

# How to Effectively Analyze a Portfolio of CLO's

SCI / Moody's Analytics / ING Investment Management Co.



## Meet Our Experts



**Marc Boatwright**, *Senior Vice President and Portfolio Manager*

Marc Boatwright leads the CLO Business for ING Investment Management Senior Loan Group with 15 CLOs under management.



**Luis Amador**, *Senior Director*

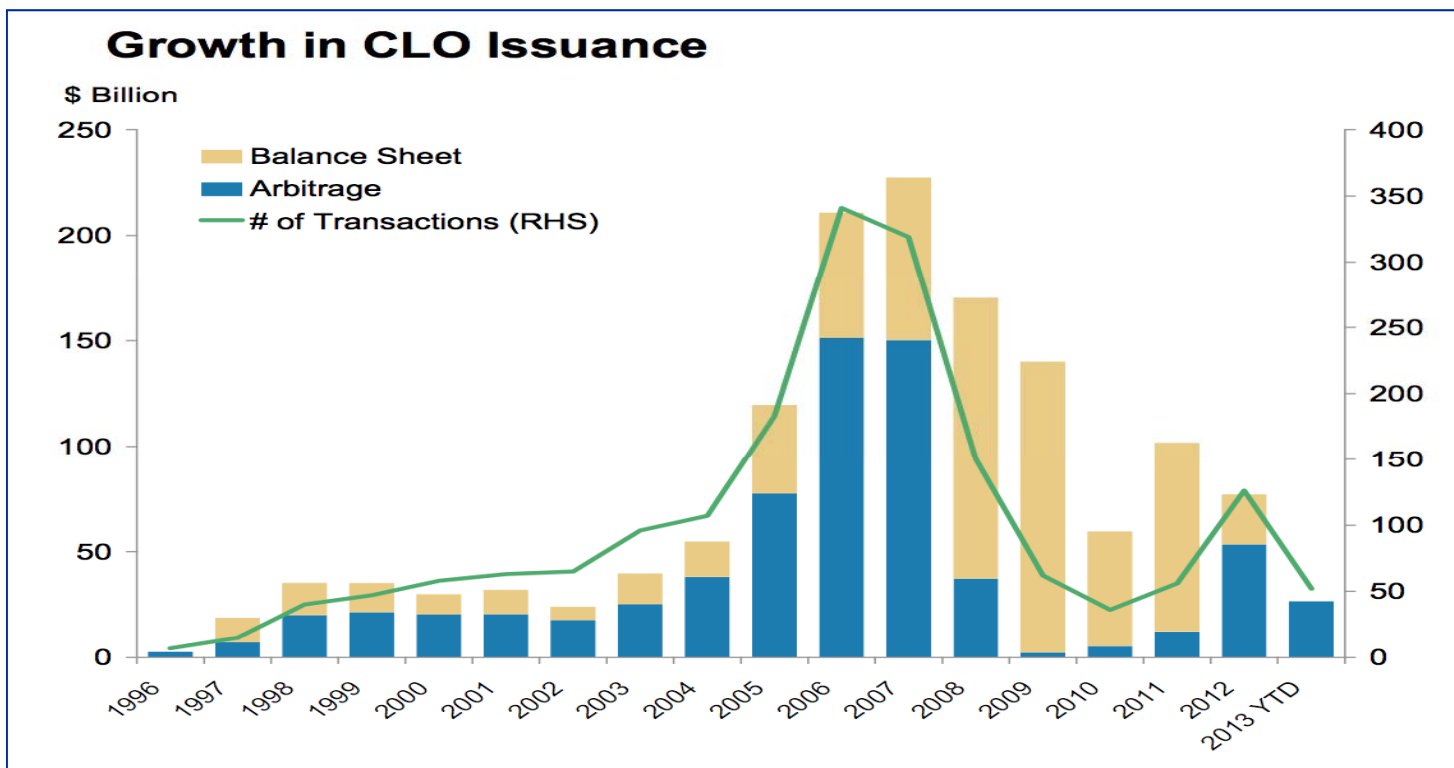
Luis Amador leads the Valuations & Advisory Team, which analyzes structured finance securities and provides analytical tools, data, research, and credit models.

## How to effectively analyze a portfolio of CLO's – A Webinar

- » **Introductions (Corrine)**
- » **Market Update (Panelists)**
  
- » **Structure (Panelists)**
- » **Data (Panelists)**
- » **Advanced Running Assumptions (Panelists)**
- » **Market Value-Based Metrics (Panelists)**
- » **Manager Style (Panelists)**
- » **Advances & Innovations**
  - » **SSFA / Comparables / Benchmarking / Ranking**
  
- » **Questions & Answers**

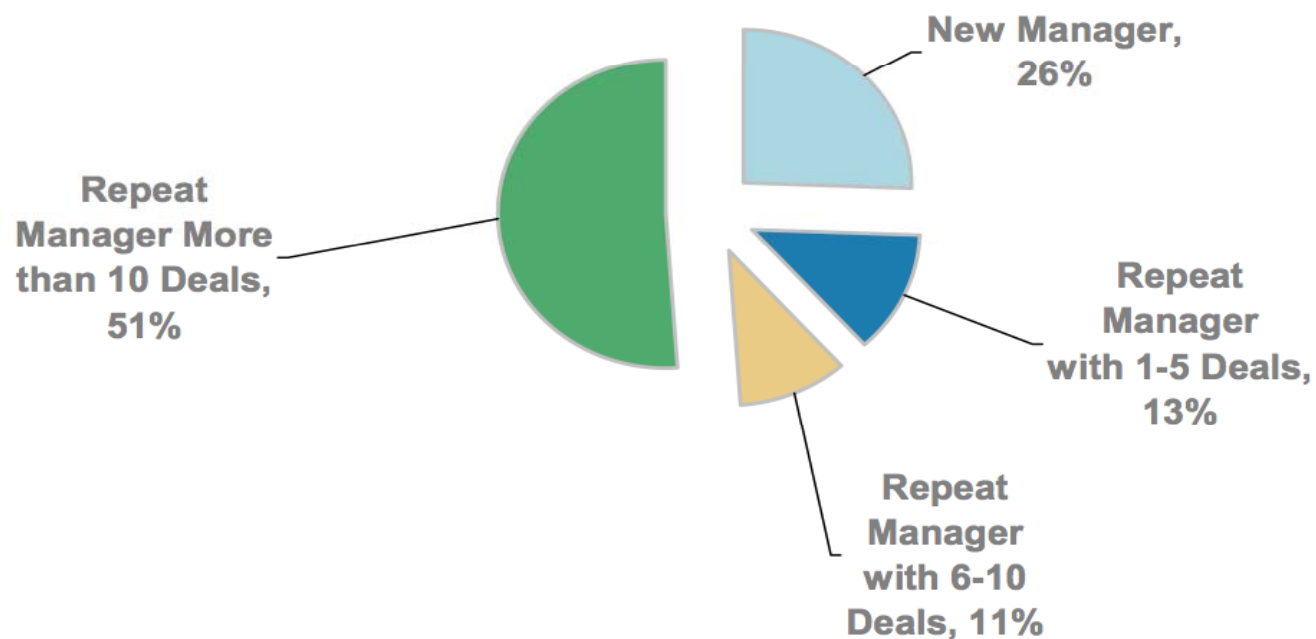
## Market Update

# CLO Issuance Trend



# CLO Managers

## Manager Breakdown for Vintage 2013 CLOs

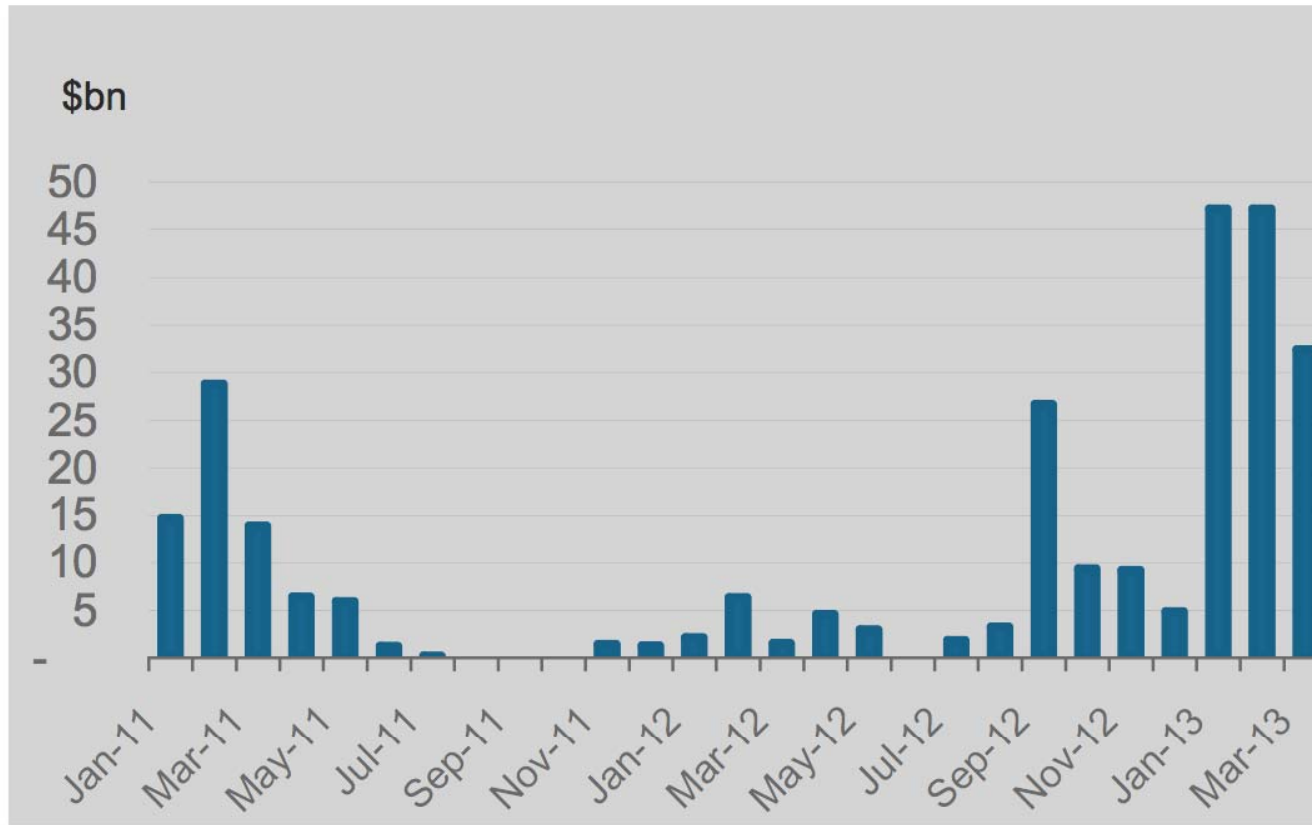


Source: Morgan Stanley, S&P LCD

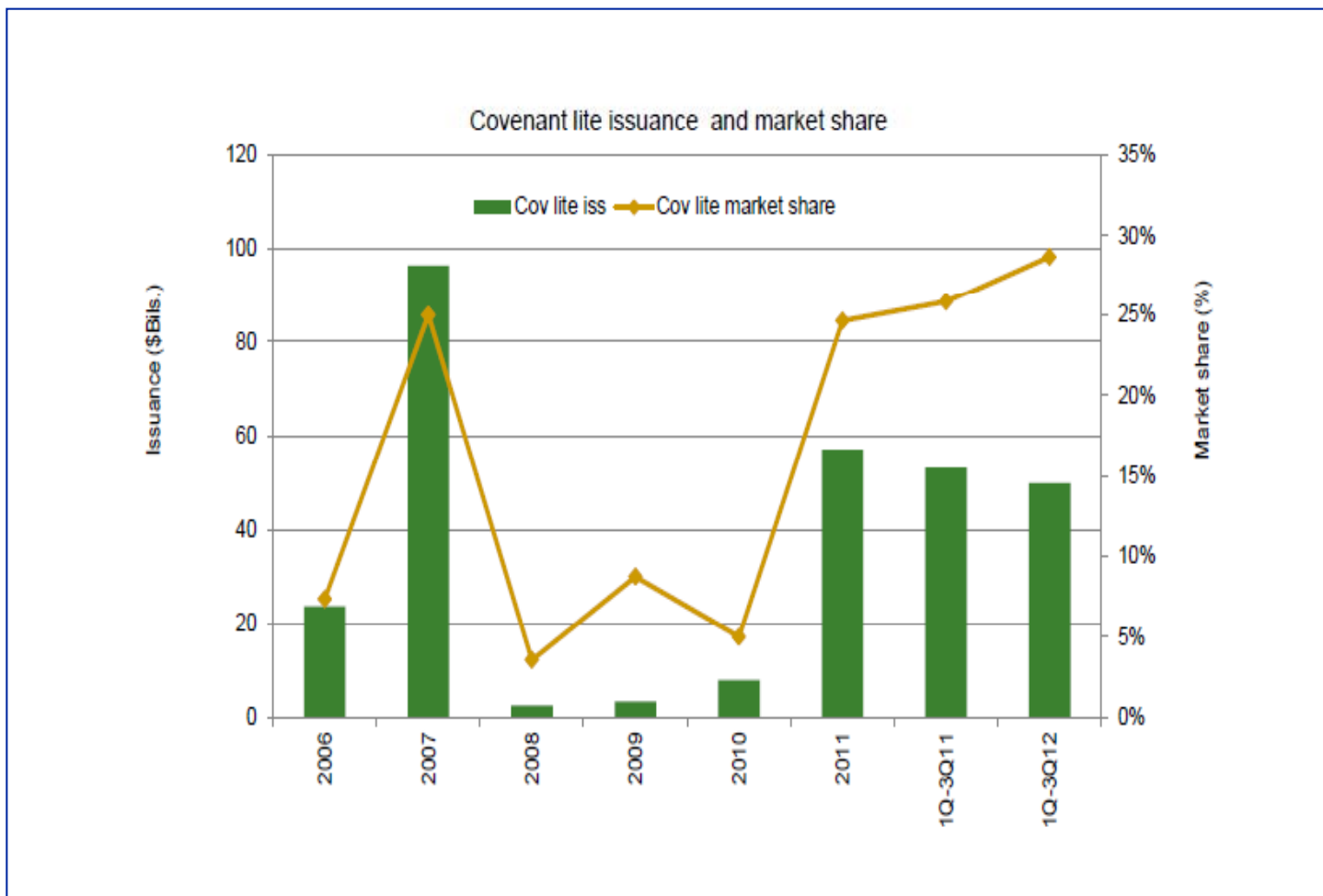
# CLO Repricings



## Leveraged Loan Re-Pricing Volume by Month

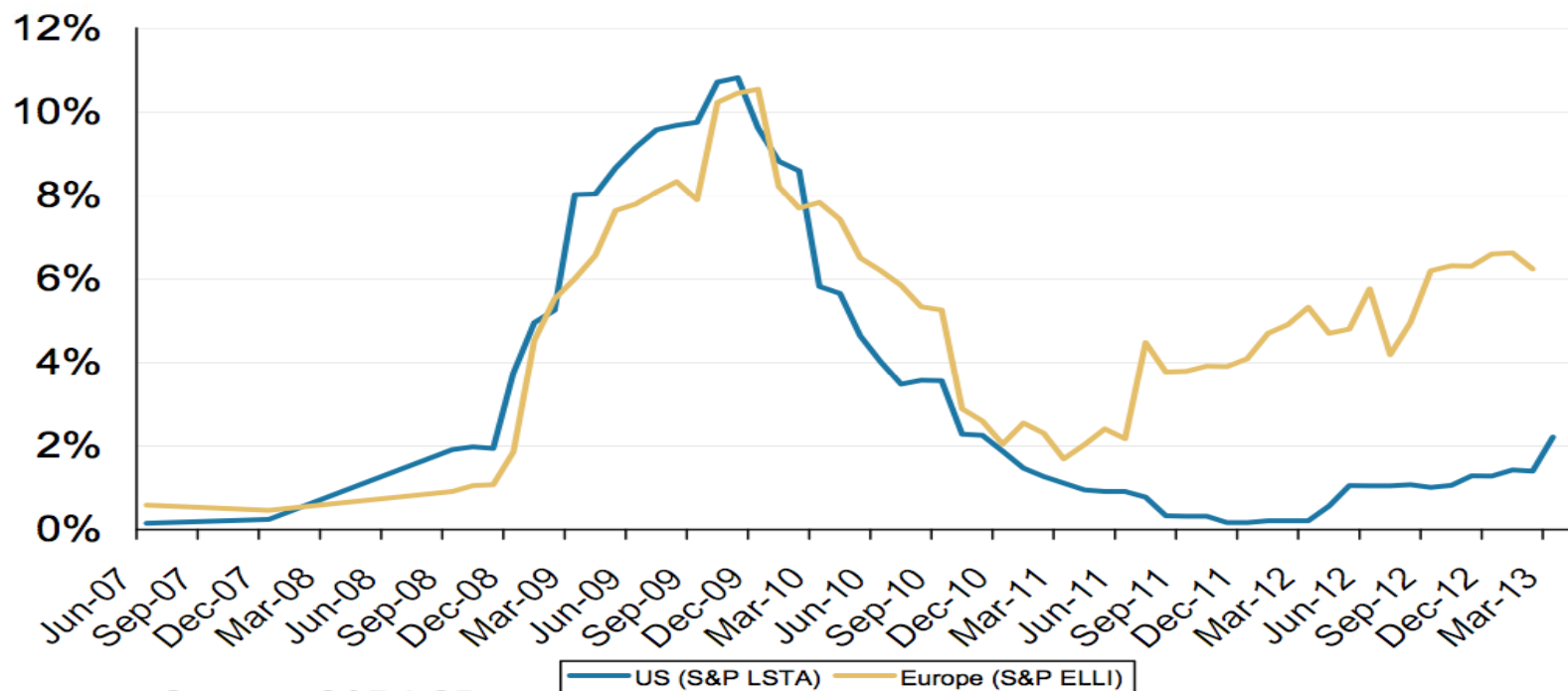


# Covenant Lite Loans





## Euro and US Loan Defaults (by Principal Amount)



Source: S&P LCD

# Polling Question #1



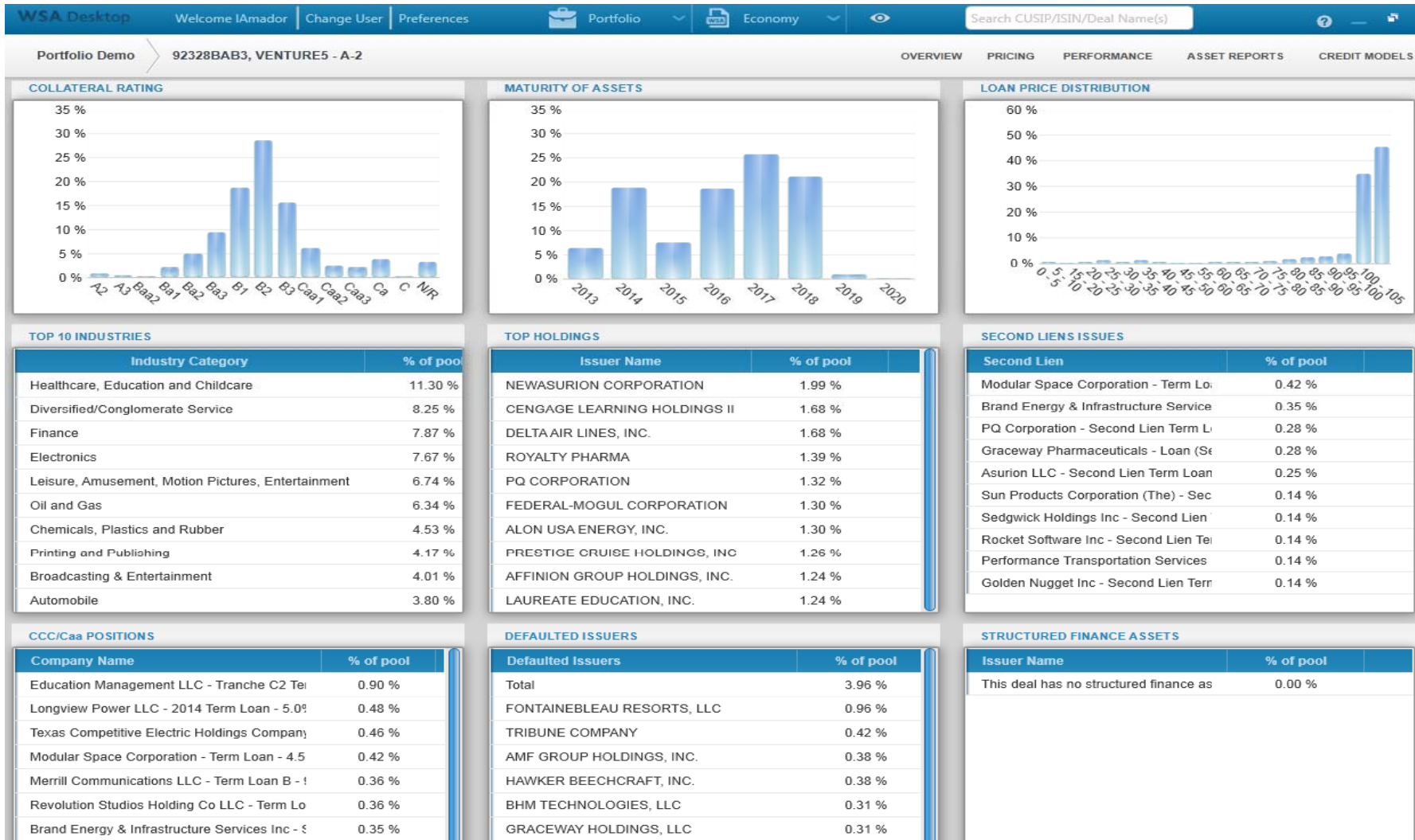
# Structure

# CLO 1.0 vs. CLO 2.0

	CLO 1.0	CLO 2.0
	Vintage 2003-2008	Vintage 2010 -
Credit Support	Lower	Higher
Excess Spread	Higher	Lower
Coupon	Lower	Higher
Reinvest. Period	5-7 years	3-4 years
Non-Call Period	3-5 years	2 years
CLO Bucket	5-10%	0%
Wt. Avg. Cost of Debt	50-70 bps	185-225 bps
Note Cancellation to Improve OC	N/A	No
Tranche Refinancing	N/A	After Non-call period

# Data

# Normalization of the Data



# Transparency

### PORTFOLIO SUMMARY

	Bonds	Balance
All	100%	36
U.S. RMBS	37%	16
U.S. CDO	26%	14
U.S. Auto	23%	3
U.S. Student Loan	10%	1
SPAIN RMBS	4%	0

### PORTFOLIO DETAILS

Coupon Type	Moody's Rating	Bond Type
Float	61%	Aaa(sf) 32%
Fixed	38%	Caa3(sf) 21%
Weighted Avg	1%	Ba2(sf) 12%

### PORTFOLIO HOLDINGS

✓	Ticker	Sector	Bond Type	Balance	USD	Yield	Rating	Maturity	Country
✓	AY2011-1 - A2	Auto	Automobiles - f	020057					
✓	FD2008-C - A4A	Auto	Automobiles - f	34528XAF3					
✓	AA2010-4 - E	Auto	Automobiles - f	03064FAA1					
✓	BRSTL_BY - B	CDO	Synthetic CLO	109738AE4	32	USD 39,427,920.00	2.29690	B1(sf)	4/25/2012 2004 U.S.
✓	SVANTAGE - D	CDO	High Yield CLC	950000000					
✓	MCLAREN - B1L	CDO	High Yield CLC	1370000000					
✓	BRDGPRT2 - C	CDO	High Yield CLC	1370000000					
✓	CAN_FUND - C	CDO	High Yield CLC	1370000000					

### Waterfall script

```

; DEAL VARIABLES
; DEAL INPUTS THAT CHANGE EACH DEAL
DECLARE __CUTOFF-BAL __CUTOFF-BAL1 __CUTOFF-BAL2 __TARGET-OC-PCT ;
LET __CUTOFF-BAL = 1050781456 ; CUTOFF DATE COLLATERAL BALANCE
LET __CUTOFF-BAL1 = 250270264 ; CUTOFF DATE COLLATERAL BALANCE
LET __CUTOFF-BAL2 = 800511192 ; CUTOFF DATE COLLATERAL BALANCE
LET __TARGET-OC-PCT = 0.0575 ; INITIAL TARGET OC PERCENTAGE

; DELINQUENCY TRIGGER THRESHOLD
DECLARE __DELINQ-TRIGGER-PCT ;
LET __DELINQ-TRIGGER-PCT = 0.48 ;
    
```

### Loan-level detail

1,166 items		148,517,446.87						
Assets	Face Value	Orig LTV	Estimated Curr LTV	City	Property State	ZIP	Property MSA	
1	45,476.73	51.36	50.47	OXFORD	WI	53952	NONE	
2	158,803.61	61.42	66.37	TOWN AS HEWITT	WI	54403	Wausau, WI	
3	108,538.19	95.00	73.85	KENOSHA	WI	53143	Chicago-Gary-Kenosha, IL-IN-WI	
4	199,624.96	67.75	57.11	NEW BERLIN	WI	53151	Milwaukee-Racine, WI	
5	34,770.66	63.86	29.75	CITY OF GREEN BA	WI	54304	Green Bay, WI	
6	201,396.11	67.94	72.34	COLUMBUS	WI	53925	NONE	
7	85,204.89	80.00	85.27	SHEBOYGAN	WI	53081	Sheboygan, WI	

# Polling Question #2





## Advanced Running Assumptions

# Inputs to Credit Modeling

WSA Desktop | Welcome IAmador | Change User | Preferences | Portfolio | Economy | Carlyle...

Portfolio IMN | OVERVIEW | PRICING

My Analysis | Save

ECONOMY FILE: ECO1 | DATES: 10/19/2012 | CALCULATE: Price | OPTIONS: Yield for Fixed/DN | PREPAYMENT: 10 | CPR | DEFAULT: 2.5 | CDR | LOSS: 35 | % | LAG: 12









Apply Watchlist

Upload Vectors

PORTFOLIO HOLDINGS | Delete | Copy To | View Last Result | Export

<input checked="" type="checkbox"/>	Ticker	Sector	CUSIP	ISIN	Yield	Discount Margin(bps)
<input checked="" type="checkbox"/>	SYMPH_4 - A	CDO	871556AA4	US871556AA42		110
<input checked="" type="checkbox"/>	ARCHIII - A1	CDO	03955RAA7	US03955RAA77		115
<input checked="" type="checkbox"/>	CARLYLE9 - A1	CDO	14309BAA2	US14309BAA26		108

# Issuer Watchlist(s)

Watchlist <span style="float: right;">X</span>								
Click here to Search		Remove All <span style="font-size: small;">v</span>			Export			
Global Issuer	Percentage of Portfolio	Prepay Rate	Prepay Type	Default Rate	Default Type	Loss Rate	Loss Type	Lag (months)
 24 HOUR FITNESS WORL	0.4378	<input type="text" value="0"/>	CPR <span style="font-size: small;">v</span>	11/15/2012 	DATE <span style="font-size: small;">v</span>	<input type="text" value="40"/>	%	<input type="text" value="12"/>
 ADVANCEPIERRE FOODS	0.2465	<input type="text" value="0"/>	CPR <span style="font-size: small;">v</span>	1/10/2013 	DATE <span style="font-size: small;">v</span>	<input type="text" value="45"/>	%	<input type="text" value="12"/>
 ASHLAND INC.	0.3823	<input type="text" value="3.5"/>	CPR <span style="font-size: small;">v</span>	Enter date 	DATE <span style="font-size: small;">v</span>	<input type="text" value="40"/>	%	<input type="text" value="18"/>
 ATLANTIC BROADBAND F	0.6689	<input type="text" value="0"/>	CPR <span style="font-size: small;">v</span>	12/12/2012 	DATE <span style="font-size: small;">v</span>	<input type="text" value="35"/>	%	<input type="text" value="15"/>

3 out of 4

# Reinvestment / Post Reinvestment

**Reinvestment**

---

**REINVESTMENT ASSUMPTIONS:**

---

**Automatic Reinvestment:**

Auto Reinvestment End: 6M before Maturity Enter date

During Reinvestment Period:  % of  Prepayment  Scheduled  Recoveries  Current Principal Cash

Post Reinvestment Period:  % of  Prepayment  Scheduled  Recoveries

---

**Other Assumptions:**

Select BUY price override: NO Override Price:  Click for Vector

Reinvestment Default Lockout (periods):

---

**REINVESTMENT POOLGROUPS:**

None  
 95FL-7YR  
 95FL-5YR  
 50-50-5YR  
 100FL-7YR

Asset ID	Asset Name	Term	Fixed/Floating	Fixed Coupon	Coupon Margin	Recovery Rate	Bank Loan?
1	FLOATING	84	Floating	0	2.2	45	Yes
2	FIXED	84	Fixed	7.5	0	30	No

# Polling Question #3



## Utilizing Loan Prices in Analyzing CLO's

# Shift in Focus

## BASIC - TRADITIONAL

- » Yield / IRR
- » Average Life
- » Duration
- » First Loss / Breakeven
- » First / Last Payment Month
- » NAV
- » Par Coverage / OC Cushions
- » WARF / WAS / % Long Dated Assets

## ADVANCED

- » DV01 / CS01
- » VaR
- » Monte Carlo Simulation

## BASIC - NEW

- » Market Value OC
- » Market Value Attachment
- » Market Value Detachment
- » Market Value Thickness
- » Collateral NAV

# Polling Question #4





## Manager Style

# Manager Style



TRADE BEHAVIOR	Deal	Manager	CLO Cohorts	CLO Universe
Average loan purchase price (12-mo trailing)	98	97.25	99.25	98.5
Average purchased loan spread (bps) (12-mo trailing)	367	346	410	392
Average loan sell price (12-mo trailing)	92	95	97	96
Average realized trading gain (per trade)	1.20%	1.30%	0.75%	0.72%
Average yearly portfolio turnover	9%	11%	7%	6%
Average yearly post-reinvestment reinvestment	2%	2.50%	1.50%	1.70%
UNDERLYING MARKET PRICING (% of Pool)	Deal	Manager	CLO Cohorts	CLO Universe
Loan Price > 100	1.20%	1.30%	0.75%	0.77%
Loan Price 100-95	89.20%	87.20%	91.20%	91.40%
Loan Price 95-90	4.60%	6.20%	3.10%	3.05%
Loan Price 90-85	2.10%	2.50%	2.53%	2.45%
Loan Price 85-80	1.65%	1.45%	1.20%	1.10%
Loan Price 80-75	0.75%	0.55%	0.55%	0.55%
Loan Price <75	0.25%	0.45%	0.35%	0.37%
Loans Unpriced	0.25%	0.35%	0.32%	0.31%
LOSS MITIGATION	Deal	Manager	CLO Cohorts	CLO Universe
Annualized default rate	3.50%	3.10%	2.10%	1.90%
Annualized loss rate	0.90%	0.75%	0.40%	0.35%
Average time to recovery (days)	85	90	102	105
Average Junior OC cushion	3.20%	2.10%	3.50%	3.75%
Junior OC Cushion Standard Deviation	0.25%	0.27%	0.35%	0.37%
DEBT VS. EQUITY	Deal	Manager	CLO Cohorts	CLO Universe
Senior Management Fee	0.10%	0.11%	0.12%	0.09%
Subordinate Management Fee	0.50%	0.45%	0.30%	0.35%
Incentive Management Fee	10 / 30%	10 / 30%	12 / 20%	12 / 20%
Annualized Equity Return	14%	13%	18%	17%
Equity Return Standard Deviation	3%	2.70%	4.50%	6%
% of Underlying Amend-to-Extend	7%	6.00%	4.00%	5%

# Manager Style



TRANCHE CASHFLOW DISRUPTION		Disruption?	# of Months	# of Separate Times
Junior Tranches		No	N/A	N/A
Equity Tranche		Yes	14	2

MARKET SENTIMENT TRAILING 6 MONTHS (bps)					
Tranche Original Rating	Their Tranche Avg Market Color	CLO Cohort		Market Avg Market Color	Average Premium
		Avg Market Color	Average Premium		
Aaa	150	130	-20	130	-20
Aa	230	210	-20	210	-20
A	400	350	-50	350	-50
Baa	550	500	-50	500	-50
Ba	750	700	-50	700	-50

**DEAL A: INDUSTRIES**

INDUSTRIES	Deal	Manager	CLO Cohorts	CLO Universe
Automobile	8.1%	8.5%	9.7%	10.1%
Finance	4.5%	4.2%	6.2%	6.7%
Insurance	11.1%	11.6%	6.5%	6.2%
Healthcare	3.2%	3.4%	4.1%	3.7%
Electronics	6.2%	5.9%	4.5%	5.2%
(etc)				

**MOODY'S**  
ANALYTICS

# Innovations



## SSFA (Simplified Supervisory Formula Approach)

- » With Dodd-Frank mandating the removal of NRSRO credit ratings from regulations, the SSFA specifies a new method of calculating regulatory capital for banks
- » The formula requires loan-by-loan data as well as tranche data

$$K_{ssfa} = \frac{(e^{a*u} - e^{a*l})}{a * (u - l)}$$

where:

$$l = A - K_A$$

$$u = D - K_A$$

$$a = \frac{-1}{p * K_A}$$

$$K_A = (1 - W) * K_g + \frac{W}{2}$$

# Valuations Portal

MOODY'S ANALYTICS | Bond Comparables

I want to...

sci

TOP 10 COMPARABLES | MARKET COLOR | MARKET VALUE OC | SSFA | BENCHMARKING

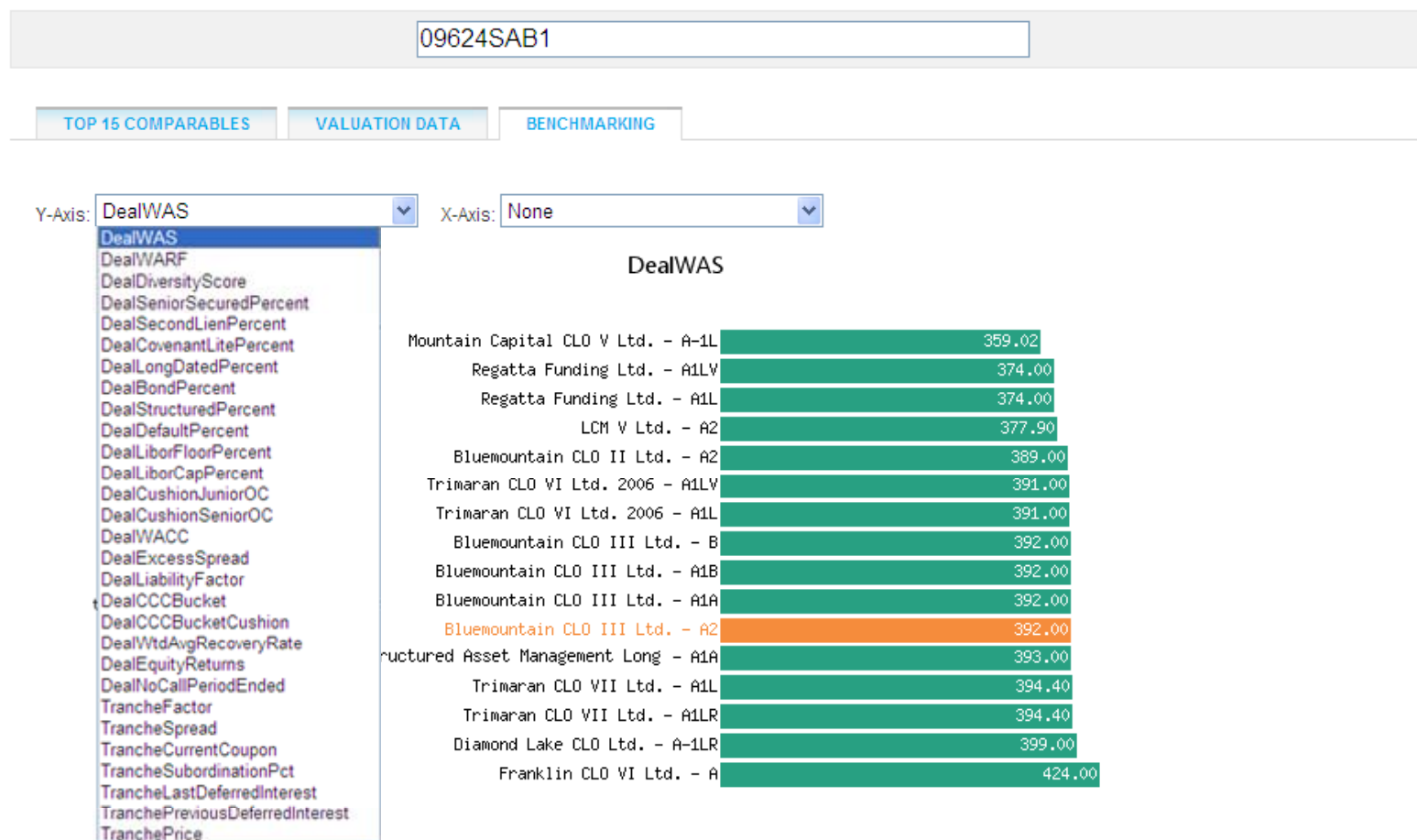
861761AE4	Stone Tower CLO IV Ltd.	C1	99.91	87.94	92.50	16 Jan 13							
<table border="1"> <tr> <td>US CLO</td> <td>2006</td> <td>Baa2 / Ba1 (sf)</td> <td>USD 29M / USD 29M (100.00%)</td> <td colspan="3">LIBOR 3MO + 1.8700</td> </tr> </table>							US CLO	2006	Baa2 / Ba1 (sf)	USD 29M / USD 29M (100.00%)	LIBOR 3MO + 1.8700		
US CLO	2006	Baa2 / Ba1 (sf)	USD 29M / USD 29M (100.00%)	LIBOR 3MO + 1.8700									
Identifier	Deal Name	Class	EFV*	EMV**	SCI MARKET COLOUR								
1 861761AF1	Stone Tower CLO IV Ltd.	C2	100.13	106.02									
2 33842AEJ1	Flagship CLO IV	C	99.94	87.72	76.33	26 Jun 12							
3 896223AJ3	Trimaran CLO V Ltd.	D	100.00	87.48	87.93	06 Dec 12							
4 022285AG8	Ares XX CLO Ltd.[...]e CLO 2005 Ltd.)	C	99.97	88.31									
5 36318JAE9	Galaxy V CLO Ltd.	D1	99.95	90.07	88.89	11 Dec 12							
6 009368AD3	Airlie CLO 2006-1 Ltd.	C	100.00	89.35	85.47	06 Dec 12							
7 363184AF9	Galaxy VII CLO Ltd.	D	100.00	86.51									
8 245100AD4	Del Mar CLO I Ltd.	D	99.97	86.03									
9 67571MAE9	Octagon Investment Partners V Ltd.	C1	100.00	87.05									
10 624442AG4	Mountain View Fu[...] CLO 2006-1 Ltd.	D	100.00	86.49	91.65	16 Jan 13							

### SCI MARKET COLOUR HISTORY

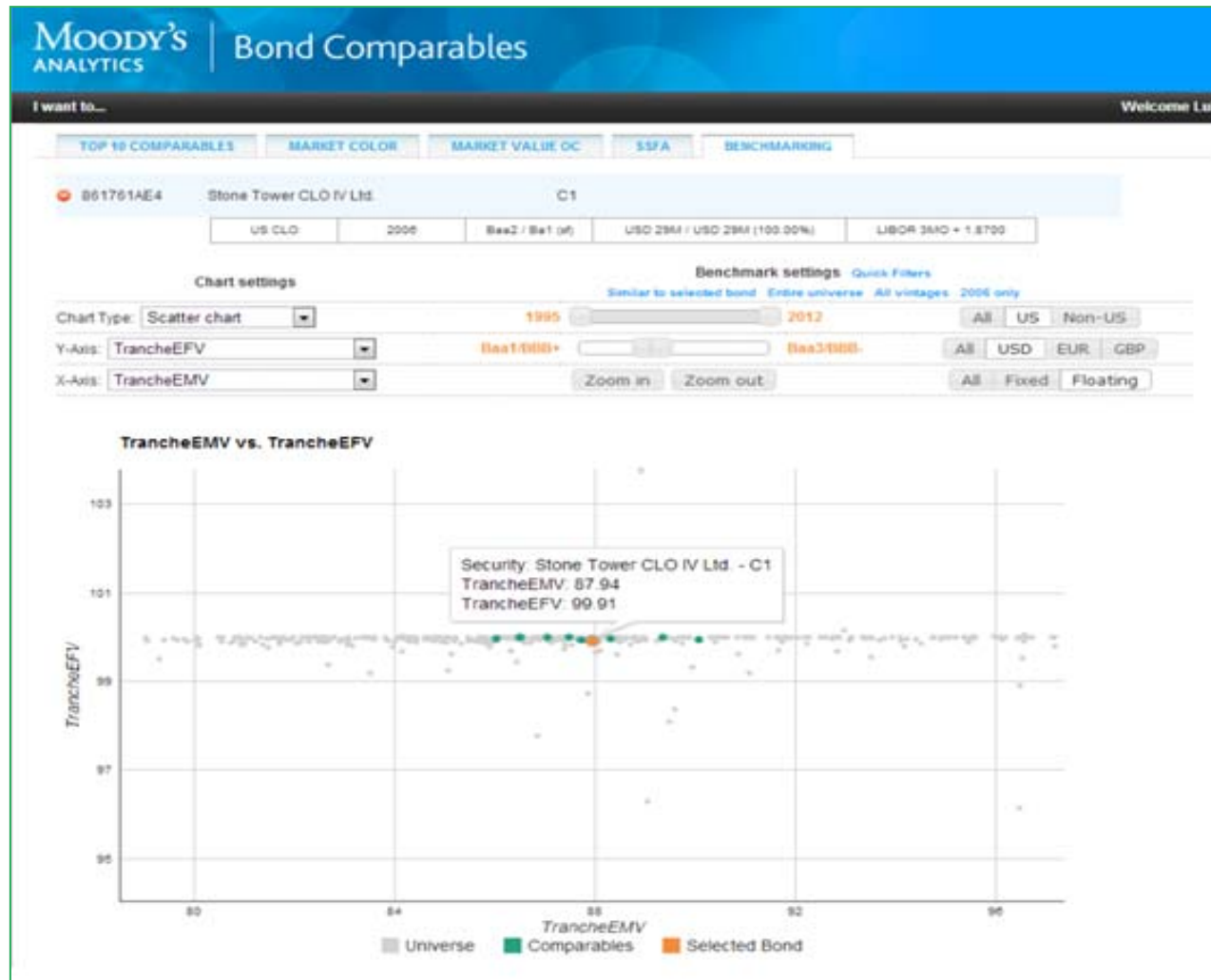
Trade Date	Settle Date	Record Type	Price32	Price	Spread	Color
06 Dec 12	11 Dec 12	pxtalk	H80s	88		
06 Dec 12	11 Dec 12	pxtalk	u80s	88		
06 Dec 12	11 Dec 12	pxtalk	h80s	88		
06 Dec 12	11 Dec 12	bwic	88h	88.25		cover
06 Dec 12			88h	88		CVR
06 Dec 12			H80s	88		TALK

# Benchmarking Table

Users can pick from hundreds of data points to rank the comparing tranche to its “peer”



# Comparability





# Sources and Acknowledgments

- » **SCI**
- » **Moody's**
- » **S&P**
- » **Morgan Stanley Research**
- » **Wells Fargo Research**
- » **JP Morgan Research**
- » **Questions & Answers**

© 2010 Moody's Analytics, Inc. and/or its licensors and affiliates (collectively, "MOODY'S"). All rights reserved. ALL INFORMATION CONTAINED HEREIN IS PROTECTED BY LAW, INCLUDING BUT NOT LIMITED TO, COPYRIGHT LAW, AND NONE OF SUCH INFORMATION MAY BE COPIED OR OTHERWISE REPRODUCED, REPACKAGED, FURTHER TRANSMITTED, TRANSFERRED, DISSEMINATED, REDISTRIBUTED OR RESOLD, OR STORED FOR SUBSEQUENT USE FOR ANY SUCH PURPOSE, IN WHOLE OR IN PART, IN ANY FORM OR MANNER OR BY ANY MEANS WHATSOEVER, BY ANY PERSON WITHOUT MOODY'S PRIOR WRITTEN CONSENT. All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. Under no circumstances shall MOODY'S have any liability to any person or entity for (a) any loss or damage in whole or in part caused by, resulting from, or relating to, any error (negligent or otherwise) or other circumstance or contingency within or outside the control of MOODY'S or any of its directors, officers, employees or agents in connection with the procurement, collection, compilation, analysis, interpretation, communication, publication or delivery of any such information, or (b) any direct, indirect, special, consequential, compensatory or incidental damages whatsoever (including without limitation, lost profits), even if MOODY'S is advised in advance of the possibility of such damages, resulting from the use of or inability to use, any such information. The ratings, financial reporting analysis, projections, and other observations, if any, constituting part of the information contained herein are, and must be construed solely as, statements of opinion and not statements of fact or recommendations to purchase, sell or hold any securities. NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY SUCH RATING OR OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER. Each rating or other opinion must be weighed solely as one factor in any investment decision made by or on behalf of any user of the information contained herein, and each such user must accordingly make its own study and evaluation of each security and of each issuer and guarantor of, and each provider of credit support for, each security that it may consider purchasing, holding, or selling.