

Three Controversial Thoughts And One Wild Idea

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Agenda

- **Introduction**
- **Three Controversial Thoughts**
 - **The IC Test Is Useless**
 - **CDR, A Misleading Concept**
 - **The Mystery Behind Baa & Ba Performance**
- **The Wild Idea**
 - **Forget The Correlation Thing !!!**
- **Conclusion**

First Controversial **Thought**

The IC Test Thing

IC Ratio = NUM / DEN

NUM = [Coll. Par] x [Coll Coupon]

DEN = [Class A] x [Coupon Class A]



Is IC Ratio > IC Trigger ??????

IC TEST: Reality !!!

IC Ratio = NUM / DEN

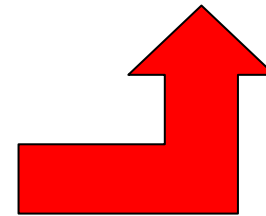
NUM = [Coll. Par] x [Coll Coupon]

DEN = [Class A] x [Coupon Class A]



Is IC Ratio > IC Trigger ??????

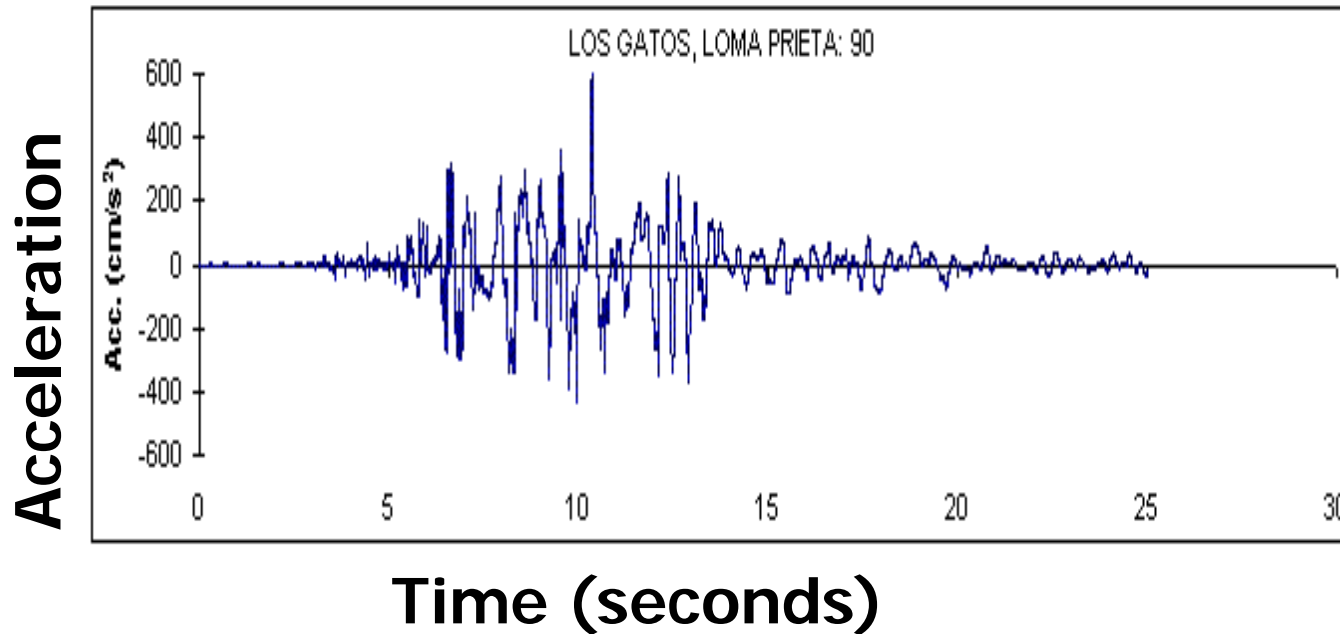
**Highly Dependent On LIBOR,
Very Difficult To "Tune Up"**



**Anyway, In 95% Of The Cases It Is The OC
Test, The Test That Matters, NOT The IC Test**

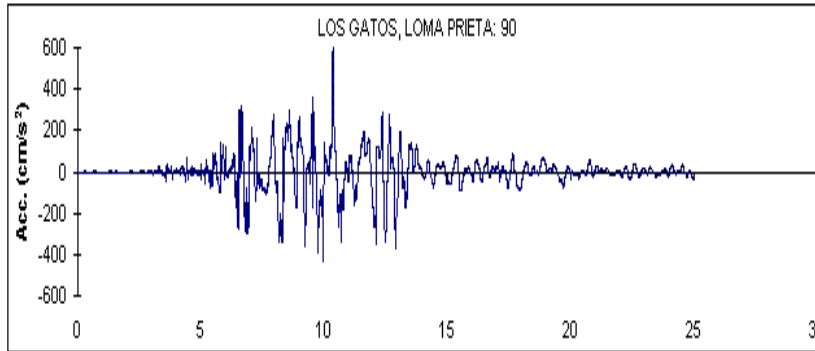
Second Controversial **Thought**

Real Earthquake Record



What Do You Think Engineers Use When They Want To Analyze The Response Of A Building To An Earthquake ?

Acceleration

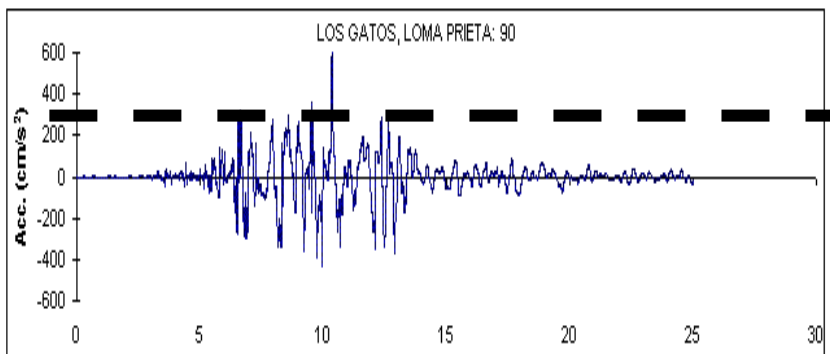


Time (seconds)

Real Earthquake Record

OR

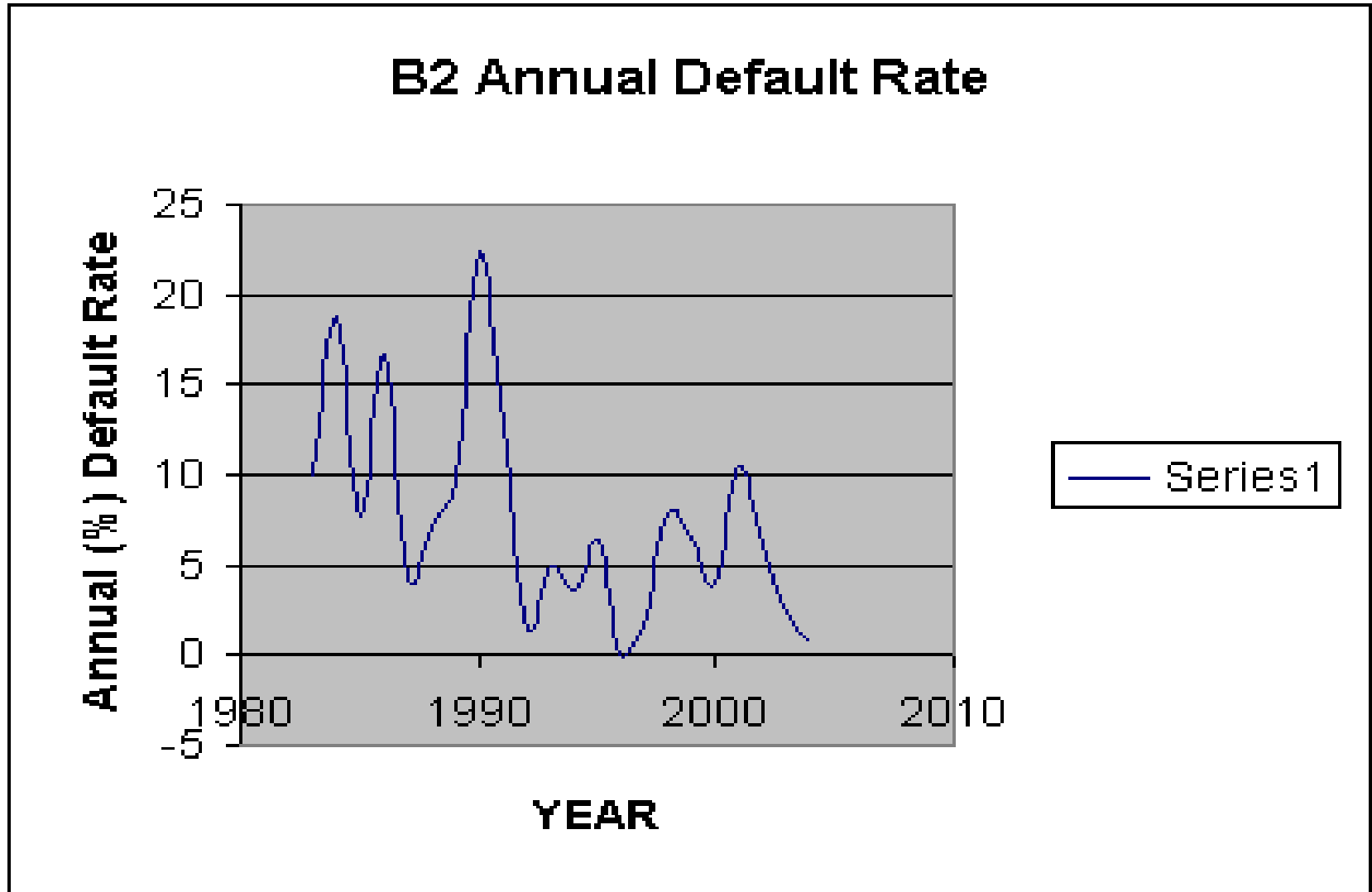
Acceleration



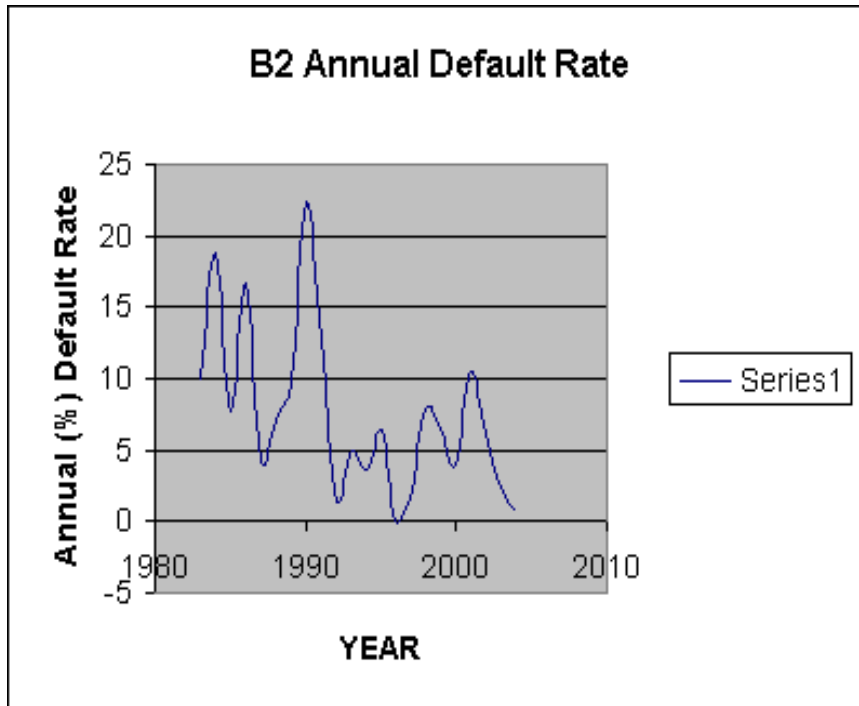
Time (seconds)

“Constant” Acceleration Record

Default Rates Behavior



Default Rates Behavior



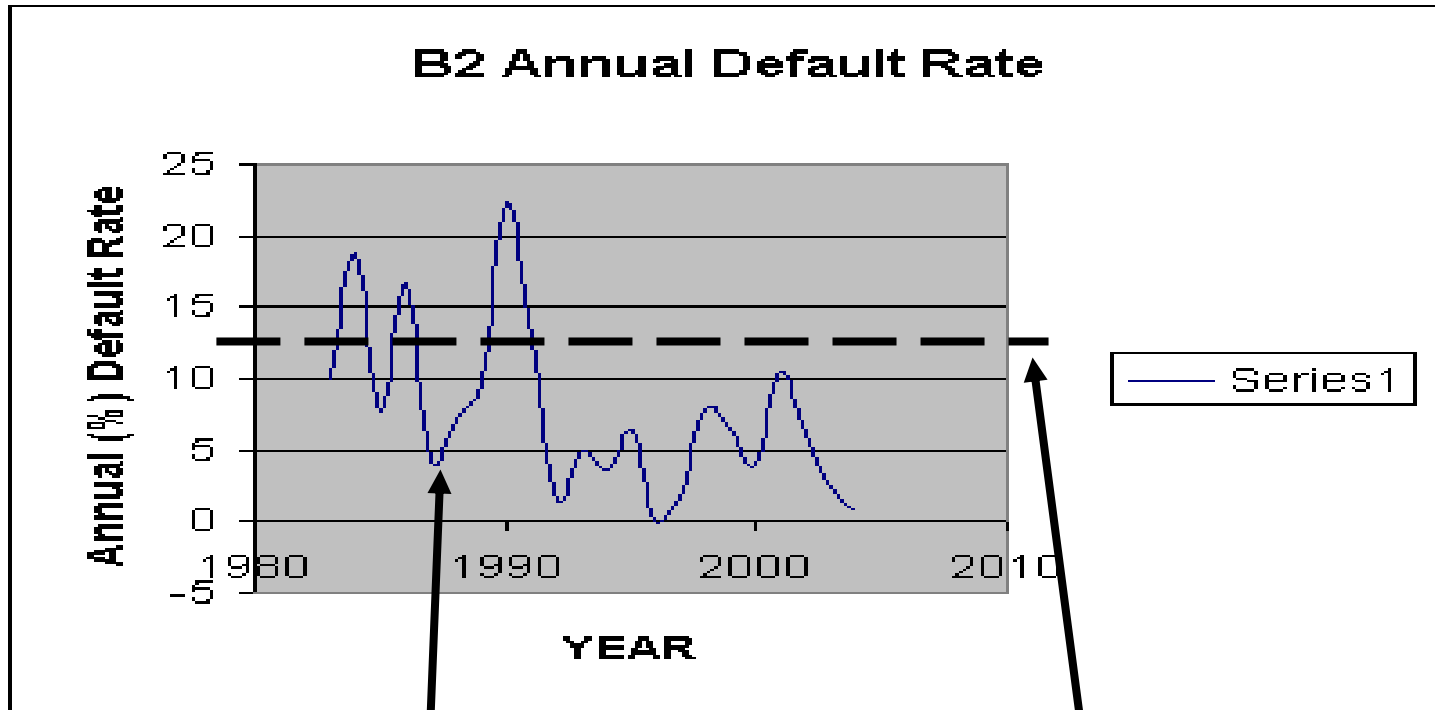
MAX = 22.36 %

MIN = 0.00 %

MEAN = 7.53 %

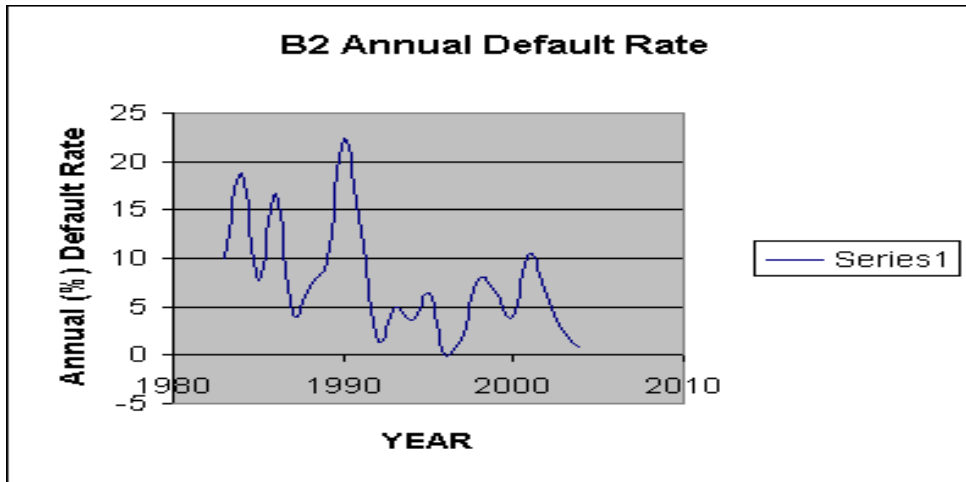
STD DEV = 5.88 %

What Do You Think It Makes More Sense To Use To Study The Behavior Of A Pool Of Credits (Or A CDO)?



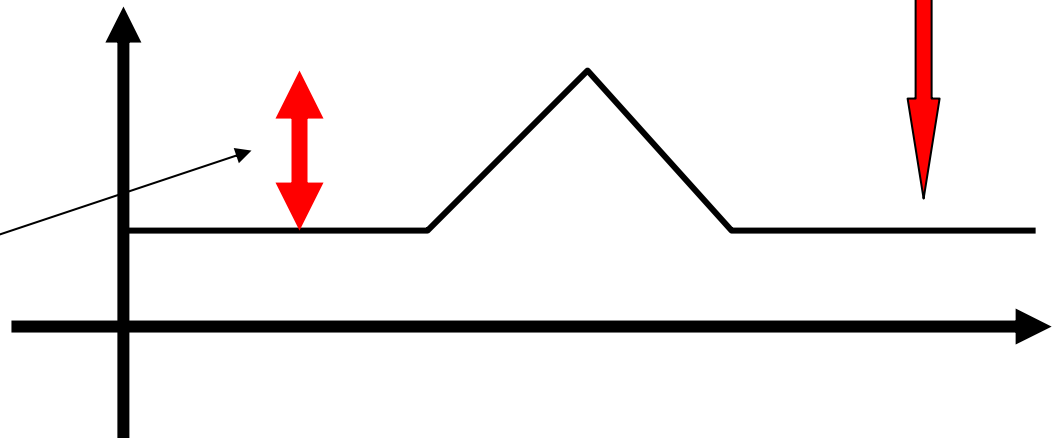
Use (a) Actual Default Rates OR
(b) "CDRs" (Constant Default Rates)

Default Rates Behavior



A Better Idea ...

Max - Mean



Third Controversial **Thought**

Mezz Tranches Performance

“Impairment Rate” (%) , 1993—2002, Moody’s Data, See [2]

	<u>US CDOs</u>	<u>HY CBO</u>	<u>HY CLO</u>	<u>IG CBO</u>	<u>BalShSyn</u>	<u>SynArb</u>
Baa	21.6	52.4	8.3	13.1	10.0	6.7
Ba	24.3	52.6	8.9	27.3	33.3	15.4

What Does This Mean ??

“Impairment Rate” (%) , 1993—2002, Moody’s Data, See [2]

	<u>US CDOs</u>	<u>HY CBO</u>	<u>HY CLO</u>	<u>IG CBO</u>	<u>BalShSyn</u>	<u>SynArb</u>
Baa	21.6	52.4	8.3	13.1	10.0	6.7
Ba	24.3	52.6	8.9	27.3	33.3	15.4

Abnormal ? **Normal ?**

WHY ???

SAME THING ?

Issues ??

Does It Make Sense To Buy BBB/Baa Tranches ???

Combo Notes Better ?

Why Do The Ba & Baa Tranches Have The Same Performance ??

The Manager ?

The Structure Of The Waterfall ?

The Wild Idea

**Does Correlation Actually
Matter *THAT* Much ??**

The “Big Picture” CDO Problem

**Uncertain
Factors**

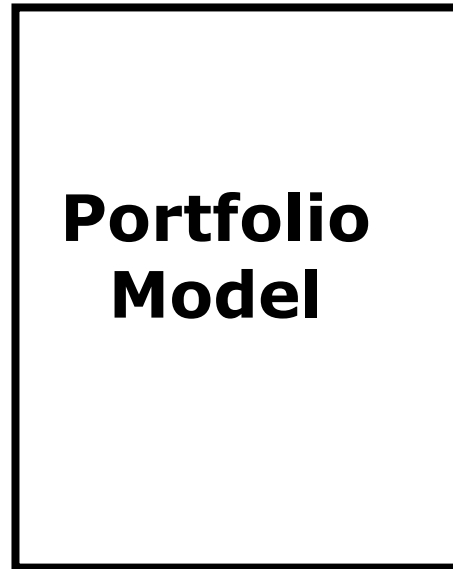
Prob of Def



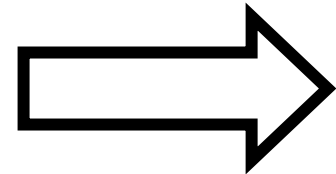
Recovery



Correlation



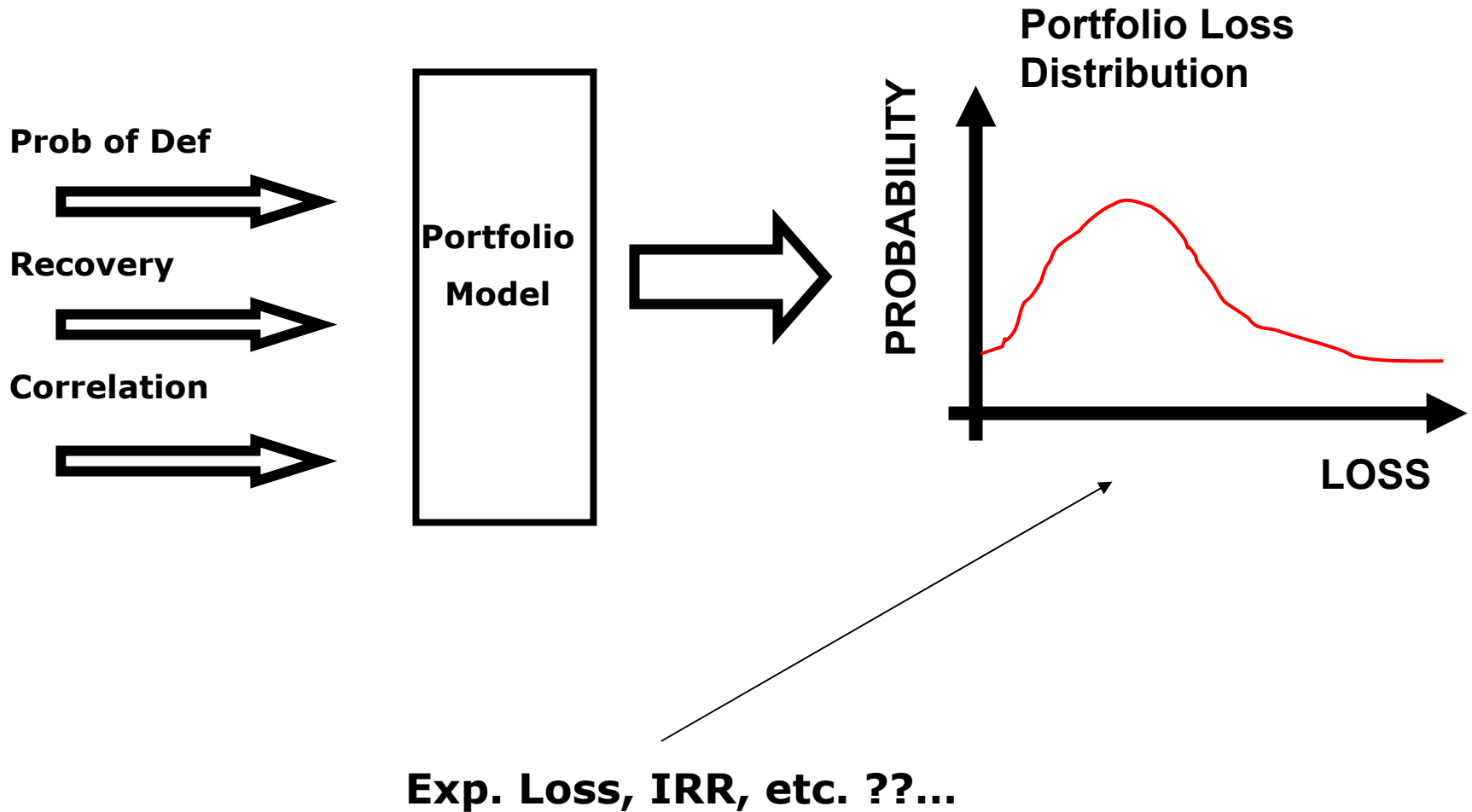
Outcome



Loss, IRR, ...

Which One Matters?

The "Big Picture" CDO Problem



Example

Consider an heterogeneous portfolio:

20 assets

Size range (US\$1 to US\$ 20 million)

Ratings (AA to CCC)

**Five Industries, concentration
(10% -- 29%)**

**Asset Correlations, Intra [10%-30%],
Inter [2%-7%]**

PROBLEM: Estimate Credit Losses

See Reference {3}

Stability Analysis <1>

**BASE CASE = Full-Factor Model,
Recovery [constant] = 40%,**

**Loss (Mean) = 7.1%
St Dev (Loss) = 7.0%**

Mean / St Dev

[1] Simple 1-factor model ($\rho = 7.07\%$) 7.1% / 7.0%

[2] Stochastic Recoveries (Beta) 7.1% / 7.0%

Stability Analysis <2>

**BASE CASE = Full-Factor Model,
Recovery [constant] = 40%,**

**Loss (Mean) = 7.1%
St Dev (Loss) = 7.0%**

Is ρ That Relevant ???

Variation In Loss

Mean / St Dev

[3] Default Prob (Up/Down 20%)	20 % / 8.4%
[4] Recovery Rate (Up/Down 20%)	13% / 13%
[5] Asset Correlation (Up/Down 20%)	0.1% / 1.4%



Reality :

In Most Cases, The Default Probability Is The Most Relevant Factor...

The Correlation (With All Its Noise & Hoopla & Copulas & Intra ρ & Inter ρ & Etc, Etc) Does Not Matter That Much

Then :

**Why Are We
Spending So Much
Time In This
Nonsense ???**

Conclusions

- **Be Skeptical**
- **Trust But Verify**
- **Don't Assume Anything**

REFERENCES

- [1] Moody's, Default And Recovery Rates Of Corporate Bond Issuers, January, 2005.**
- [2] Moody's, Default & Loss Rates of US CDOs, 1993-2003, March, 2005.**
- [3] *Anatomy of a Monte Carlo: Things Your Mother Never Told You (And Your Quant Will Never Tell You)*, Wachovia Securities Structured Products Research, A. Cifuentes and M. Desai, November 4, 2004.**