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Demystifying Credit

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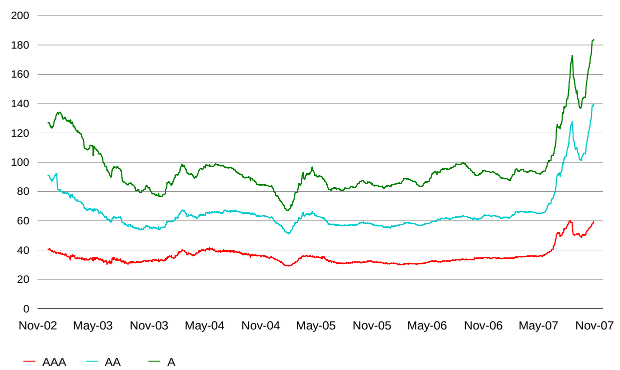
Morgan Stanley

Overview

- Market Update
- Traditional Use of Credit
- Risk Management Using Structured Credit
- Credit Within an Asset Liability Framework

The Bond Market

Sterling Investment Grade Bonds
iBoxx £ Non-Gilts Spread to Gilts (bps)



Source Morgan Stanley as of November 2007

The Asset Backed Market

- **Press has associated all Structured Credit with Sub Prime mortgages**

Merrill Lynch…with a massive $4.5bn writedown on collateralised debt obligations and subprime mortgages. Now it is clear that a large bathtub would have been more appropriate. Merrill on Wednesday increased the writedown to $7.9bn.

FT Lex Oct 24 2007

Citigroup's CDO mess

…collateralised debt obligations …are the main cause of a potential $8bn to $11bn writedown. In CDO-land, a security that sits at the top of the capital structure does not imply its collateral is pristine

FT Lex Nov 06 2007

Write-offs on mortgage-linked assets sharply increase to $60 bn

FT Nov 08 2007

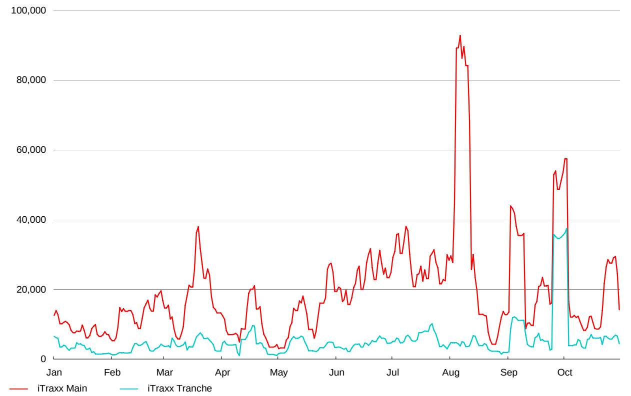
…it has become clear that the statistical assumptions used to value some structured bonds such as collateralised debt obligations were wrong. That has not only created the risk of fire sales as those bonds go into default but means it will be hard to restore confidence to the CDO market in either the short or medium-term. **CDOs appear to be quite fundamentally broken.**

FT Comment Nov 07 2007

The Credit Derivative Market

- **CDS Index Market is “Open”**

Morgan Stanley iTraxx Trading Volumes – 2007 YTD
Weekly Rolling Volumes € mm



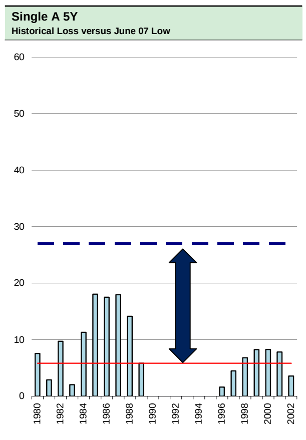
Source Morgan Stanley as of November 2007

Use of Credit

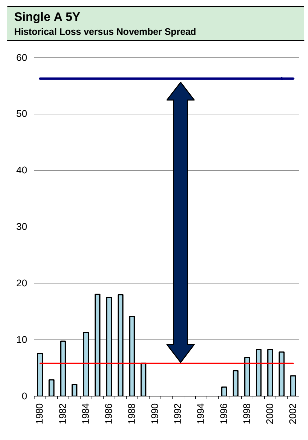
- UK Life Insurance
  - Traditional view: spread larger than expected default, reinforced by peak 1 treatment
  - Focus on market risk is leading to credit portfolio shortening
- UK Pensions
  - Traditional view: incremental spread low compared with investment costs
  - Allocations to credit growing
- UK General Insurance
  - Traditional view: main value added is on liability side of the business
  - Credit attractive due to short term market risk focus

Risk / Liquidity Premium

- November Spread
- June 07 Low
- Average Historical Loss
- Historical Loss



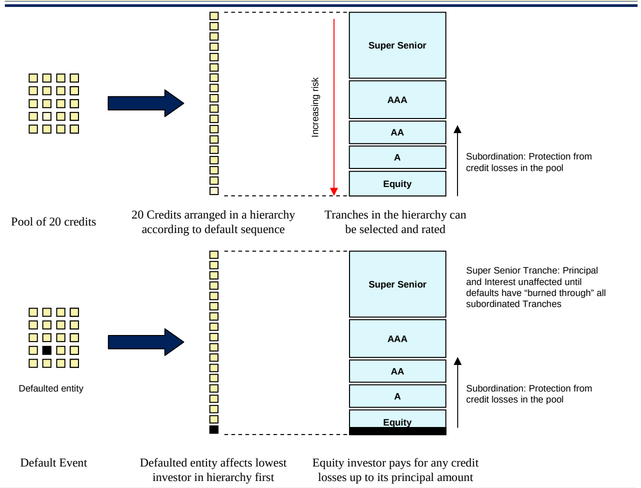
Source Morgan Stanley, 20 November 2007, Moody's



Source Morgan Stanley, 20 November 2007, Moody's

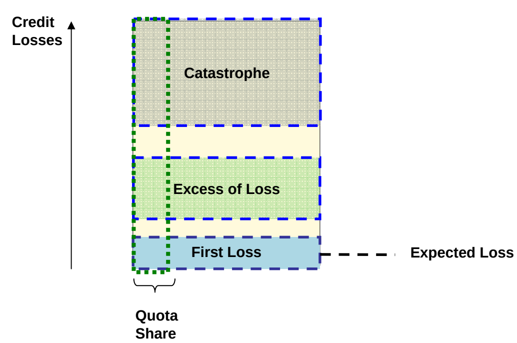
Risk Management using Structured Credit

A Recap - What is a CDO?



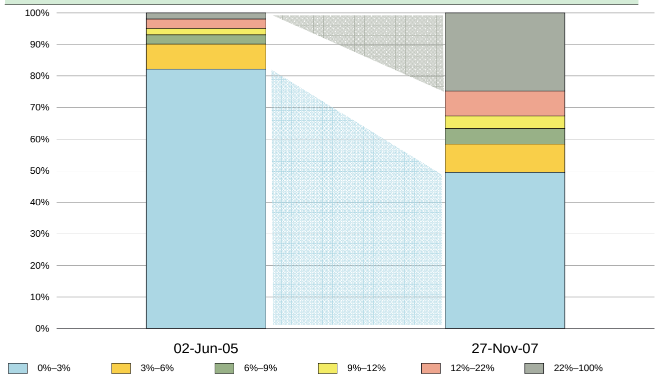
Structured Credit similar to Reinsurance Market

- Credit Risk can be
  - accepted
  - and ceded
- Liability management techniques are now used for assets



The Changing Cost of Reinsurance

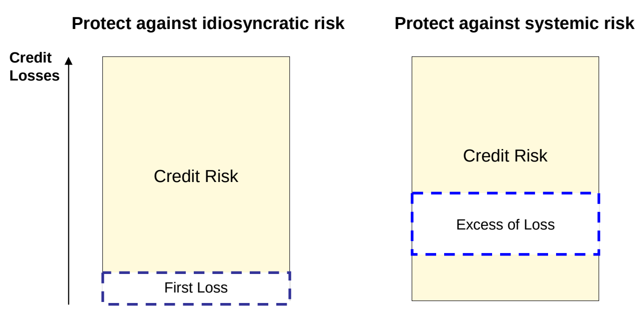
Implied Risk Allocation in the Capital Structure (iTraxx 5-Year)
%



Source Morgan Stanley, 12 November 2007, indicative only

Reinsuring Credit Risk

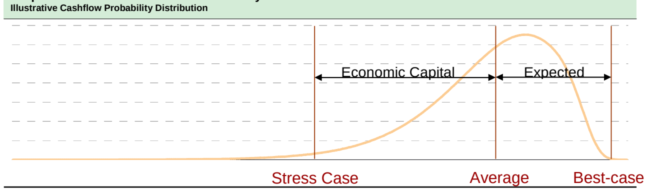
- Portfolio risk split into
  - Idiosyncratic risk
  - Systemic risk



Credit Within an Asset Liability Framework

Credit Risk

Corporate Bond Portfolio – Credit Risk Only
Illustrative Cashflow Probability Distribution



Economic Capital

- The amount of loss which the portfolio can be expected to suffer in a "bad" year

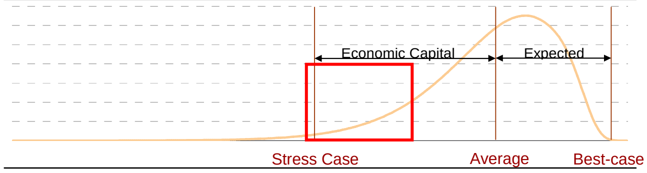
Expected Loss

- The losses the portfolio will suffer, on average, in a typical year

Impact of Reinsuring Credit Exposure

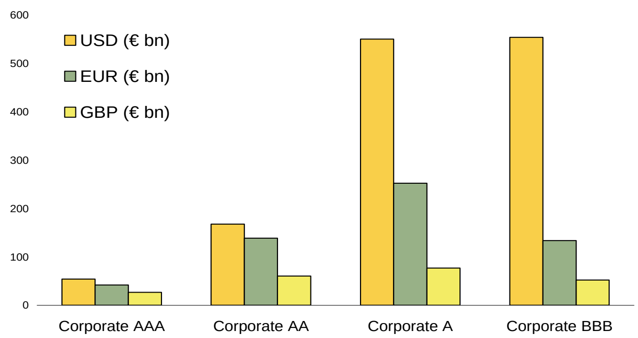
- Hedging the tail of the distribution can be an efficient and cost effective way to reduce economic capital.

Corporate Bond Portfolio – Credit Risk Only
Illustrative Cashflow Probability Distribution



Managing credit risk

Market sizes sorted by currency of the bonds, not issuer domicile.



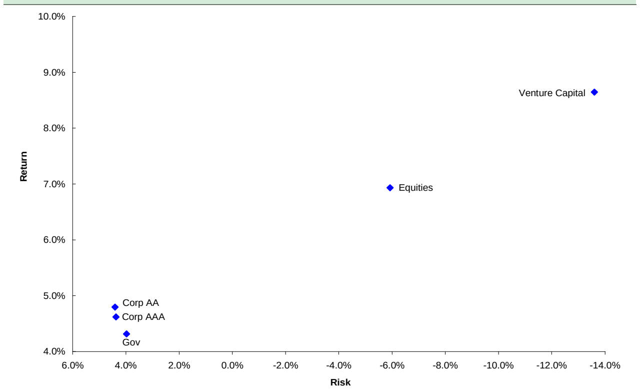
Source Morgan Stanley Analysis

Diversification – Historic

10 year horizon

Risk / Return Plot

- **Return on the vertical axis is defined as the mean of the annualised 10 year log total return**
- **Risk on the horizontal axis (inverted scale) is defined as the average return in the worst 1% of scenarios**



Diversification – a broader Investment Universe

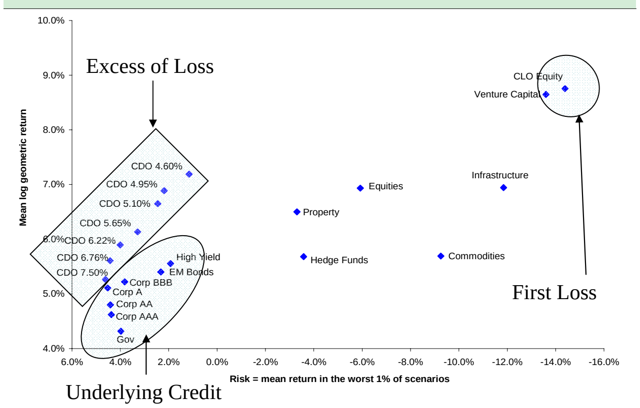
10 year horizon

Risk / Return Plot

- **Risk / reward over a 10 year horizon is very different to a 1 year horizon**

▪ALM Insights:

- **Improve returns on low risk assets**
- **Diversify high return assets**
- **Synthetic credit?**



Key Messages

- Credit offers a good source of excess return
- Liquidity exists in synthetic market
- Structured credit can be used to manage credit risk
- Asset allocation driven by economic capital

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