

NORTH CAROLINA
DEPARTMENT OF STATE TREASURER



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INVESTMENT MANAGEMENT DIVISION

Opportunistic Fixed Income Review

February 15, 2018

All Data as of December 31, 2017 Unless Otherwise Stated



Role in the Portfolio

Attractive Absolute Returns

- Long-term returns that are competitive with long-term public equities, after consideration of lower downside risk, due to opportunistic investments, longer duration private investments, restructurings, leverage, hedging, and trading skill

Competitive Relative Returns

- Achieve or exceed the return on the performance benchmark over a long period of time, within reasonable risk parameters

Diversification

- Enhance the diversification of the Fund relative to public equity and investment grade fixed income

Capital Preservation

- Protect capital through credit-oriented investments and trading strategies that are designed to minimize downside risk

Deflation Protection

- The structure of certain fixed income assets may provide protection against the detrimental effects of deflation

Portfolio Launched June 2009

- The asset class (N.C.G.S. § 147-69.2(b)(6c)) was approved for investment by the NC General Assembly in June 2009.



Portfolio Components

Components

Traditional Corporate Credit

Distressed Credit

Hedge Funds

Special Situations

Strategies / Types of Investments

High Yield Bonds

Bank Loans

High Yield Bonds

Post-Reorg Equity

Structured Credit

Long/Short Credit

Relative Value

Convertible Arbitrage

Distressed Credit

Derivatives

Event-Driven

Structured Credit

Mezzanine Debt

Whole Loans

Direct Lending

Real Estate Loans

Dislocation



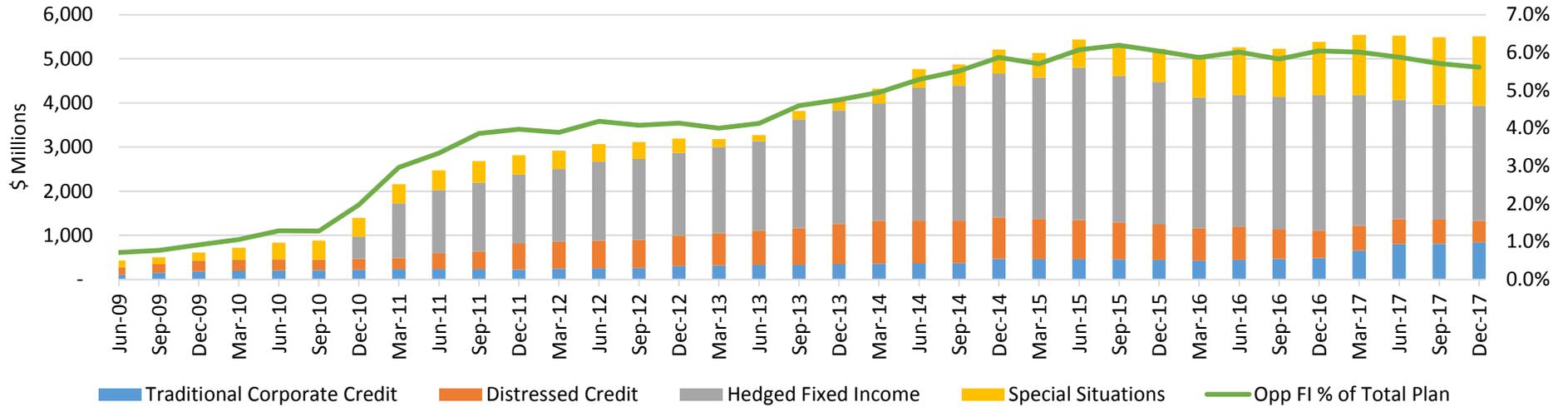
Portfolio Components

Portfolio Component*	Target*	12/31/17	+/-	Maximum*
Traditional Corporate Credit	15%	15%	0%	50%
Distressed Credit	25%	9%	-16%	50%
Hedged Fixed Income	45%	47%	2%	75%
Special Situations	15%	29%	14%	75%

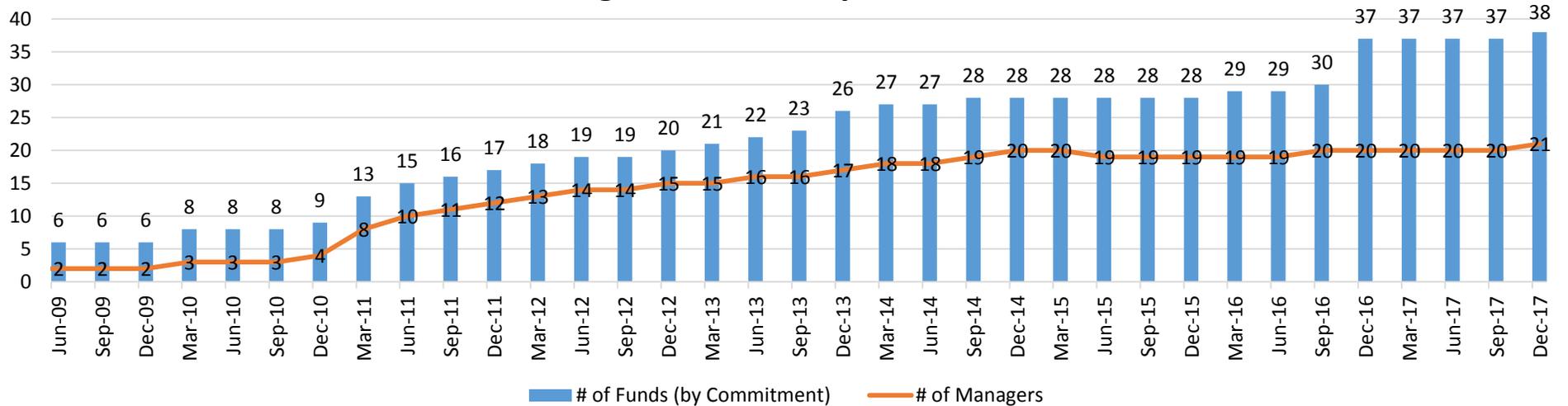
* Portfolio Components, Targets, and Maximums come from the Investment Policy Statement for North Carolina Retirement Systems, July 1, 2014

Portfolio History

Portfolio Market Value Timeline by Component



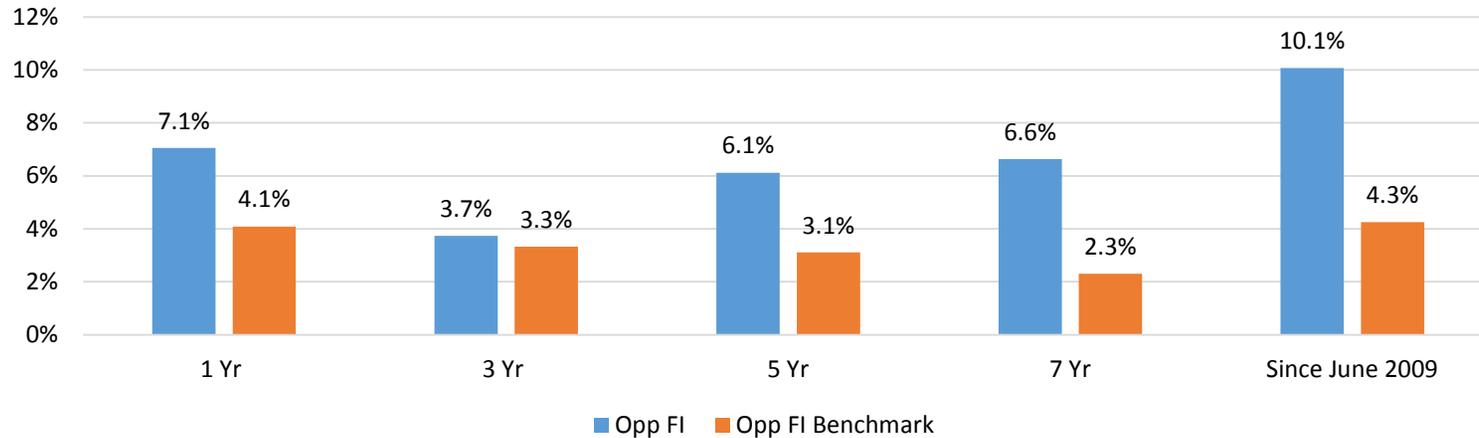
Growth of Manager Relationships and Number of Funds



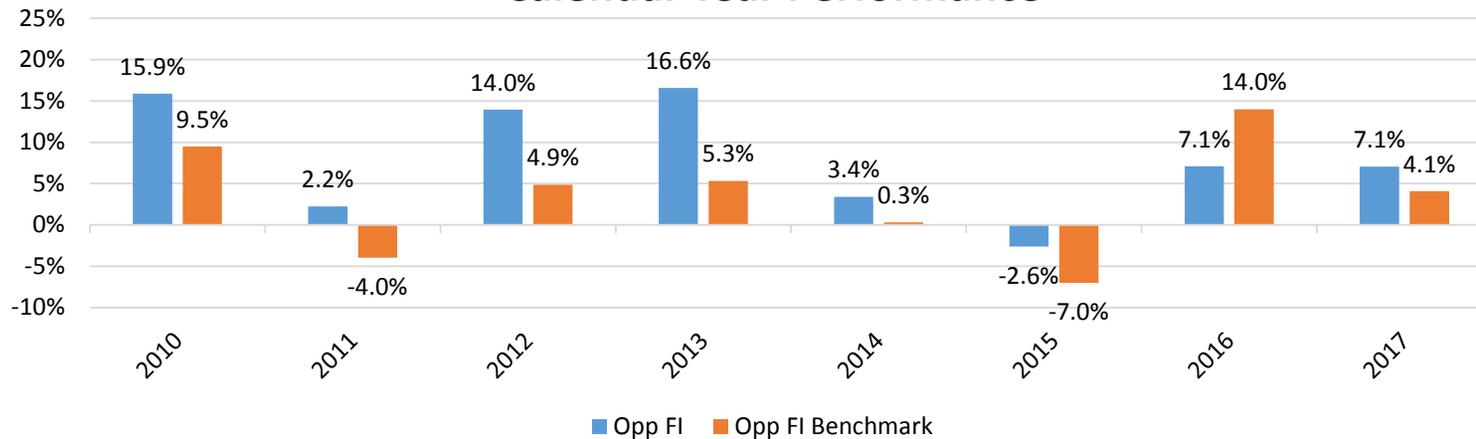
Note: Fund count excludes liquidated investments.

Portfolio Performance

Annualized Performance

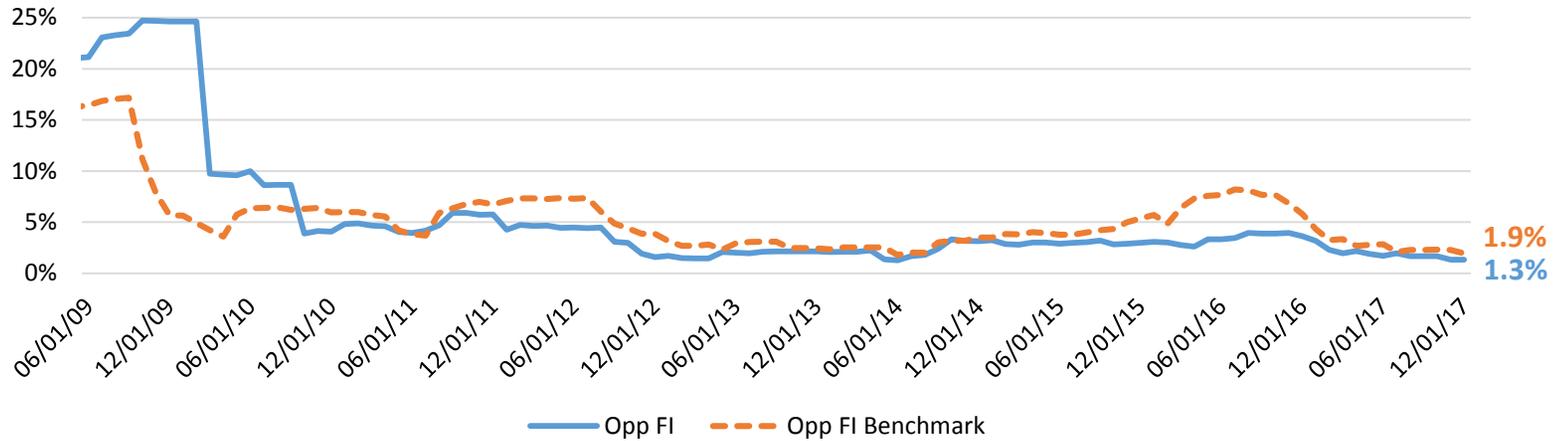


Calendar Year Performance



Portfolio Performance

Rolling 1-Year Volatility



Historical 5-Year Correlation

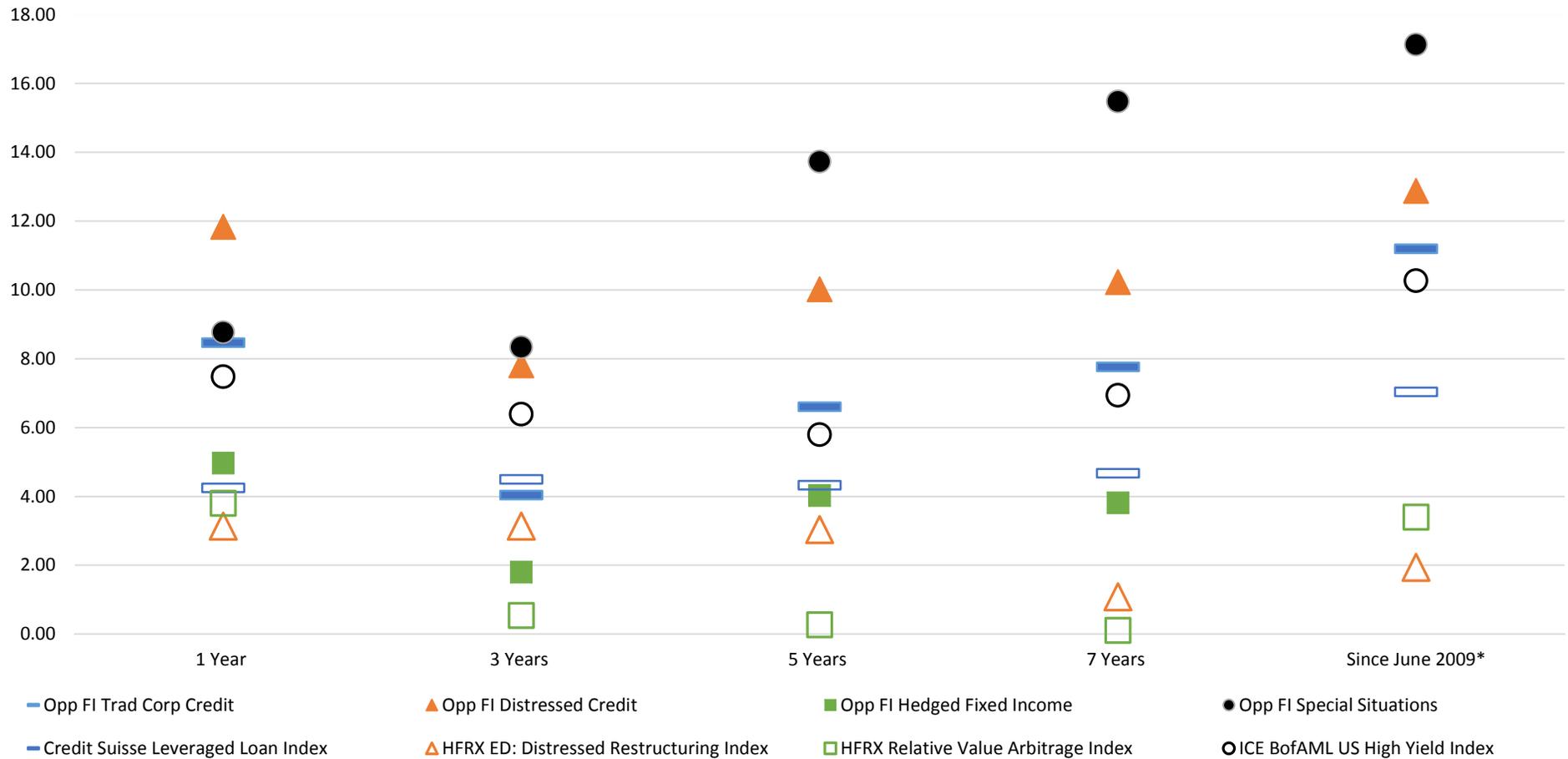
Quarterly data as of 12/31/2017

	NCRS	Pub Eq	Priv Eq	NC RE	Opp FI	IG FI	Infl Sen	Core RE	M Strat
NCRS	1.00								
Pub Eq	0.95	1.00							
Priv Eq	0.12	0.02	1.00						
NC RE	(0.21)	(0.30)	0.39	1.00					
Opp FI	0.49	0.58	0.28	0.02	1.00				
IG FI	0.26	(0.02)	0.06	0.09	(0.34)	1.00			
Infl Sen	0.56	0.48	0.20	(0.04)	0.59	0.05	1.00		
Core RE	0.12	0.10	0.16	0.14	0.10	0.08	(0.21)	1.00	
M Strat	0.89	0.97	(0.03)	(0.33)	0.59	(0.15)	0.42	0.08	1.00

Note: See slide 19 for details on the composition of the Opportunistic Fixed Income Benchmark.

Portfolio Performance

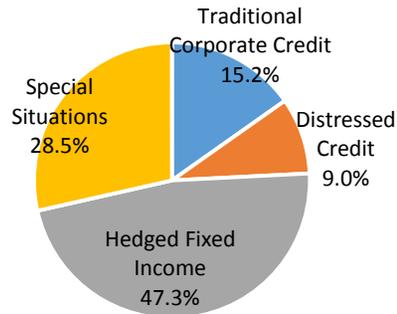
Portfolio Component Annualized Performance vs. Market Benchmarks



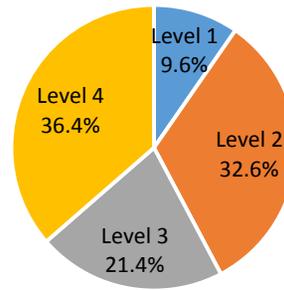
Note: See slide 19 for details on the composition of the Opportunistic Fixed Income Benchmark.

Portfolio Characteristics

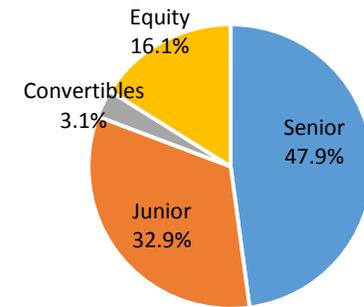
Allocation by Strategy



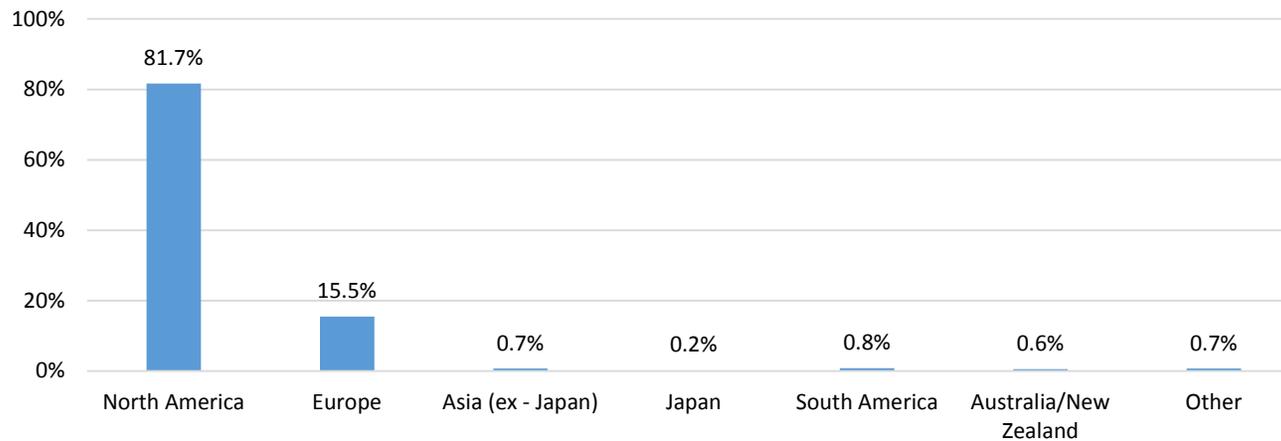
Liquidity by Level*



Capital Structure



Allocation by Geography

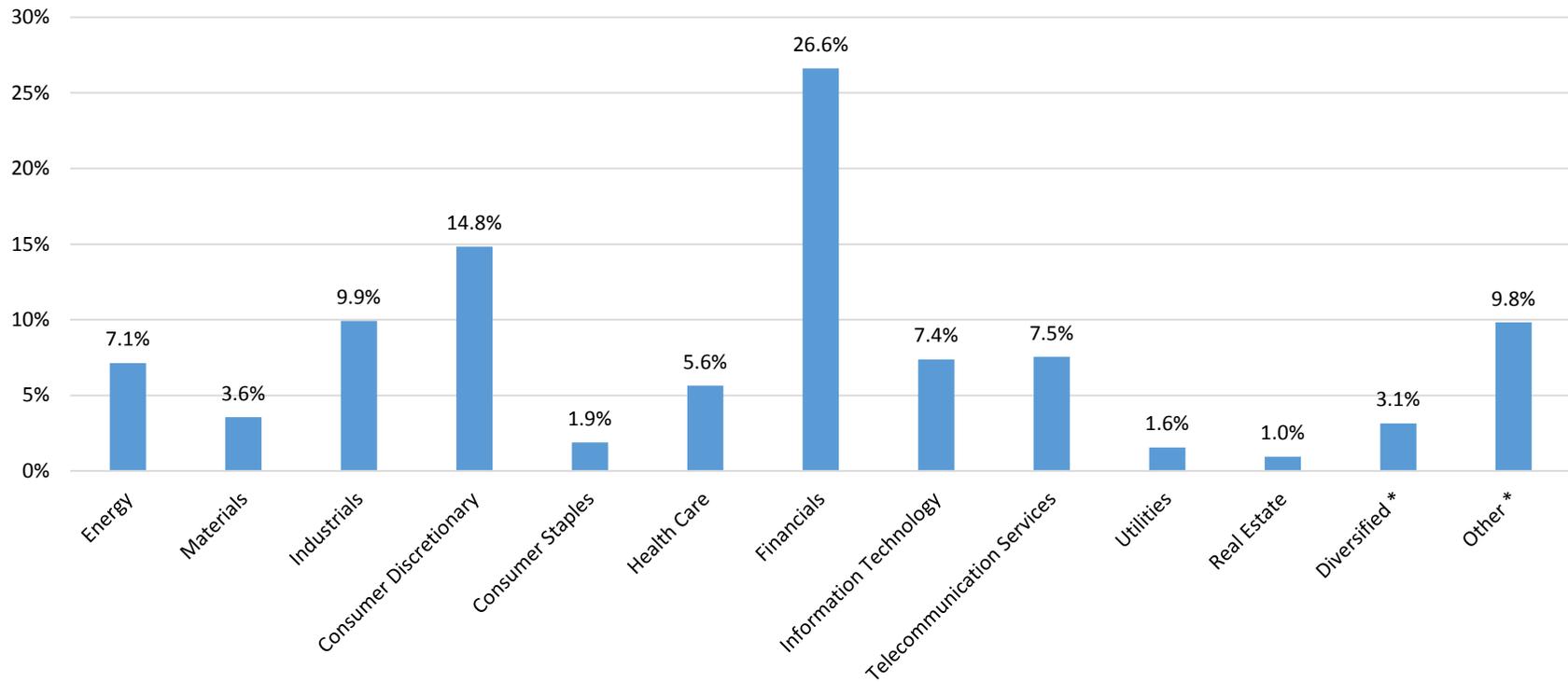


Note: Information is based on market value

*Level 1 Liquidity = T+3; Level 2 = T+3 to 12 Months; Level 3 = 12 to 24 Months; Level 4 = Greater than 24 Months

Portfolio Characteristics

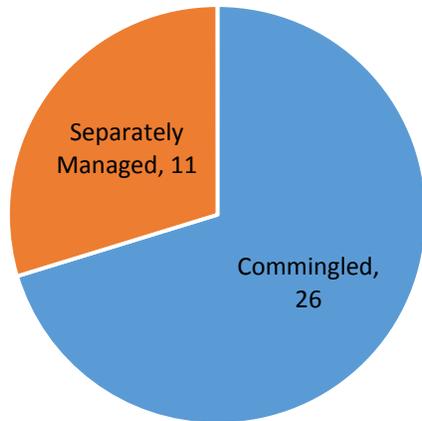
Allocation by GICS Sector



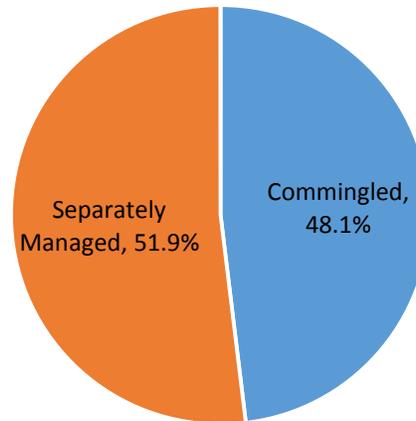
*Holdings that cannot be classified into any one particular sector, as self-reported by the investment manager

Portfolio Characteristics

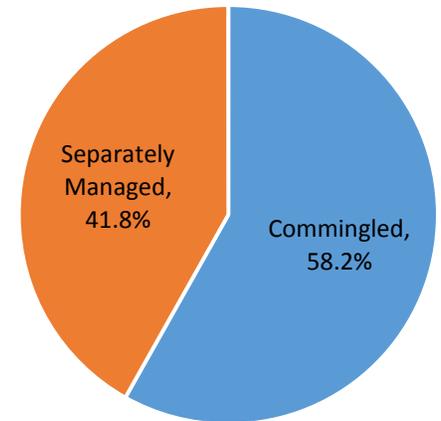
Account Type by Count



Account Type by Market Value



Account Type by Commitment





Accomplishments since our last IAC update

1. Focused our efforts on high conviction fund managers
2. Reduced exposure to hedge fund of funds
3. Increased exposure to traditional corporate credit
4. Opportunistically took advantage of the spread widening that took place in early 2016
5. Continue to negotiate favorable economic terms on new and existing fund relationships
6. Transitioned one credit manager to the Managed Account Platform

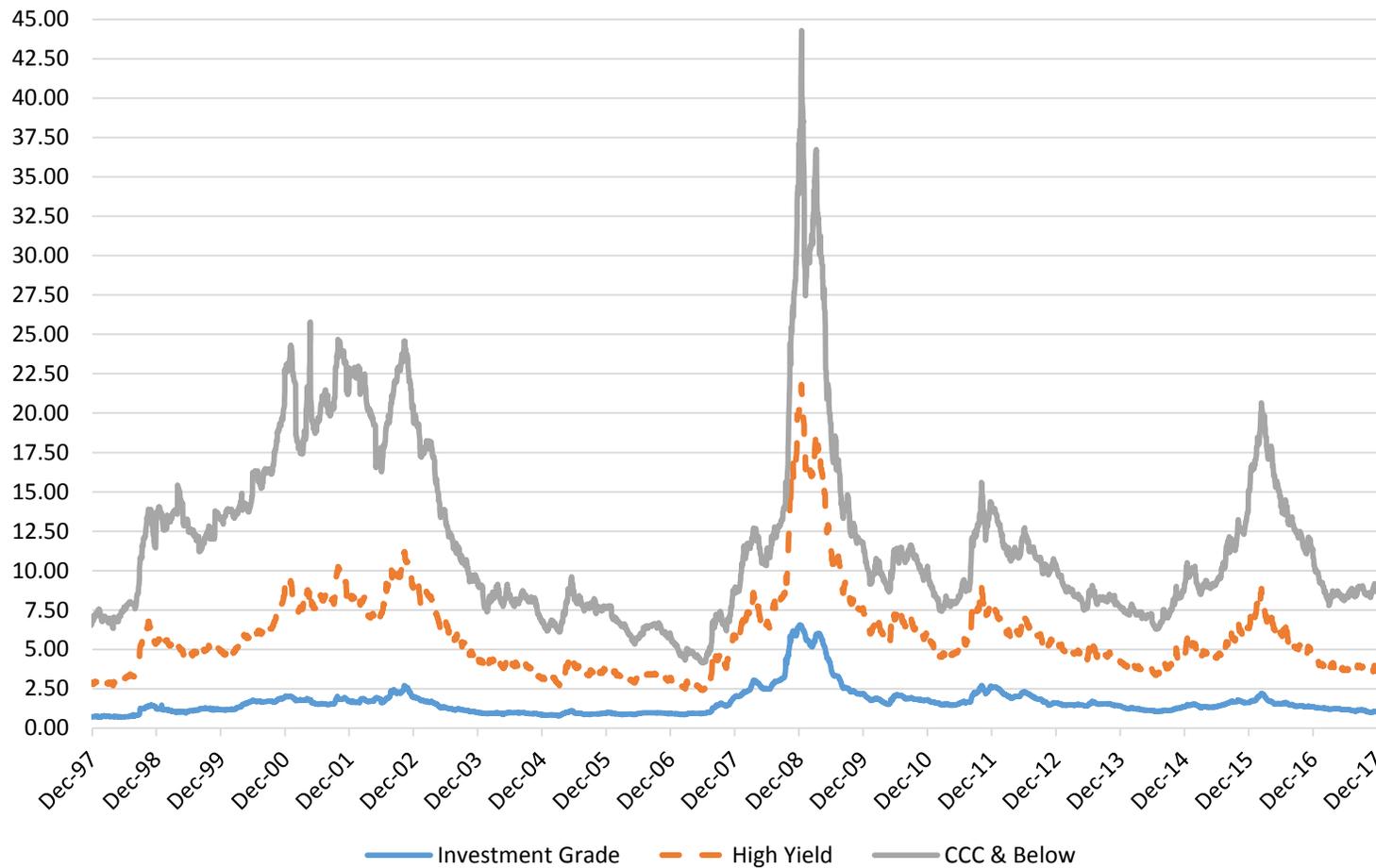


Since we last spoke to the IAC

Generally speaking, the market has experienced the following:

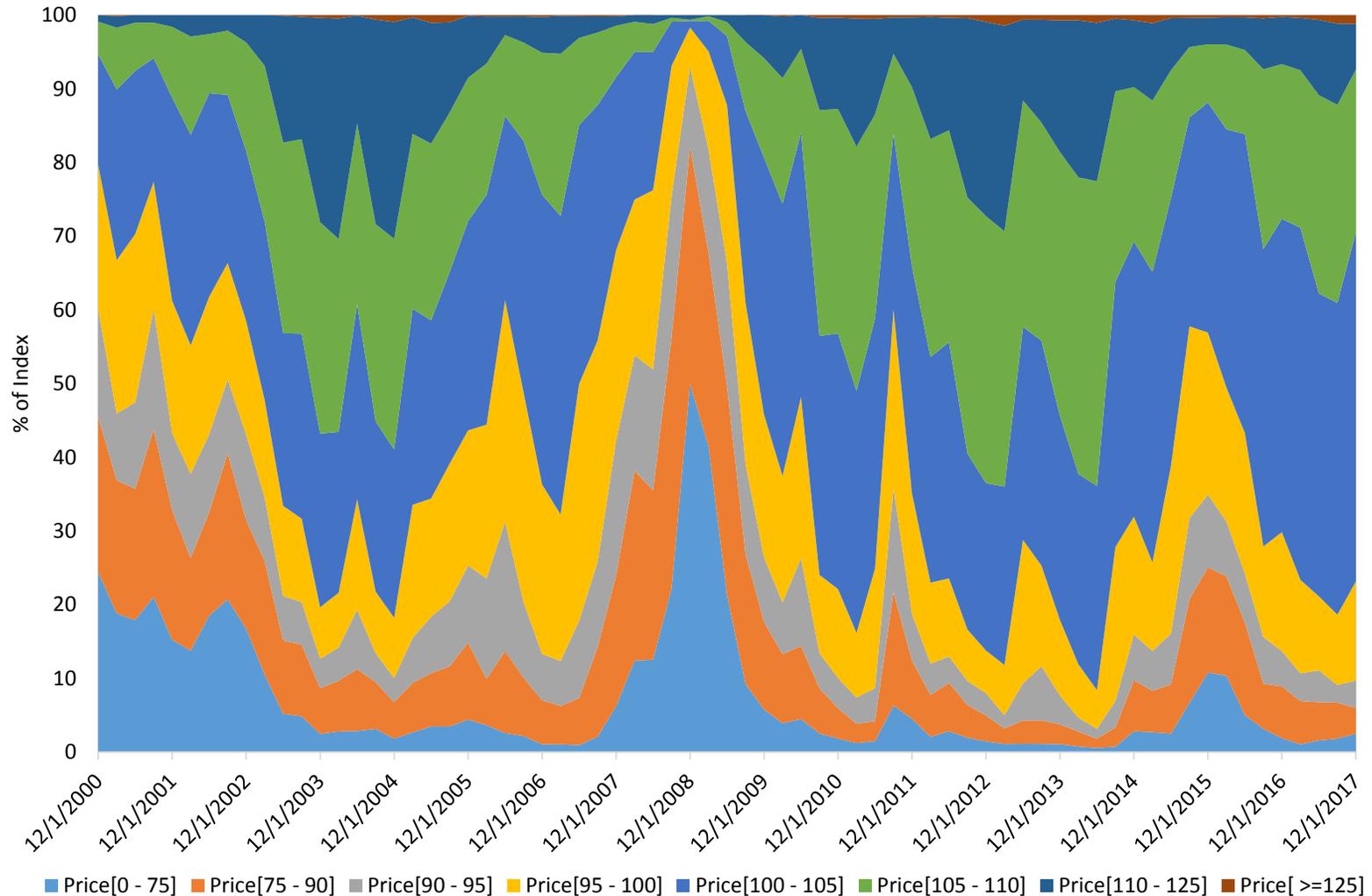
- Credit spreads have continued to rally across many sectors and asset classes (i.e., distressed, high yield, leveraged loans)
 - Decrease in volatility
 - Access to corporate credit as measured by new issue volumes
 - Default rates remained low
 - Recovery rates increased
- Period of strong investment returns
- Net inflows into credit-oriented mutual fund products

Corporate Credit Spreads



High Yield Index Price Distribution

% of High Yield Index at Specified Trading Range or Below





What does this mean for the investment pipeline?

1. Continue to be disciplined about deploying capital
2. Not overly excited about valuations
3. Do not see a near term catalyst that would create a major dislocation in credit
4. Create investment capacity and prepare for the next large scale investment opportunity
5. Continue monitoring managers for strategy drift



Forward Looking Opportunity Set

More Attractive

- On a select basis
 - Energy – Private Debt
 - Middle Market Lending
 - Senior Secured Debt
 - Real Estate Debt

Less Attractive

- US High Yield
- CLOs

- Sectors
 - Traditional Retail

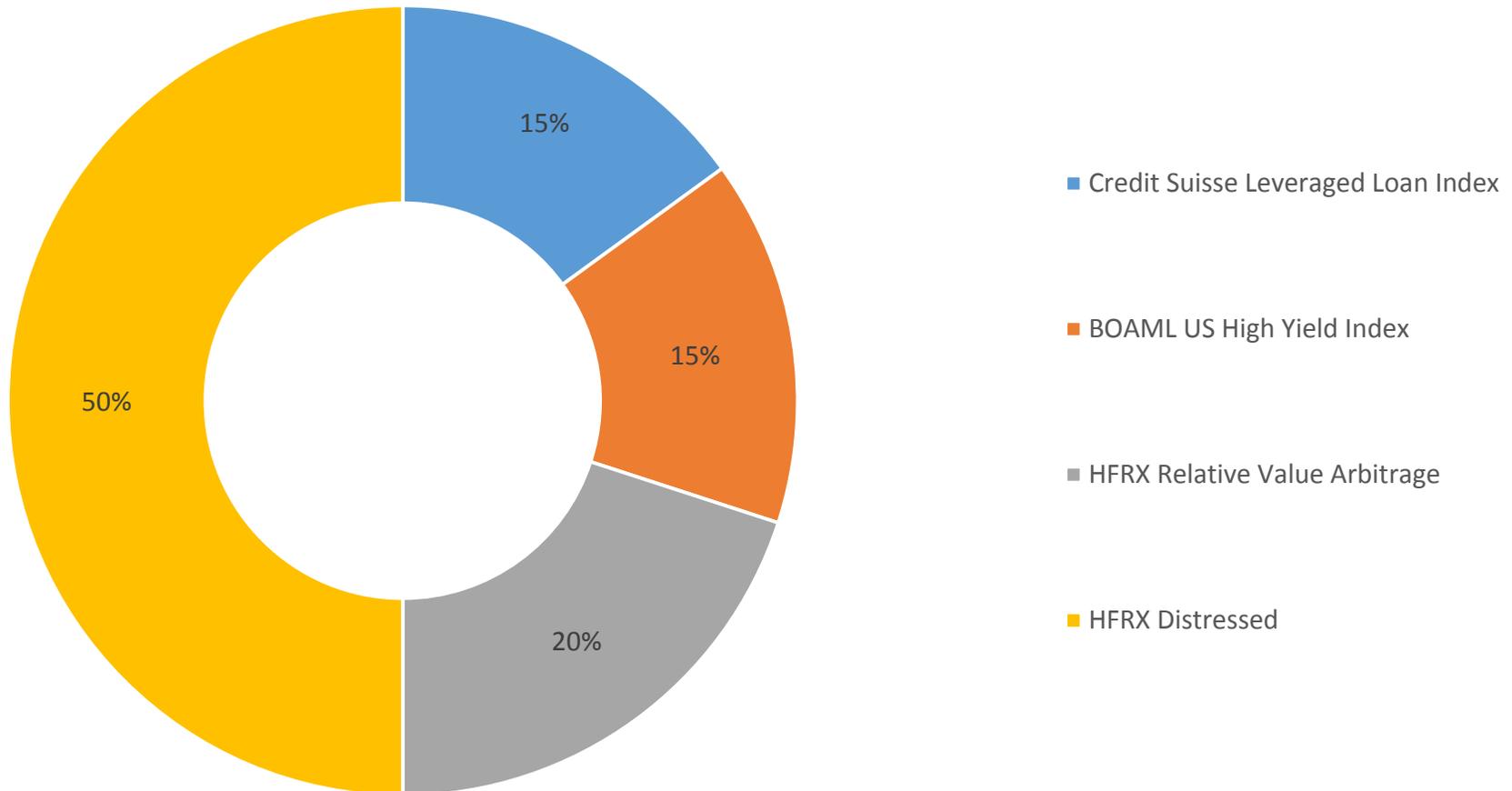


Strategic Considerations

1. Where are we in the credit cycle?
 - What is our risk tolerance in the current environment?
 - Should we maintain current underweight or close gap to target weight?

2. What is the optimal structure for the portfolio?
 - Preference for SMAs vs. commingled structures
 - Preference for open-end funds vs. closed end funds
 - Large diversified platforms vs. smaller specialists
 - Reduce or increase the number of managers

Portfolio Benchmark

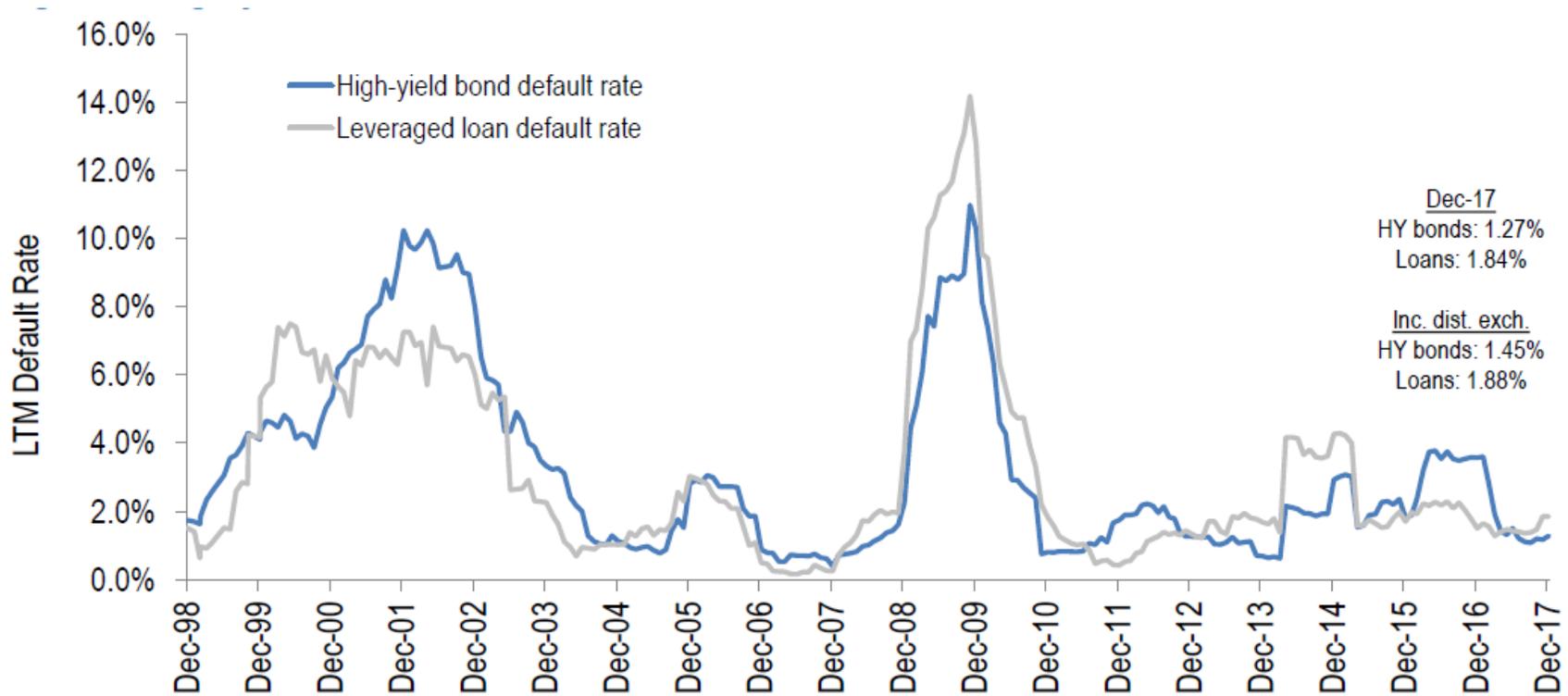




Appendix



High Yield Bond and Loan Default Rates

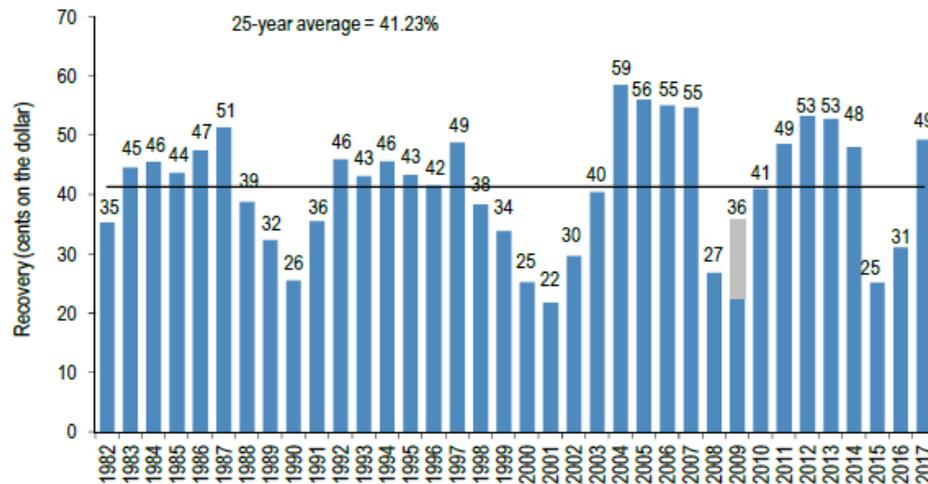


Source: J.P. Morgan.



High Yield Bond and Loan Recovery Rates

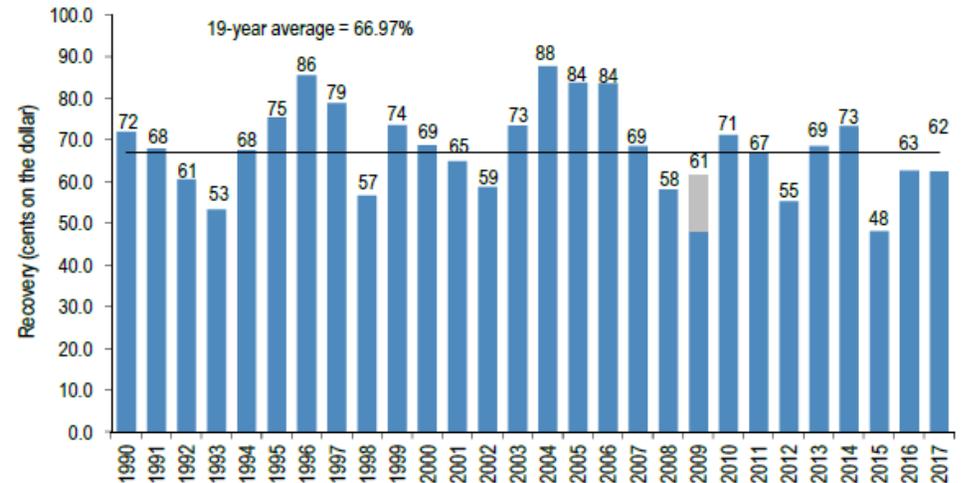
Bond issuer-weighted recovery rates



Note: Recoveries in 2009 were 22.4 based on prices 30-days post default and were 35.7 based on year-end prices.

Source: Moody's Investors Services; J.P. Morgan

First-lien leveraged loan issuer-weighted recovery rates

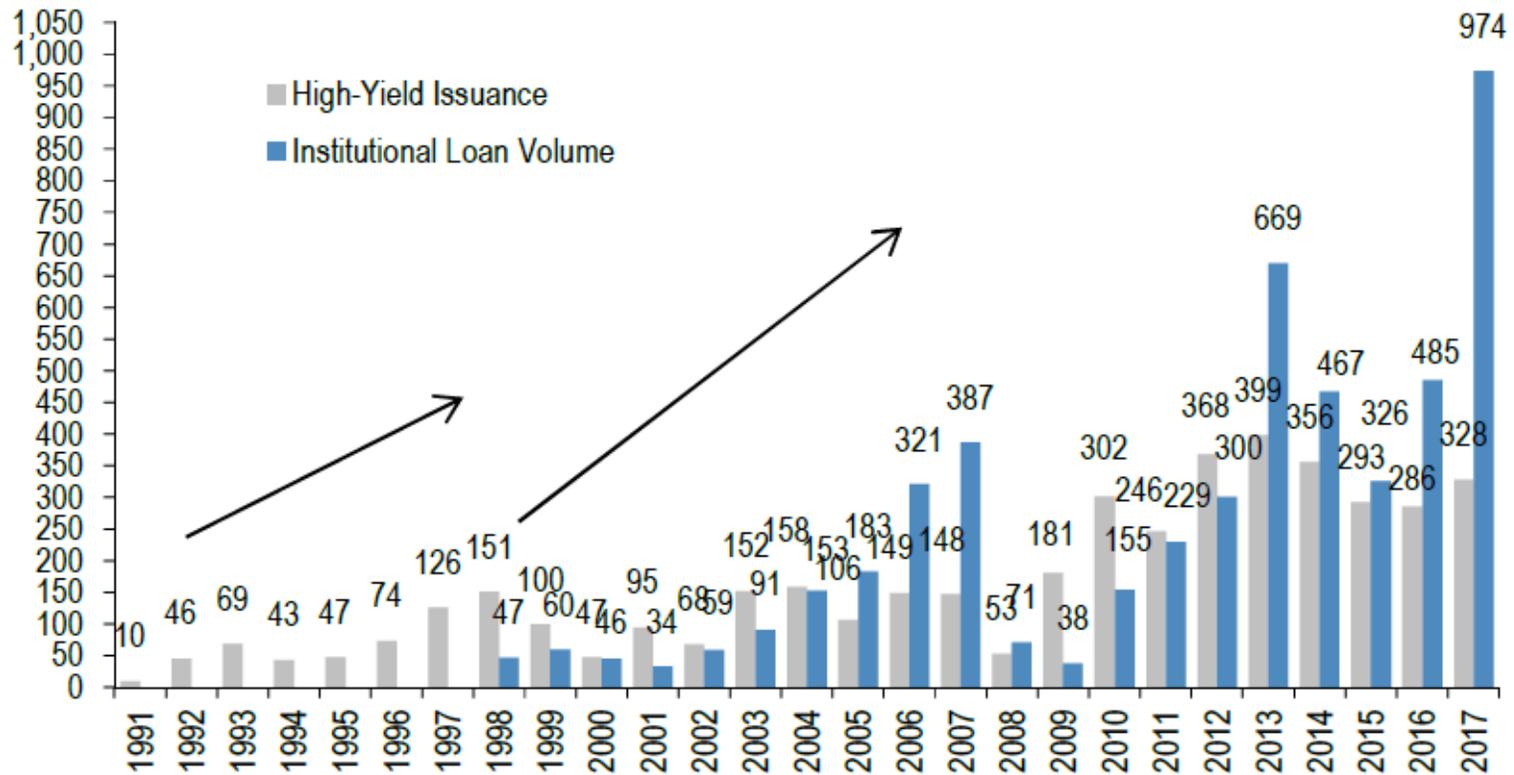


Note: Recoveries in 2009 were 48.3 based on prices 30-days post default and were 61.4 based on year-end prices.

Sources: Moody's Investors Service; J.P. Morgan; Markit



High Yield Bond and Loan Issuance

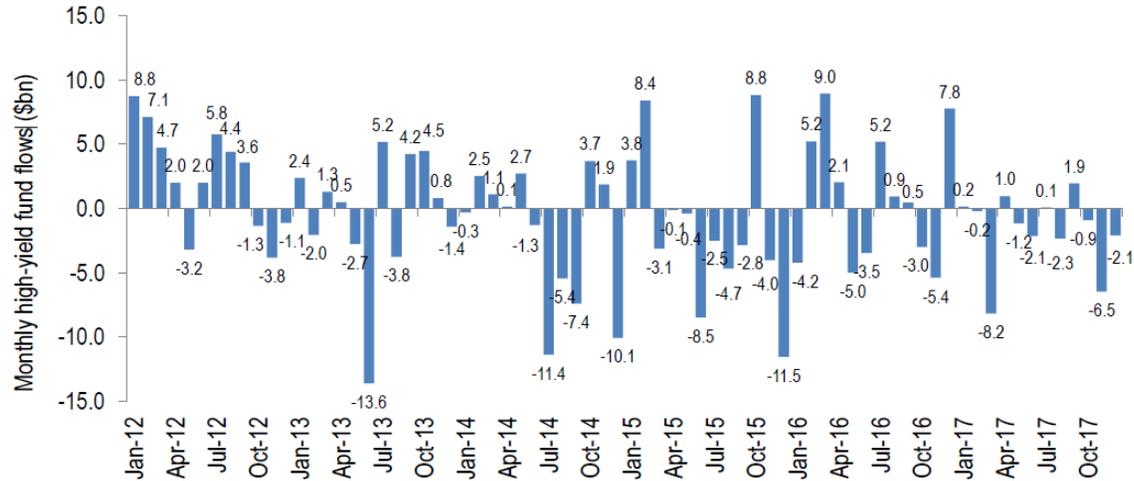


Source: J.P. Morgan; S&P LCD



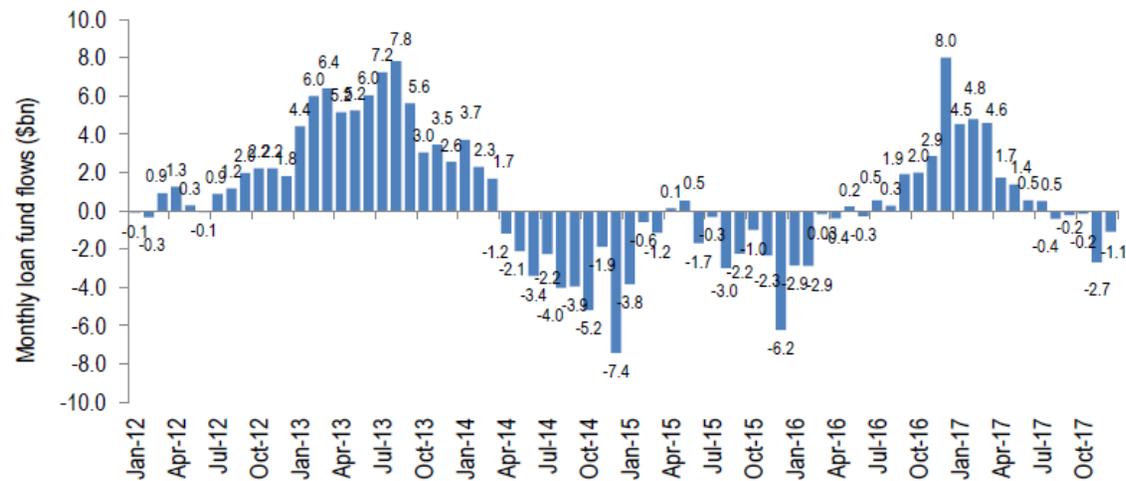
High Yield Bond and Loan Fund Flows

High Yield



Source: Lipper FMI.

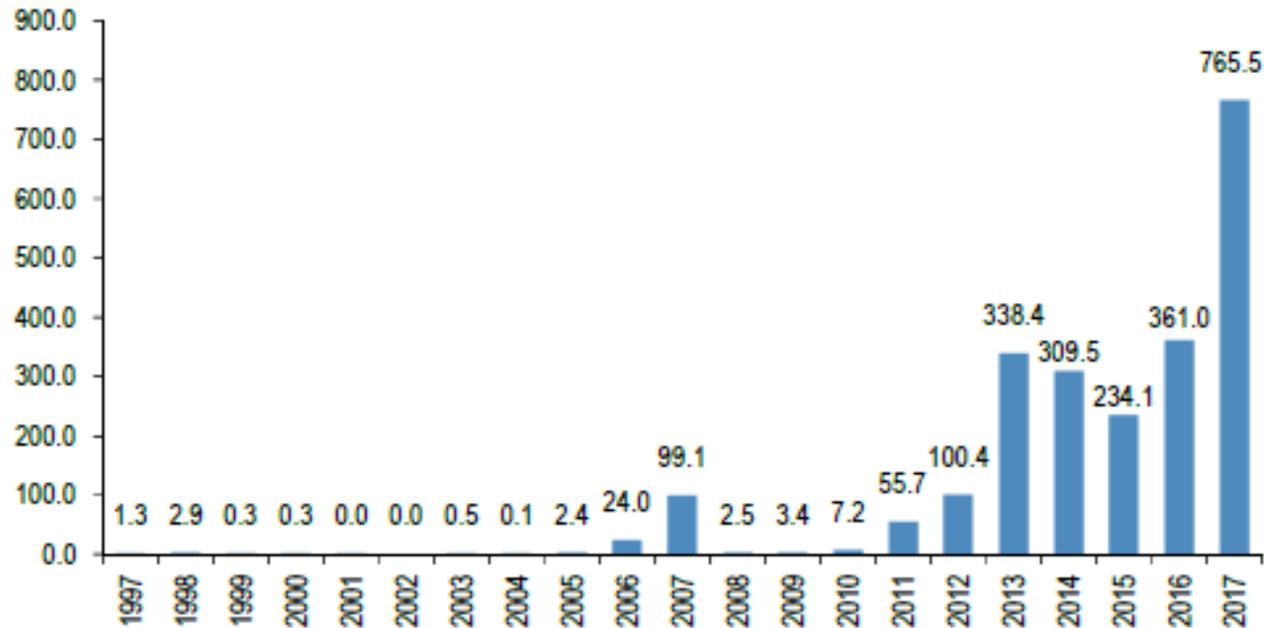
Loans



Source: Lipper FMI.



`Covenant-Lite Loan` New Issue Volume

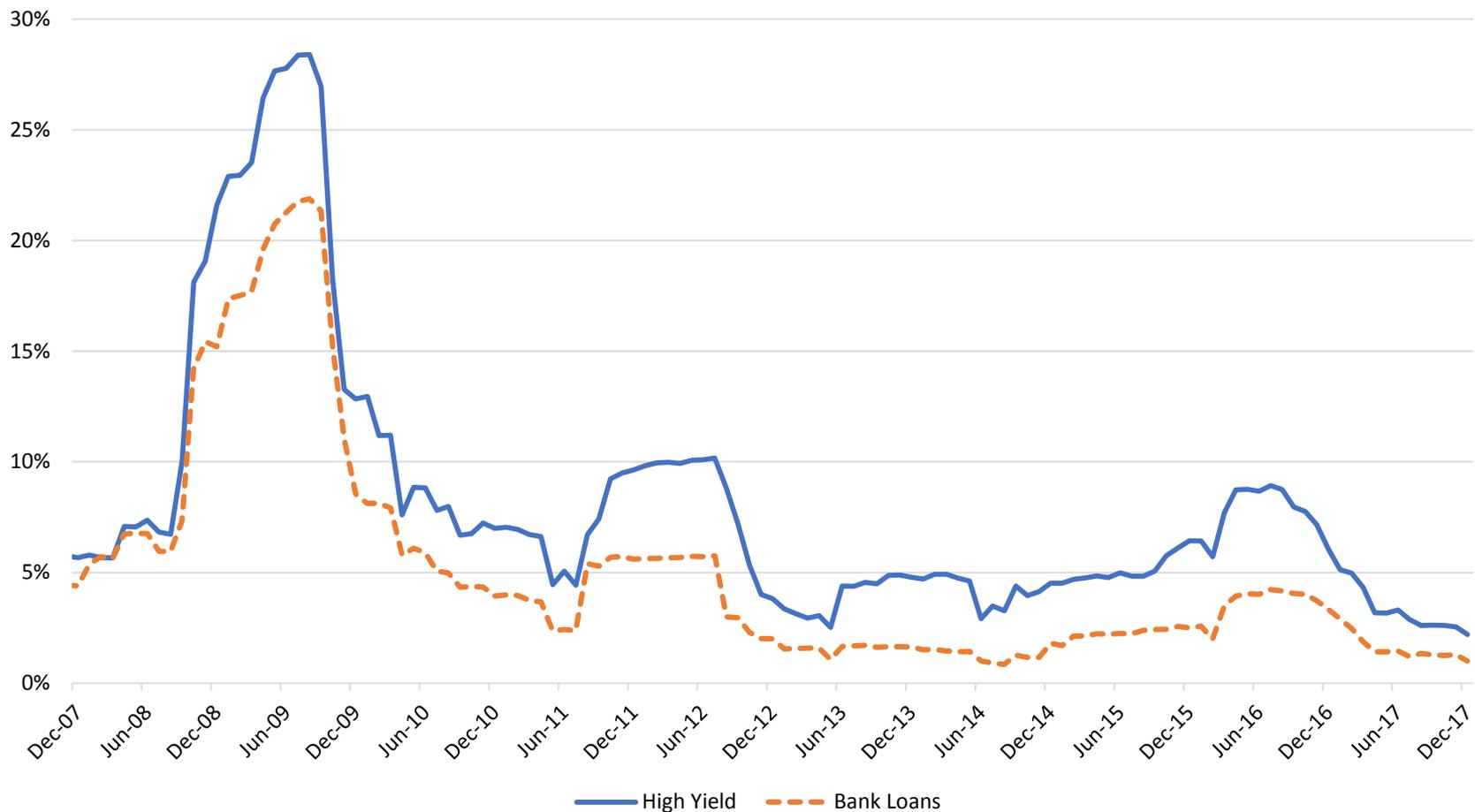


Source: J.P. Morgan

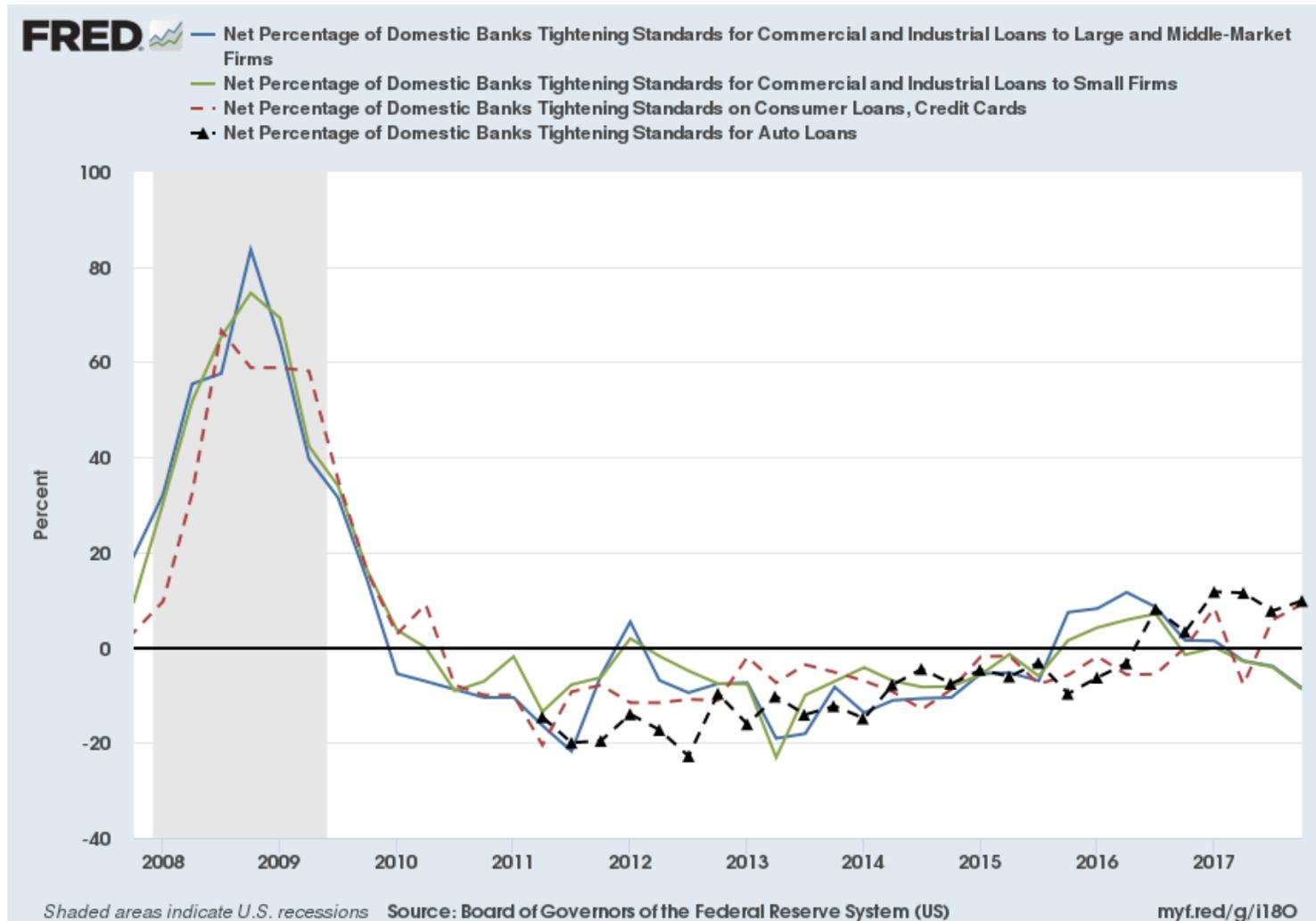
Note: Includes only US dollar-denominated securities

High Yield Bond and Loan Index Volatility

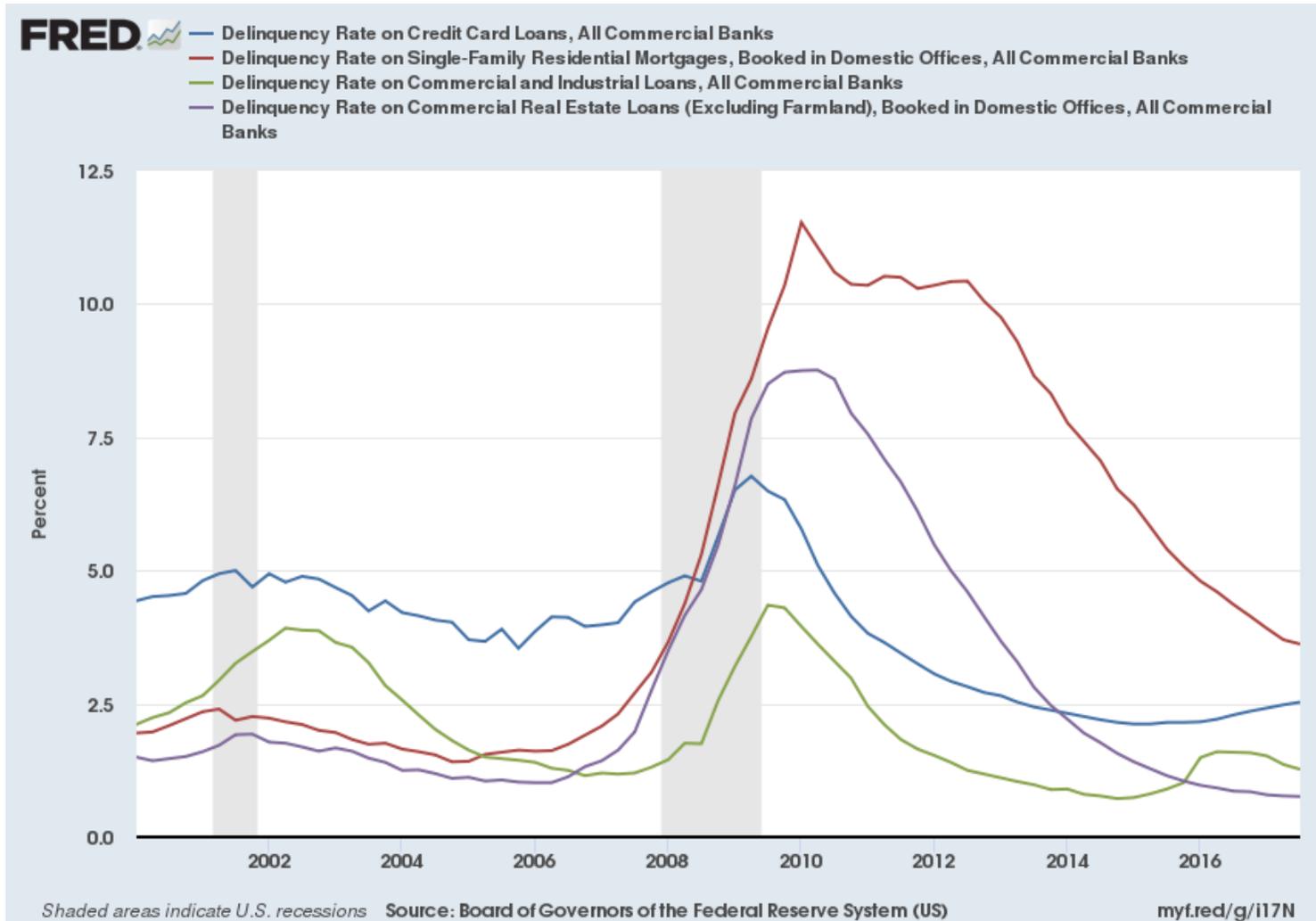
**Rolling 12-Month Standard Deviation
For 10 Years Ended December 31, 2017**



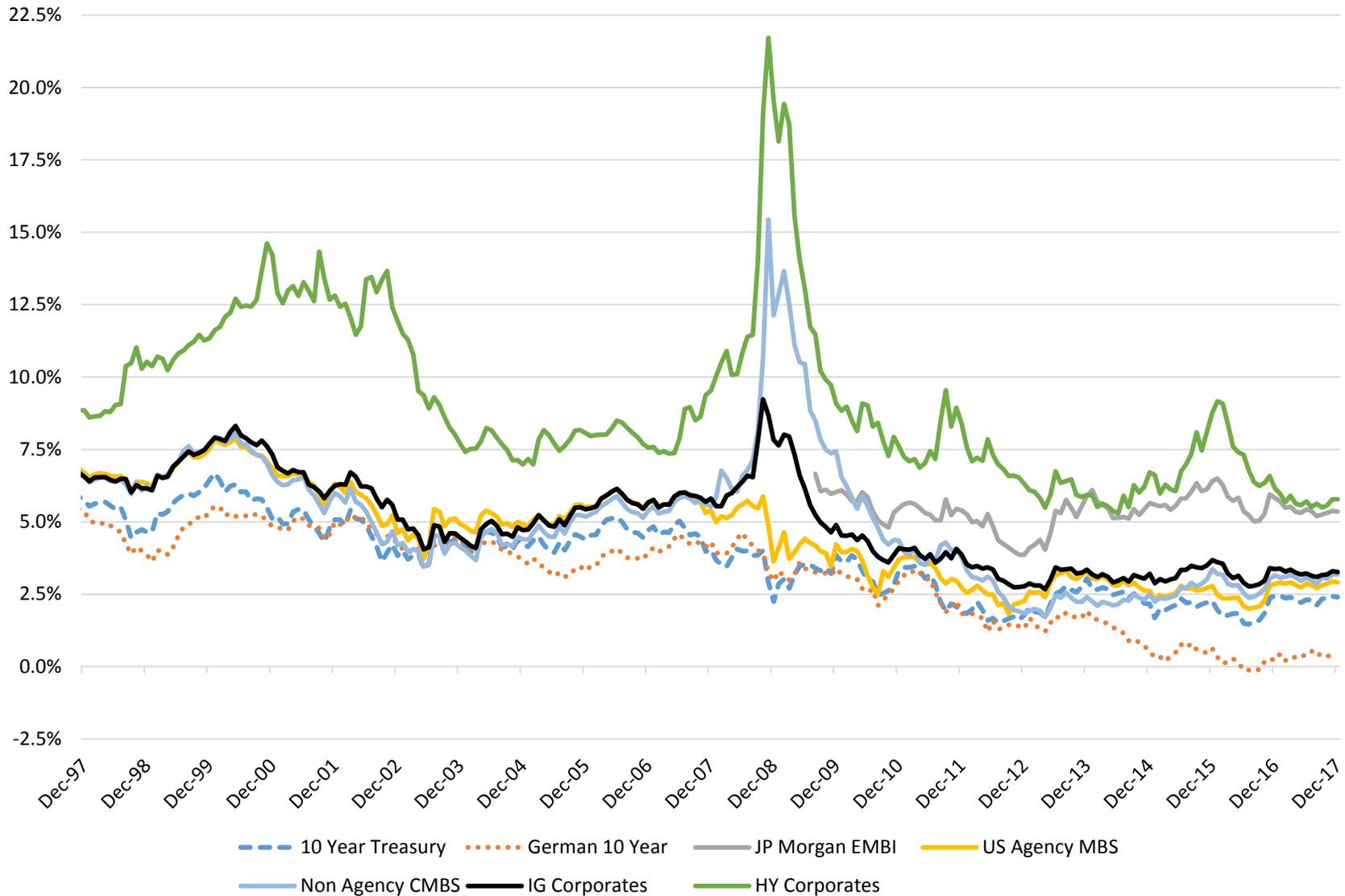
Net Percentage of Domestic Banks Tightening Standards



Delinquency Rate by Product for Domestic Banks

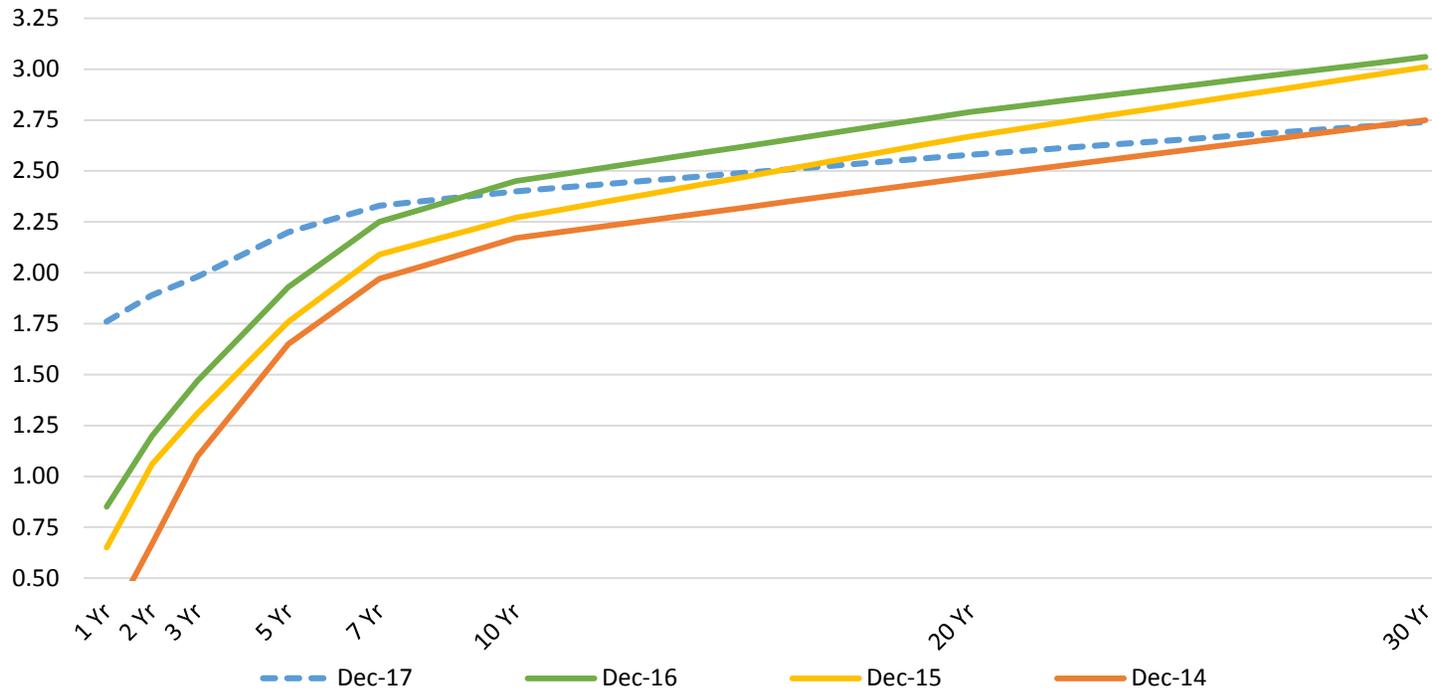


Fixed Income Yield Landscape



Review of Rate Changes and Sensitivity

U.S. Treasury Yield Curve



12-Months Ending	10-Year UST Yield Rise (%)	Total Return (%)							
		Treasuries	IG Credit	Bank Loans	HY Credit	Relative Value	Distressed	S&P 500	
10/20/94	2.54	-5.54	-5.67	12.88	0.30	--	--	3.01	
01/21/00	2.09	-2.95	-3.02	4.42	1.19	11.77	15.46	18.17	
06/14/04	1.76	-4.95	-2.92	6.79	9.29	5.01	10.44	15.79	
06/27/06	1.31	-2.16	-2.65	6.23	4.40	4.84	7.41	6.04	
12/30/09	1.69	-4.19	19.45	45.35	58.70	37.28	-9.84	29.54	
09/05/13	1.38	-4.59	-2.52	6.64	7.27	2.74	1.99	20.58	
07/10/17	1.01	-3.59	0.74	7.11	10.92	4.28	11.29	16.36	



Notes:

All data presented are based on currently available information at time of publication and may be revised subsequently.

The Opportunistic Fixed Income Benchmark is comprised of 50% HFRX Distressed Securities Index; 20% HFRX Relative Value Index; 15% Credit Suisse Leveraged Loan Index; and 15% BOAML US High Yield Index. The BOAML US High Yield Index is from BofA Merrill Lynch and is used with permission. See disclaimer on slide 32.

The Opportunistic Fixed Income asset class (N.C.G.S. § 147-69.2(b)(6c)) was created by the General Assembly in June 2009. It included some investments that were previously authorized under other provisions of G.S. § 147-69.2.



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