



Introduction to ABS / MBS for Investors

January 2001

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Credit Products - Head of European ABS Trading & Investments (MEF 2)

Introduction to ABS/MBS for investors

- Definitions
- ABS-classes
- Market development in Europe
- Valuation (structure, pool, pricing)
- special terms
- advantages for investors

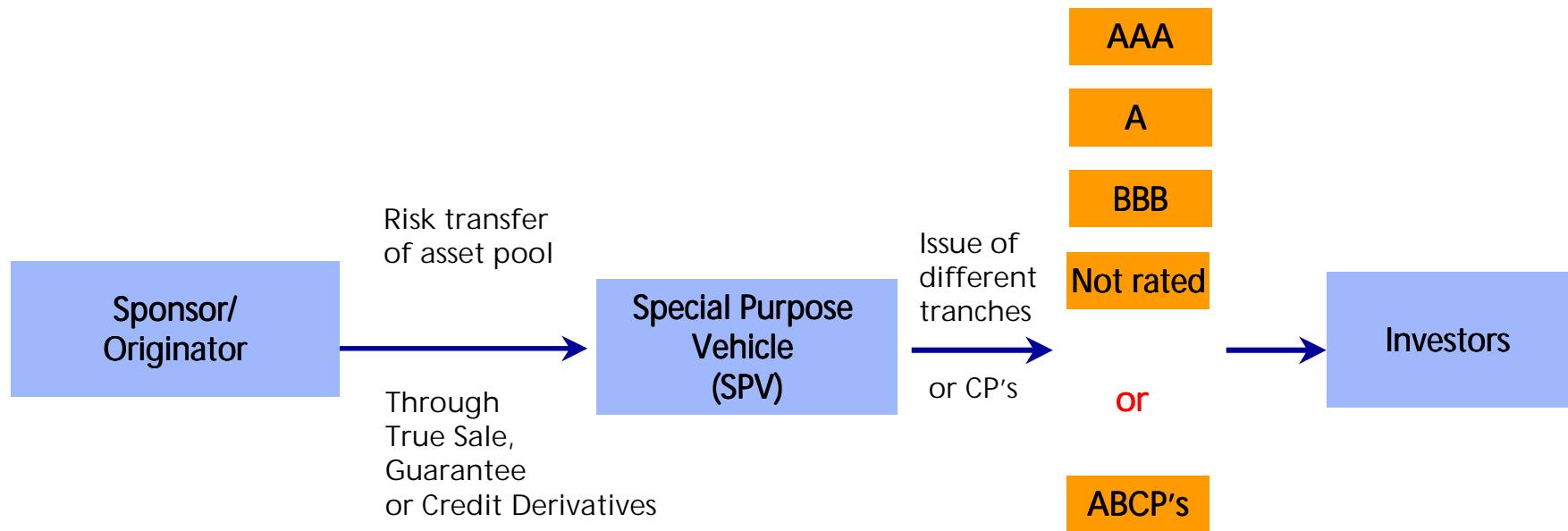
- attractive investment

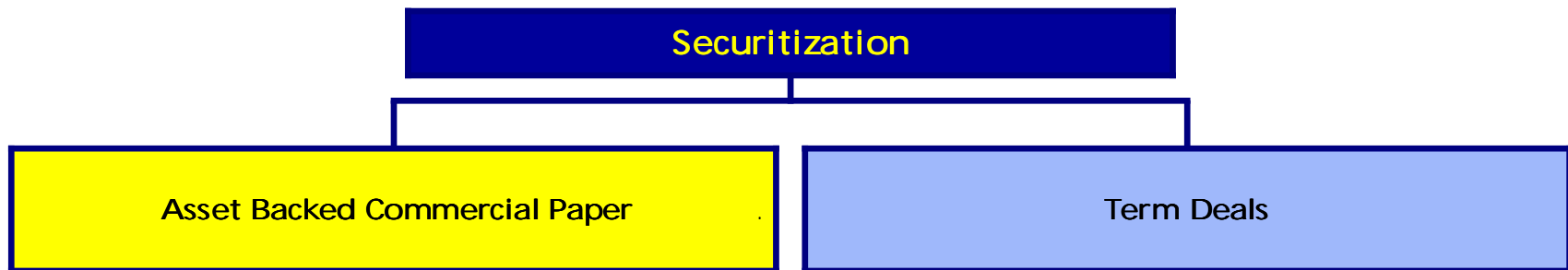
What are asset backed securities (ABS) ?

Securities entirely based on the performance of a pool of assets

- Backed by pool, not by issuer risk
- Usually independent from the credit risk of the assets' owner (originator or seller)
- New approach to assessing credit risk
- Using statistical methods instead to analyse and predict portfolio performance

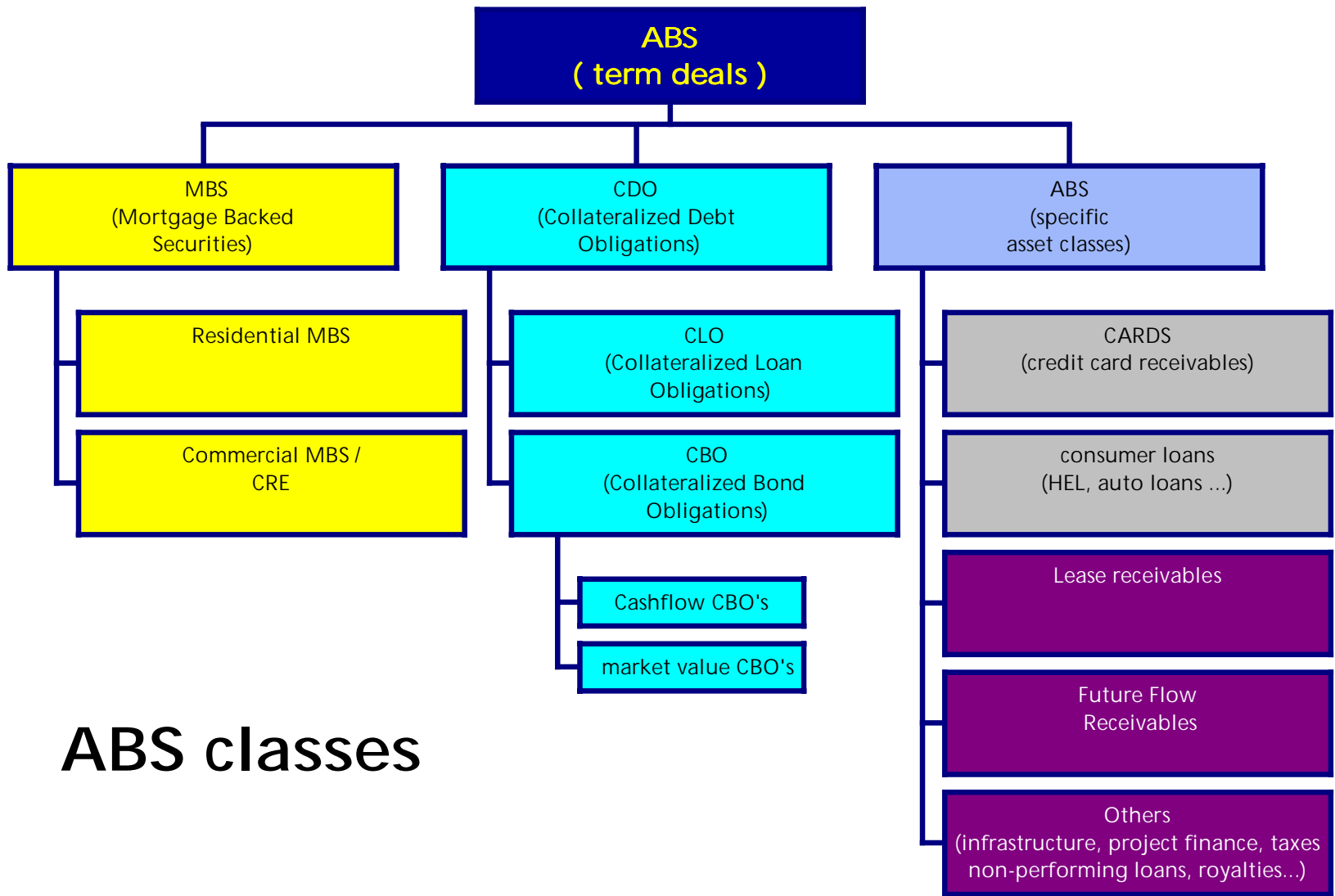
How works Securitization?





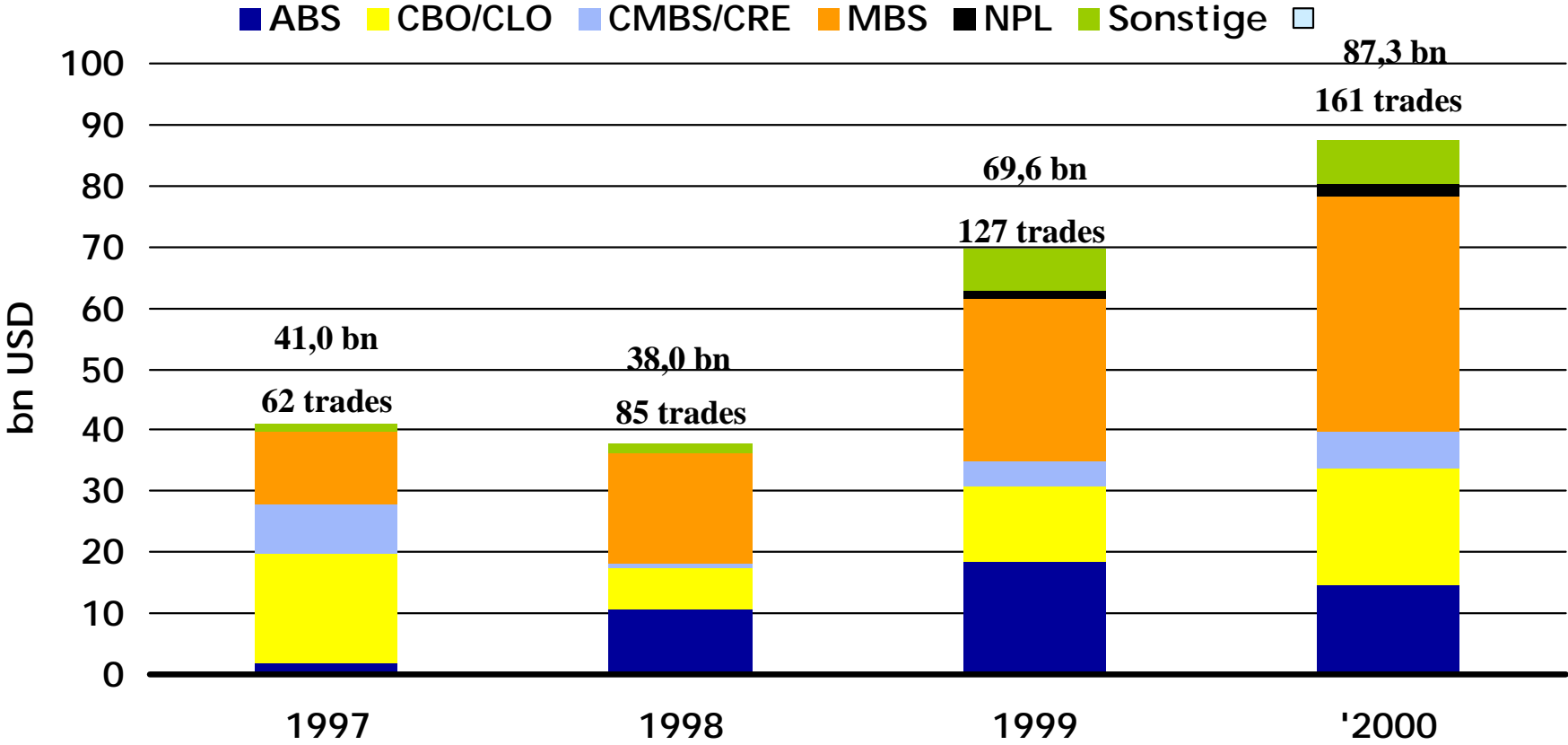
- revolving issues
- established for a longer period
- usually originators unknown to investors
- pool basics available
- CP maturity between 7 and 270 days
- no tranching
- short term rating, highest ratings achieved A-1+/P1 or A-1/P1
- private placements

- one time issue
- Pool exactly specified and all historic statistics available
- maturity > 1 year, up to 30 years
- publicly placed transactions
- rated by 1 or more rating agencies



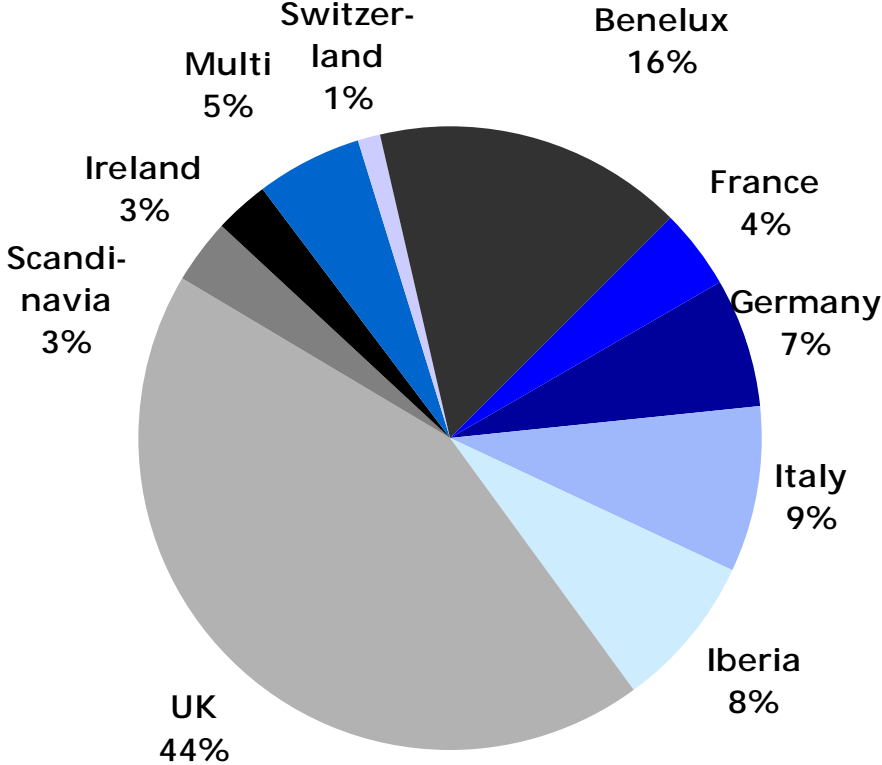
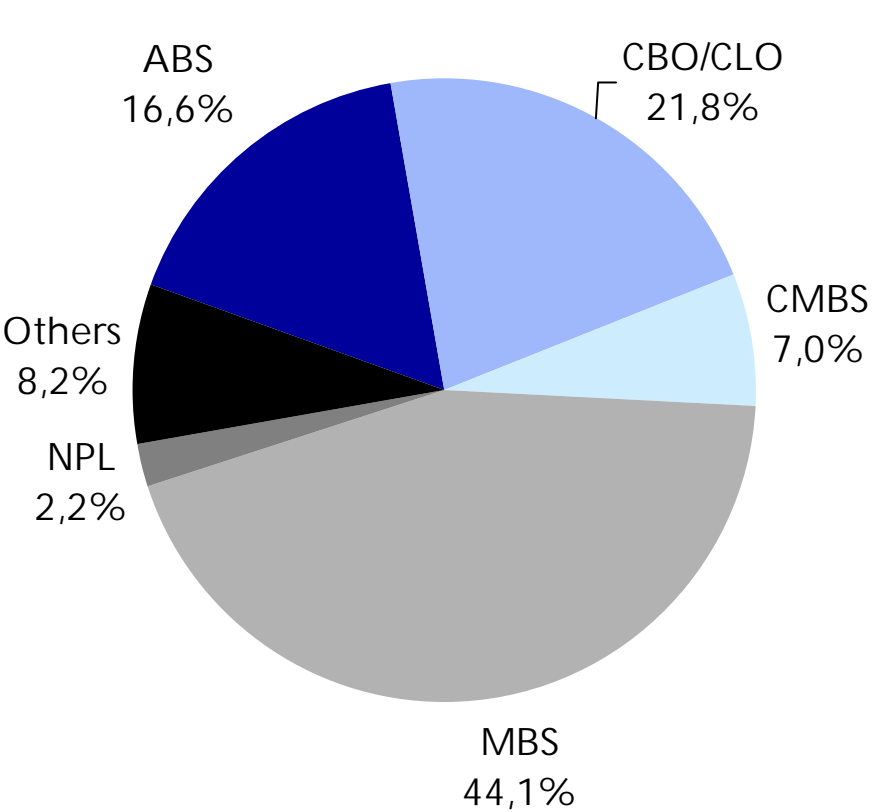
ABS classes

Market development in Europe in 2000



source: Fitch IBCA

European market breakdown 2000



Source: Fitch IBCA, issues 01/00 - 12/00

Valuation

Understanding the transaction appeal and motivation

- **Structure Analysis**
 - form of transfer
 - form of credit enhancement
 - form of cashflow allocation (waterfall...)
 - form of transformation of cashflows (interest rate or currency swaps...)
 - who else is involved
- **Pool Analysis (of the underlying assets)**
- **Bank regulations and capital treatment**
- **Relative Value Analysis (Pricing)**

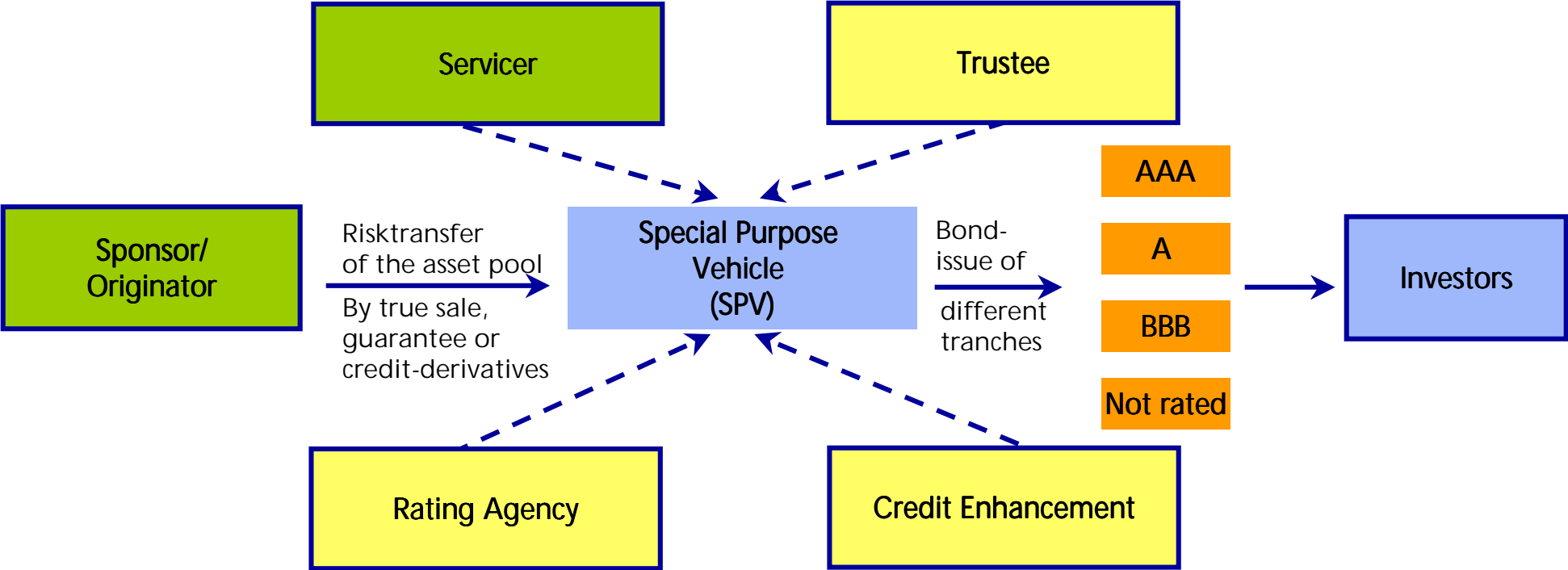
Structure

What to look for:

- How the credit risk of the assets is separated from the credit risk of their seller
(bankruptcy remoteness)
- How the asset cash flows are matched with the bond cash flows
- Why the transaction makes economic sense
(capital relief, funding, risk transfer)

Structure

Major Participants



Structure analysis - key parties

Originator / Sponsor

- Entity (Corporate, bank, public issuers)
- have funding needs
- own assets, which can be used as collateral for ABS/MBS funding

Issuer of ABS/MBS

„Special Purpose Vehicle“ (SPV), specifically created for the purpose of the securitisation, very often located in Channel Islands or Ireland

Outside Credit Enhancer

Entity providing credit enhancement through guarantee, insurance, reserve fund etc.

Servicer

- Entity, which collects and distributes the cash flows from the assets, looks after delinquent loans, reminds borrowers of the missing payments ...
- in Europe very often = originator

Structure analysis - key parties

Liquidity Provider

Entity which balances the timing mismatching between the collected cashflows from the pool and the cashflows to be distributed under the structured bonds

Rating Agencies

- determine the credit strength of an ABS
- size the credit enhancement to achieve desired rating

Trustee

controls and checks cashflows

Structurer

structures the issue in close cooperation with the originator

Underwriter

takes the issue and places it in the market

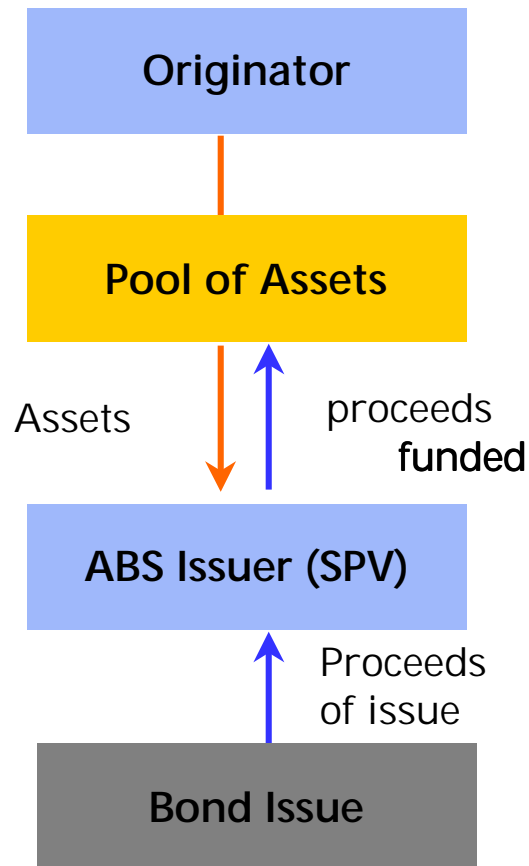
Structure

Depends on the type of collateral

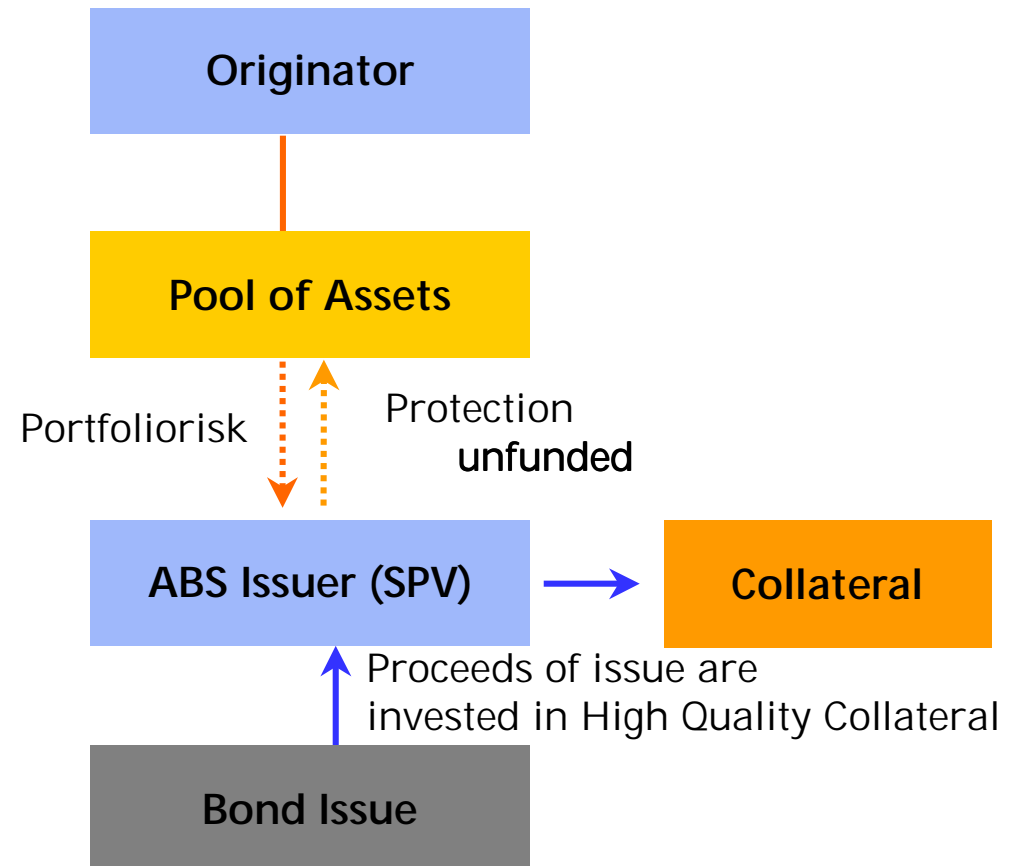
- Risk Transfer (page 15)
 - True Sale
 - Credit Derivatives
 - Guarantees
- Pass through/Pay through, Sequential Pay
- Form of SPV (corporate, charity, trust)
- Credit Enhancement - protection against losses
 - „inside structure“ / often through originator
 - Senior-subordinated structure (page 16)
 - Reserve account (Cash account)
 - Overcollateralization
 - Excess spread
 - corporate guarantee
 - „outside structure“ / through external counterpart
 - Insurance („Wrap“ through „monoline insurer“), guarantee, liquidity-reserve

Struktur - Risk transfer

true sale

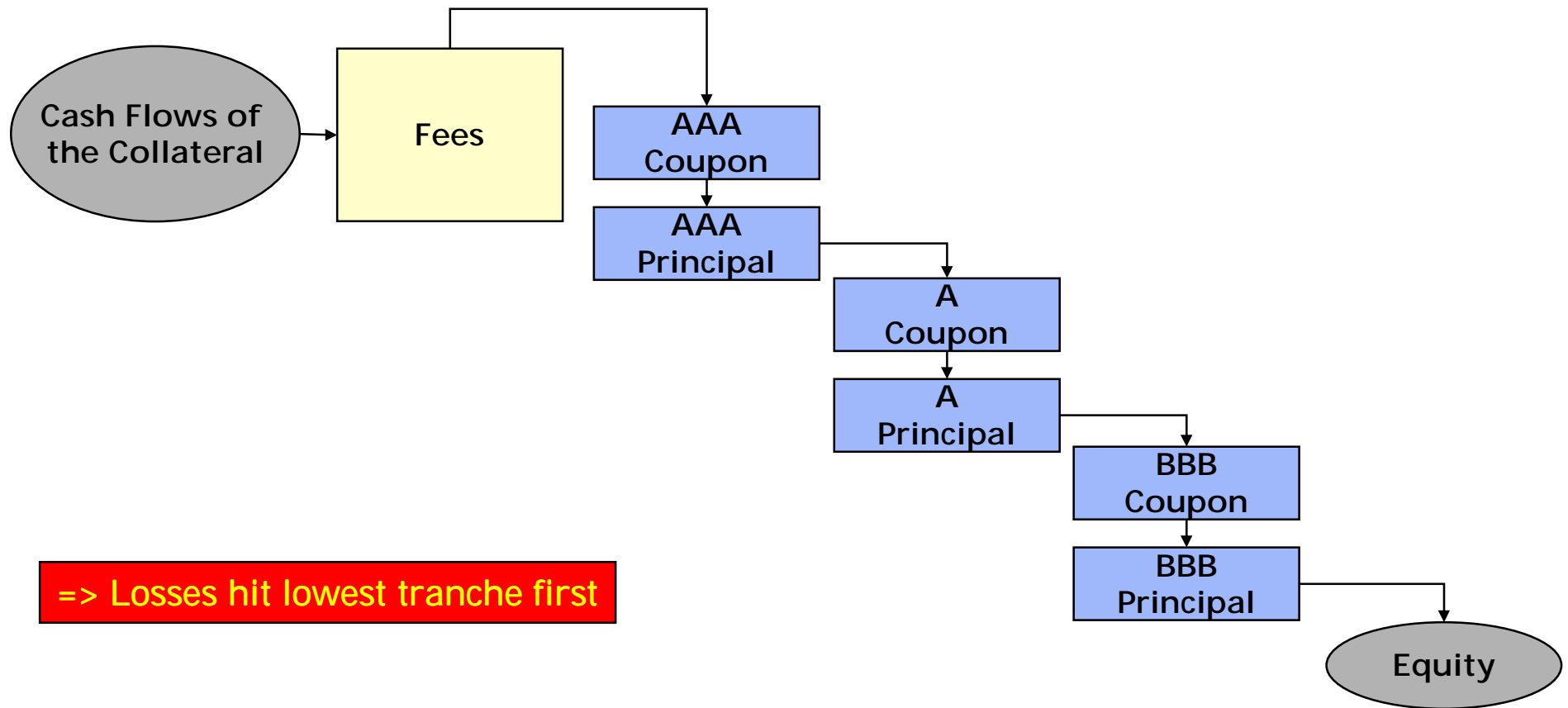


synthetic risktransfer:
(credit derivatives / guarantee)



Structure Analysis

Hypothetic Payments „Waterfall“ in Subordination Structures



Structure analysis

Targets and advantages of the originator

- Regulatory capital release
- diversification of funding sources, alternative to classic loan and entry to the international capital market
- Securitization will free capital for new business
- „Marketpricing“ of loan portfolio
- portfolio management
- Possibility of true credit risk transfer of illiquid assets
- release of credit lines
- no correlation between performance of the originators and risk of the assets
- Improving own ratings by separating delinquent assets
- Improving of balance sheet figures („active balance sheet management“), more efficient use of capital, increase of Return on Equity
- better pricing (through higher rating)

Important terms

Cash-Flow Structures

- hard bullet
- soft bullet
- amortizing, with prepayments
- sequentials

CLO/CBO

Credit Cards, (MBS)

MBS, consumer loans, HEL

MBS, consumer loans, HEL

Faktor

shows the actual outstanding principal of a tranche and how much has been prepayed until now
e.g. factor 0,963456 means 96,34% principal outstanding and 3,65 being prepayed.

Maturity

- WAL (weighted average life)
- Expected Maturity
- Final Maturity

average maturity of the capital

(Endpayment + Prepayments, no interest)

expected day of last capital repayment

legal final maturity, maximum possible maturity

Terms/Figures

- LTV
- DSCR („Debt Service Coverage ratio“)
- seasoning
- WART

Loan to Value

Cashflows bond compared to Cashflows of the assets

age of the assets

„weighted average remaining term“ of the assets

Pool analysis

Type of Receivables

- Every type of receivable can theoretically be put in an ABS
- **Interest bearing receivables**
 - Consumer Loans
 - Home Equity Loans (HEL)
 - Credit Cards (CARDS)
 - Autoloans / -leasings (CARS)
 - Collateralized Loan Obligations (CLO)
 - Mortgaged Backed Securities (RMBS, CMBS)
 - Balance Sheet Structures
 - Mortgage Loans
 - Project Loans
- **Receivables bearing no interest**
 - Non performing loans
 - Mortgaged Backed Securities,
 - Consumer Loans, Social Security Payments
 - Future Flow Receivables
 - Trade receivables
 - licence and patent funding
- **Actively managed portfolios**
 - (CDO)

Pool Analysis

Pooltype

revolving / static
amortizing / bullet
homogen / heterogen
fixed / floating
performing / non-performing

Statistical Features

Level of Diversification

- according to region
- according to industry
- according to number of loans

Collateral specific benchmarks (e.g. LTV, DSCR)

Historical portfolio performance (defaults and losses)

General economic influences on the assets

Rating

Three important rating agencies:

S & P's

Moody's

Fitch

The rating process

Originator and Pool (stress tests)

Due Diligence

Legal Structure

- "bankruptcy remoteness" of SPV
- True Sale to SPV?

size the credit enhancement to achieve desired rating

Relative Value

USA

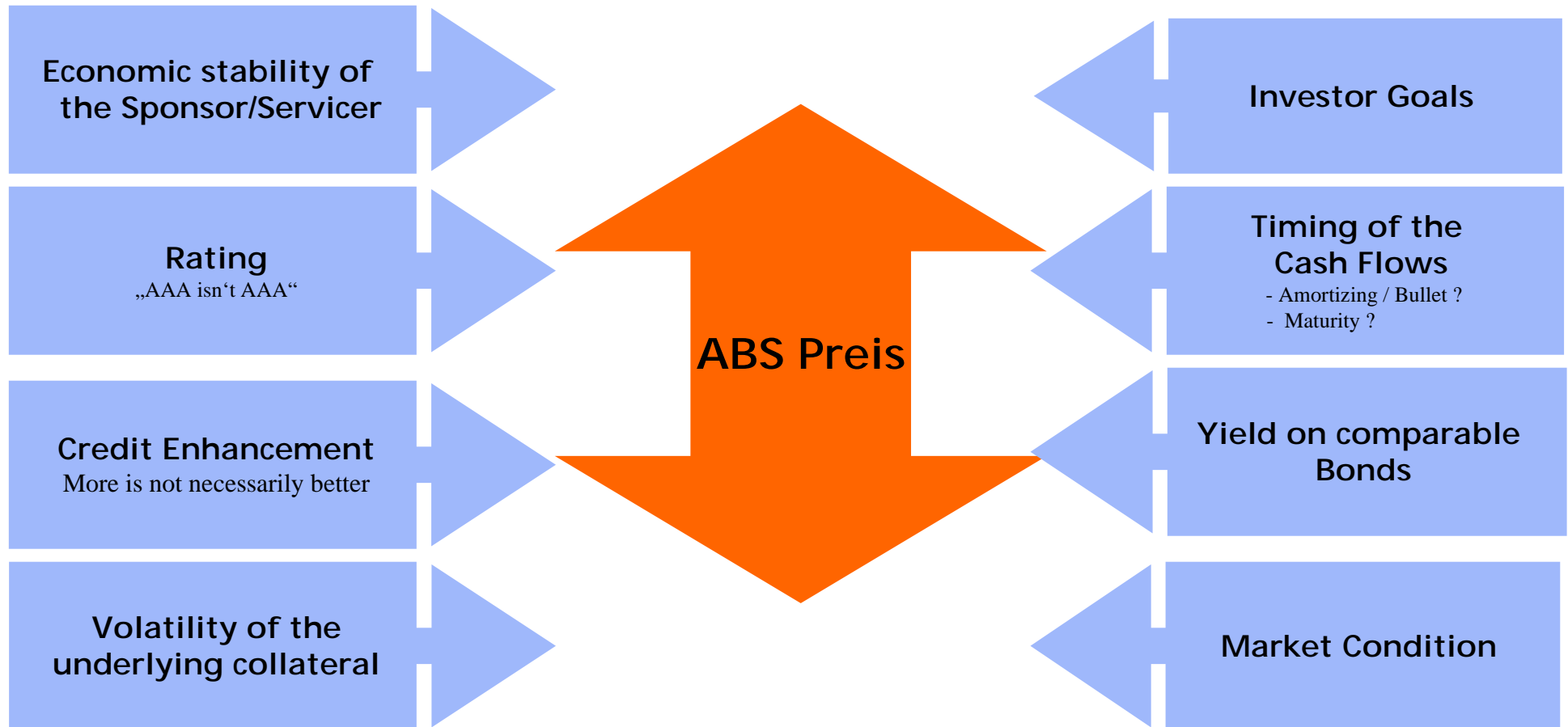
- Market exists since the 80ties
- standardized structures from established vehicles
- high liquidity (market size comparable to treasury market)
- Positions are either
 - very short term
 - or
 - buy and hold
- the most important collateral types are mortgages and consumer credits (credit card and HEL)

Europa

- substantial increase in issuance volume since 1996
- differences in structure from deal to deal (a new "twist" in every transaction)
- by and large a „buy-and-hold“ market
- so far main driving force has been the securitization of bank portfolios (CLOs), influenced by ROE pressures aswell as Residential Mortgage Backed Securities (RMBS)

HVB co-ordinates its trading activities from Munich and New York

Relative Value

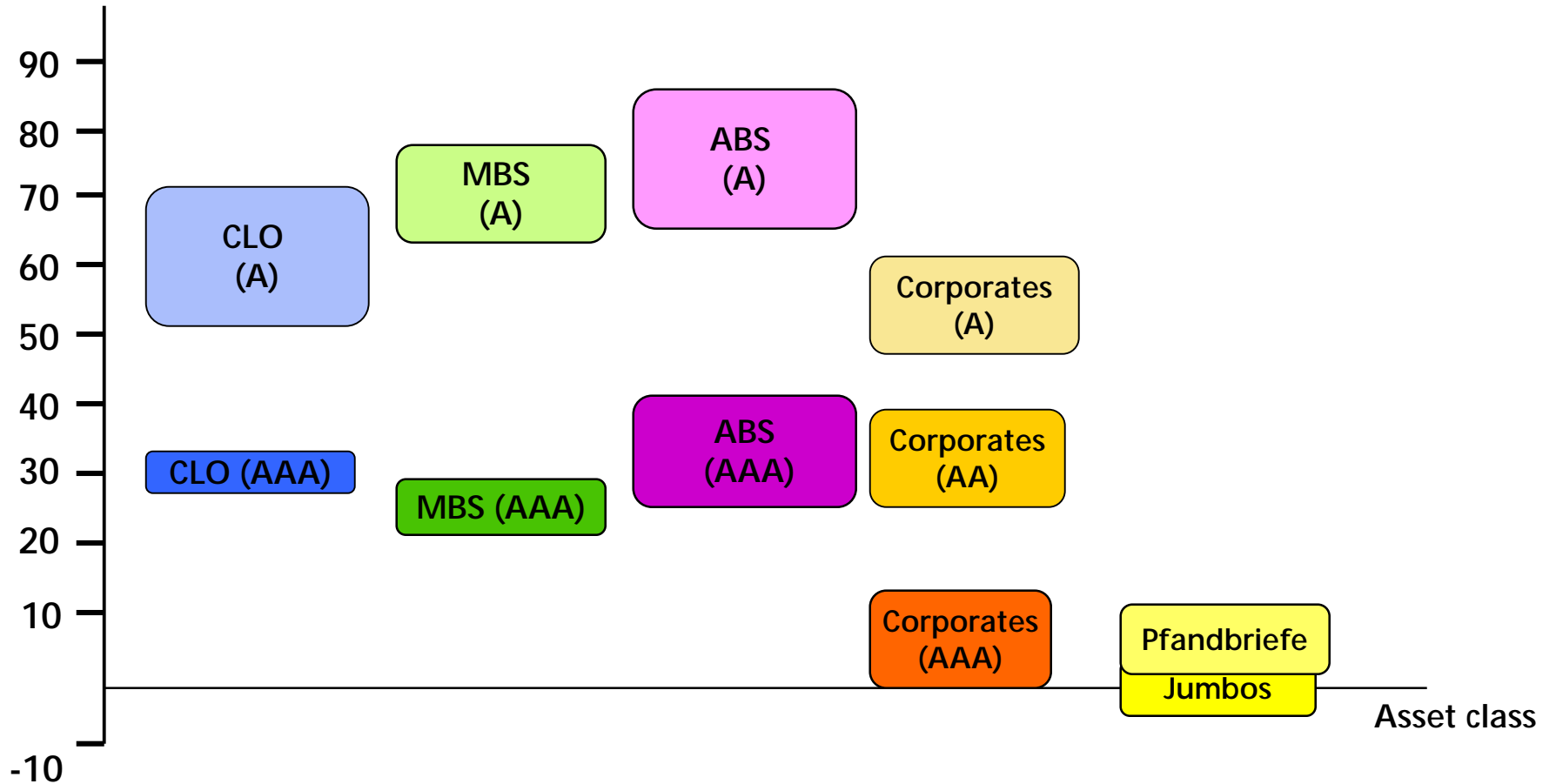


Relative Value

	Rating	Euribor Mid-Spreads	R.W.
Jumbopfandbriefe 5y	AAA	-3/+3	10%
Pfandbriefe 5y	AAA	+2/+7	10%
Corporates	AAA	flat/+10*	100%
Corporates	AA	+25/+35*	100%
Corporates	A	+45/+55*	100%
		* exceptions even wider or tighter	
EU MBS (4-6y)	AAA	+25/+28	100%
EU MBS (4-6y)	A	+65/+75	100%
EU CLOs (5y)	AAA	+28/+32	100%
EU CLOs (3y)	A	+50/+70	100%
EU Consumer Loans (3y)	AAA	+26/+36	100%
EU Consumer Loans (3y)	A	+65/+85	100%
Recent issues			
Fennica 5 (RMBS)	AAA(5y), A(7y)	+25/+65	100%
Aire Valley Fin.No.2 (RMBS)	AAA(5.1y), Aa3(8y)	+32/+55	100%
ELOC 4 (CMBS)	AAA(5y), A(5y)	+40/+100	100%
Celtic 6 (RMBS)	AAA(4.4y), A(7y)	+25.5/+75	100%
DMPL 1 BV (RMBS)	AAA(5.6y), A(10y)	+26/+75	50%
Car loan invest-1	AAA(3.8y), A2(3.8y)	+26/+65	100%
WürttHyp 2000-1 (RMBS)	AAA(5y), A(5y)	+26/+75	100%

Relative Value

Euribor-Spread
(3-5 years)



The Risks

- Credit risk
- Liquidity risk
- Servicer Risk
- Swapcounterparty risk
- Garantor risk
- legal risk
- Sovereign risk
- Default risk of underlying assets

Risks, not measured by Rating Agencies:

- Interest Rate and Currency risk
- Prepayment risk

Why invest in ABS/MBS:

- New Market
 - New Asset class
 - (still) not as much market participants as in established markets
 - therefore less liquidity
 - little volume in secondary market
„buy-and-hold“ positions
 - more credit analysis / timeconsuming
- ⇒ Higher Coupon / Spread as for comparable rated Corporate Bonds

Information for Investors

- **Prospectus**

before launch „Red Herring“ / „Offering Circular“
after launch „Black“

- **Lead Manager**

Presentation, Road Show

- **Rating Reports**

Presale reports before Launch
Final rating report

- **Internet (some issues)**

- **Bloomberg**

Information for Investors

Bloomberg-Functions

- get Description of tranche via Mortgage Function
e.g. Geldilux 1999-2 B
GELDI <Mtge> Go, 3 Go, 2 Go *or* GELDI 1999-2 B <Mtge>
- DES - description
- YT - yield table (Spread Calculator)
- CFT - Cashflow Table (expectations)
- CPD - Class pay down (Prepayments)

Individual analysis criteria of Investors

■ Structure- and Poolanalysis

■ Pre Sale Ratings

historical Portfolio Performance, stress tests
influence of economy developments („event risk“)
Servicer

■ Market

Sekundary market liquidity
Marketmaking Commitment (Lead manager, Reuters-Pages)
Performance Reports after Launch (Internet, Bloomberg, Email?)

■ Advantages

Diversification in portfolio, regional, Type and strukture
higher yield (as for comparable corp. issues with equal rating)
spread tightening
possibility of investment in loans and other activa which wasn't possible before
Rating stability (1986-1998 no defaults)
no credit line problems because of legally separated SPV



Transactions

Geldilux 1999-2 Ltd.

MAED 1999-C1 Ltd.

Bavaria Finance Ltd. Jersey

Prometheus Investment Funding No. 1

WuertHyp 2000-1

Promise-A-2000-1

GELDILUX 99-2 Ltd.

(Febr. 99 Geldilux 99-1, Sept. 99 Geldilux 99-2)

Tranche	Rating	Volume	% Total	Coupon	
Class A	Aaa/AAA	EUR 200.250.000	26,70 %	3m Euribor +	24
Class B	Aa2/AA-	EUR 507.000.000	67,60 %	3m Euribor +	36
Class C	A1/A	EUR 9.375.000	1,25 %	3m Euribor +	45
Class D	Baa2/BBB	EUR 11.250.000	1,50 %	3m Euribor +	92
Class E	Ba3/BB	EUR 13.125.000	1,75 %	3m Euribor +	250
Class F	NR	EUR 9.000.000	1,20 %	-	
		EUR 750.000.000			

Coupon

Floating, based on 3 months EURIBOR

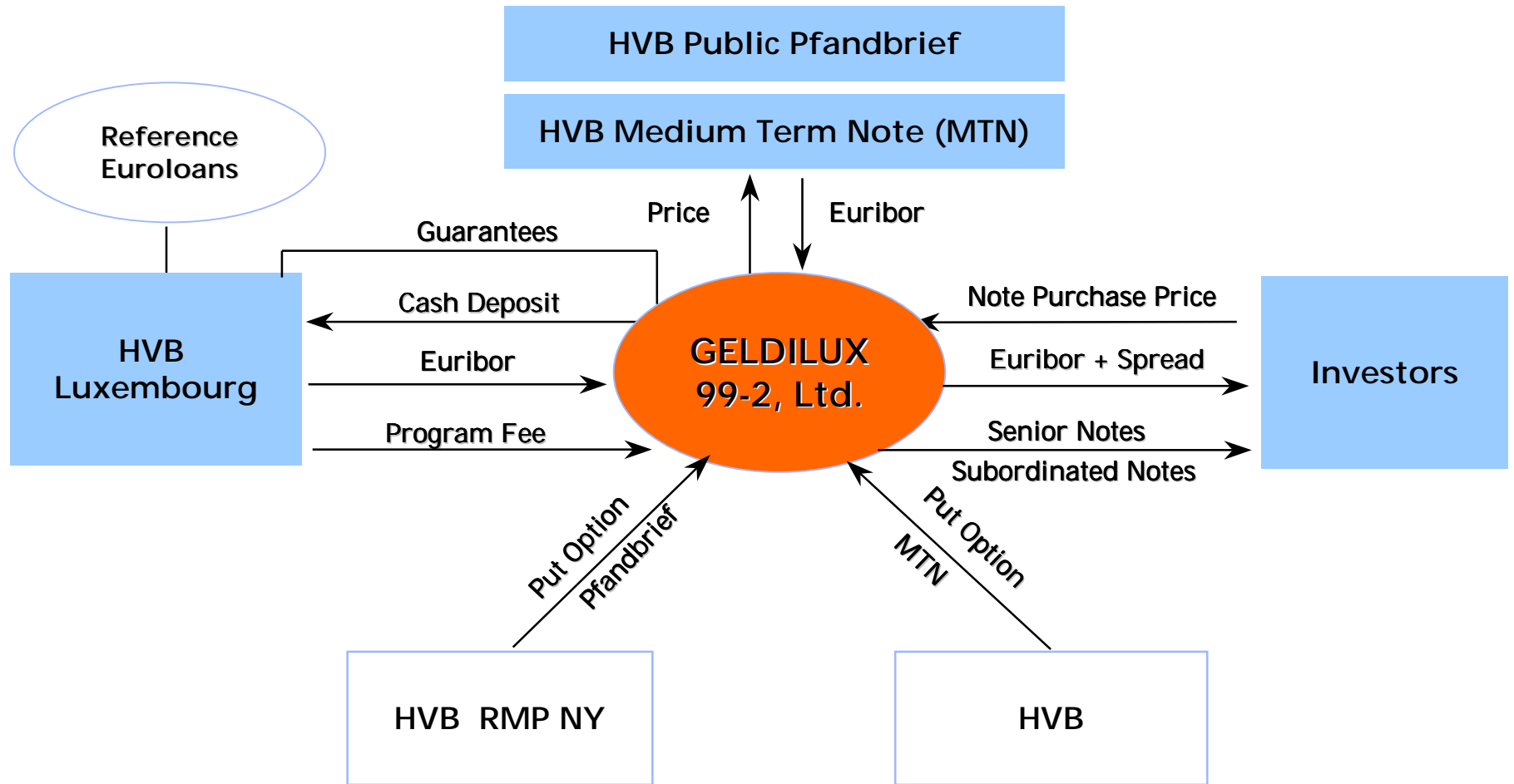
Maturity

Sept 16, 2003 (hard bullet), callable 3 and 6 months prior to maturity

Ratings

Moody's, S&P, Fitch IBCA and Duff & Phelps

GELDILUX 99-2 Structure



MAED 99-C1 Ltd.

(May 99)

(Multi Asset Euro Denominated 99-C1 Ltd.)

Tranche	Rating	Volume (mln)	% of Issue	Coupon (BP)
Class A-1	Aaa/AAA	EUR 100	34%	3m Euribor + 29
Class A-2	Aaa/AAA	EUR 197	66%	4.645%

Maturity

May 25 2009, bullet

Ratings

Moody's and Fitch IBCA

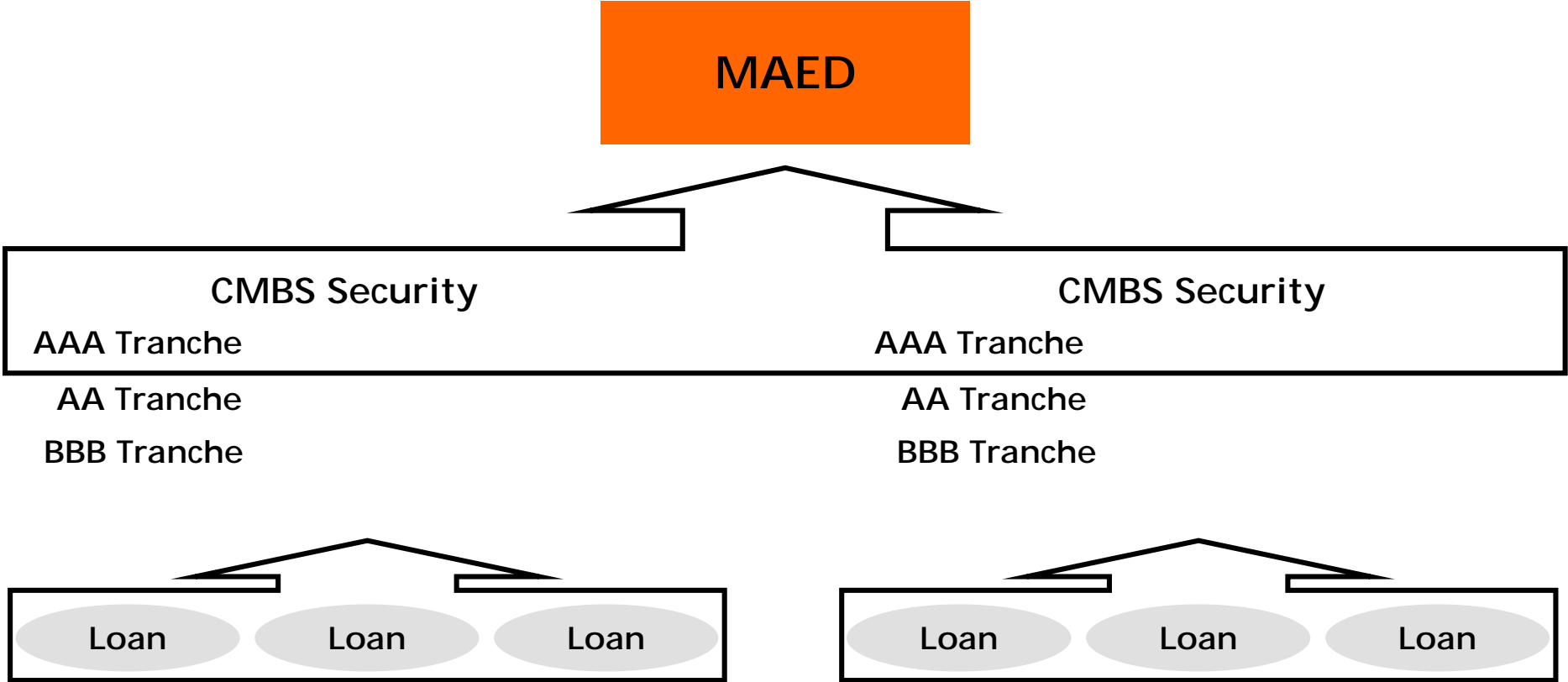
MAED 99-C1

- 11 separate transactions
- Each bond is rated AAA/Aaa
- Fixed collateral pool containing
- Over 2,700 loans
- No commercial property class exceeds 25% of the underlying loans
- Only 1 state has more than 20% of the loans (California) and this is typical of CMBS transactions

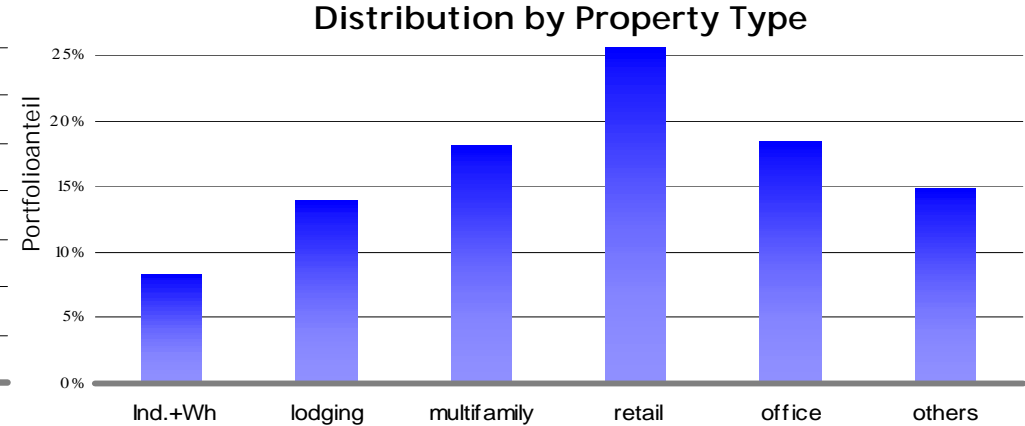
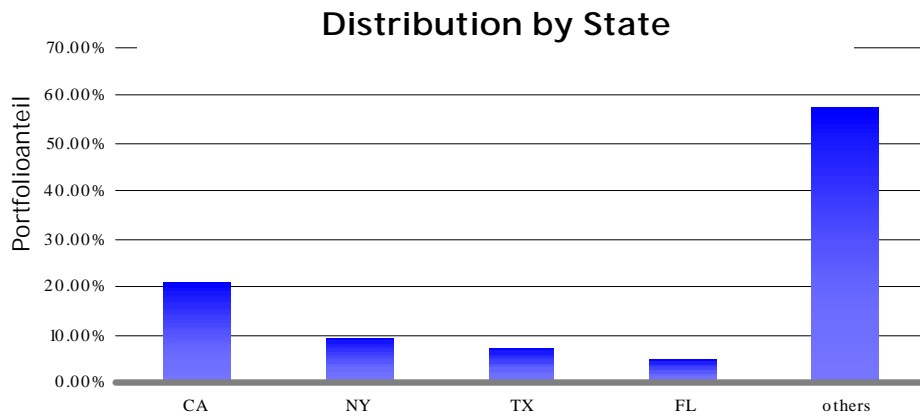
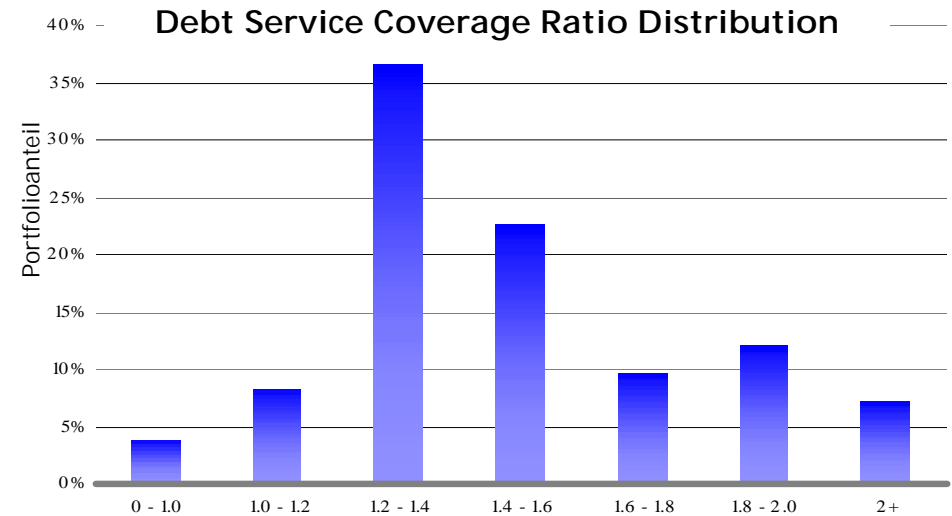
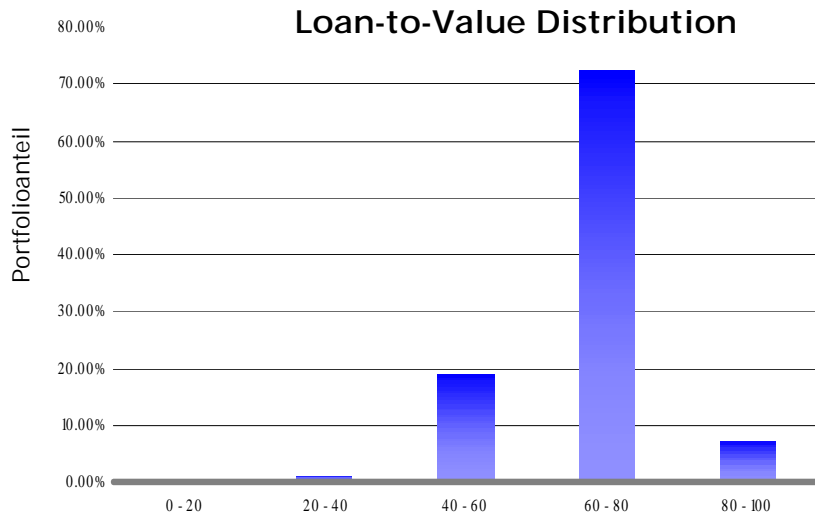
MAED 99-C1: CMBS Product Features

- A key feature of CMBS securities is the option of the borrower to pay back his debt at his discretion
- This option leads to complications in the cash flow management (duration, convexity, prepayment rate)
- The cash flows and the maturity of a CMBS security are hence a product of prepayment evaluation models and can vary in terms of timing and size (prepayment or extension)
- The difficulties in finding the OAS (Option Adjusted Spread) and the complexity of the risk management are usually reflected in a relative „cheapness“ of the CMBS market in comparison to other similar securities

MAED Structure



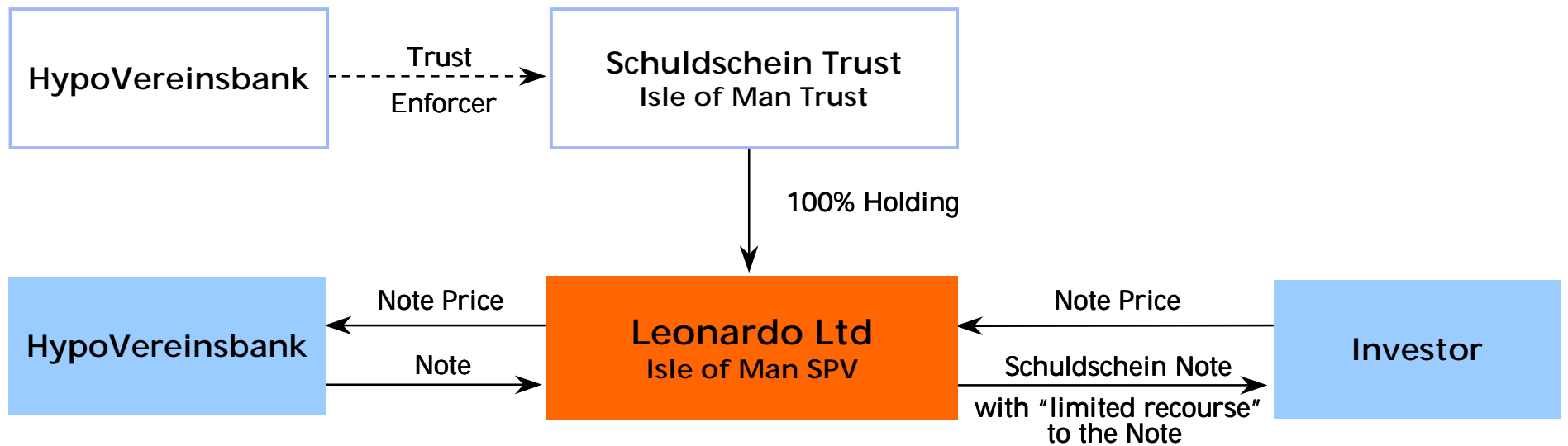
The MAED Portfolio



Indication for a MAED 1999-C 1 based Schuldschein Issue

Issuer	LEONARDO Ltd., Isle of Man	Redemption	Equivalent to the MAED 1999-C1 Issue
Dealer	HypoVereinsbank, Munich		
Type	Schuldscheindarlehen	Maturity	May 25, 2009, equivalent to MAED 1999-C1, legal final maturity November 25, 2014
Underlying	MAED 1999-C1 Class A-1 (25.5.2009) Ratings: Aaa (Moody's)/AAA (Fitch) WKN: 308 472	Documentation	Schuldschein- documentation
Volume	EUR 25.000.000	Settlement	Schuldschein settlement
Coupon Pays	3M Euribor + 0,29% (act/360) February, May, August, November 25, modified following, (MAED pay days)		

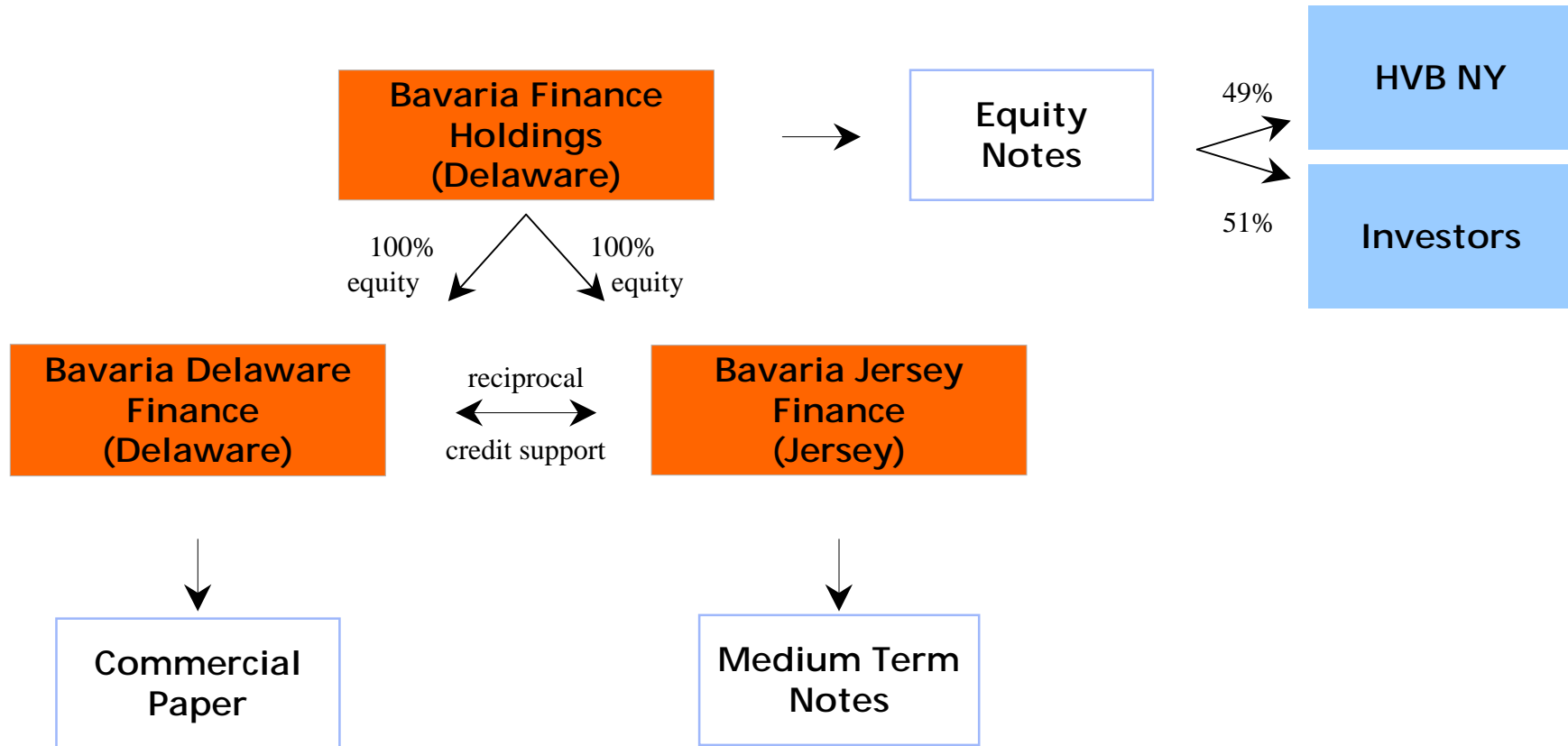
Leonardo Structure



Bavaria Jersey Financing

(Nov. 99)

Ownership Structure



Term Sheet (Indicative Terms)

	Commercial Paper (CP)	Medium Term Notes (MTN)												
Issuer	Bavaria Delaware Finance	Bavaria Jersey Finance												
Rating S&P/Moody's/Fitch	A1 / P1 /F1	<table border="0"> <tr> <td>AAA/Aaa</td> <td>(100 Mio)</td> </tr> <tr> <td>AA- / Aa3</td> <td>(32 Mio)</td> </tr> <tr> <td>BBB- / Baa2</td> <td>(80 Mio)</td> </tr> <tr> <td>NR / Ba2</td> <td>(33 Mio)</td> </tr> <tr> <td>NR</td> <td>(37 Mio)</td> </tr> </table>	AAA/Aaa	(100 Mio)	AA- / Aa3	(32 Mio)	BBB- / Baa2	(80 Mio)	NR / Ba2	(33 Mio)	NR	(37 Mio)		
AAA/Aaa	(100 Mio)													
AA- / Aa3	(32 Mio)													
BBB- / Baa2	(80 Mio)													
NR / Ba2	(33 Mio)													
NR	(37 Mio)													
Maturity	up to 270 days	expected 7 years, legal 10 years callable quarterly from year 2 (equal percentages per tranche)												
Volume	up to USD 4,000 Mio	USD 282 mn												
Coupon	n.a.	<table border="0"> <tr> <td>AAA</td> <td>3m</td> <td>USD Libor + [50] BP</td> </tr> <tr> <td>AA-</td> <td>3m</td> <td>USD Libor + [75] BP</td> </tr> <tr> <td>BBB-</td> <td>3m</td> <td>USD Libor + [195] BP</td> </tr> <tr> <td>BB</td> <td>3m</td> <td>USD Libor + [400] BP</td> </tr> </table>	AAA	3m	USD Libor + [50] BP	AA-	3m	USD Libor + [75] BP	BBB-	3m	USD Libor + [195] BP	BB	3m	USD Libor + [400] BP
AAA	3m	USD Libor + [50] BP												
AA-	3m	USD Libor + [75] BP												
BBB-	3m	USD Libor + [195] BP												
BB	3m	USD Libor + [400] BP												

Bavaria Finance Corporation: Assets

Short term

- Commercial Paper or short-term deposits (< 90 days)
 - issued by A1+/ P-1 entities
- Reverse Repos (<183 days)
 - Non-government and overcollateralized
 - matched funded with commercial paper
 - with investment grade counterparts
- Total Return Swaps (<365 days)
 - with investment grade counterparts
 - matched funded with commercial paper

Eligibility criteria

- **no exposure to a country rated below Aa2/AA-**
- **no exposure longer than the scheduled maturity of the MTNs**
- **no exposure below investment grade at the time the exposure is entered into**
- **8% industry / 3% obligor credit exposure concentration limits apply**

Long Term

- Securities:
 - Fixed-rate (swapped to floating) and floating-rate notes
 - Asset-Backed debt (min rating AA-/Aa3)
- Credit Default Swaps
 - only investment grade reference assets

Prometheus Investment Funding No. 1 Ltd. (Juni 2000)

- CDO backed by a revolving portfolio of high yield loans and bonds. The program's assets will be purchased in the primary and secondary market
- Cashflow from Prometheus' portfolio of loans and bonds is the direct and sole source of interest and principal of the Prometheus Notes
- Senior Notes will have the benefit of credit support in the form of subordination
- Subordinated Notes will have the benefit of credit support in the form of excess yield generated by the Prometheus asset portfolio

<u>Assets</u>	<u>Liabilities</u>			
	<u>Tranches</u>	<u>Nominal in Mio</u>	<u>Ratings</u>	<u>Maturity (WAL / Exp. / Final)</u>
Senior Secured Loans	Class A	EUR/\$ 365	AAA/Aaa	6.6y / 8y / 12 years
High Yield Bonds	Class B	\$ 38	AA-/Aa3	8.6y / 9y / 12 years
	Class C	\$ 48	Baa2	9.4y / 10y / 12 years
(senior implied rating B1)	Class D	\$ 9	Ba2	10y / 10y / 12 years
	Mezzanine	\$ 40	n.r.	
Total: \$ 500	Total:	\$ 500		

Prometheus Investment Funding No. 1 Ltd.

Issuer	Prometheus Jersey, Jersey, Channel Islands
Sponsor	CPF Asset Advisory L.P.
Expected Rating	Class A: AAA/Aaa Class B: AA- / Aa3 Class C: Baa2 Class D: Ba2 Mezzanine: n.r.
Maturity	Expected Final: 10 years Legal Final: 12 years
Size	USD 500 Mio
Coupon Index	3M USD Libor
Eligible Assets	85% Non-Investment grade loans 15% Non-Investment grade bonds (Senior)
Model Portfolio	Average Rating: S&P: B+ (Corporate Credit Rating) Moody's: B1 / Score 2200 (Senior Implied Rating) Obligor Concentration: 3% Industry Concentration (Moody's / S&P): 10% with max. two industries 15% Asset Maturity: 1 mo to 10yrs (legal final)

Prometheus Investment Funding No. 1 Ltd.

■ Opportunity !

- Investment in Leveraged Loans characterized with superior Risk/ Return Characteristics.
- High Quality High Yield Asset Pool with Max. Average Rating Score of 2200*.
- Expected Maturity 9 years (Legal Maturity 12 years) callable after three years.
- HypoVereinsbank AG Co-Investor, holding minimum 15% of Mezzanine Notes.

■ Mezzanine:

- Mezzanine Investors will have representation on Investment Advisory Committee determining investment strategy and portfolio composition.
- Mezzanine Notes can also be issued as Schuldscheindarlehen.
- Expected Cash Return 22% per annum

* Moody's Senior Implied Rating

WürttHyp 2000-1

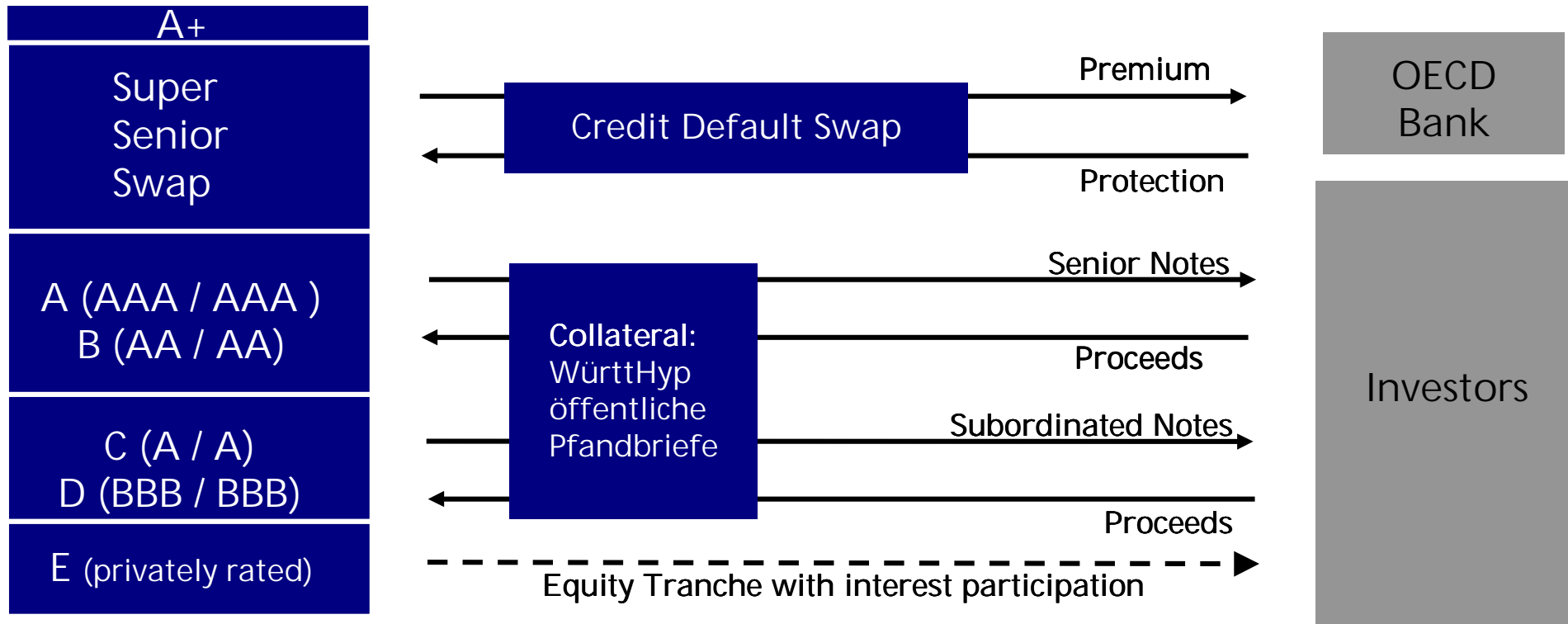
(Aug. 2000)

Class	Expected Rating S&P / Fitch	Volume	%	Coupon and spreadtalk	WAL*	Expected maturity with Call execution after 5 years	Expected maturity without Call execution, with Clean up call**
Class A+		EUR 100.000					
Super Senior		EUR 455.000.000	90,0 %				
Class A	AAA/AAA	EUR 18.700.000	3,60 %	3m EUR + [26-27]	5y	5y	14.3y
Class B	AA/AA	EUR 14.800.000	2,93 %	3m EUR + [50-53]	5y	5y	14.3y
Class C	A/A	EUR 6.600.000	1,30 %	3m EUR + [70-75]	5y	5y	14.3y
Class D	BBB/BBB	EUR 5.000.000	1,00 %	3m EUR + [130-145]	5y	5y	14.3y
Class E	privately rated	EUR 6.000.000	1,17 %	3m EUR + [•]	5y	5y	14.3y
		EUR 506.200.000					

* legal final maturity march 2041

** with 12,5% CPR

WürttHyp - The Structure



WürrttHyp - Relative Value

- Underlying:
mortgages from Wuerttembergische Hypothekenbank
Portfolio highly diversified
-on region (Bundesländer)
-on property type
- only 1st lien mortgages (100%)
- "Soft Bullet" structure = no prepayments
- Call will be executed, because issuance is getting more expensive already shortly after launch due to sequential prepayment

Promise-A-2000-1: Deal Info

(Dec. 2000)

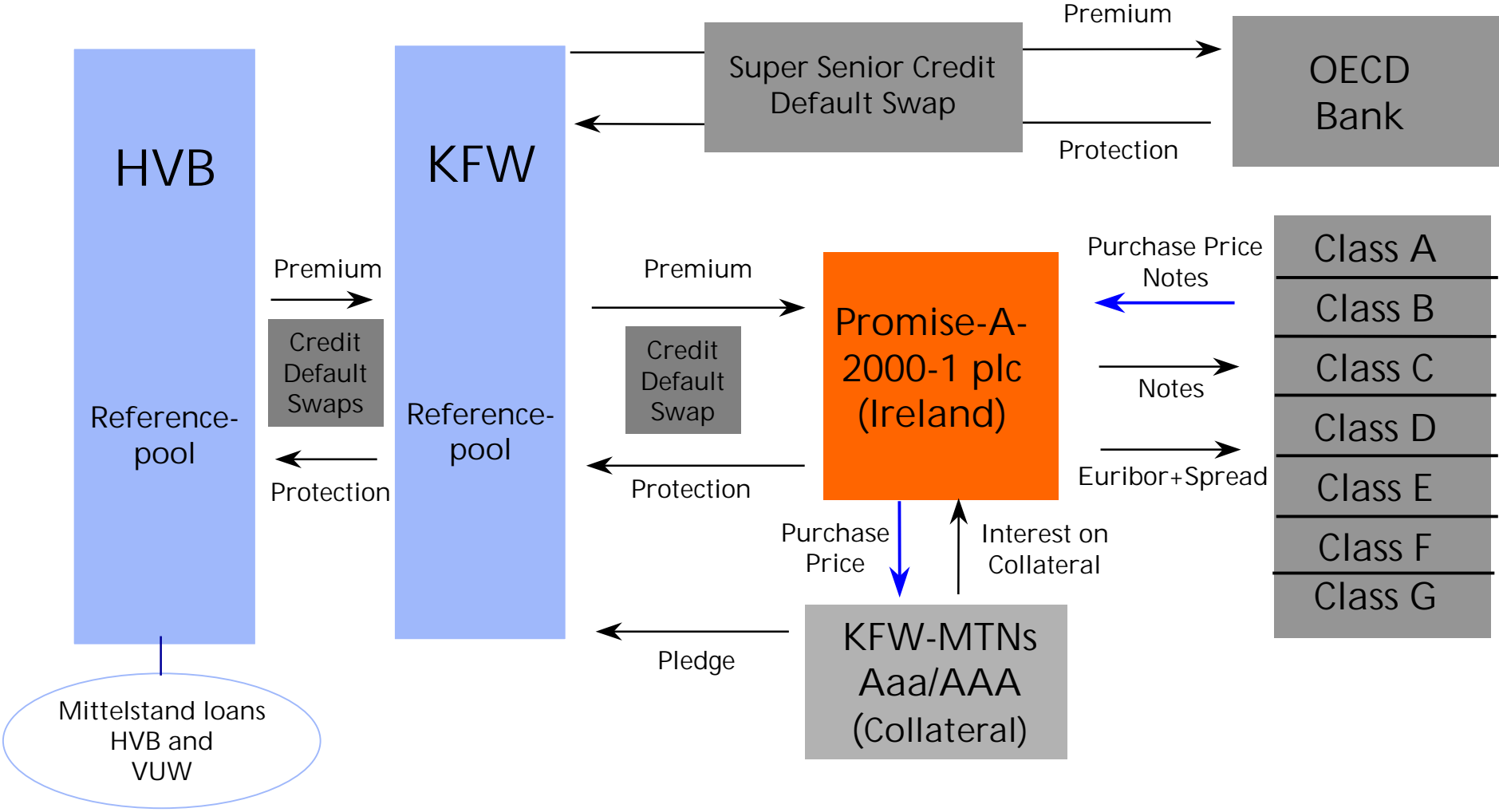
Issuer	Promise-A-2000-1 plc, Ireland
Originators	HypoVereinsbank & Vereins- und Westbank
Servicer	HypoVereinsbank
Issue Type	Synthetic CLO: 85.3% Super Senior Tranche plus funded AAA-Notes
Coupon	3-Months Euribor + Spread, first coupon May 2001, act/360, payable February, May, August, November, rolldates 28
Expected Maturity	28 th February 2009, soft bullet
Final Legal Maturity	28 th February 2011
Options	The issue can be redeemed on any Interest Payment Date on or after year 5
Listing	Luxembourg
Denomination	100,000 EUR
Lead Manager	HypoVereinsbank

Promise-A-2000-1: Tranching

Class	Expected Rating Moody's / Fitch	Volume	%	Coupon and spreads	WAL* (expected maturity 02/2009)	Credit Enhance- ment
Super Senior		EUR 853.000.000	85,3 %			
Class A	Aaa/AAA	EUR 40.000.000	4,0 %	3m EUR + 32	8.2y	10,7%
Class B	Aa2/AA	EUR 24.000.000	2,4 %	3m EUR + 50	8.2y	8,3%
Class C	A2/A	EUR 16.000.000	1,6 %	3m EUR + 70	8.2y	6,7%
Class D	Baa2/BBB	EUR 15.000.000	1,5 %	3m EUR + 145	8.2y	5,2%
Class E	Ba2/BB	EUR 11.000.000	1,1 %	3m EUR + 370	8.2y	4.1%
Class F	n.r./B-	EUR 15.000.000	1,5 %	Retained by HVB	8.2y	2.6%
Class G	n.r.	EUR 26.000.000	2,6 %	Retained by HVB	8.2y	
		EUR 1.000.000.000				

* legal final maturity February 2011

Promise-A-2000-1: Structure



Promise-A-2000-1: Initial Reference Pool

- Size: 1,000,000,000 EUR with 1103 loans in EUR or DEM (WAL of loans 3.5y)
 - Origination and Servicing according to HVB's Loan Origination, Administration and Collection Procedures
 - German Law
 - Revolving Portfolio:
 - New Loans added quarterly
 - Early amortization triggers, cease revolving and begin amortization of portfolio
 - regional diversified (Bavaria 44%, NRW 11%, rest 7% or lower)
 - Average Loan Size: 906,618 EUR, Moody's Diversity Score: 98
 - Internal weighted average rating: 3.68 (Rating score 1-10, only class 1-6 included)
 - HVB & VuW originated loans under KfW, DtA and Lfa programs initial portfolio:
 - 47.4% KfW
 - 28.3% DtA
 - 15.8% LfA
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