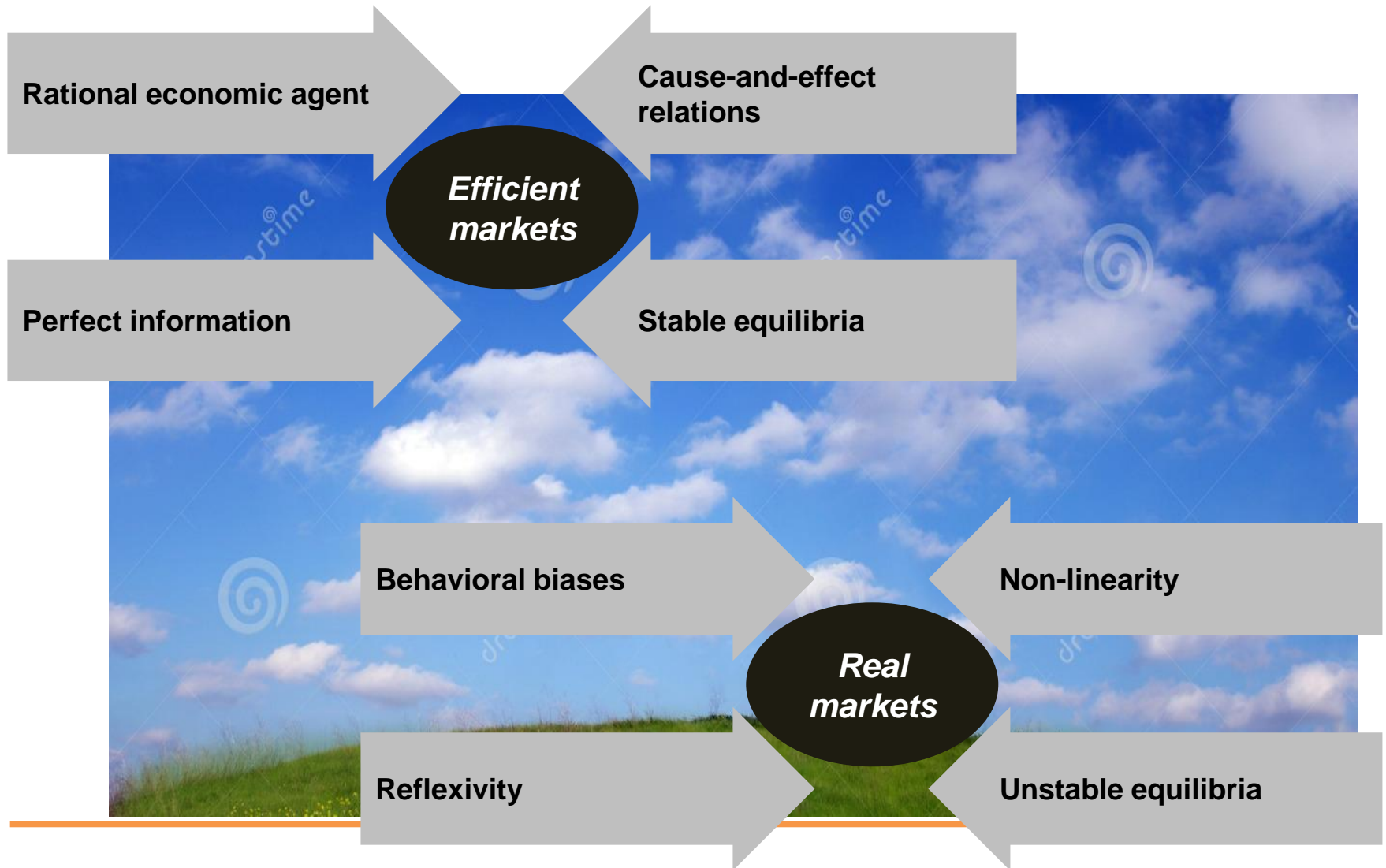
Player2
Takes offer

Both players
lose their share

Both players
keep their
share

***Rationally, player 2 should take
anything more than zero, but in
reality offers less than 40% are
routinely rejected***

Summary: Efficient Markets Vs. Real Markets



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Most Popular HF Strategies



- **Market timing or trend following** (CTA, managed futures, systematic trading): Identifying trends either using discretion or algorithms and trading according to them.
 - **Convertible arbitrage**: A convertible bond has an implied call option in its design. This implied call can be either too cheap or too costly.
 - **Merger arbitrage**: After the merger announcement but before the merger, the announced ratio has implications for the prices of the two companies. Interestingly, the prices don't always converge to their ratio-based relationship.
 - **130/30 and equity market neutral**: Conventionally mutual funds have been focusing on buying stocks cheap and selling them at fair price or higher. Equity market neutral funds take it to the next level by doing the reverse as well.
 - **Equity long short**: Directional long or short calls on individual stocks or indices. They have no preference for long or short exposure and at different times can be net long, net short or net neutral.
 - **Global macro**: Similar in spirit to equity long-short, Global Macro strategies are generalized to include - besides equities – commodities, currencies, bonds and derivatives.
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Classification of HF Strategies

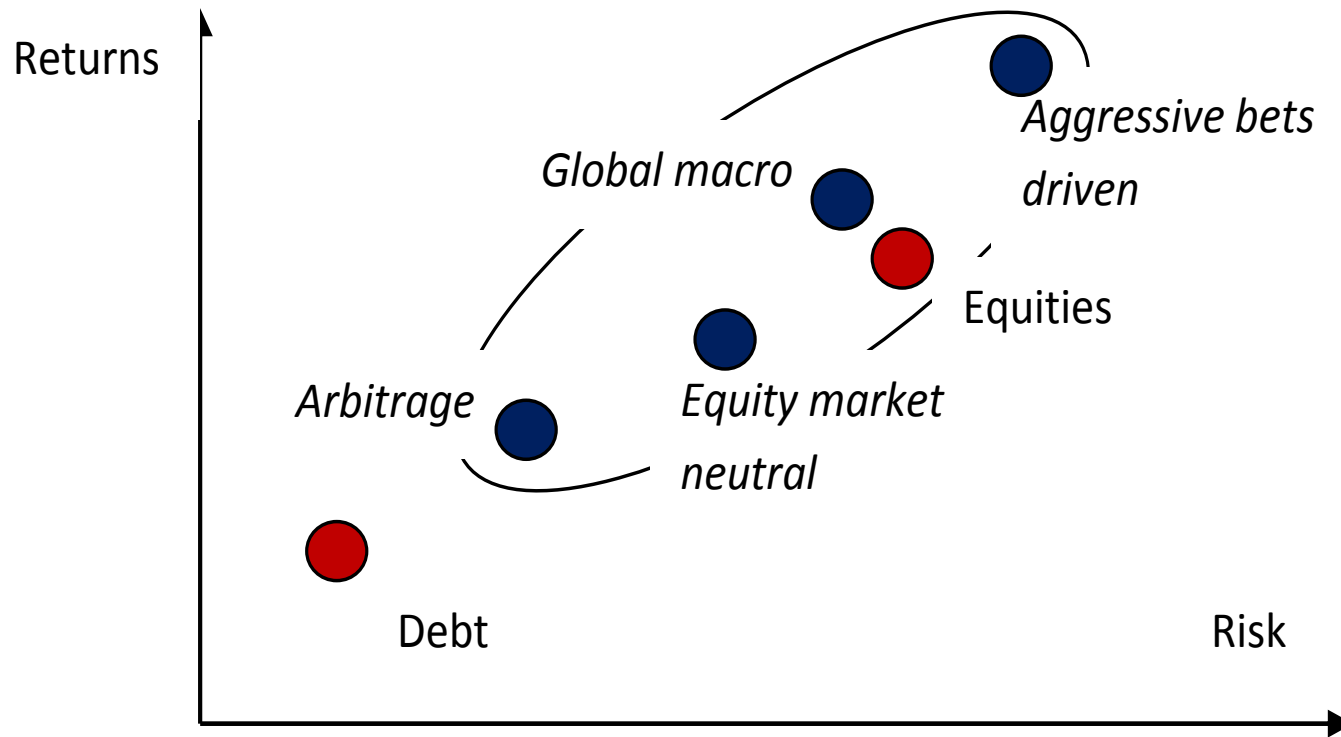


Attribute	Global Macro Hedge Funds	Systematic Hedge Funds	Aggressive Bets Driven Hedge Funds
Philosophy	Discretionary calls on countries, commodities, currencies, companies	Systematic targeting of market inefficiencies across different asset classes	Aggressive and focused bets on key events, trends and opportunities
Tools	Observations of economic data, macroeconomic analysis	Statistical, fundamental and econometric analysis; Mathematical modeling	High risk appetite, focused event and opportunity analysis
Benefits	Scalable, globally diversified	Reliable, sustainable and strategically diversified	Potentially very rewarding
Risks	Wrong judgment, high correlation of bets	Strategies losing edge, weak models	Each wrong bet
Example	Carry trade, Mining and AUD pair trade	Single-sector basket mean reversion through stat-arb	High yield EU sovereign debt, merger arbitrage

Risks in Typical Hedge Fund Strategies

Risk type<	Quantitative hedge funds	Global macro hedge funds	Aggressive bets driven hedge funds
Outdated/wrong strategy	High <i>(They live by the accuracy of the strategy)</i>	Moderate <i>(Typically opportunity set is quite large and managers have some discretion)</i>	Low <i>(Opportunistic bets – typically no systematic strategy)</i>
Inadequate risk management	High <i>(6 sigma events in 3 sigma models!)</i>	High <i>(Over-exposure to some factor)</i>	High <i>(Over exposure to some event)</i>
Exogenous event	Low <i>(Typically well diversified)</i>	High <i>(Might be exposed to the wrong country, currency, stock at the time of event)</i>	High <i>(Might be exposed to the wrong country, currency, stock at the time of event)</i>
Large bet failing	Low <i>(Very few large bets)</i>	Moderate <i>(Occasional wrong bets may go wrong)</i>	High <i>(Business model is based on aggressive bets)</i>
Scale of investments too large	High <i>(Most models work on mis-pricing; which limit size of opportunity in each occurrence)</i>	Low <i>(Most bets are made with highly liquid securities or derivatives)</i>	High <i>(Opportunity size is a common concern)</i>

Where do Strategies Rank on Risk-Return?



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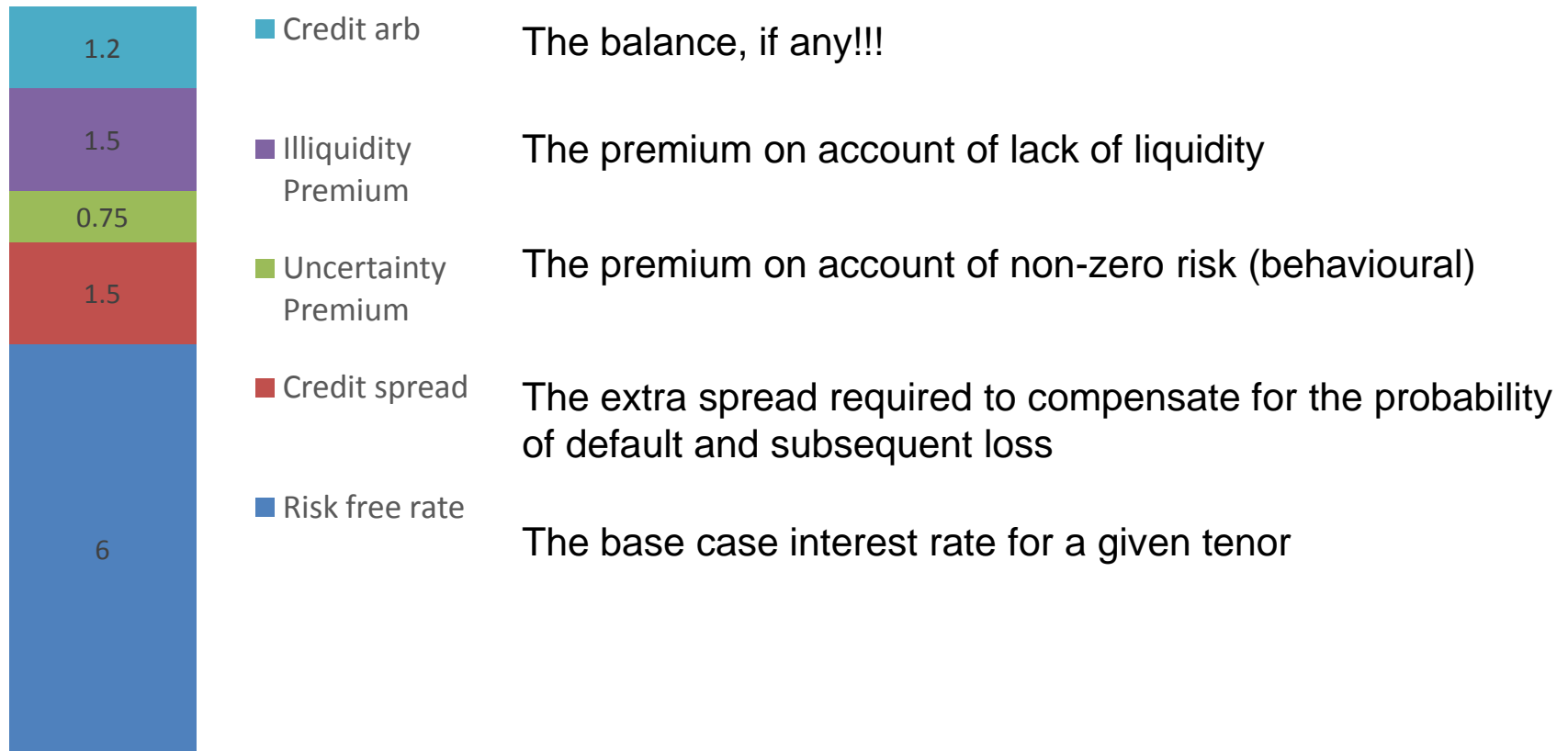
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Credit Pricing Fundamentals



Default Risk Pricing

- $\text{Return(G-Sec)} = [1 - p(D)] * \text{return (security)} + p(D) * \text{recovery rate}$
 - Loss models for default rate
 - Historical priors of default rate – by rating/sector/tenor etc
 - Company specific factors
 - Empirical default forecasting models
 - Loss models for recovery rate
 - Much harder
 - Specific to each company
 - Need to make several assumptions; each hard to justify
 - Part of the reason for large ‘certainty equivalents’
-

Uncertainty Premium



80% chance of gaining Rs. 5,000
20% chance of gaining Nothing

100% certainty of gaining Rs. 3,000

99% chance of gaining Rs. 10,000
1% chance of losing Rs. 25,000

100% certainty of gaining Rs. 9,000

Inferred from two closely and highly rated securities with comparable liquidity and known default probabilities and recovery ratios

Uncertainty Premium = $\text{return(AAA)} - \text{weighted average return(AA+)}$

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Real Data on Default Histories



Actual default rates indicate that

- Short term credit is safer; and by larger magnitudes for lower ratings
- Sector level differences in default rates are very large
- Some securities are routinely ‘conservatively’ rated (subsequent upgrades)

One, Two & Three Year Cumulative Default Rates between 1988 & 2015

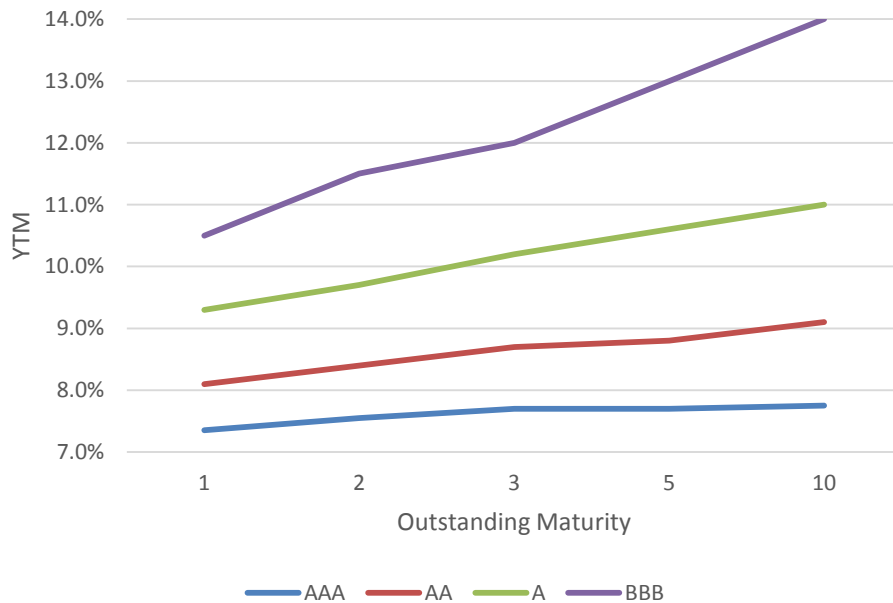
Rating	Issuer - Months	One-Year	Two-Year	Three-Year
CRISIL AAA	16,565	0.00%	0.00%	0.00%
CRISIL AA	36,605	0.03%	0.27%	0.77%
CRISIL A	47,606	0.56%	2.31%	4.79%
CRISIL BBB	101,414	1.09%	2.98%	5.72%
CRISIL BB	149,114	4.17%	8.64%	13.07%
CRISIL B	131,122	7.95%	15.85%	21.82%
CRISIL C	7,034	20.06%	32.84%	40.42%
Total	489,460			

Source: CRISIL Default Report 2015

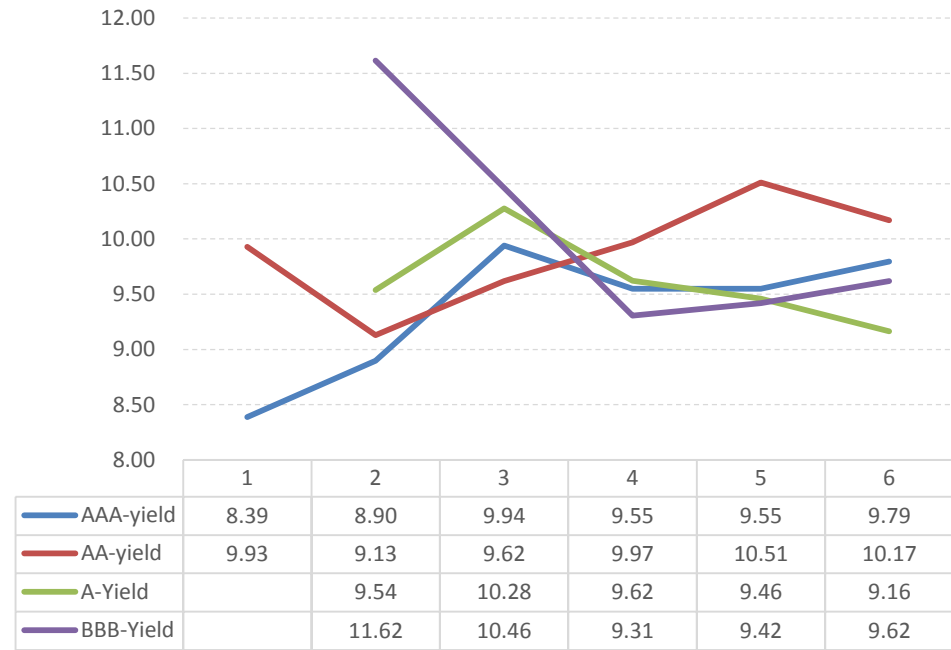
Theory and Reality of Credit Pricing in India



Stylized Expected Fair-Price Yields for Indian Debt



Actual Yields of Indian Debt



Credit Default Swaps

- Basic premise: insurance on credit event
 - Theoretical price:
$$\text{Credit instrument returns} = \text{G-Sec returns} + \text{CDS price}$$
 - It does not always hold
 - Genuine value addition by diversification and aggregation at the issuer end
 - Illiquidity premium – separating credit risk from liquidity risk
 - Mis-priced credit instruments
 - Credit risk of CDS issuer! (the AIG case)
 - Uses of CDS
 - CDS for hedging (while speculating on credit itself)
 - CDS for credit arbitrage (minimizing capital commitment)
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Thank You!
