Credit Derivatives - Entering New Dimensions in Credit

Marcus Schüler - Integrated Credit Marketing

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Credit Derivatives – the Story so far

A history of product innovation

- 10years ago:
  - Bonds only
- Late 1990's:
  - CDS
  - Choice of names, maturity and currency, long and short
- Last 2 years:
  - Tradable credit indices
  - New variables: curves, forwards, correlation, volatility, recovery, default vs spread risk

Credit Derivatives have revolutionized the world of credit

- Credit is as accessible, transparent and tradable as never before
- The iTRAXX/CDX credit indices have established credit as an asset class
- Trading of relative value and new variables has boosted liquidity and pricing efficiency to unprecedented levels

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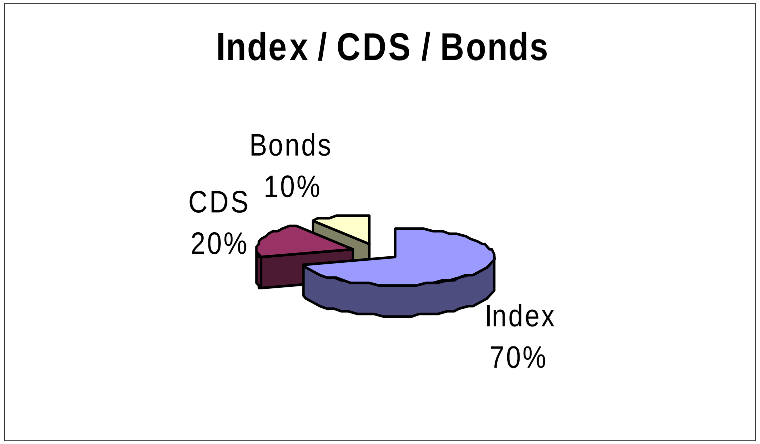
Exponential Volume Growth

- Notionals outstanding
  - 50%+ annual growth since market was created in the late 90s
  - More than USD 17trn notional outstanding today
- Monthly trading volumes
  - An estimated €500bn of credit derivatives has traded in June 2006 alone in Europe
  - Around 70% of the total credit derivatives volume traded in indices
- Bond / CDS split



Source: DB estimates

Participants: Everyone who is active in Credit

Buyers of protection

Banks	Regulatory capital relief; Credit risk management Trading
Securities houses	Credit risk management
Hedge funds	Relative value, short positions, capital structure arbitrage
Corporations	Receivables Hedging
Fund managers	Strategic trade construction

Credit Derivatives Market

Sellers of protection

Banks	Diversification of lending portfolio Trading
Reinsurers	Alternative to writing insurance; diversification
Synthetic CDOs	Yield enhancement, diversification
Insurance companies	Asset portfolio: yield enhancement, diversification
Fund managers	Yield enhancement. For CDOs: tailored risk; diversification

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Credit Derivatives Characteristics

	Cash Bonds	Credit Derivatives
Available credits	Limited to bond issuers	Unlimited
Liquidity	Mixed liquidity	No maximum size
Maturities	Fixed dates	IMM dates, but any date possible
Short Position	Depends on Repo Market	Buy protection at fixed cost, in size
Investment	Cash or Repo	Unfunded (Swap) or Funded (Note)
Coupon	Generally fixed	Fixed or Floating
Capital guarantee	Very occasionally	Possible
Credit Spread		Often higher, cheapest to hedge

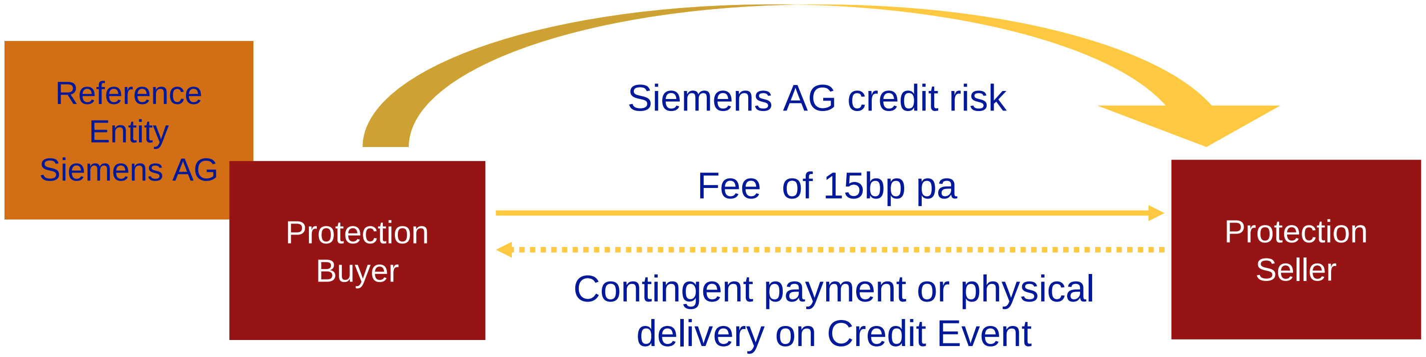
CDS offer relative value, access to a wider universe of credits and enormous structural flexibility

Standardization and Efficiency

- CDS documentation has become very standardized
- The REDs database provides Reference Entities and Obligations for the market
- Settlement and trade affirmation via DTCC and TZero has reduced costs and the potential for errors
- Wide spread availability of pricing information
- Professional valuation services like Markit are available to the market

The Single Name Credit Default Swap

- A CDS is an off-balance sheet transaction allowing for transfer of the credit risk of a Reference Entity between counterparties
- The protection buyer (short credit risk) pays a periodic premium to the protection seller (long credit risk) for the term of the credit default swap, subject to occurrence of Credit Event with respect to the defined Reference Entity
- If a Credit Event occurs the protection seller
  - pays the notional amount vs delivery of Deliverable Obligations (Physical Settlement) or
  - makes a payment of (1-Recovery Rate) to the protection buyer (Cash Settlement)



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The Documentation Framework for CDS

- **What does my protection cover?**
  - Reference Entity
  - Reference Obligation
  - Obligations
  - Deliverable Obligations

- **What is the impact of corporate or capital structure changes?**
  - Succession Events
  - Successor determination

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Integrated Credit Trading

Credit exposure is nowadays managed in an integrated fashion: positions in bonds, CDS, convertible bonds, loans, etc. are all aggregated in overall risk measures and managed on a macro level.

- Bonds
- Loans
- Convertible bonds
- Credit Derivatives
- EQ/EQ Derivatives

→ **Aggregated Risk Parameters**
Macro Risk Management

Monitoring the Bond / CDS Basis

Buying the Bond/CDS basis is an attractive way to go long

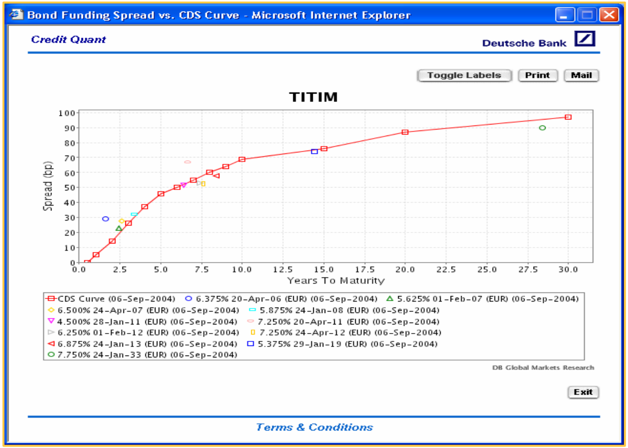
- Spread volatility
- Bond repo option
- Cheapest to deliver option

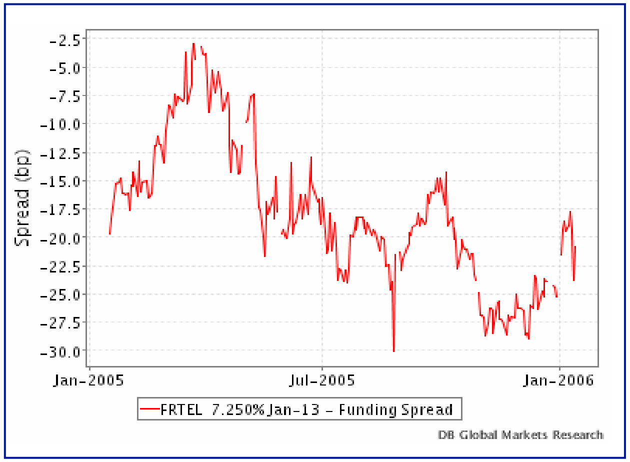
Analytical tools help to identify opportunities

- Bonds vs CDS today
- Bond/CDS basis history
- Funding basis

Strategies:

- Lock in negative basis
- Actively trade cheap or expensive basis





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Growing Activity in Credit Curves and Forwards

- CDS liquidity has greatly improved across the entire maturity spectrum
- Credit curves have moved significantly in the recent past
- Investors demonstrate strong interest in relative value trades
- Curve steepeners are used as a very attractive way to go short the market while capturing positive carry
- We expect that also in credit, implied forwards will be traded actively and used in relative value decisions

iTRAXX Europe 5/10 Curve

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Outlook

- **Increase efficiency and standardization even further**
- **Volume growth**
  - New users
  - New strategies
  - Bigger tickets
- **CDS expanding their reach**
  - New asset classes
- **Product innovation to continue**
  - Following other derivative markets

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