New York University/IDC

Asset-Backed Securities II

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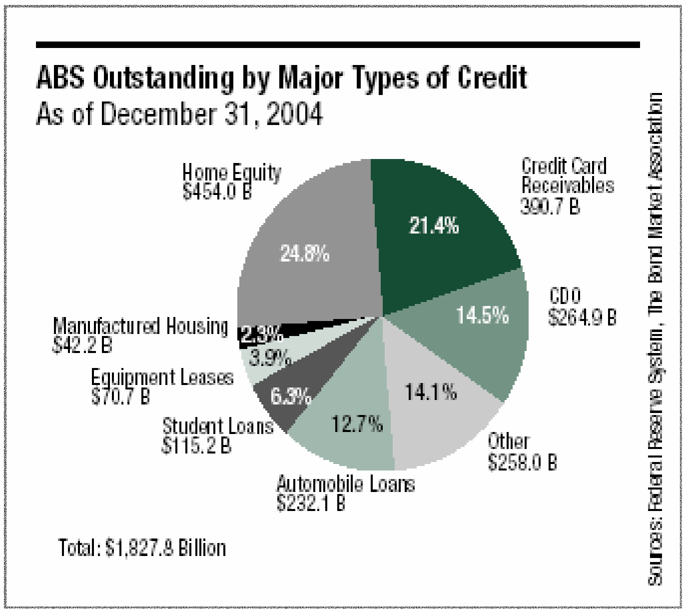
Collateralized Debt Obligations

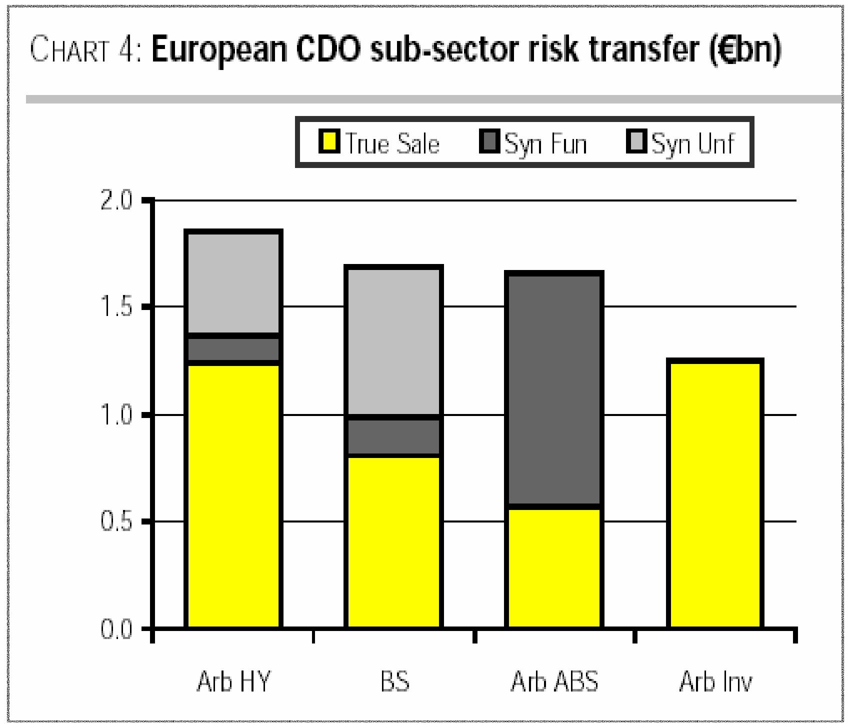
- Collateralized loan obligations (CLOs)
- Collateralized bond obligations (CBOs)

Collateralized Debt Obligations

- Cash flow backed CLOs and CBOs
- Market value backed CBOs
- Synthetic CLOs

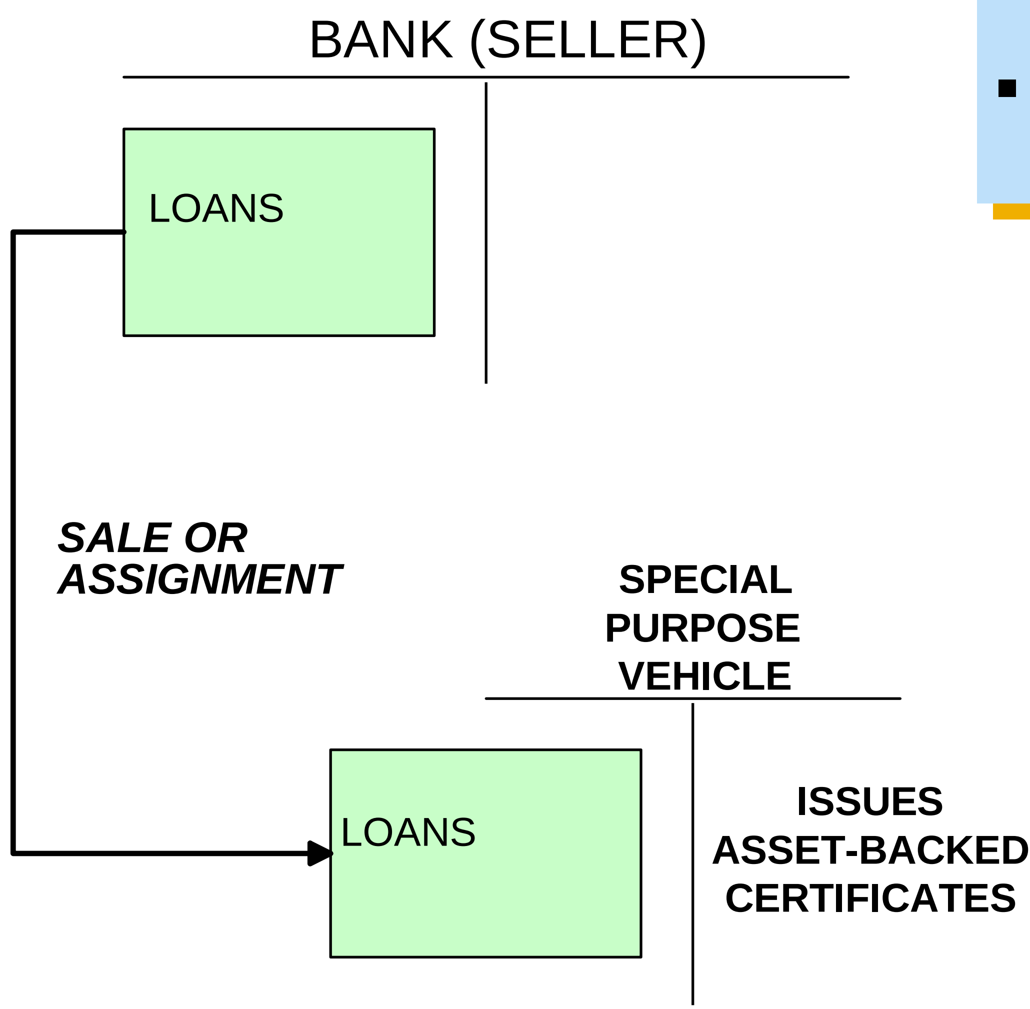


Source: bondmarkets.com, Research Quarterly



Source: Commerzbank Structured Finance Biweekly on absnet.net

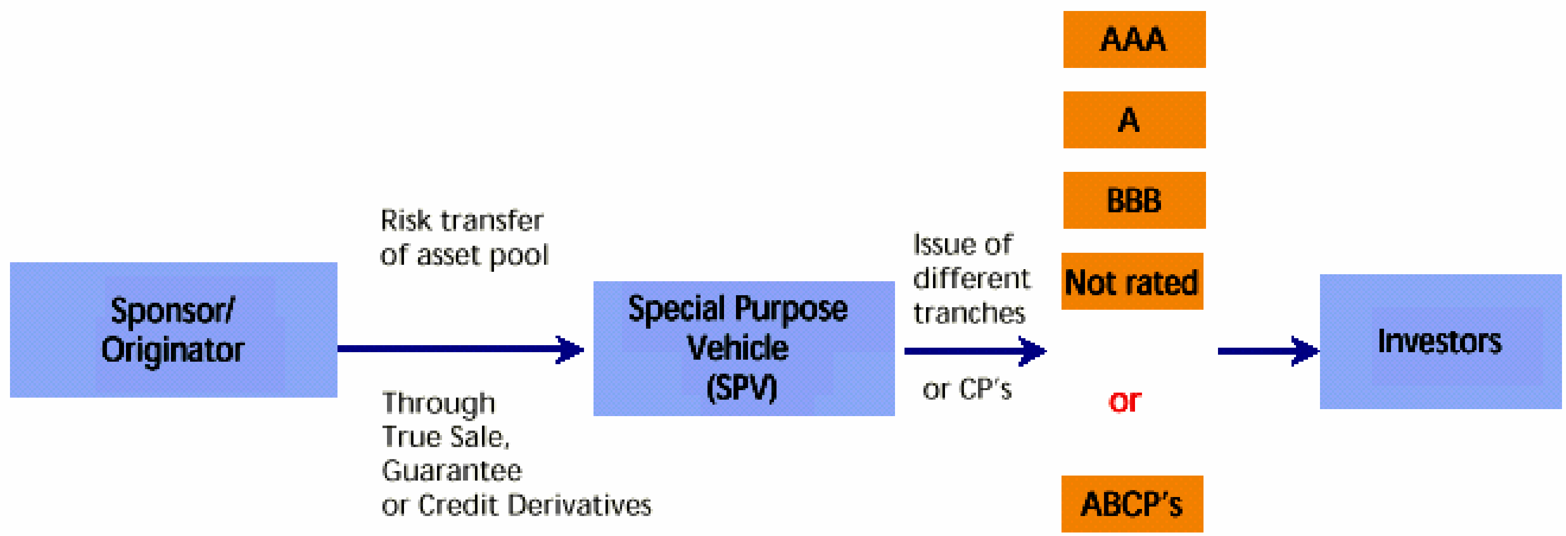
Cash Flow Backed CLOs



Motivations:

- ***Free up capital***
- ***Lower cost of funding***
- ***Distressed loan arbitrage (3rd party sponsors)***

Structure


Sponsor/ Originator
Risk transfer of asset pool
Through True Sale, Guarantee or Credit Derivatives
Special Purpose Vehicle (SPV)
Issue of different tranches
or CP's
AAA
A
BBB
Not rated
or
ABCP's
Investors

CLO Rating Criteria

- Initial Review
  - Originator's credit evaluation system
  - Pool composition & stress testing
- On-Site Due Diligence
- Legal Integrity
  - Bankruptcy-remoteness of SPV
  - Validity of asset transfer to SPV
  - Perfection of security interests in underlying collateral
- Determining Credit Enhancement

Sample Information Request

General/Organization
- Functional Areas and Staffing Levels
- Key Officers and Responsibilities
- Team Biographies
- Related Experience and Performance
- Credit Approval Process

Market Risk Management
- Hedging Strategy
- Interest Rate Risk Limits
- Counterparty Approval

Portfolio Risk Management
- Investment Strategy
- Risk Management Philosophy
- Pricing Systems
- Portfolio Monitoring

Portfolio Level
- Distributions by:
  - Country
  - Industry
  - Credit Rating
  - Asset Class
  - Loan Size
  - Maturity
  - Payment Frequency
  - Margin
  - Loan Type
  - Base Rate — LIBOR, Prime, and Federal Funds, Among Others
  - Currency
  - Collateral
  - Position of Loan in Borrower's Capital Structure
  - Drawn and Undrawn Amounts
  - Swap Rate
  - Swap Counterparty
  - Facility Rating
  - Amortization Schedule

Credit Risk Management
- Performance Benchmarks
- Use of External Ratings
- Internal Credit Evaluation System
  - Basis of Credit-Scoring System
  - Adjustments for Industry
  - Influence of Collateral
  - Treatment of Guarantees
  - Relationships/Parent Companies/Subsidiaries
- Default Levels (by Internal Credit Score and Year)
- Recovery Levels (by Internal Credit Score and Year)
- Loan Provisions

Actual Loss History
- Specific Credit Information by Borrower
  - Name
  - Guarantor
  - Parent Company
  - Country
  - Industry

Operations
- Risk Management Tracking and Reporting
- Procedures to Assure Consistent Use of Credit Scoring (Previous Changes to the Credit-Scoring System)
- Monitoring of Upgrades and Downgrades
- System Contingency Plans

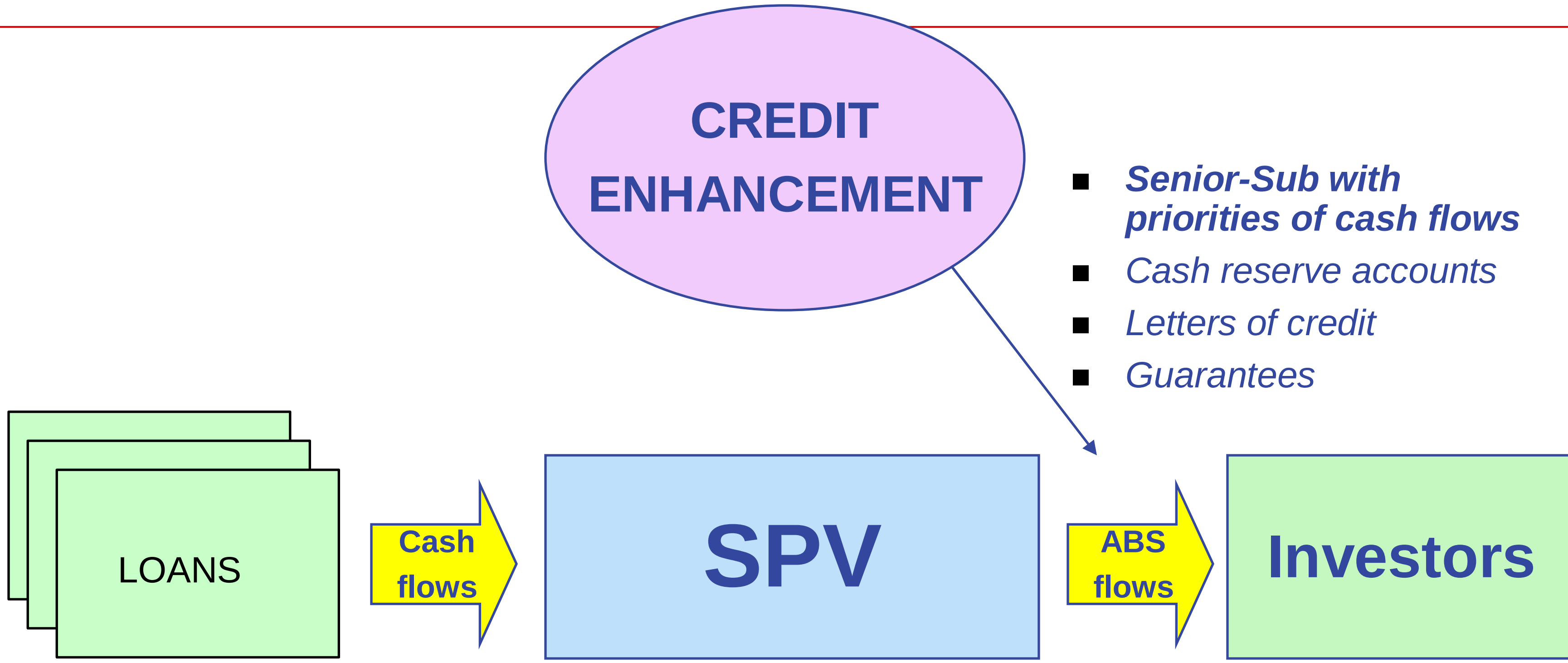
Transaction
- Cash Flow Model

Legal Opinions*
- First Perfected Security Interest Opinion
- FIRREA Opinion
- True Sale Opinion
- Nonconsolidation Opinion

*U.S. issuers. Requirements for other jurisdictions will vary.
LIBOR – London Interbank Offered Rate. FIRREA – Financial Institutions Reform, Recovery, and Enforcement Act of 1989.

Source: Fitch, "Bank CLOs: an Overview"

Cash flow Backed CLOs



- ***Senior-Sub with priorities of cash flows***
- *Cash reserve accounts*
- *Letters of credit*
- *Guarantees*

Senior-Sub CLO Structure: Examples

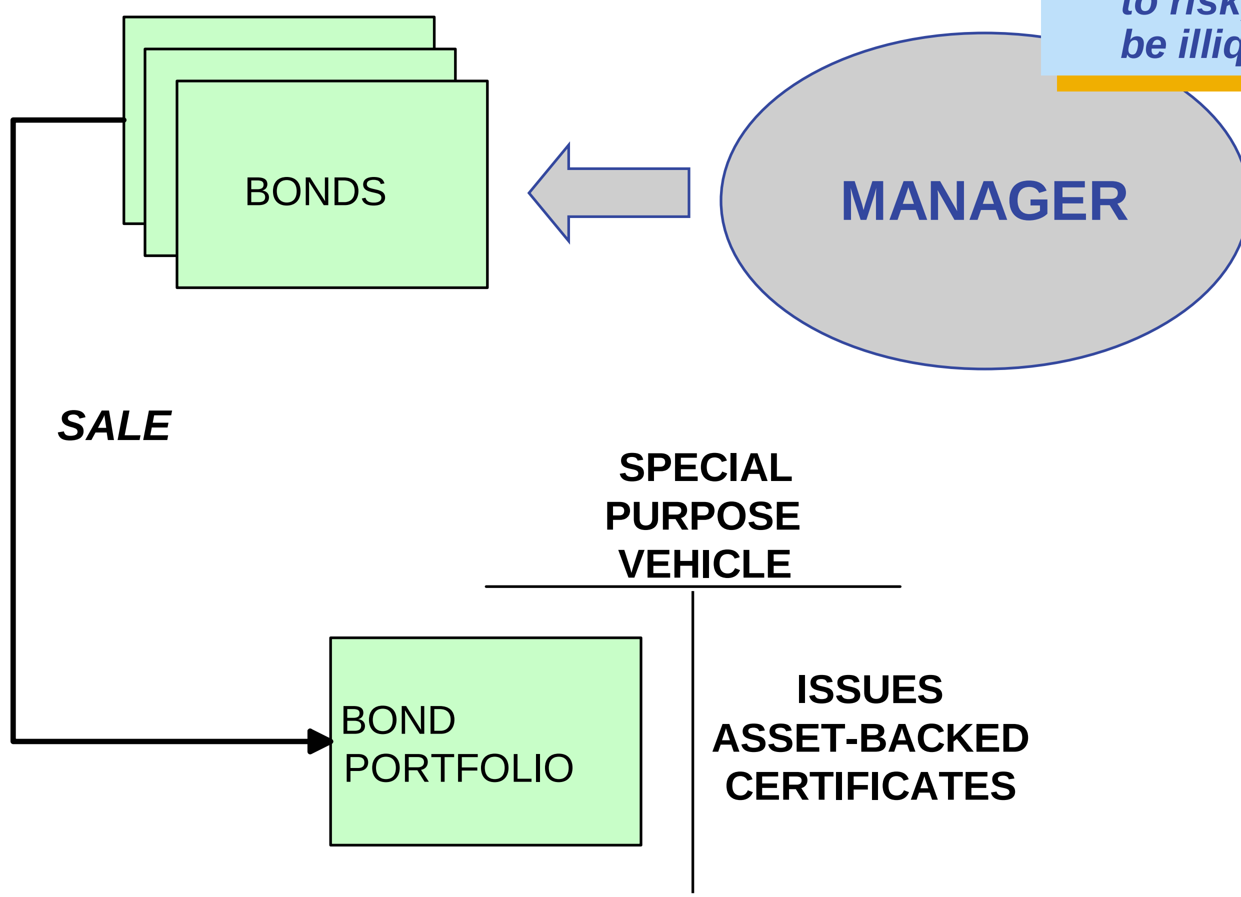
Issue	Date	Size (mm)	Collateral Manager	Assets	Lead	Class	Rating	WAL	Spread
Guggenheim RE CDO	4/29	$500.00	Guggenheim	CRE	GS				
		180.70				A	Aaa/AAA/--	5.50	+28/1ML
		76.60				B	Aa2/AA/--	5.50	+55/1ML
		93.50				C	A3/A-/BBB+	5.50	+108/1ML
		42.90				D	Baa2/BBB/BBB	5.50	+153/1MI
		17.40				E	Baa3/BBB-/BBB-	5.50	+180/1ML
		5.70				S	Aaa/AAA/--	2.50	+20/1ML
		90.22				PS			
Nautilus RMBS CDO	4/27	$510.00	static	RMBS	UBS				
		205.00				A1S	--/AAA/AAA	n.a.	+30/3ML
		33.00				A1L	--/AAA/AAA		+50/3ML
		34.00				A2	--/AA/AA		+70/3ML
		67.00				A3	--/A/A		+150/3MI
		22.00				BV	--/BBB/BBB		+300/3ML
		24.00				BF	--/BBB/BBB		fx. 7.3%
		22.50				CV	--/BB/BB		+410/3ML
		5.50				CF	--/BB/BB		fx. 8.38%
South Coast Funding VII	4/21	$1,178.00	TCW	Mezz ABS	ML				
		819.00				A1	Aaa/AAA/--	5.70	+26/3ML
		146.26				A2	Aaa/AAA/--	6.10	+45/3ML
		75.45				B	Aa2/AA/--	6.10	+60/3ML
		25.75				C	A2/A/--	6.10	+140/3ML
		52.50				D1	Baa2/BBB/--	6.10	+265/3ML
		6.00				D2	Baa2/BBB/--	6.10	+265/Swap
		53.40				Pref			

Source: Nomura CDO/CDS Update on absnet.net

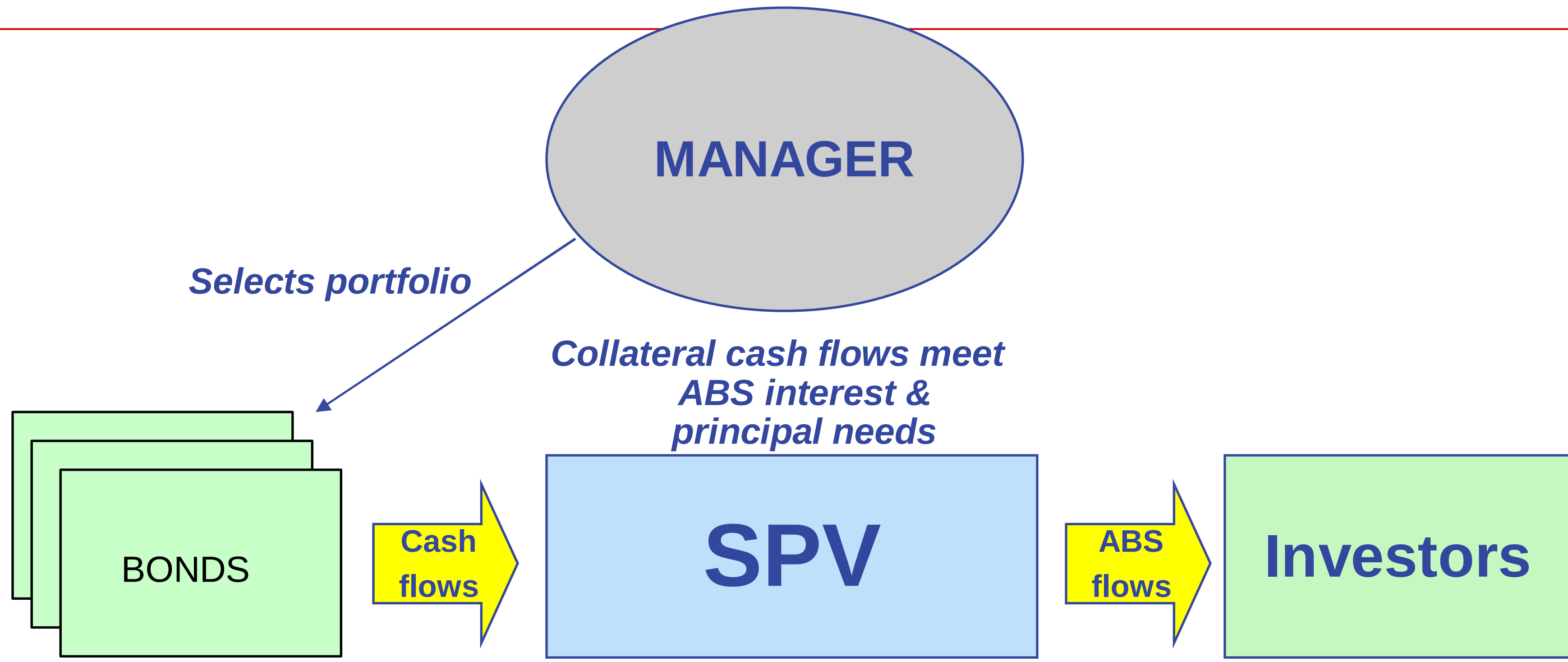
Cash Flow Backed CBOs

Motivation:

- ***Cash flow arbitrage (bonds have good returns relative to risk, but may be illiquid)***



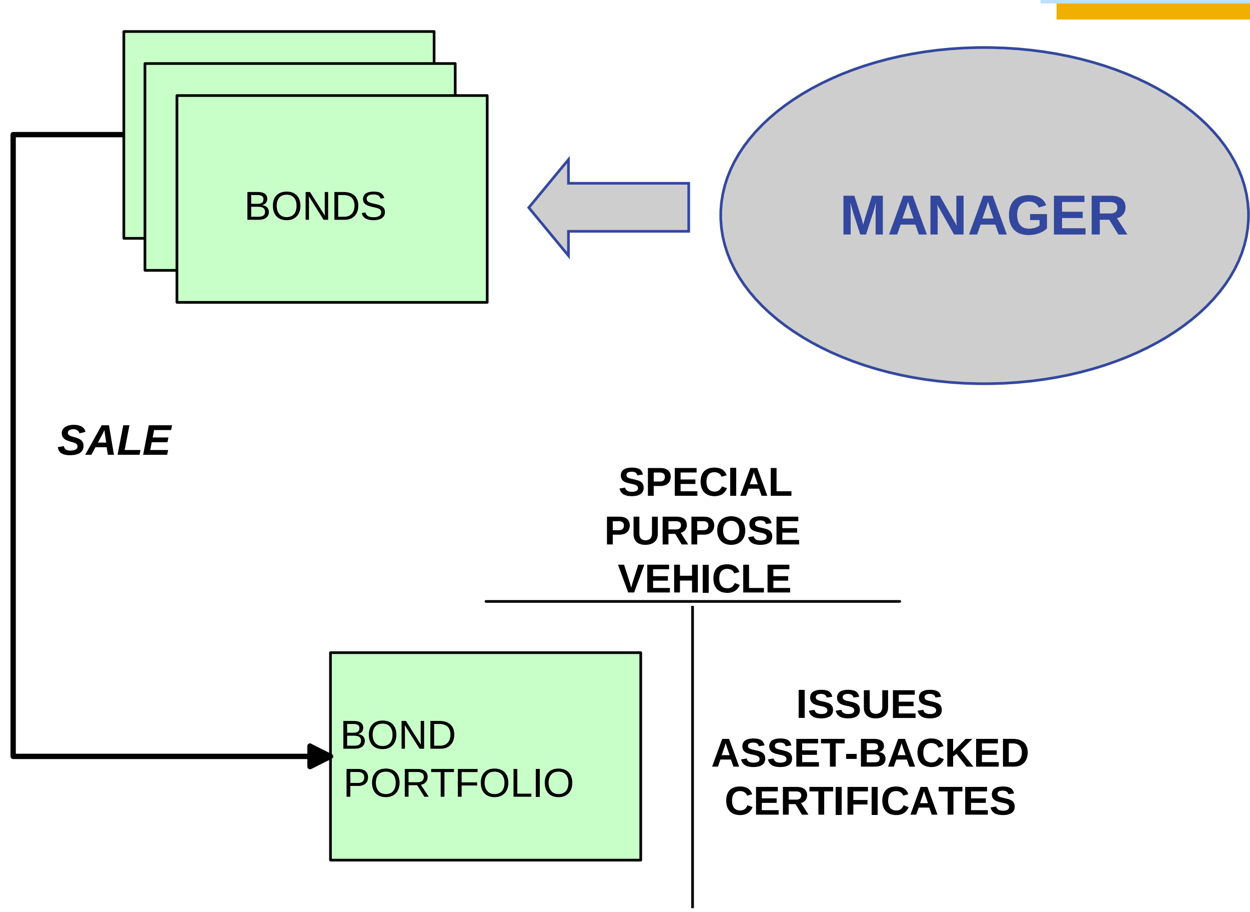
Cash Flow Backed CBOs



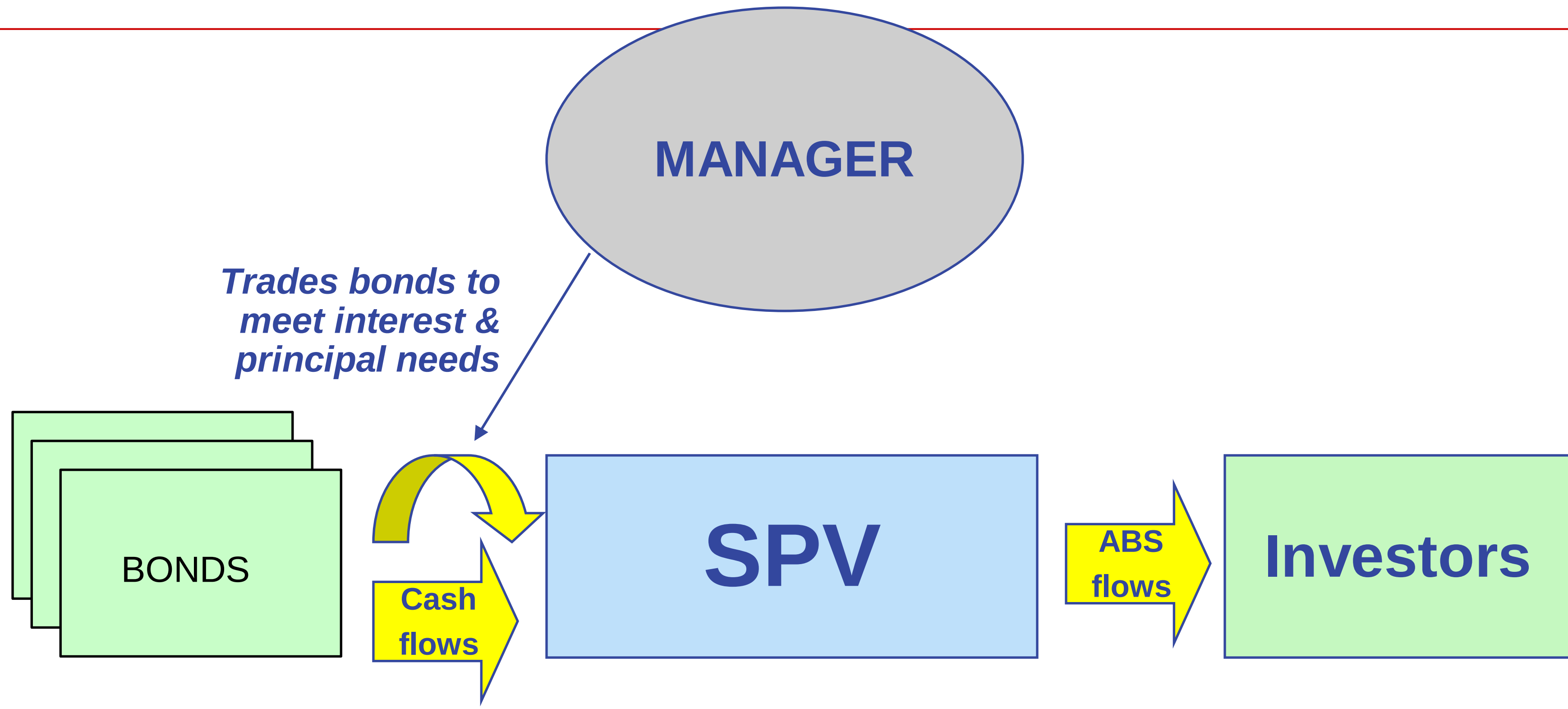
Market Value Backed CBOs

Motivation:

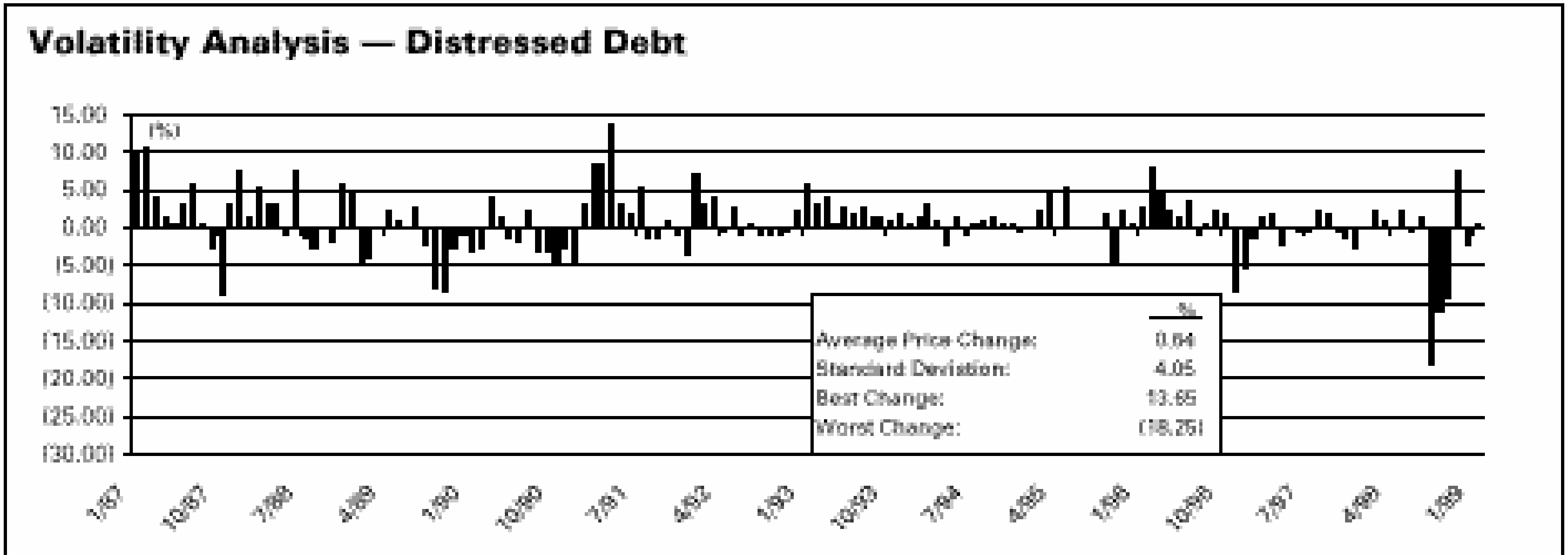
- ***Price arbitrage (bonds are underpriced, and tradeable)***



Market Value Backed CBOs



Rating Agencies Analyze Price Volatility to Determine CE Requirements



Source: Altman Distressed Bond Index.

Advance rates determine how much rated debt can be issued against the market value of an asset.

Asset Category	'B'	'BB'	'BBB'	'A'	'AA'	'AAA'
Cash and Equivalents	100	100	100	100	100	100
Certificate of Deposit, Commercial Paper	100	100	99	99	99	99
Senior Secured Bank Loans	96	95	93	91	89	87
'AAA' Corporate Bonds	96	95	93	91	89	87
'AA' Corporate Bonds	96	95	93	91	88	86
'A' Corporate Bonds	96	94	92	89	87	84
'BBB' Corporate Bonds	96	94	91	88	85	82
'BB–' High-Yield Debt	94	92	90	86	82	77
< 'BB–' High-Yield Debt	93	89	85	80	73	66
Investment-Grade Convertibles	90	85	80	70	60	50
High-Yield Convertibles, PIK, Zero, Step-Up	88	81	76	63	52	40
Mezzanine, Distressed Debt	85	80	73	60	55	27
Emerging Market	85	78	71	50	40	27
Equity, Illiquid Debt	85	78	71	50	40	27

Note: Advance rates may vary for more or less diversified pools.

Amount and Cost of Debt Linked to Collateral

- Method: Identify value and credit quality of assets
- Find how much of each debt rating can be issued against that pool of assets

*Assumed Default Rates**

(%)

Collateral Rating	Fitch IBCA Default Curve**	Note Rating (Assumed Default Rate) 'BB'	'BBB'	'A'	'AA'	'AAA'
'AAA'	1.0	0.0	0.5	0.8	1.0	1.3
'AA'	1.2	0.6	0.9	1.2	1.4	2.3
'A'	1.3	1.0	1.3	1.6	4.3	5.0
'BBB'	4.0	4.0	5.0	10.0	12.0†	14.0
'BB+'	12.7	16.1	18.4	25.3	34.8	47.5
'BB'	16.0	20.0	21.6	27.9	39.9	54.3
'BB–'	20.6	24.3	26.8	34.0	46.4	59.7
'B+'	25.2	29.0	31.6	39.1	50.5	64.1
'B'	29.9	33.2	35.8	43.3	52.3	67.2
'B–'	34.5	36.9	39.7	48.3	57.0	70.8

*Midpoint stressed default rates for corporate bonds. Loan default rates would be slightly lower. **Cumulative 10-year default probability of a corporate bond at an initial rating level. †For example, credit enhancement levels for an 'AA' note rating must cover 12% default stress on a portfolio with an average rating of 'BBB'.

Assets: Rating of company's assets	Amount	Liabilities: Rating of company's debt	Amount	(Assumed default rate from Fitch)
BB+	100	AAA	52.5	47.5
		AA	12.7	34.8
		A	9.5	25.3
		BBB	6.9	18.4
		Equity	18.4	
Total	100		100	

Sources: fitchratings.com, senior-sub_debt_structure.xls

CLO Example

Presale: KKR Financial CLO 2005-1 Ltd./KKR Financial CLO 2005-1 Corp.

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$1.006 Billion Floating-Rate Notes Due 2017

This presale report is based on information as of March. 29, 2005. The ratings shown are preliminary. This report does not constitute a recommendation to buy, hold, or sell securities. Subsequent information may result in the assignment of final ratings that differ from the preliminary ratings.

Preliminary Ratings as of March 29, 2005

Class	Preliminary ratings*	Preliminary amount (mil. $)	Preliminary credit support (%)
A-1	AAA	615.00	28.96
A-2	AAA	100.00	28.96
B	AA	58.00	23.20
C	A	64.00	16.84
D	BBB-	64.00	10.48
E	BB-	15.00	8.99
F	B-	5.00	8.49
Subordinated notes	N.R.	85.50	0.00

*The ratings are preliminary and subject to change at any time. N.R.—Not rated.

Sources: standardandpoors.com,

CLO Example

Collateral Pool Characteristics

The collateral securing the rated notes is expected to consi of U.S. dollar-denominated ABS. The expected breakdown the collateral debt obligation portfolio by the most relevant asset types is shown in table 2.

Table 2 – Collateral Guidelines

	(%)
Senior secured loan percentage (min.)	90.00
Convert percentage (max.)	5.00
Convert right price percentage	2.00
Zero coupon percentage (max.)	5.00
PIK percentage (max.)	5.00
Short-term obligations percentage (max.)	5.00
Revolver percentage (max.)	10.00
Bond and second-lien loan percentage (max.)	10.00
'CCC' purchase percentage (max.)	5.00
'CCC' replacement percentage (max.)	5.00
Equity exposure percentage (max.)	5.00
Offers percentage (max.)	0.00
Single obligor percentage (max.)	2.00
S&P single industry percentage (max.)	9.00
Eligible countries other than the U.S. (max.)	20.00
Eligible countries other than the U.S. and Canada (max.)	10.00
S&P bi-variant risk percentage (max.)	20.00
S&P foreign obligor risk percentage (max.)	20.00
Small obligor percentage (max.)	5.00
Fixed-rate percentage (max.)	5.00
Nonquarterly pay percentage (max.)	5.00
Debtor-in-possession and current-pay percentage (max.)	5.00
PIK and partial PIK percentage (max.)	5.00
Structured finance and REIT preferred percentage (max.)	5.00
REIT preferred percentage (max.)	0.00
PIK—Payment-in-kind.	

Rationale

The preliminary ratings assigned to KKR Financial CLO 2005-1 Ltd./KKR Financial CLO 2005-1 Corp.'s floating-rate notes reflect:

- Credit enhancement provided through the subordination of cash flows to the respective class;
- The transaction's cash flow structure, which has been subjected to various stresses requested by Standard & Poor's Ratings Services;
- The experience of the collateral manager; and
- The legal structure of the transaction, including the bankruptcy remoteness of the issuer.

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Standard & Poor's CDO Evaluator Benchmark Statistics

Benchmark results generated by application of Standard & Poor's CDO Evaluator to the proposed collateral pool are shown in table 1.

Table 1 – Benchmark Statistics

Weighted avg. rating (WAR)	B+
Weighted avg. maturity (WAM) (yrs.)	5.89
S&P default measure (DM) (%)	3.78
S&P variability measure (VM) (%)	2.28
S&P correlation measure (CM)	1.17

Sources: standardandpoors.com,

Creating a CBO

Assets

Liabilities

Assignment: create a $100 million CDO that contains the following, equally weighted:

2 investment grade bonds

1 high yield bond

1 emerging market bond

The CDO should be funded with several tranches of asset-backed securities. It should have a final maturity of about 5 years, and be dollar-denominated

Bonds

GLOBAL INVESTMENT GRADE

May 6	Red date	Coupon	S&P* Rating	Moody's Rating	Bid price	Bid yield	Day's chge yield	Mth's chge yield	Spread vs Govts
■ US $									
Hewlett-Pckdr	06/05	7.15	A-	A3	100.3700	3.24	-0.01	-0.32	+0.60
Unilever	11/05	6.88	A+	A1	101.6200	3.40	-	-0.03	+0.26
Ford Motor Cr	02/06	6.88	BB+	A3	100.8000	5.72	-	+0.09	+2.50
Walt Disney	03/06	6.75	BBB+	Baa1	102.5600	3.79	-0.05	-0.14	+0.65
Morgan Stanley	04/06	6.10	A+	Aa3	102.0500	3.83	+0.12	-0.16	+0.64
Amer Elec Pwr	05/06	6.13	BBB	Baa3	102.1840	3.90	+0.16	-0.03	+0.20
FHLMC	07/06	5.50	AAA	Aaa	101.9800	3.77	+0.15	-0.04	+0.56
Canada	11/08	5.25	AAA	Aaa	103.9940	4.01	+0.14	-0.19	+0.22
Wal Mart	08/09	6.88	AAA	Aa2	109.6800	4.35	+0.01	-0.17	+0.54
Du Pont	10/09	6.88	AA-	Aa3	110.1000	4.34	-0.02	-0.13	+0.54
Phillips Petr	05/10	8.75	A-	A3	119.2600	4.44	-0.04	+0.16	+0.64
Unilever	11/10	7.13	A+	A1	113.0500	4.41	+0.05	-0.24	+0.46
Bank America	01/11	7.40	A	Aa3	114.6800	4.44	+0.05	-0.28	+0.48
JP Morgan	02/11	6.75	A	A2	110.9400	4.56	+0.06	-0.27	+0.59
France Telecom	03/11	8.25	BBB	Baa3	114.9300	5.23	+0.25	+0.31	+1.28
FNMA	03/31	6.75	AAA	Aaa	124.1450	5.06	-	-0.16	+0.42
Goldman Sachs	11/14	5.50	A+	Aa3	101.7500	5.26	+0.10	-0.05	+0.99
Italy	09/23	6.88	AA	Aa2	120.7100	5.12	+0.05	-0.18	+0.48
Pacific Bell	03/26	7.13	A+	A1	113.3480	5.99	+0.05	-0.08	+1.35
Deutsche Tel	07/13	5.25	BBB+	Baa2	100.6700	5.15	+0.06	-0.08	+0.89
Daimler Chrysler	01/31	8.50	BBB	A3	112.7100	7.39	-0.02	+0.58	+2.80
FHLMC	03/31	6.75	AAA	Aaa	124.1450	5.06	-	-0.16	+0.42
GE Capital	03/32	6.75	AAA	Aaa	118.1700	5.45	-	-0.17	+0.87
Gen Motors	11/31	8.00	BB	Baa1	82.0400	9.93	+0.02	+0.44	+5.29

Sources: ft.com,

Creating a CBO

Assets	Liabilities

Assignment: create a $100 million CDO that contains the following, equally weighted:

2 investment grade bonds

1 high yield bond

1 emerging market bond

The CDO should be funded with several tranches of asset-backed securities. It should have a final maturity of about 5 years, and be dollar-denominated

Bonds

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■ US $									
Hewlett-Pckdr	06/05	7.15	A-	A3	100.3700	3.24	-0.01	-0.32	+0.60
Unilever	11/05	6.88	A+	A1	101.6200	3.40	-	-0.03	+0.26
Ford Motor Cr	02/06	6.88	BB+	A3	100.8000	5.72	-	+0.09	+2.50
Walt Disney	03/06	6.75	BBB+	Baa1	102.5600	3.79	-0.05	-0.14	+0.65
Morgan Stanley	04/06	6.10	A+	Aa3	102.0500	3.83	+0.12	-0.16	+0.64
Amer Elec Pwr	05/06	6.13	BBB	Baa3	102.1840	3.90	+0.16	-0.03	+0.20
FHLMC	07/06	5.50	AAA	Aaa	101.9800	3.77	+0.15	-0.04	+0.56
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Wal Mart	08/09	6.88	AAA	Aa2	109.6800	4.35	+0.01	-0.17	+0.54
Du Pont	10/09	6.88	AA-	Aa3	110.1000	4.34	-0.02	-0.13	+0.54
Phillips Petr	05/10	8.75	A-	A3	119.2600	4.44	-0.04	+0.16	+0.64
Unilever	11/10	7.13	A+	A1	113.0500	4.41	+0.05	-0.24	+0.46
Bank America	01/11	7.40	A	Aa3	114.6800	4.44	+0.05	-0.28	+0.48
JP Morgan	02/11	6.75	A	A2	110.9400	4.56	+0.06	-0.27	+0.59
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GE Capital	03/32	6.75	AAA	Aaa	118.1700	5.45	-	-0.17	+0.87
Gen Motors	11/31	8.00	BB	Baa1	82.0400	9.93	+0.02	+0.44	+5.29

Sources: ft.com,

Spreads

Reuters Corporate Spreads for Financials

Spreads compiled using : Reuters Evaluators Refresh Download spread file

Rating	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	30 yr
Aaa/AAA	13	17	20	37	59	77	93
Aa1/AA+	35	36	39	57	77	90	108
Aa2/AA	37	39	41	64	80	93	116
Aa3/AA-	39	45	47	74	86	96	118
A1/A+	47	74	77	90	96	116	134
A2/A	62	79	81	91	98	118	135
A3/A-	67	81	85	96	106	125	140
Baa1/BBB+	82	100	101	117	134	155	176
Baa2/BBB	87	104	109	129	142	165	181
Baa3/BBB-	92	105	110	137	156	180	192
Ba1/BB+	155	175	185	215	235	255	305
Ba2/BB	165	185	195	225	245	265	315
Ba3/BB-	175	195	205	235	255	275	325
B1/B+	270	290	300	325	360	385	435
B2/B	280	300	310	335	370	395	445
B3/B-	290	310	320	355	380	405	455
Caa/CCC	345	355	365	430	480	535	575

Sources: bondsonline.com,

More Bonds

HIGH YIELD & EMERGING MARKET BONDS

May 6	Red date	Coupon	S&P* Rating	Moody's Rating	Bid price	Bid yield	Day's chge yield	Mth's chge yield	Spread vs US
■ HIGH YIELD US$									
TNK-BP	11/07	11.00	BB-	n/a	111.3700	6.01	-0.15	-0.07	+2.21
Gazprombk	10/08	7.25	n/a	Ba2	104.0600	5.94	-0.02	-0.36	+2.15
Gazprom	03/13	9.63	B+	n/a	119.7500	6.37	-0.15	-0.54	+2.11
Kazkommertsbk	04/13	8.50	BB-	n/a	104.0300	7.81	-0.04	-0.40	+3.65
■ HIGH YIELD €									
Gaz Capital	09/10	7.80	BB-	n/a	114.6200	4.66	+0.03	-0.42	+1.71
Fiat Fin	05/11	6.75	n/a	Ba3	89.1400	9.17	+0.94	+1.18	+6.22
■ EMERGING US$									
Argentina FRB	03/05	2.00	D	Ca	29.5000	-	-	-	-
Brazil C	04/14	8.00	B+	B2	101.1880	7.68	-	-0.41	-
Mexico	05/26	11.50	BBB-	Baa2	153.6250	6.71	+0.01	-0.23	+2.06
Peru Disc	03/27	2.56	BB	Ba3	84.7500	-	-	-	-
S Korea	04/08	8.88	A-	A3	112.3130	4.35	+0.06	-0.06	+0.55
Philippines	03/10	9.88	BB	Ba1	109.3750	7.53	+0.09	+0.12	+3.56
China	05/11	6.80	BBB	A2	111.2600	4.62	+0.09	-0.28	+0.62
Turkey	06/10	11.75	B+	B1	121.0000	6.80	+0.01	-	+2.83
Bulgaria IAB	07/11	2.75	BB+	Ba2	99.9380	5.02	-0.02	-0.26	-
Russia	03/30	5.00	BB	Baa3	107.0000	6.09	-	-0.31	+1.45
S Africa	05/09	9.13	BBB	Baa2	115.3130	4.89	+0.07	-0.30	+0.93
Qatar	06/30	9.75	n/a	A3	147.5000	6.05	+0.03	-0.18	+1.40

Sources: ft.com,

Government Bonds

BENCHMARK GOVERNMENT BONDS

May 6	Red Date	Coupon	Bid Price	Bid Yield	Day chg yield	Wk chg yield	Month chg yld	Year chg yld
Australia	10/07	10.00	110.9220	5.16	-0.03	-0.10	-0.32	-0.18
	04/15	6.25	107.4160	5.28	-0.03	-0.07	-0.33	-0.68
Austria	10/07	5.50	107.2800	2.39	+0.06	+0.02	-0.14	-0.38
	07/15	3.50	99.7600	3.53	+0.06	+0.04	-0.02	-0.88
Belgium	03/07	6.25	107.2300	2.27	+0.07	+0.02	-0.13	-0.18
	09/15	3.75	101.7000	3.55	+0.06	+0.04	-0.11	-0.89
Canada	06/07	3.00	99.6170	3.19	+0.15	+0.12	+0.02	+0.23
	06/14	5.00	105.6750	4.24	+0.10	+0.10	-0.04	-0.57
Denmark	11/06	3.00	101.1600	2.21	+0.08	+0.05	-0.11	-0.53
	11/15	4.00	104.3400	3.50	+0.05	+0.05	-0.17	-0.98
Finland	07/07	5.00	105.5800	2.31	+0.07	+0.03	-0.14	-0.42
	07/15	4.25	106.8200	3.44	+0.07	+0.04	-0.12	-1.01
France	01/07	3.75	102.5000	2.21	+0.03	+0.01	-0.16	-0.38
	01/10	3.00	100.8600	2.80	+0.08	+0.04	-0.13	-0.73
	04/15	3.50	100.0600	3.49	+0.06	+0.04	-0.11	-0.88
	04/35	4.75	112.2500	4.04	+0.05	+0.05	-0.13	-0.97
Germany	03/07	2.50	100.4300	2.26	+0.04	+0.02	-0.14	-0.34
	04/10	3.25	101.8800	2.83	+0.07	+0.04	-0.14	-0.74
	01/15	3.75	102.4800	3.44	+0.06	+0.04	-0.13	-0.87
	01/37	4.00	99.8400	4.01	+0.04	+0.05	-0.13	-0.99
Greece	06/08	2.90	100.8260	2.61	+0.06	+0.03	-0.13	-0.52
	07/15	3.70	99.8790	3.71	+0.07	+0.04	-0.08	-0.82
Ireland	04/09	3.25	102.1200	2.68	+0.08	+0.04	-0.13	-0.50
	04/13	5.00	112.0600	3.25	+0.06	+0.04	-0.13	-1.02
Italy	01/07	2.75	100.7900	2.28	+0.06	+0.02	-0.09	-0.28
	01/10	3.00	100.6800	2.86	+0.06	+0.03	-0.12	-0.66
	02/15	4.25	105.4900	3.61	+0.07	+0.04	-0.09	-0.92
	08/34	5.00	113.0000	4.27	+0.05	+0.06	-0.10	-0.98
Japan	06/07	2.50	105.1510	0.06	-	-0.01	-0.05	-0.08
	06/10	1.80	106.7990	0.44	-0.01	-0.02	-0.13	-0.16
	03/15	1.30	100.7480	1.22	-0.02	-0.03	-0.15	-0.25
	03/25	1.90	99.8560	1.91	+0.01	-	-0.08	-0.15
Netherlands	07/06	3.00	101.0000	2.13	+0.03	-	-0.14	-0.64
	07/14	3.75	102.5500	3.42	+0.07	+0.05	-0.12	-0.99
New Zealand	11/06	8.00	102.4700	6.27	-0.01	+0.06	-0.15	+0.50
	04/13	6.50	103.9100	5.88	-0.01	-	-0.30	-0.34
Norway	05/09	5.50	108.8400	3.12	+0.02	-0.04	-0.11	-0.98
	05/15	5.00	109.7500	3.81	-	-	-0.13	-1.00
Portugal	07/06	3.00	100.9790	2.15	+0.03	-0.01	-0.14	-0.65
	06/14	4.38	107.0900	3.45	+0.06	+0.04	-0.11	-1.00
Spain	10/06	4.80	103.7600	2.17	+0.05	-0.01	-0.15	-0.41
	01/15	4.40	107.5100	3.47	+0.06	+0.04	-0.12	-0.90
Sweden	08/07	8.00	112.4740	2.27	+0.04	+0.02	-0.26	-0.71
	08/15	4.50	108.4330	3.51	+0.06	+0.12	-0.20	-1.21
Switzerland	06/07	4.50	107.3050	0.94	-0.06	-0.08	-0.19	-0.20
	06/15	3.75	114.6900	2.12	+0.04	+0.03	-0.14	-0.63
UK	12/05	8.50	102.2100	4.58	+0.01	+0.01	+0.02	+0.19
	12/09	5.75	104.9400	4.54	+0.05	+0.03	-0.10	-0.48
	09/15	4.75	101.2700	4.59	+0.07	+0.06	-0.10	-0.52
	03/36	4.25	95.3500	4.53	+0.07	+0.10	-0.08	-0.41
US	04/07	3.63	99.8125	3.72	+0.16	+0.08	-0.04	+1.11
	04/10	4.00	100.1563	3.96	+0.15	+0.08	-0.20	+0.02
	02/15	4.00	97.8281	4.27	+0.11	+0.08	-0.22	-0.50
	02/31	5.38	110.9219	4.64	+0.05	+0.13	-0.13	-0.82

London latest. New York close. Source: Reuters.
Yields: Local market standard Annualised yield basis. Yields shown for Italy exclude withholding tax at 12.5 per cent payable by non residents.

Sources: ft.com,

Spreads

Reuters Corporate Spreads for Financials

Spreads compiled using : Reuters Evaluators | Refresh | Download spread file

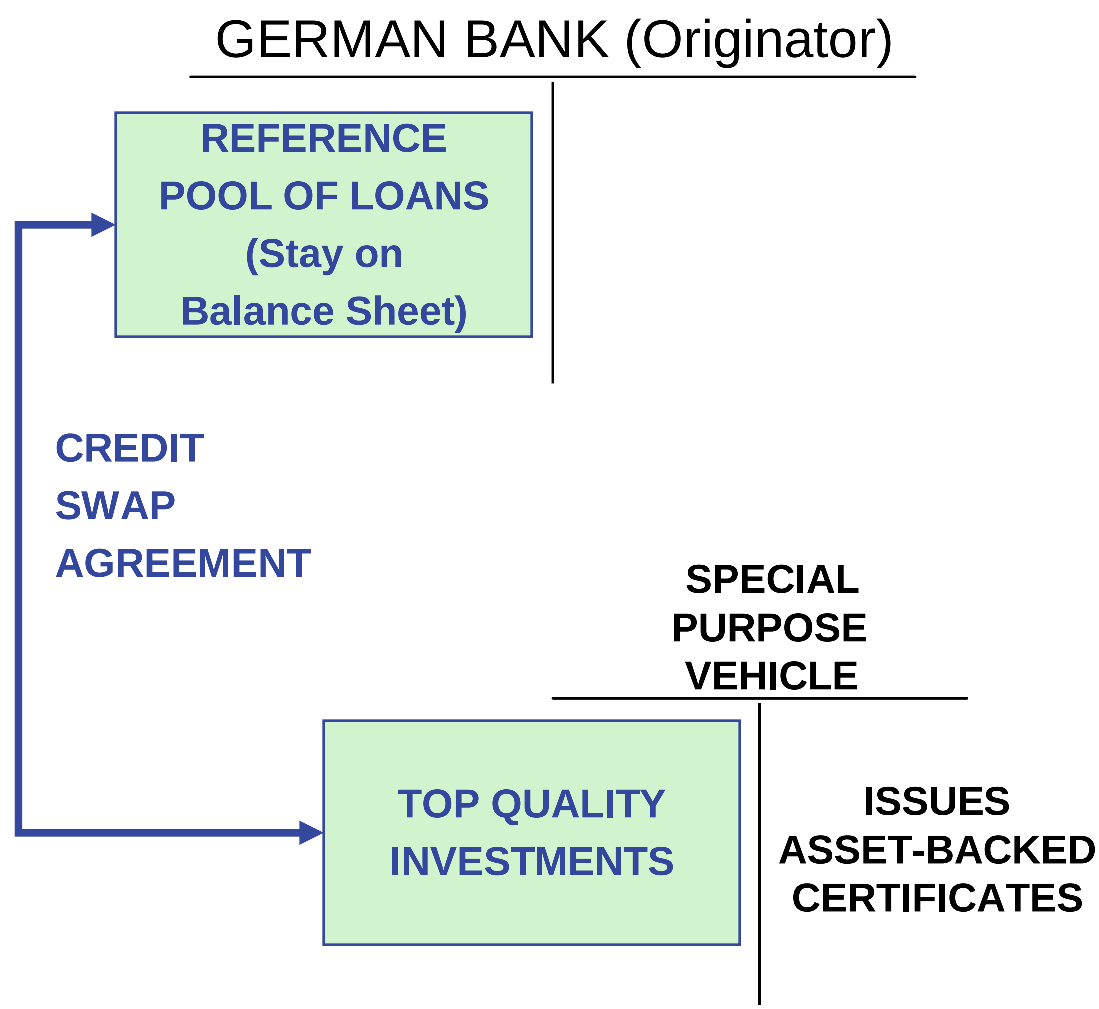
Rating	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	30 yr
Aaa/AAA	13	17	20	37	59	77	93
Aa1/AA+	35	36	39	57	77	90	108
Aa2/AA	37	39	41	64	80	93	116
Aa3/AA-	39	45	47	74	86	96	118
A1/A+	47	74	77	90	96	116	134
A2/A	62	79	81	91	98	118	135
A3/A-	67	81	85	96	106	125	140
Baa1/BBB+	82	100	101	117	134	155	176
Baa2/BBB	87	104	109	129	142	165	181
Baa3/BBB-	92	105	110	137	156	180	192
Ba1/BB+	155	175	185	215	235	255	305
Ba2/BB	165	185	195	225	245	265	315
Ba3/BB-	175	195	205	235	255	275	325
B1/B+	270	290	300	325	360	385	435
B2/B	280	300	310	335	370	395	445
B3/B-	290	310	320	355	380	405	455
Caa/CCC	345	355	365	430	480	535	575

Sources: bondsonline.com,

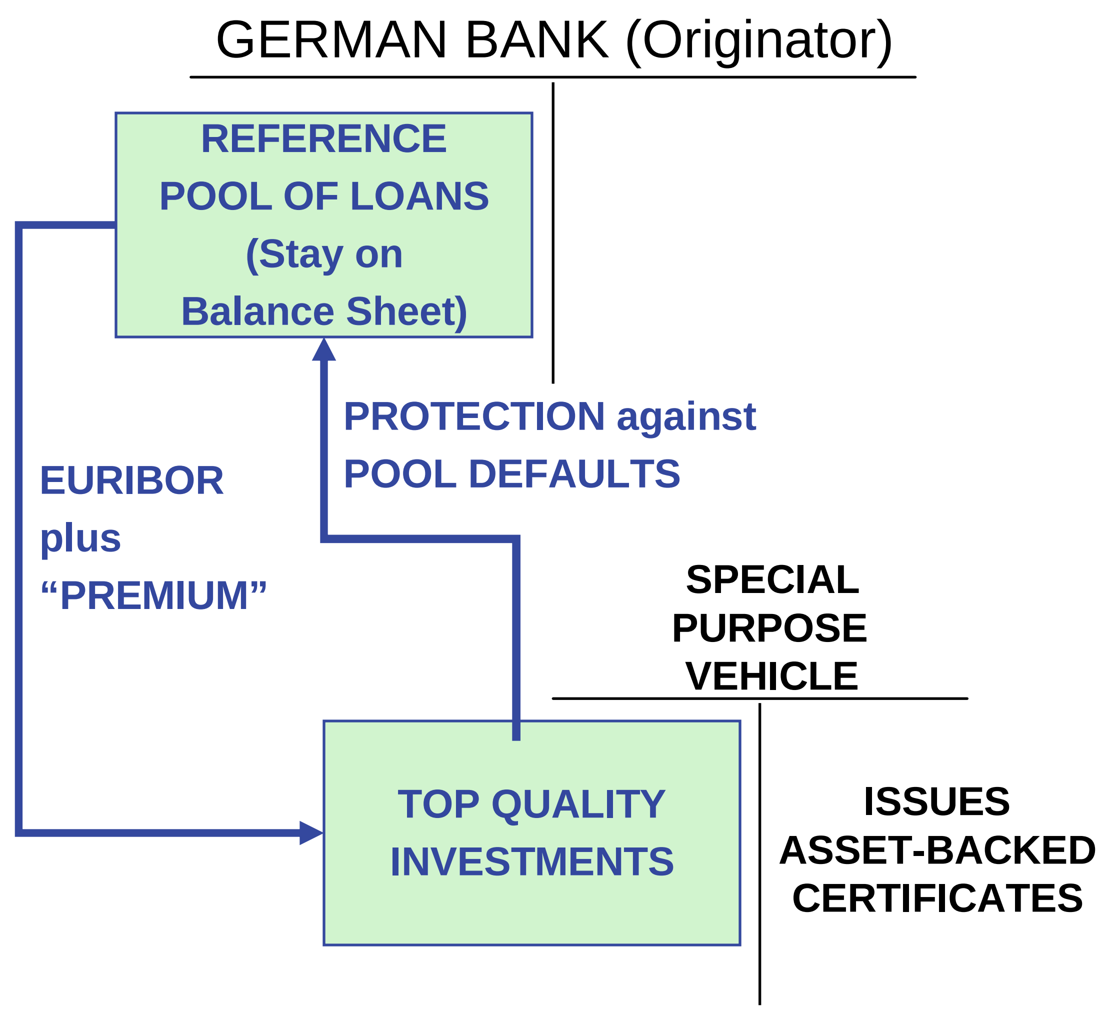
Synthetic ABS
or Collateralized Loan Notes

- CLNs are SPV debt backed by the credit of the selling bank (or better)
- No loans are sold to the SPV
- But performance is based on the performance of a reference pool of loans
  - If the reference credits perform, full debt service is made on the CLN
  - If the reference credits default, the CLN is deemed “defaulted”and payment is halted.

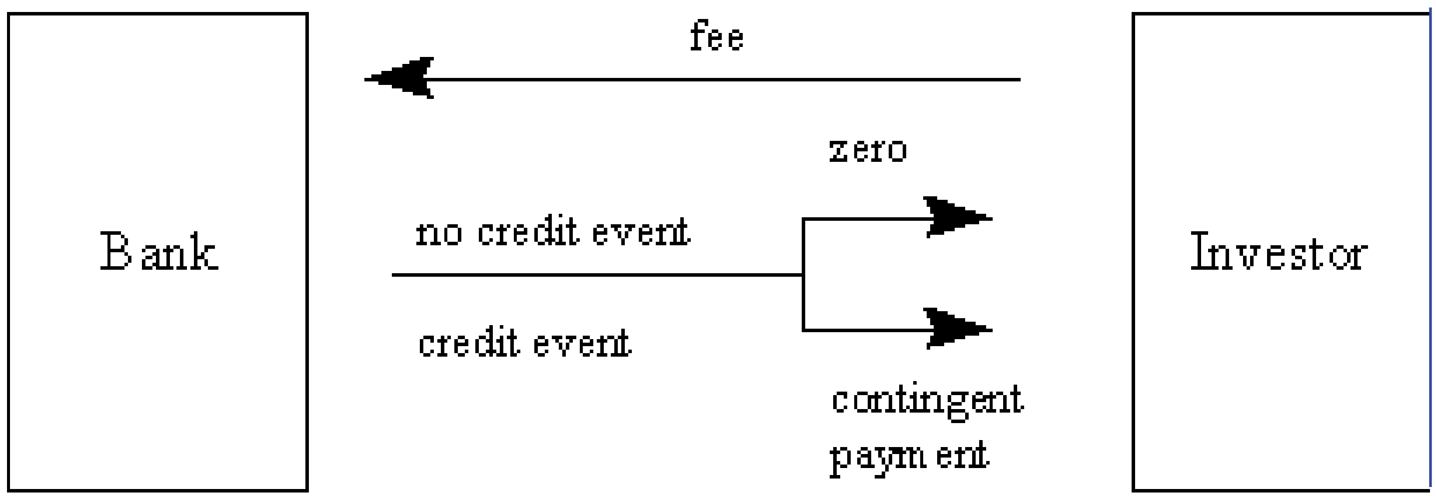
Synthetic ABS



Synthetic ABS

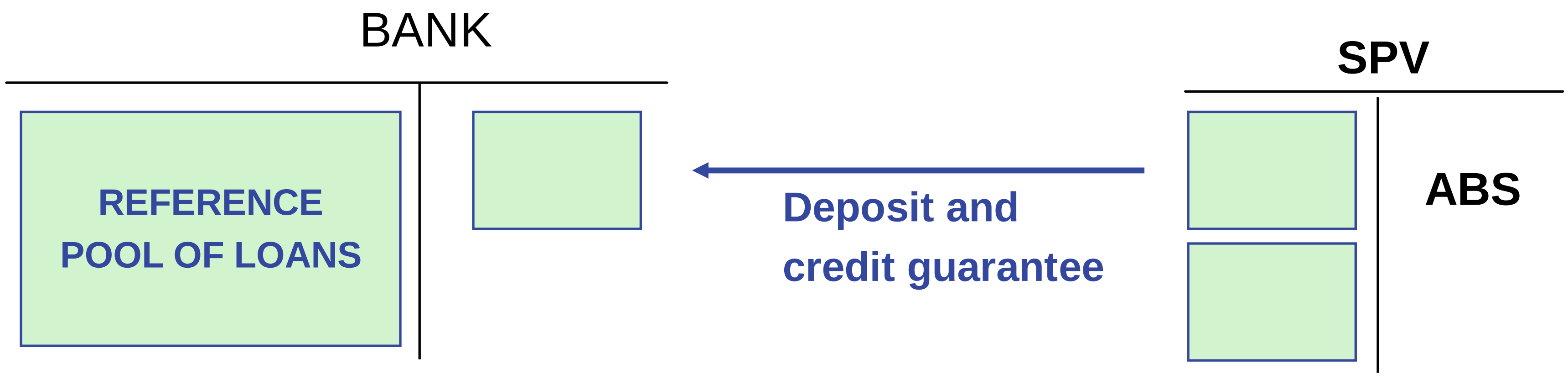


Credit Default Swaps



The key distinction between a Credit Default Swap and a Total Return Swap is that the former results in a contingent or floating payment only following a Credit Event, while the latter results in payments reflecting changes in the market valuation of a specified asset in the normal course of business.

Typical ABS Credit Default Swap Arrangement

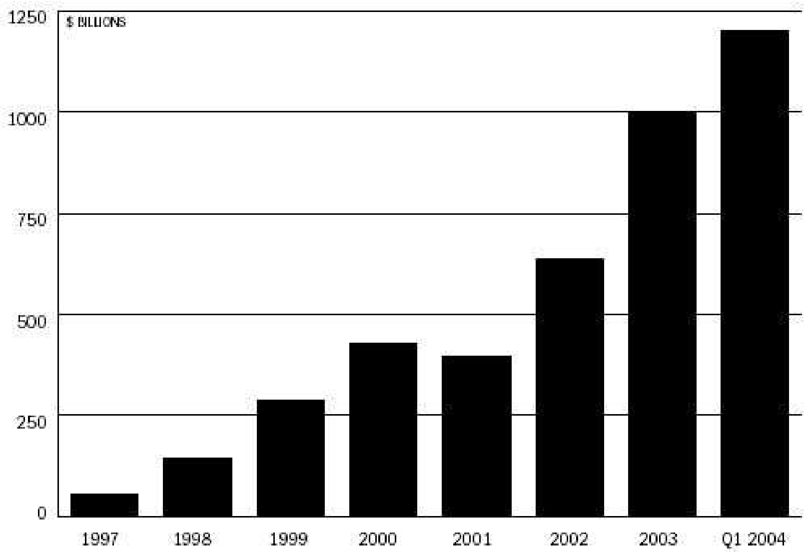


The guarantee:

- Pledge of a deposit in the sponsor bank
- Part or all of that deposit will be forfeited if there are pool losses
- "Losses in the transaction are defined as amounts written off in compliance with the bank's usual procedures"

Credit Derivatives: The Market

FIGURE 20: CREDIT DERIVATIVES OUTSTANDING AT U.S. COMMERCIAL BANKS 1997-2004



Source: Office of the Comptroller of the Currency

- credittrade.com
- creditex.com

CDS Prices - EUROPE Last Updated - Tue 01 Mar 2005 09:23 GMT

EUROPE CORPS

Name	Rank	5Y Bid	5Y Offer	+/- Day	+/- Sector
BT	Sen	38	40	0.00%	0.00%
DaimlerChrysler AG	Sen	55	57	0.00%	0.00%
Deutsche Telekom	Sen	29	31	0.00%	0.00%
Casino	Sen	61	66	0.00%	0.00%
Imperial Chemical Industries PLC	Sen	44	46	0.00%	0.00%

EUROPE BANKS

Name	Rank	5Y Bid	5Y Offer	+/- Day	+/- Sector
ABN Amro	Sen	9	11	0.00%	0.00%
BNP Paribas	Sen	8	10	0.00%	0.00%
Deutsche Bank	Sen	14	17	0.00%	0.00%
Unicredito	Sen	9	12	0.00%	0.00%
Banco Santander	Sub	20	22	0.00%	0.00%
Commerzbank	Sub	29	31	0.00%	0.00%
Lloyds TSB Bank PLC	Sub	13	15	0.00%	0.00%
Abbey National PLC	Sub	16	19	0.00%	0.00%

CDS Prices - US Last Updated - Tue 01 Mar 2005 09:23 GMT

US CREDITS

Name	Rank	5Y Bid	5Y Offer	+/- Day	+/- Sector
Colombia	Sen	305	315	0.00%	0.00%
Mexico	Sen	75	80	0.00%	0.00%

US CREDITS

Name	Rank	5Y Bid	5Y Offer	+/- Day	+/- Sector
Ford Motor Credit	Sen	196	206	3.08%	2.90%
BellSouth Corp	Sen	23	33	0.00%	-0.18%
AT&T Corp	Sen	46	51	0.00%	-0.18%
Electronic Data Systems Corp	Sen	92	112	0.00%	-0.18%
China	Sen	21	25.5	-3.13%	-1.36%
Japan	Sen	4.5	6.5	0.00%	1.77%

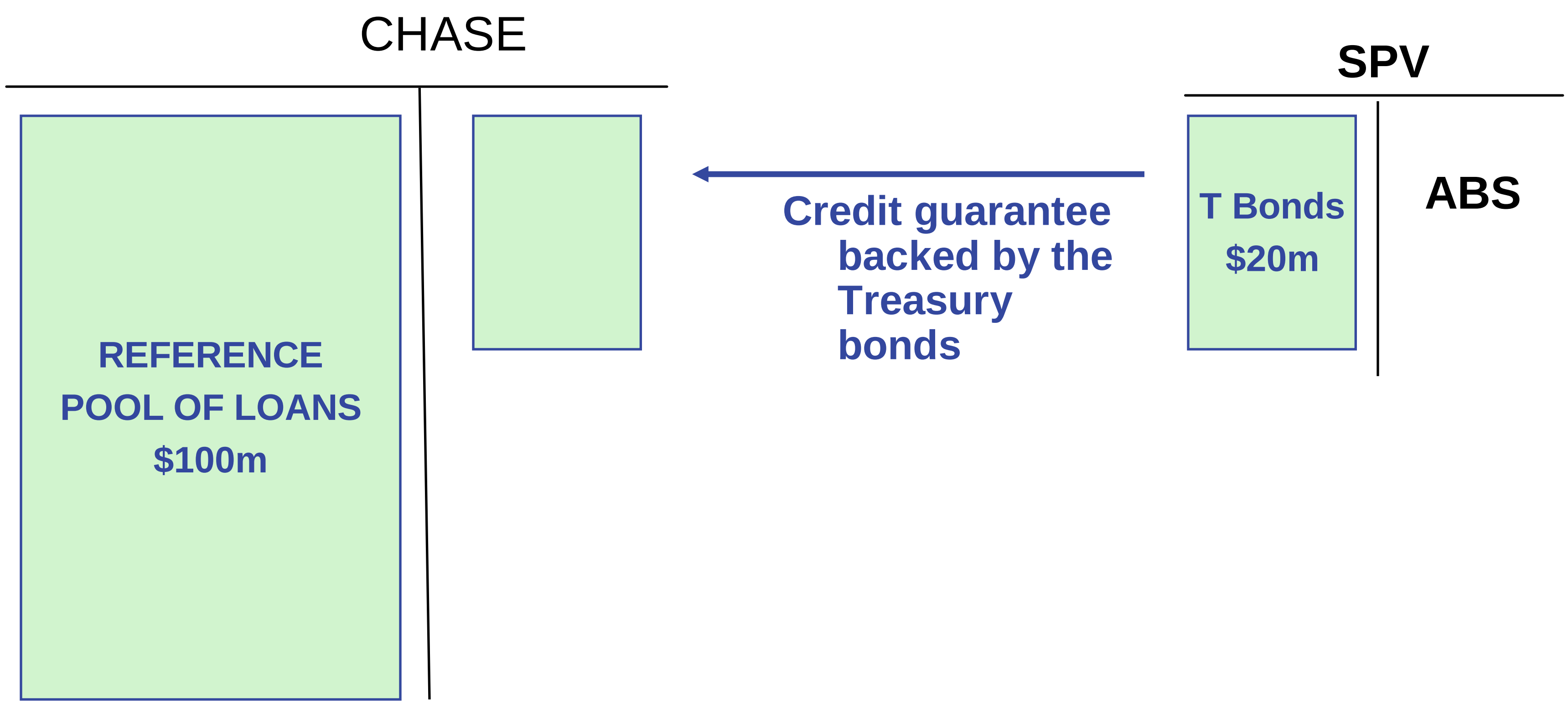
Credit Swaps in Synthetics: Doubts

- Problems with the collateral
  - Debates about “events of default”
  - Workouts and other pre-default losses
- Problems with the sponsor bank
  - Obtaining title to the collateral
  - Those “high quality investments”
- And all those swaps

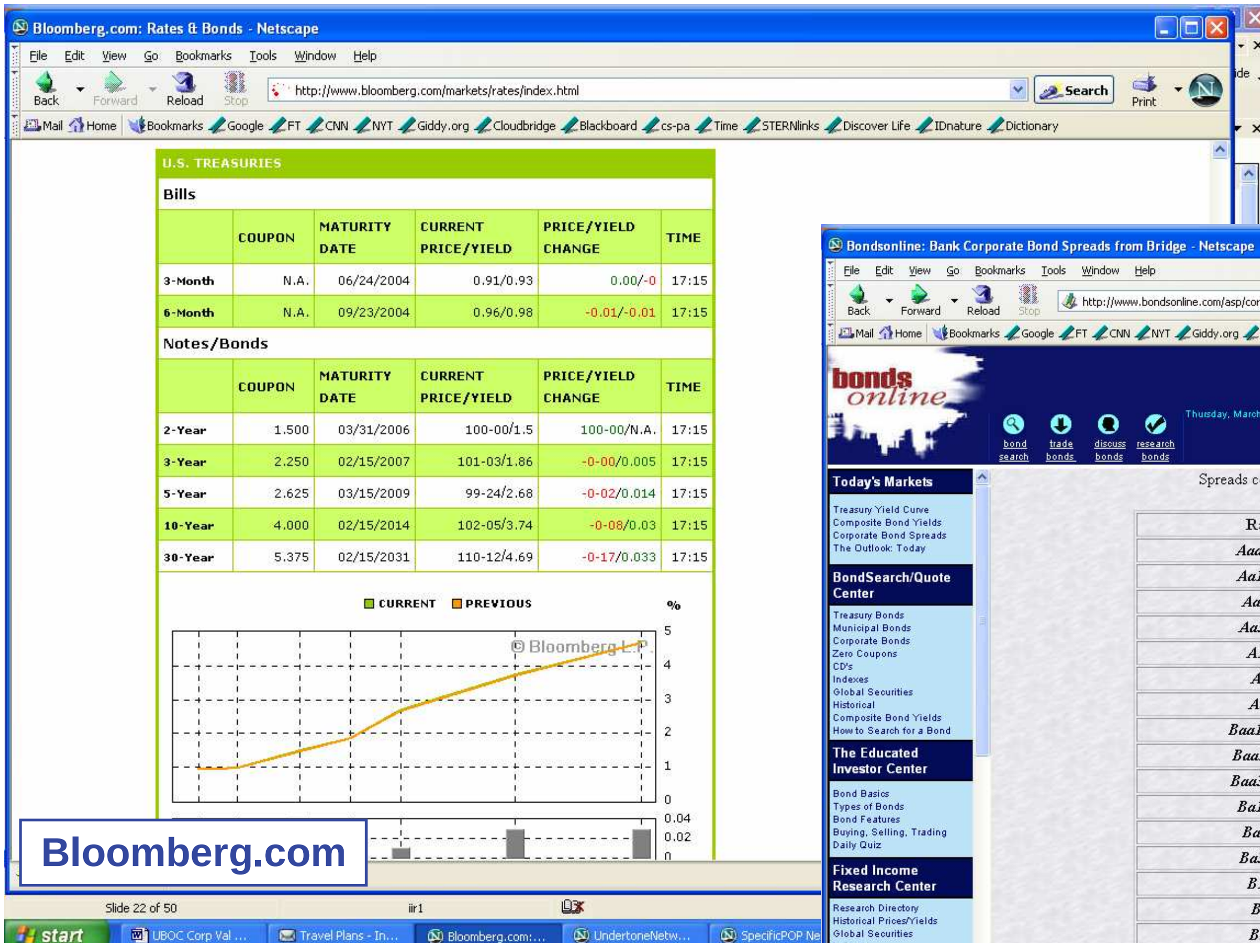
Chase Secured Loan Trust Notes

- Chase Secured Loan Trust (CSLT) notes offer investors access to the high-yield bank loan market. One of the attractive aspects of this market to investors is that, while offering double-digit returns in many cases, the senior-secured status of bank loans has given them a very stable, and favorable, default percentage over the years. This is a market that has been widely untapped by institutional investors with only 20 - 25 percent of the $250 billion in syndicated leveraged loans outstanding held by this sector. The Chase structure uses credit derivatives to offer these investors access to this asset class.
- Take, for example, an investor who is prohibited from investing in anything lower than investment grade securities. In the Chase structure, the underlying credit derivative is a Total Return Swap between Chase and a trust. Chase pays the trust the total return on a loan portfolio of $100 million for example, which yields LIBOR plus 250 basis points. In exchange, Chase receives LIBOR plus 100 basis points from the trust. An investor who purchases a tranche of the CSLT in the form of a note receives the same return on the loan portfolio that is received by the trust from Chase on the TRS. For this return, the investor does not put up the total $100 million as would be required to participate in actual loan syndication. Rather, the investor pays $20 million for the tranche, which is used by the trust to purchase treasuries to post as collateral against the trust's payment on the TRS. When all the cash flows are broken down on the transaction, including the five times leverage of the $20 million for access to the $100 million loan portfolio plus the yield on the treasuries of 6 percent, the investor generates a total yield in this example of 13.5 percent.
- Draw a diagram to show how this is achieved

Chase Secured Loan Trust Notes



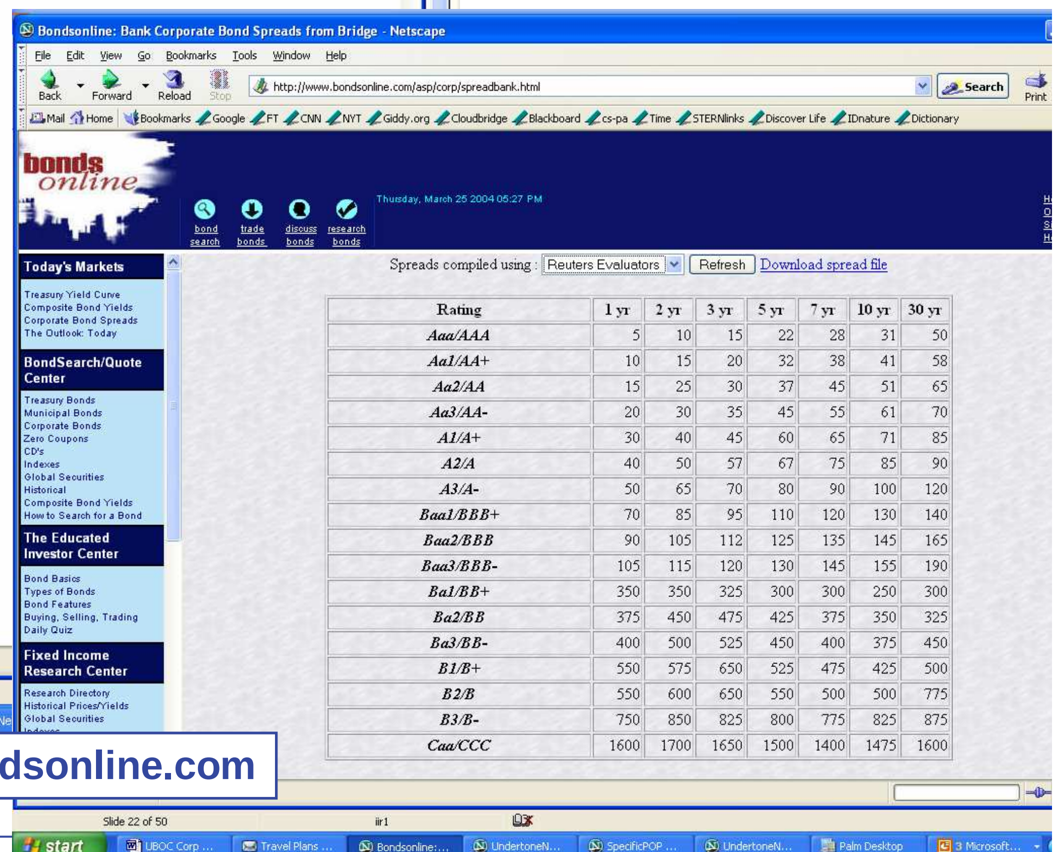
The CDO/CDS Market: Pricing and Transfer of Credit Risk



	COUPON	MATURITY DATE	CURRENT PRICE/YIELD	PRICE/YIELD CHANGE	TIME
3-Month	N.A.	06/24/2004	0.91/0.93	0.00/-0	17:15
6-Month	N.A.	09/23/2004	0.96/0.98	-0.01/-0.01	17:15

	COUPON	MATURITY DATE	CURRENT PRICE/YIELD	PRICE/YIELD CHANGE	TIME
2-Year	1.500	03/31/2006	100-00/1.5	100-00/N.A.	17:15
3-Year	2.250	02/15/2007	101-03/1.86	-0-00/0.005	17:15
5-Year	2.625	03/15/2009	99-24/2.68	-0-02/0.014	17:15
10-Year	4.000	02/15/2014	102-05/3.74	-0-08/0.03	17:15
30-Year	5.375	02/15/2031	110-12/4.69	-0-17/0.033	17:15

Bloomberg.com



Rating	1 yr	2 yr	3 yr	5 yr	7 yr	10 yr	30 yr
Aaa/AAA	5	10	15	22	28	31	50
Aa1/AA+	10	15	20	32	38	41	58
Aa2/AA	15	25	30	37	45	51	65
Aa3/AA-	20	30	35	45	55	61	70
A1/A+	30	40	45	60	65	71	85
A2/A	40	50	57	67	75	85	90
A3/A-	50	65	70	80	90	100	120
Baa1/BBB+	70	85	95	110	120	130	140
Baa2/BBB	90	105	112	125	135	145	165
Baa3/BBB-	105	115	120	130	145	155	190
Ba1/BB+	350	350	325	300	300	250	300
Ba2/BB	375	450	475	425	375	350	325
Ba3/BB-	400	500	525	450	400	375	450
B1/B+	550	575	650	525	475	425	500
B2/B	550	600	650	550	500	500	775
B3/B-	750	850	825	800	775	825	875
Caa/CCC	1600	1700	1650	1500	1400	1475	1600

Bondsonline.com

Pricing Credit Risk:
Default Probabilities and Recovery Rates

Bond value
(100(1-p)+100pR)/(1+r)
(R is the recovery rate)

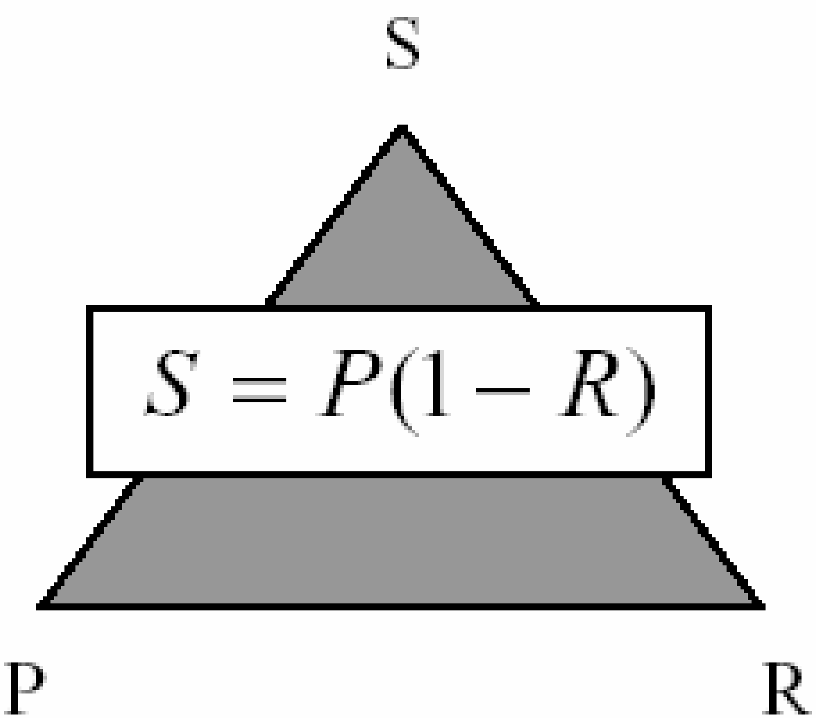
Bond survives (probability=p-1)
Investor gets $100

Bond defaults (probability=p)
Investor gets $100*R

- Example: Price a risky 1-year loan where prob. of default is 0.75%, recovery rate is 50%, and interest rate is 5%
  - Bond value is (100*0.9925+100*0.0075*0.5)/(1+0.05)=94.88
  - Risk-free bond would be worth 100/(1+0.05)=95.24
- We can define and solve for the credit spread, s:
  - P=100/[(1+r)(1+s)]
  - Solving for s, we get 94.88=100/[(1+.05)(1+s)]
  - s=37.7bp

Source: Lehman, *Credit Derivatives Explained*

The Credit Triangle

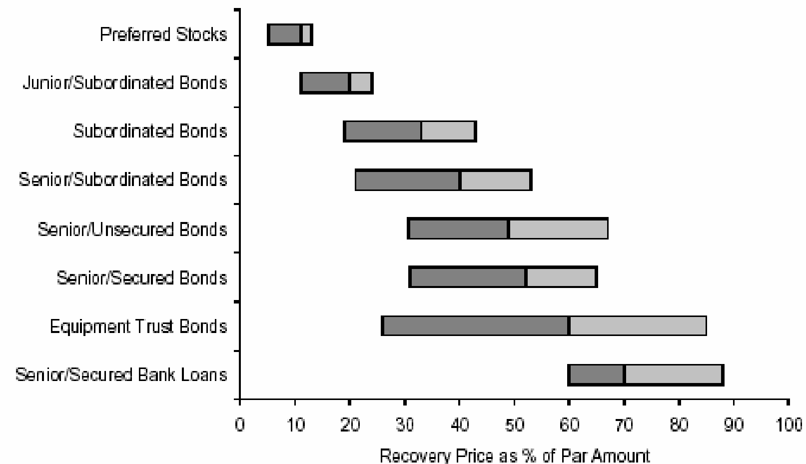


The credit spread *S* is a function of the probability of default *P* and the recovery rate *R*

Source: Lehman, *Credit Derivatives Explained*

Default Probabilities and Recovery Rates: Data

Figure 6. **Moody's Historical Recovery Rate Distributions, 1970-1999, for Different Levels of Subordination. Each Bar Starts at the 1st Quartile Then Changes Color at the Average and Ends at the 3rd Quartile.**



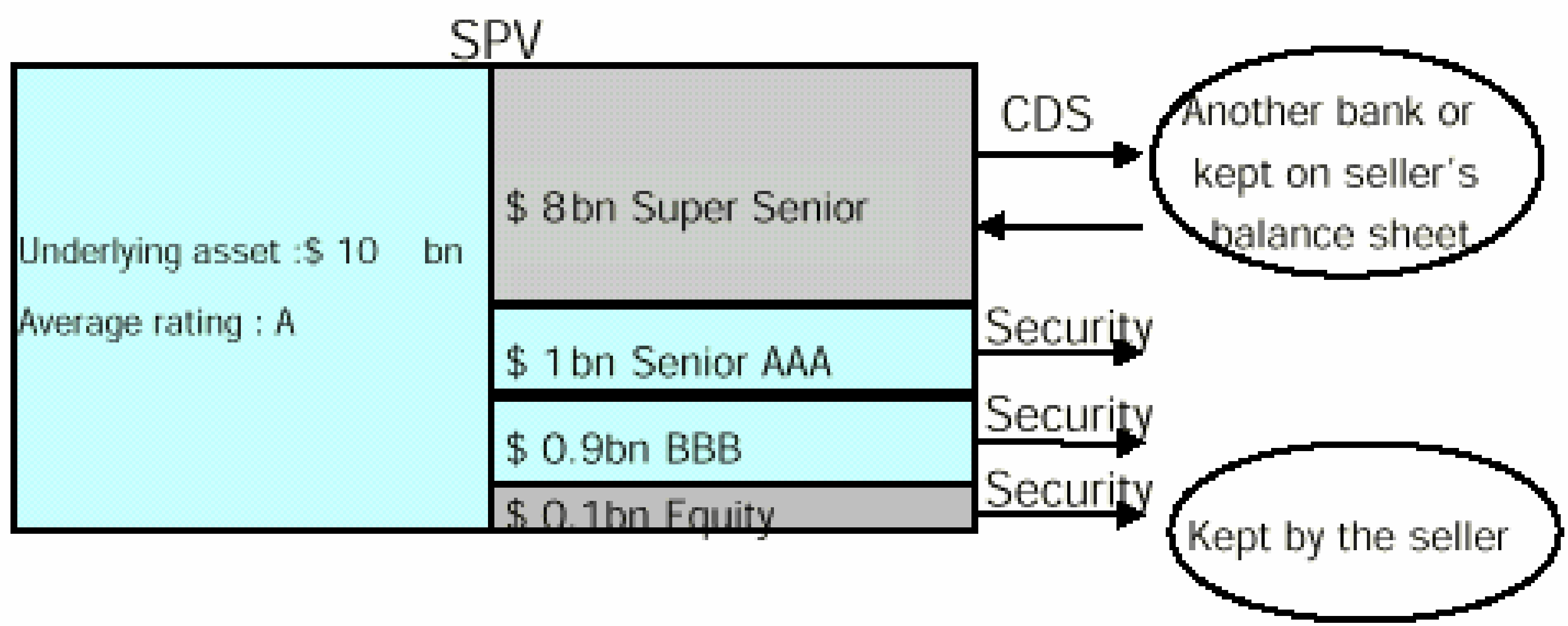
Source : Moody's Investors Services.

Figure 7. **Moody's Cumulative Default Probabilities by Letter Rating from 1-10 years, 1970-2000.**

	Cumulative Default Probability to Year (%)									
Rating	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
Aaa	0.00	0.00	0.00	0.04	0.12	0.21	0.31	0.42	0.54	0.67
Aa	0.02	0.04	0.08	0.20	0.31	0.43	0.55	0.67	0.76	0.83
A	0.01	0.05	0.18	0.31	0.45	0.61	0.78	0.96	1.18	1.43
Baa	0.14	0.44	0.83	1.34	1.82	2.33	2.86	3.39	3.97	4.56
Ba	1.27	3.57	6.11	8.65	11.23	13.50	15.32	17.21	19.00	20.76
B	6.16	12.90	18.76	23.50	27.92	31.89	35.55	38.69	41.51	44.57

Source: Moodys

Leveraged CDO (Super Senior Tranche)

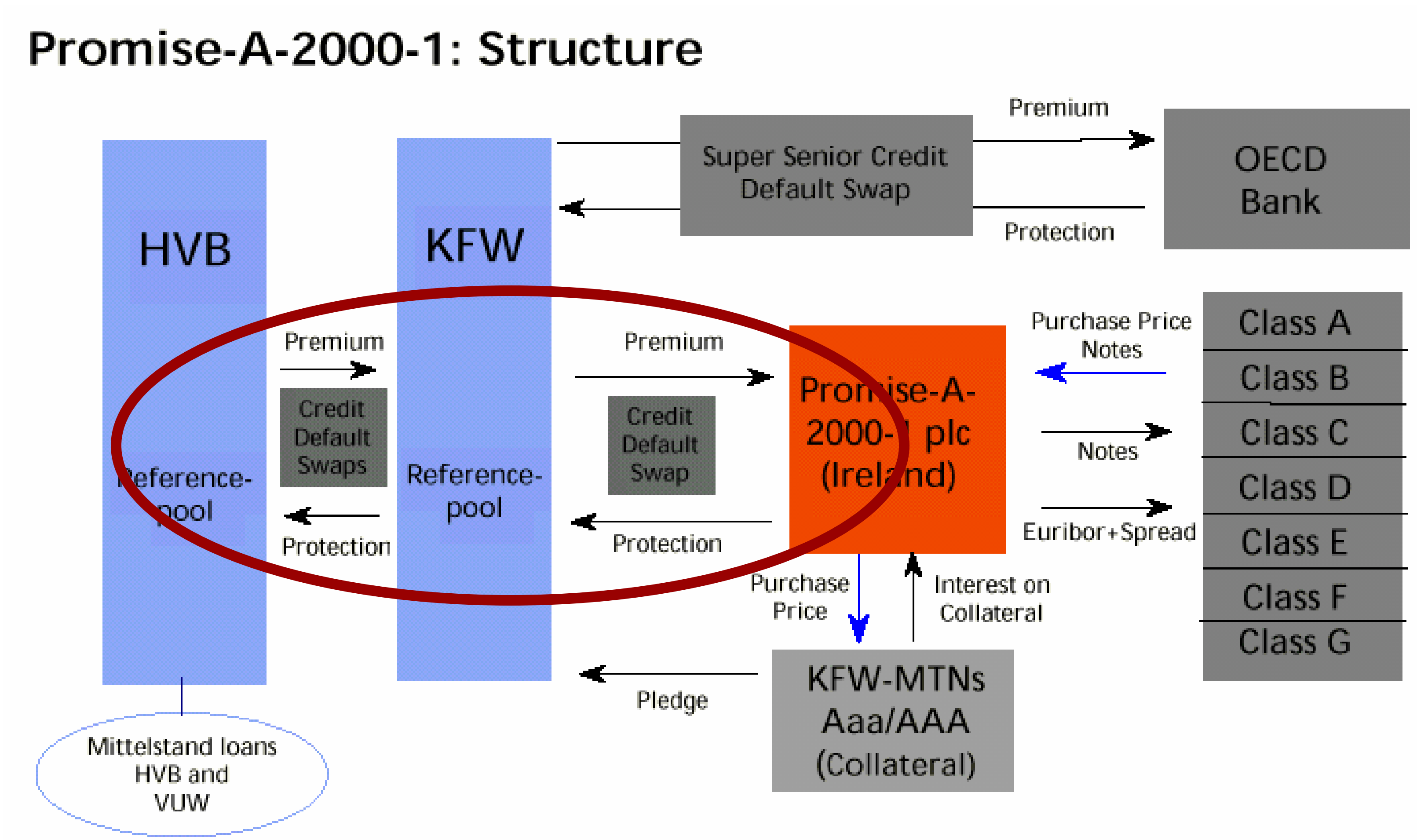


Promises, Promises

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	28th February 2009, soft bullet
Final Legal Maturity	28th 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

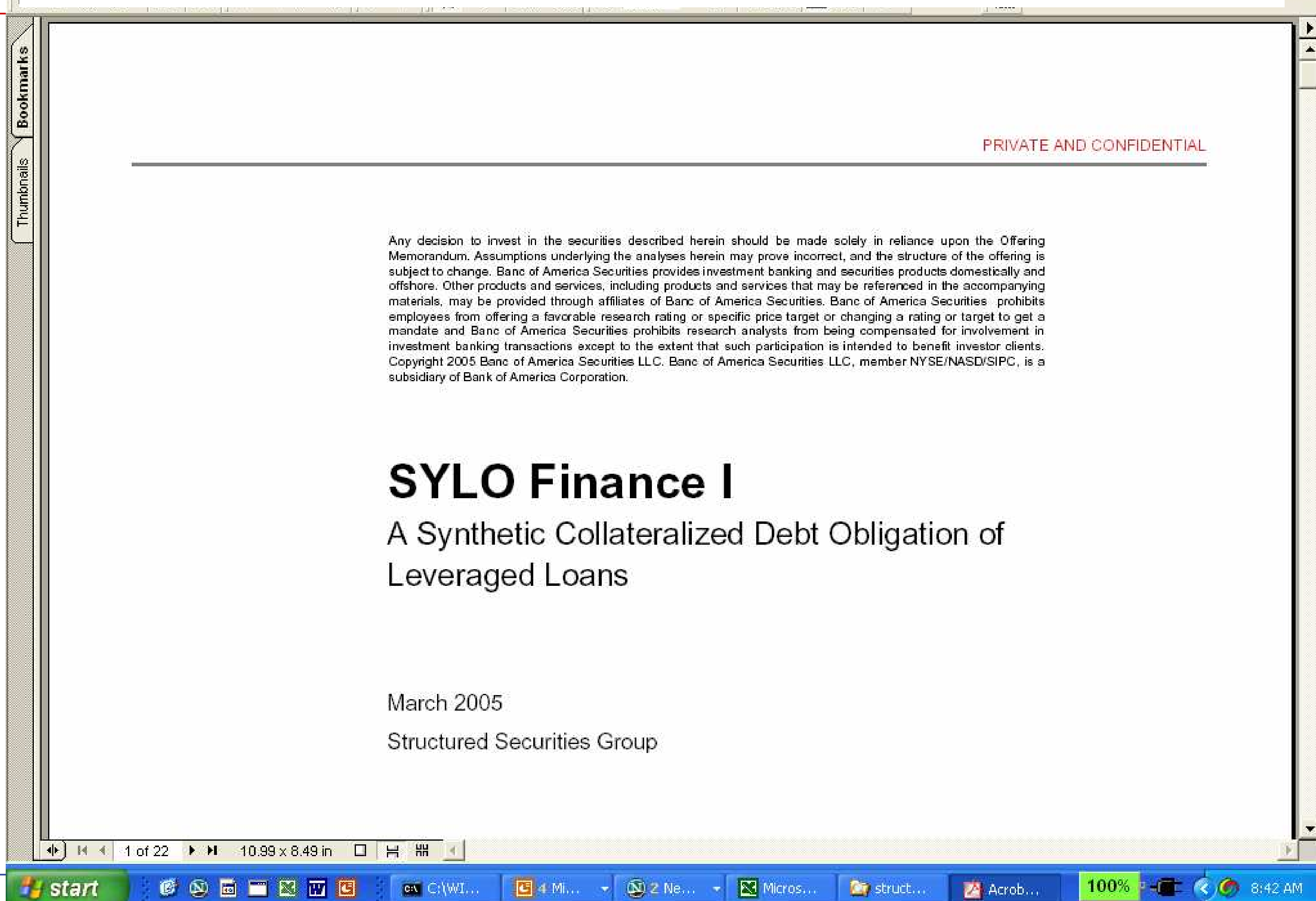
Super-Senior



Case Study:
Bank of America SYLO

- What is the legal structure of this deal?
- What are the assets?
- What are the different classes of securities, and their terms?
- How does the unfunded super-senior tranche work? (Draw a diagram)

Synthetic Securitization of Leveraged Loans



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SYLO Finance I

A Synthetic Collateralized Debt Obligation of Leveraged Loans

March 2005

Structured Securities Group

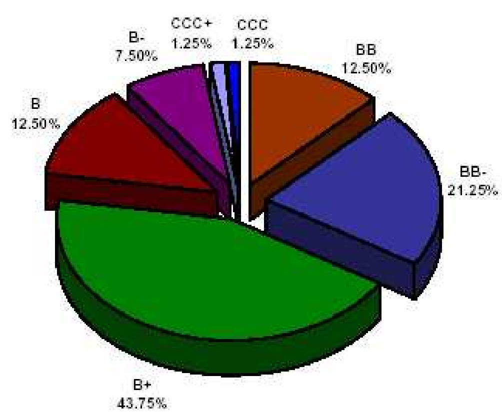
Synthetic Securitization of Leveraged Loans

Transaction Description

Reference Portfolio[a]

- Weighted Average Spread: 255 bps
- Weighted Average Rating: BB-/B+
- Weighted Average Rating Factor: 2252

STANDARD & POOR'S RATING DISTRIBUTION [b]

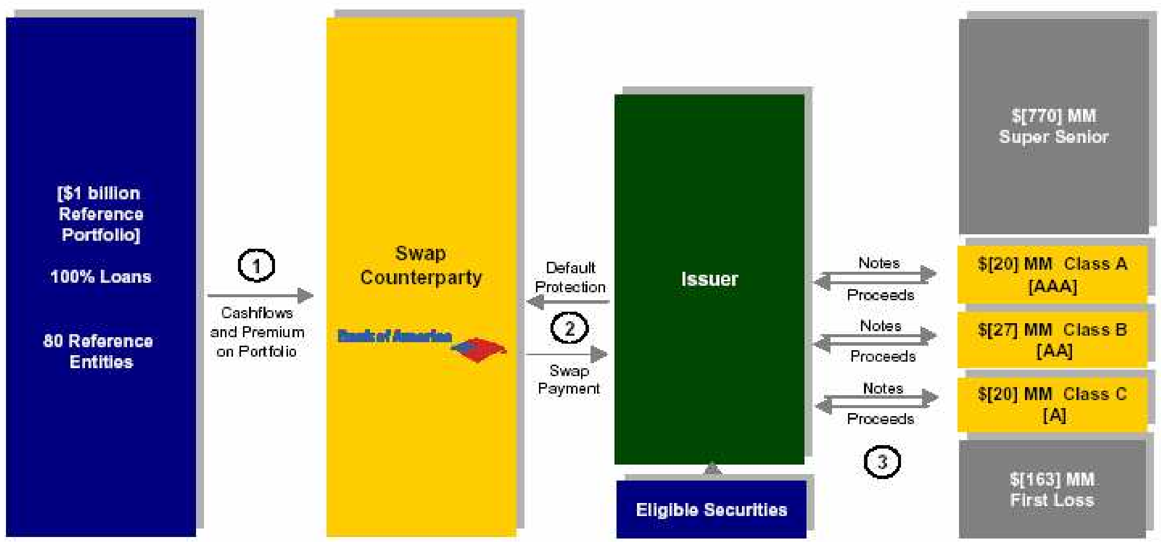


S&P INDUSTRY	% SHARE
Automotive	8.75%
Healthcare	8.75%
Telecommunications	8.75%
Media	7.50%
Food And Beverage	6.25%
Chemicals	5.00%
Computers & Electronics	5.00%
Building Materials	3.75%
Entertainment And Leisure	3.75%
Forest Products	3.75%
Metals & Mining	3.75%
Textile & Apparel Mfg.	3.75%
Utilities	3.75%
Gaming And Hotels	2.50%
Machinery	2.50%
Oil & Gas	2.50%
Professional & Business Services	2.50%
Real Estate	2.50%
Retailing	2.50%
Aerospace/Defense	1.25%
Construction	1.25%
Consumer Nondurables	1.25%
Environmental Services	1.25%
Insurance	1.25%
Leasing	1.25%
Manufacturing	1.25%
Personal Services	1.25%
Printing & Publishing	1.25%

Synthetic Securitization of Leveraged Loans

Transaction Description

Transaction Schematic 2: 10-YEAR MATURITY



1. Cash flows and premium on the Reference Portfolio are transferred to Bank of America.
2. The default swap premium paid by Bank of America to the Issuer is in exchange for the credit protection provided.
3. The proceeds from the note issuance are invested in high rated Eligible Securities.

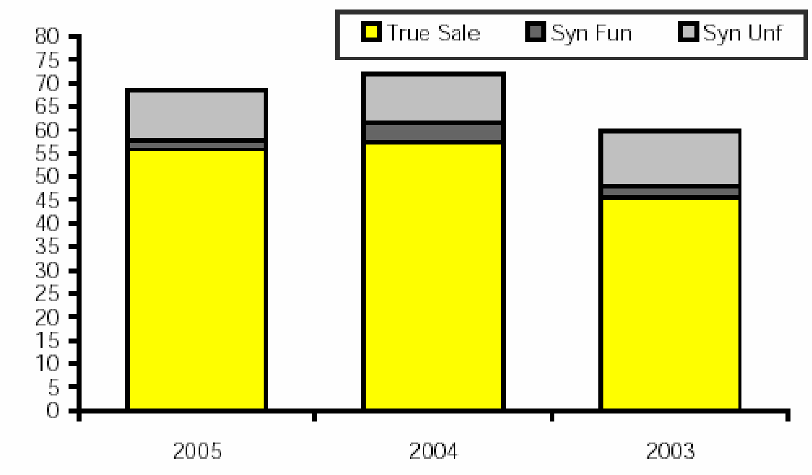
INDICATIVE CAPITAL STRUCTURE[a]: 10-Year Maturity

Tranche	S&P RATING	Size	Size (%)	Subordination	Indicative Spread
Super Senior Swap	[NR]	$770,000,000	77.00%	23.00%	Available on Request
Class A	[AAA]	20,000,000	2.00%	21.00%	3ML + [60]bps
Class B	[AA]	27,000,000	2.70%	18.30%	3ML + [80]bps
Class C	[A]	20,000,000	2.00%	16.30%	3ML + [120]bps
First Loss	[NR]	163,000,000	16.30%	0.00%	Available on Request
Total		$1,000,000,000	100.00%		

A Bank's Choice

- Hold the loan
- Sell the loan
- Create an SPV and securitize the loans
- Create an SPV and do a synthetic securitization
- Transfer the risk using credit default swaps

CHART 6: **Cumulative annual YTD risk transfer (€bn)**



Source: Commerzbank Corporates & Markets; closed transactions to 27 April

Source: Commerzbank Structured Finance Biweekly on absnet.net

Structured Credit Risk

- Your bank has assembled a portfolio of $100 million of A+, BBB+ and BB+ rated loans. The amounts and average spreads on these are shown in the table.
- Show with a diagram how you could use credit default swaps to minimize the credit risk on this portfolio, and estimate what the cost would be.
- How could the bank do the same thing with synthetic CDOs?
- Assuming you can fund the portfolio at LIBOR, what is your risk and return?

IBM loans Rating A+ $100 million	3M L+ 45bps	$92m funding at Libor flat
Time Warner loans Rating BBB+ $50 million	3M L+ 125bps	
AT&T loans Rating BB+ $50 million	3M L+ 175bps	$8m capital

CDS Spreads, May 2005

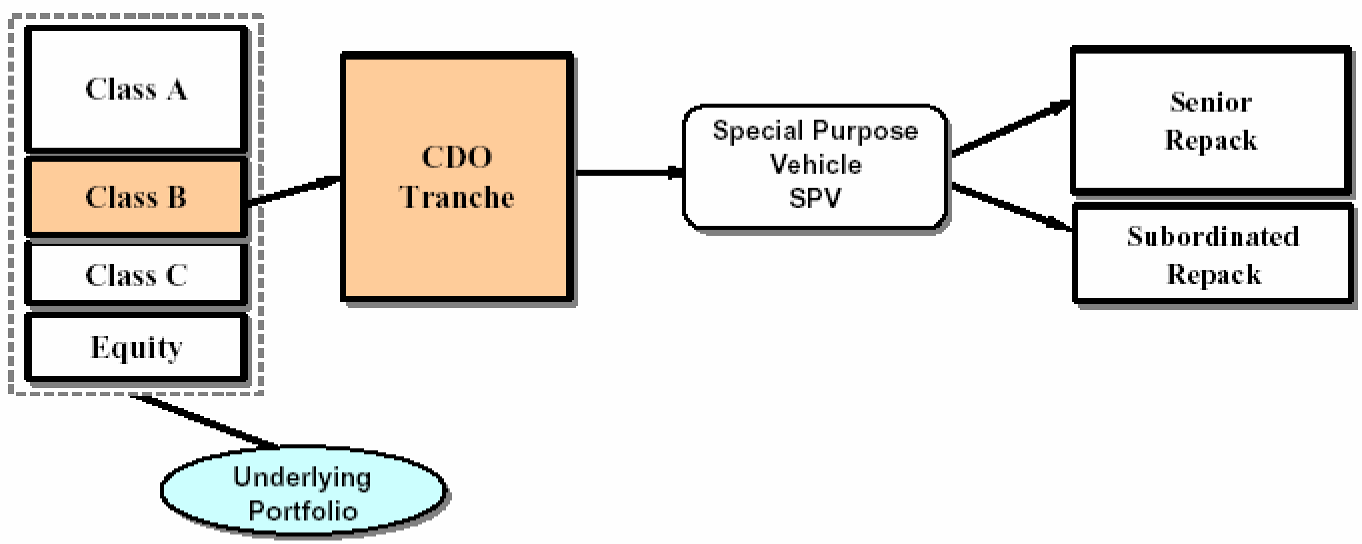
Name	5Y CDS (4/29)	Week Ago (4/22)	Credit Rating (M/S/F)
McDonalds	18	17	A2/A/A
Fannie Mae	20	21	Aaa/AAA/AAA
Boeing	22	23	A3/A/A+
GE Capital	23	23	Aaa/AAA/--
Deere & Co	24	23	A3/A-/A
IBM	26	25	A1/A+/AA-
SBC Communications	27	28	A2/A/A+
Dow Chemical	30	30	A3/A-/A-
Duke Energy	33	32	Baa1/BBB/BBB+
Walt Disney	34	33	Baa1/BBB+/BBB+
Alcoa	37	24	A2/A-/A
CIT Group	37	36	A2/A/A
Time Warner	38	38	Baa1/BBB+/BBB+
AIG	45	36	Aa2/AA+/AA
AT&T	47	47	Ba1/BB+/BB+
Computer Associates	79	76	Ba1/BBB-/BBB-
Viacom	80	70	A3/A-/A-
Albertsons	81	73	Baa2/BBB/BBB
Altria Group	83	78	Baa2/BBB+/BBB
Ford Motor Credit	481	441	A3/BBB-/BBB+
GMAC	626	612	Baa2/BBB-/BBB-

Source: Markit and Bloomberg

Source: CDO/CDS Report on absnet.net

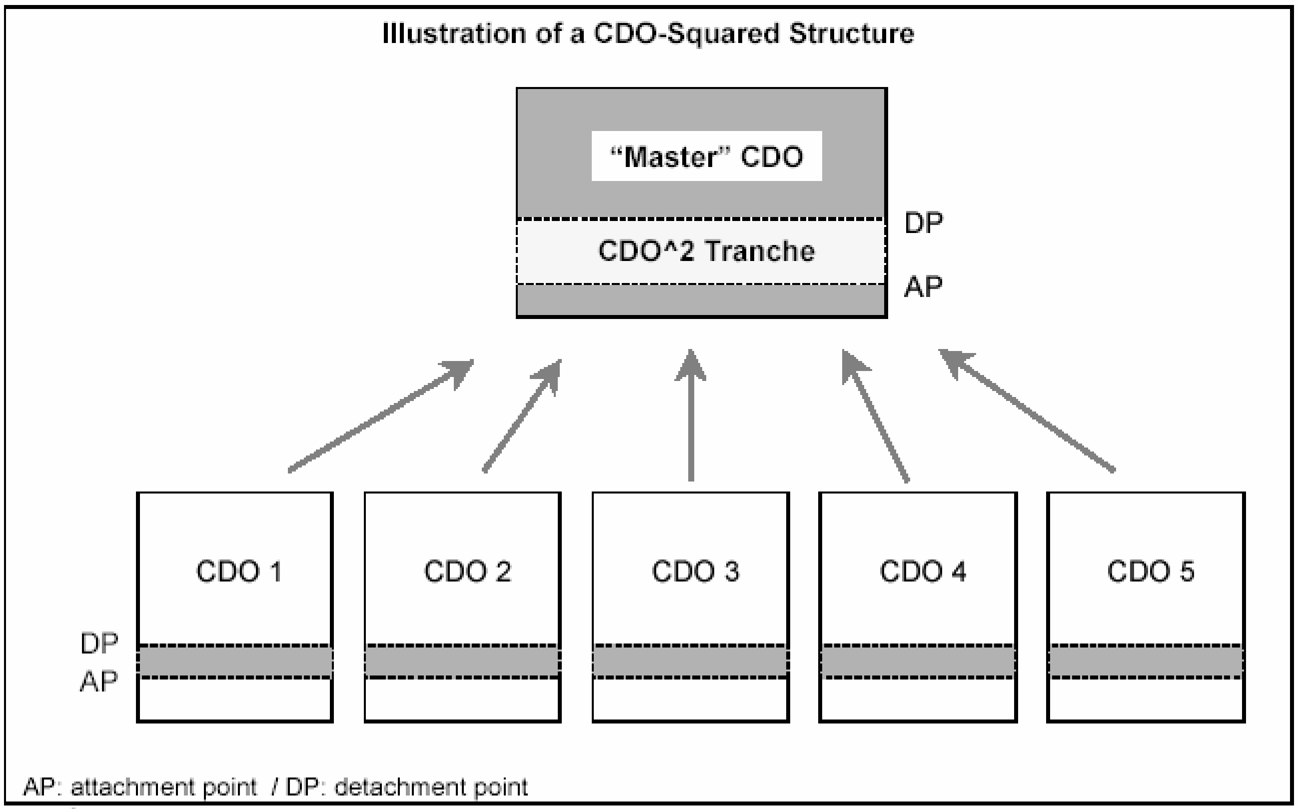
New Developments: CDO Repacks

Figure 1
Example of a CDO Repack Structure



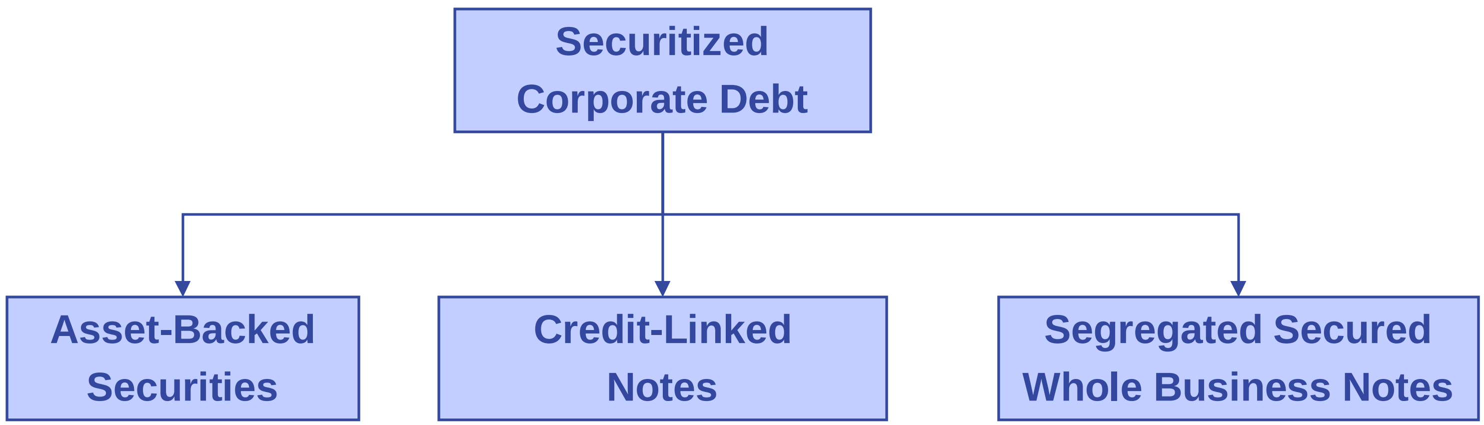
Source: moodys.com, "Rating CDO Repacks"

New Developments: CDO^2



Source: Nomura,"CDOs-Squared Demystified"

Corporate Cash Flow Financing

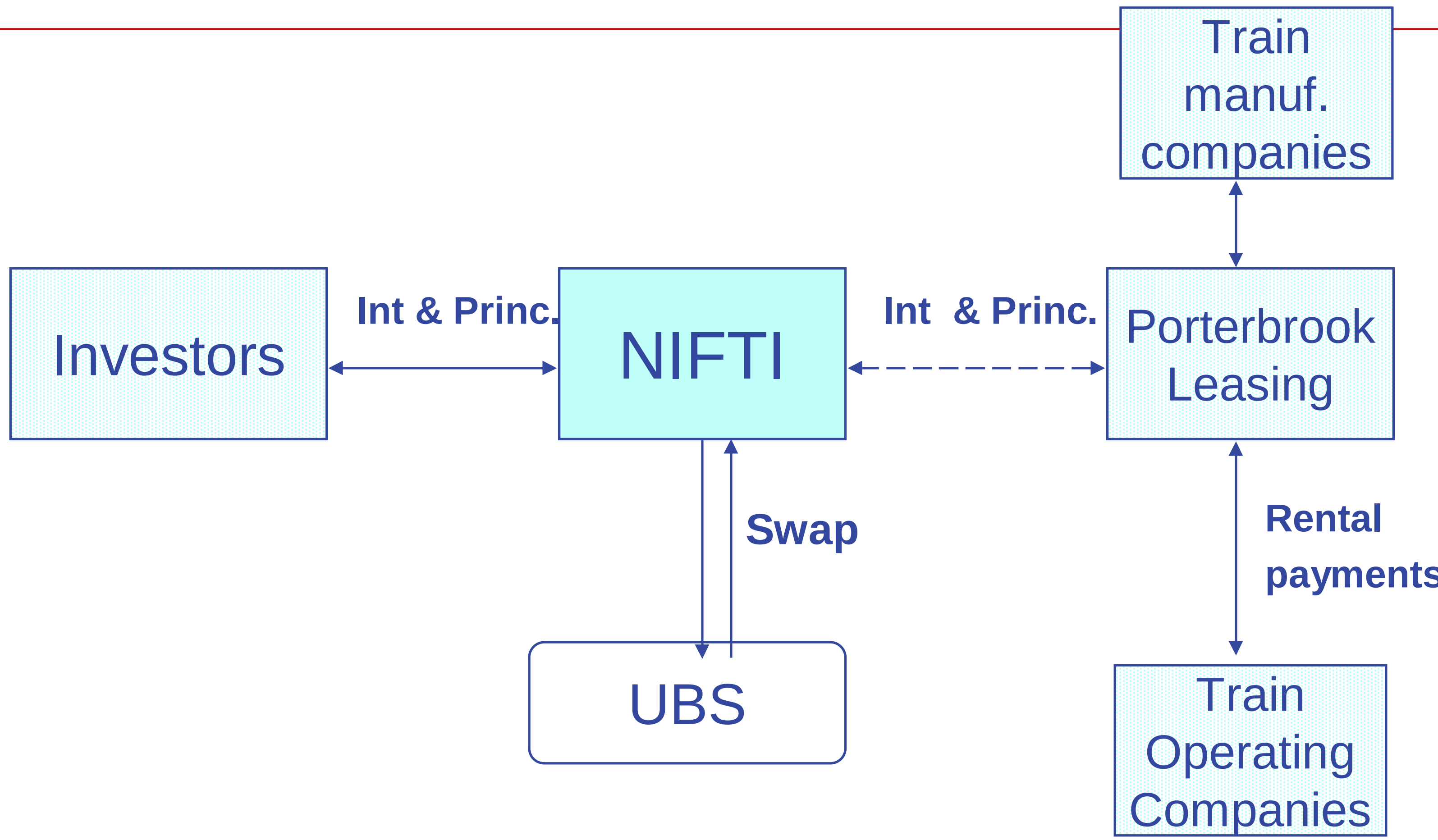


Case Study:
Trains I PLC

- What are the underlying assets, and why do they need to be financed in this manner?
- What is the legal relationship between the parties to the deal?
- What are the benefits or risks to the borrower and investors?

Trains

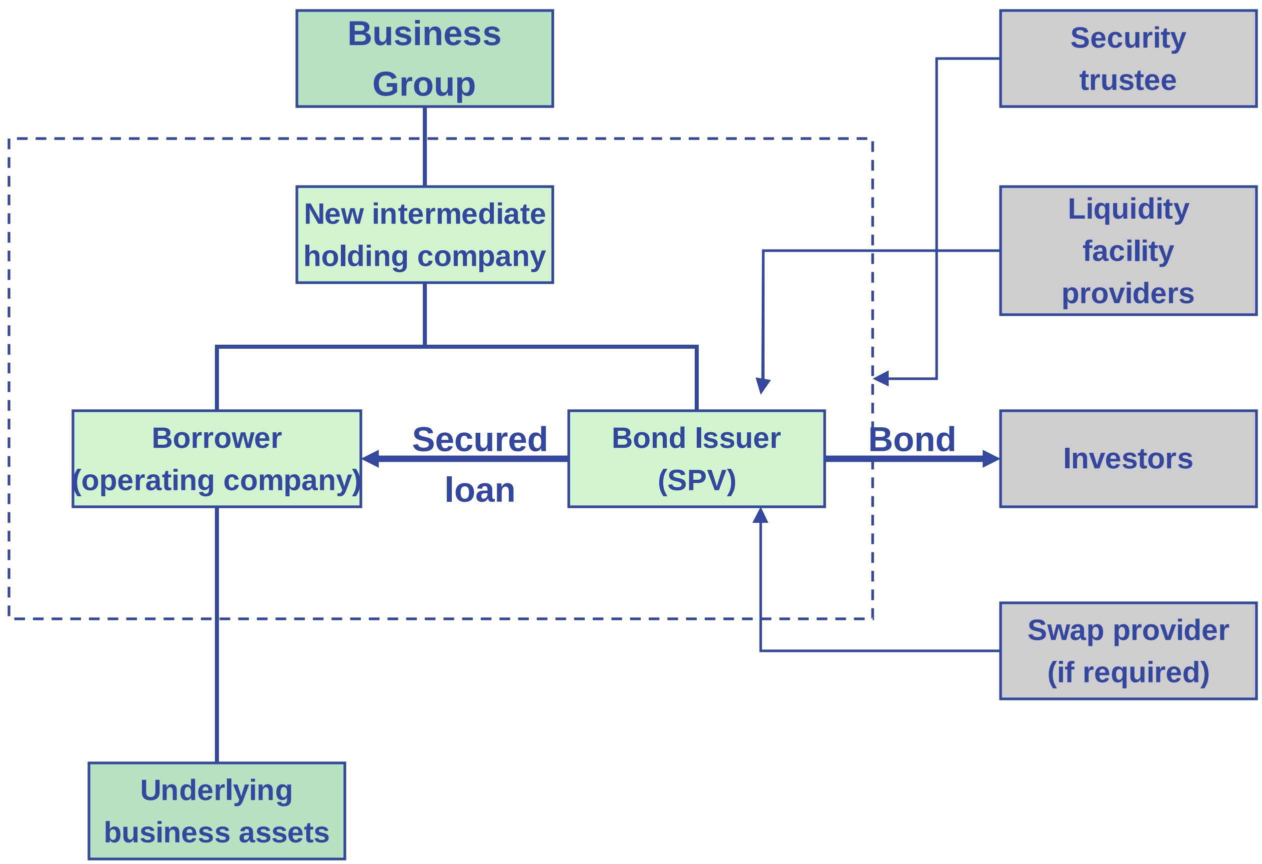
Trains


Train manuf. companies
Investors
Int & Princ.
NIFTI
Int & Princ.
Porterbrook Leasing
Swap
UBS
Rental payments
Train Operating Companies

Whole Business Securitization

- A securitization where the cash flows derive not from the repayment of debt or other pre-contracted cash flows or receivables, but from the entire range of operating revenues generated by a whole business (or a segregated part of a larger business).

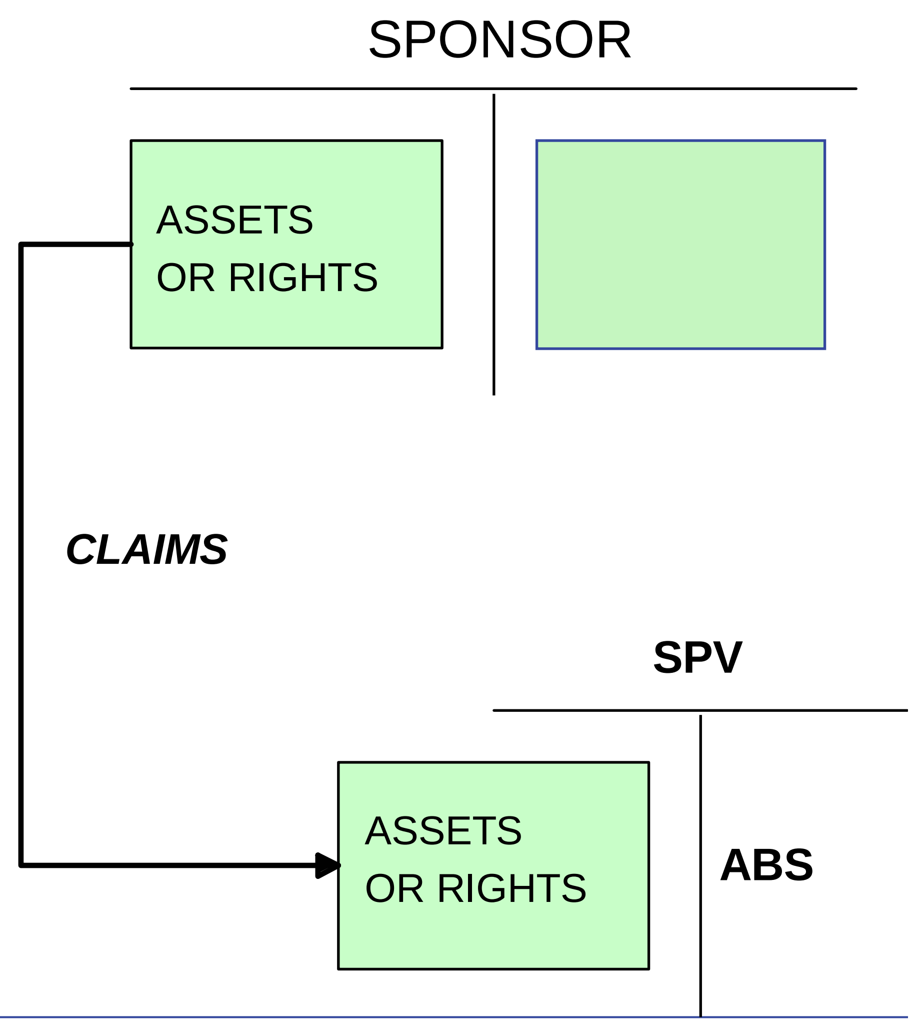
WBS "Secured Loan" Structure



ABS or Corporate Debt?

KEY ISSUES:

- ***WHAT ARE THE ASSETS BEING TRANSFERRED?***
- ***ARE THEY IDENTIFIABLE FINANCIAL CLAIMS ON SPECIFIC BORROWERS?***
- ***IS THE POOL AMENABLE TO STATISTICAL AND HISTORICAL ANALYSIS?***
- ***IS ITS VALUE DEPENDENT ON THE SUCCESS OF THE SPONSOR'S BUSINESS?***



Valuation

- Evaluation of credit factors
- Discriminant analysis and credit-scoring models like Altman’s z-score
- Option pricing models

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