Securities Lending Discussion

IPS Monitoring Factors and Potential Action

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TMRS
Texas Municipal Retirement System

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TEXAS MUNICIPAL RETIREMENT SYSTEM

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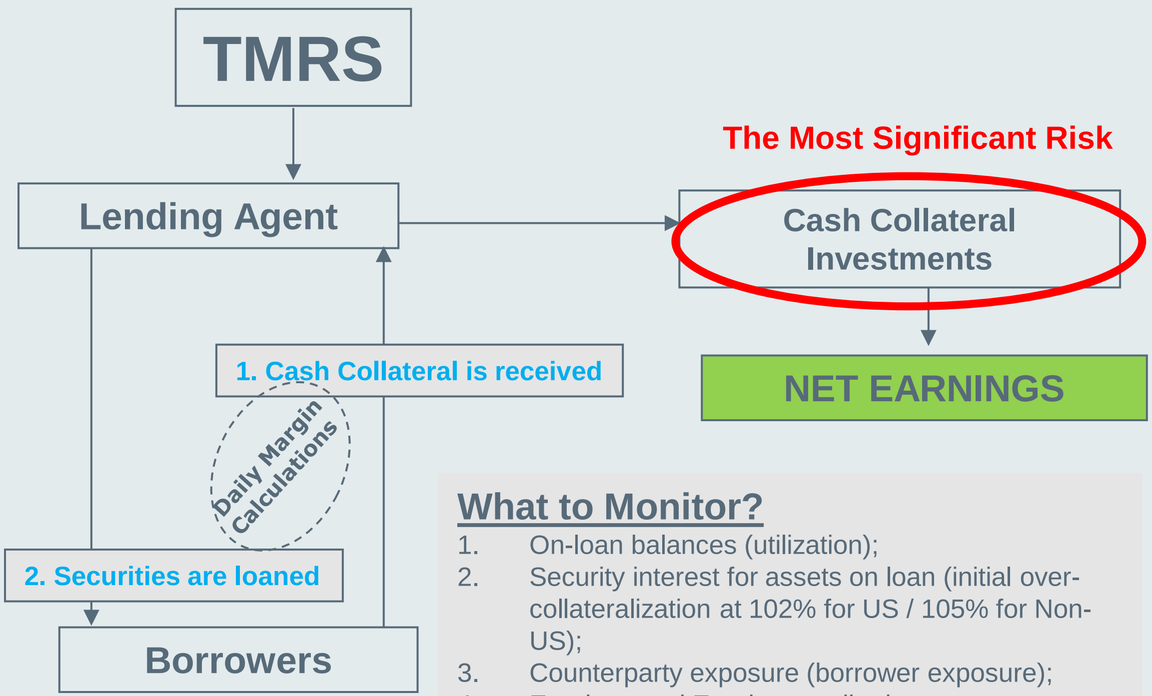
Securities Lending Process Diagram for a Cash Loan*



What to Monitor?

1. On-loan balances (utilization);
2. Security interest for assets on loan (initial over-collateralization at 102% for US / 105% for Non-US);
3. Counterparty exposure (borrower exposure);
4. Earnings and Earnings attribution.
5. Investment Exposures within Cash Collateral
   - Asset Class & Maturity Exposure
   - Liquidity & Fundamental Risk
   - Mark-to-Market NAV

* Non-cash loans are made as permitted by lending agents who take a non-cash security interest and a negotiated fee from the borrower of securities.

Participants in securities lending programs temporarily lend their securities to borrowers such as market-makers, hedge funds, and other financial institutions through a lending agent.

Borrowers deliver collateral to the lender (or agent) for securities borrowed in exchange for a negotiated interest rate or "rebate" – generally a rate equal to a negative spread to a risk-free rate, such as Fed Funds. Positions are over-collateralized (typically 102% for domestic and 105% for international) to protect against appreciation of lent securities.

Lending agents invest the cash proceeds according to investment guidelines to earn a yield that will exceed both the risk-free and the negotiated rebate paid to the borrower.

The total return to securities lending programs is based on achieving a positive differential on a daily basis between the rate earned on collateral investments and the required payment of the negotiated rebate.

Securities Lending Program Statistics
Year and Period ended 12/31/2015

Portfolio Statistics	
Total Cash Collateral	$866,991,326
Overnight Assets	$823,047,915
Term Legacy Assets	$43,943,411
Non-Cash Govt Security Collateral	$0.00
Overnight Liquidity	95%
Total Loan Portfolio MV	$845,378,297
Number of Loans	413
Collateralization	102.56%
Lendable Base	$8,986,833,525
Utilization of Lendable Base	9.41%
Asset DTM - to reset	19.42
Liability DTM - to reset	1.05
Average Rebate (bps) MTD	0.10
Average Reinvest (bps) MTD	0.31
Average Spread (bps) MTD	0.21
Revenue Earned MTD	$154,681
Revenue Earned Fiscal YTD	$1,949,359

Top 5 Borrowers and Totals	Loan Market Value	% Loans
Goldman Sachs	$199,297,021	23.57%
Morgan Stanley	$176,073,042	20.83%
Citigroup	$88,749,621	10.50%
Union Bank of Switzerland	$88,178,008	10.43%
Wells Fargo	$88,035,072	10.41%
Remaining 13 Borrowers	$205,045,889	24.25%
TOTAL*	**$845,378,653**	**100.00%**

TMRS has generated meaningful earnings during 2015.
Borrower exposure compliance has been maintained within policy compliance.
Legacy Duration Cash Collateral ($43.94 Million or approximately 5.07% of total) is being funded by new loans.
Legacy Duration Cash Collateral ongoing strategy continues to be reviewed.

Program is performing within expectations.

Source: Deutsche Bank Reporting.
Data is as of 12/31/2015.
*Slight variance due to outstanding reconciliation issue

Securities Lending Program Statistics
Month ended 1/31/2016

Portfolio Statistics	
Total Cash Collateral	$941,889,533
Overnight Assets	$898,483,340
Term Legacy Assets	$43,406,193
Non-Cash Govt Security Collater	$0.00
Overnight Liquidity	95%
Total Loan Portfolio MV	$920,260,836
Number of Loans	484
Collateralization	102.35%
Lendable Base	$9,527,513,034
Utilization of Lendable Base	9.66%
Asset DTM - to reset	10.15
Liability DTM - to reset	1.08
Average Rebate (bps) MTD	0.19
Average Reinvest (bps) MTD	0.44
Average Spread (bps) MTD	0.25
Revenue Earned MTD	$155,164
Revenue Earned Fiscal YTD	$155,164

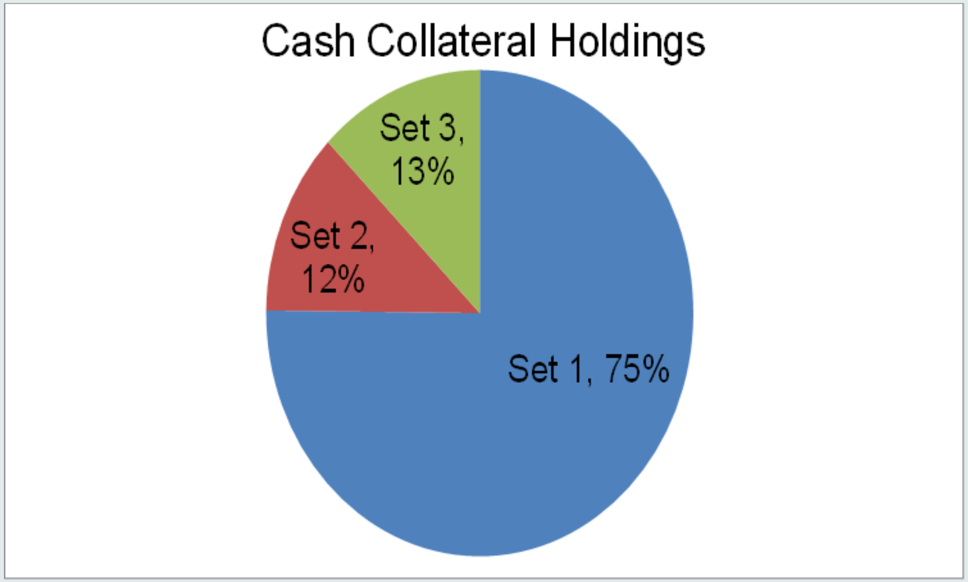
Top 5 Borrowers and Totals	Loan Market Value	% Loans
Citigroup	$173,078,930	18.81%
SG Americas	$168,229,171	18.28%
Goldman Sachs	$168,808,298	18.34%
Morgan Stanley	$81,330,561	8.84%
BNP Paribas	$66,501,187	7.23%
Remaining 13 Borrowers	$262,312,689	28.50%
TOTAL	**$920,260,836**	**100.00%**

Incremental Earnings of $155,164 in January 2016.
Borrower exposure compliance has been maintained within policy compliance.
Legacy Duration Cash Collateral ($43.41 Million or approximately 5.07% of total) is being funded by new loans.
Legacy Duration Cash Collateral ongoing strategy continues to be reviewed.

Program is performing within expectations.

Source: Deutsche Bank Reporting.
Data is as of 1/31/2016.

Securities Lending Program Statistics
Period ended 1/31/2016



•DB cash collateral strategy of indemnified reverse repurchase agreements has been diversified according to customized collateral schedules for TMRS.

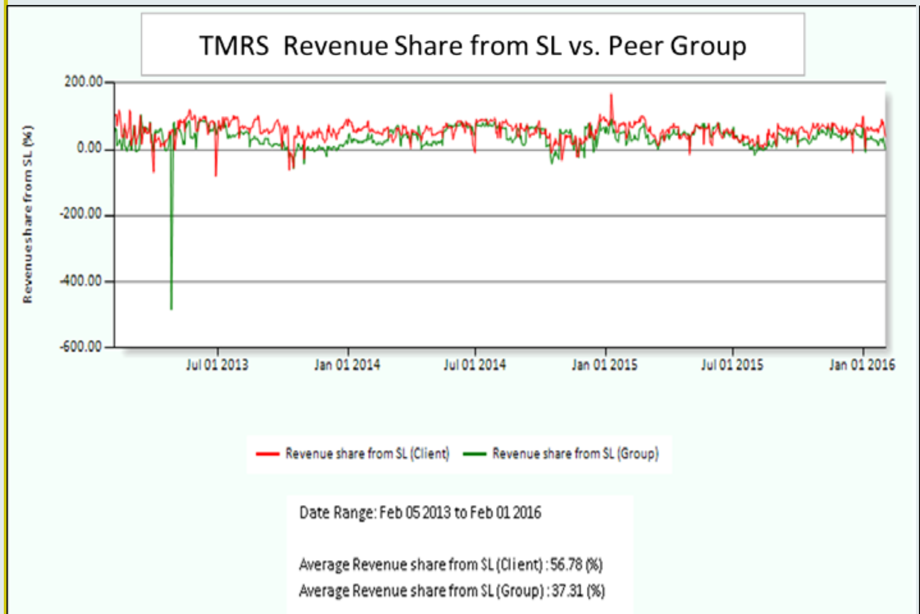
•Predominantly invested in Set 1 (treasury/government agency) holdings with additional holdings in Set 2 (money markets) and Set 3 (corporates)

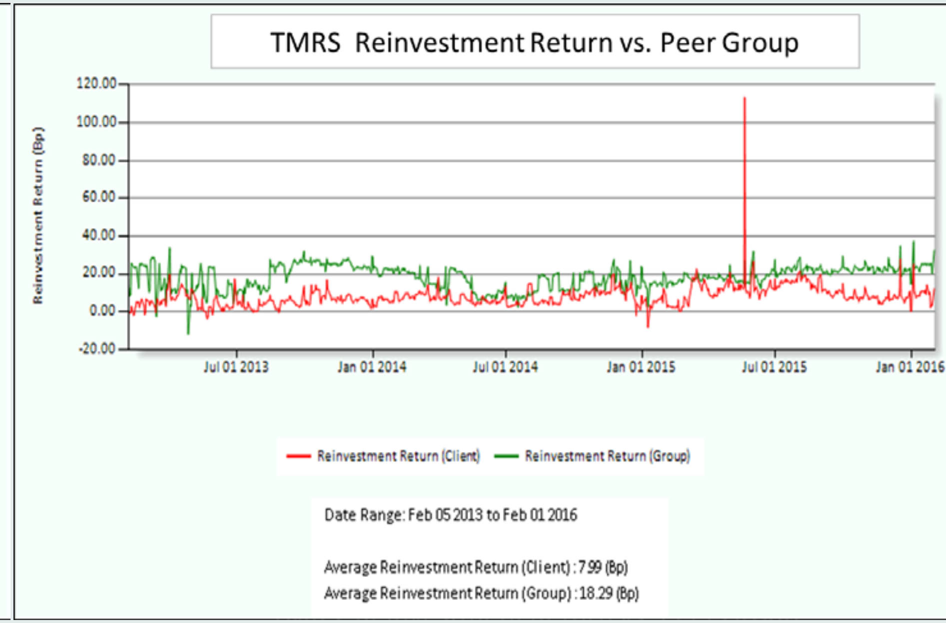
➢**Look through holdings and diversification are monitored by TMRS.**

➢**Reinvestment strategy is performing and remains relatively conservative.**

Source: Deutsche Bank Reporting.
Data is as of 1/31/2016.

Securities Lending Program Statistics
Periods Ended 1/31/2016





TMRS is deriving significantly more revenue from lending only profitable loans than its peer group (56.78% vs. 37.31%).
TMRS is investing cash collateral significantly more conservatively than its peers (reinvestment return 7.99 basis points vs. peer group of 18.29 basis points).

Both outcomes are consistent with the goal of de-risking securities lending and focusing on intrinsic value.

Source: Deutsche Bank Reporting & Markit Data Explorers.
Data is as of 1/31/2016.

1. Securities Lending General Information and Program Statistics
2. **Investment Policy Monitoring Factors**
3. Several Breach Resolution Options

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Investment Policy Monitoring

Credit Ratings and Financials

TMRS IPS requires, among other things, that:

- Lending agent be rated at Least "A" by at least two of the three largest NRSRO (Nationally Recognized Statistical Rating Agencies) – **See Below**
- That they maintain a Tier 1 Capital Ratio of at least 7% - **14.7% at 12/31/2015**
- That they maintain a Total Capital Ratio of at least 10% - **16.2% at 12/31/2015**

Deutsche Bank Long-Term Credit Ratings:

S&P Rating (since)	Fitch Rating (since)	Moody's Rating (since)
BBB+ (since 6/9/15)	A- (since 12/8/15)	Baa1 (Since 1/25/16)
A (2013-2015)	A (5/15-12/15)	A3 (2014-1/16)
A+ (2008-2013)	A+ (2011-2015)	A2 (2012-2014)
AA (2007-2008)	AA- (2002-2011)	Aa3 (2010-2012)

Investment Policy Monitoring Factors

Ratings / Financials for Alternative Lending Agents

	Deutsche Bank	BNY-Mellon	Citi	JPMorgan	Northern Trust	State Street
Financials Data	**12/31/2015**	**12/31/2015**	**12/31/2015**	**12/31/2015**	**12/31/2015**	**12/31/2015**
Tier 1 Capital Ratio	14.70%	13.20%	13.40%	13.50%	12.50%	15.90%
Total Capital Ratio	16.20%	13.60%	15.20%	15.0%	14.20%	18.10%
S&P Long-Term Rating	BBB+ (6/9/15)	A	BBB+	A-	A+	AA-
Fitch Long-Term Rating	A- (12/8/15)	AA-	A	A+	AA-	A
Moodys Long-Term Rating	Baa1 (1/25/16)	A1	Baa1	A3	A2	A2

Sources (accessed 2/9/2016):

Deutche Bank:
https://www.db.com/ir/en/download/FDS_4Q2015_28_01_2016.pdf
https://www.db.com/ir/en/content/long_term_ratings.htm

BNY-Mellon:
https://www.bnymellon.com/_global-assets/pdf/investor-relations/earnings-press-release-january-2016.pdf
https://www.bnymellon.com/us/en/investor-relations/index.jsp#ir/credit-ratings

Citi:
http://www.citigroup.com/citi/investor/data/qer415s.pdf?ieNocache=361
http://www.citigroup.com/citi/investor/data/rate160105.pdf?ieNocache=265

JPMorgan:
https://www.jpmorganchase.com/content/dam/jpmorganchase/en/investor/includes/document/4Q2015_Earnings_Supplement.pdf
http://investor.shareholder.com/jpmorganchase/fixedIncome.cfm#credit

Northern Trust:
https://www.northerntrust.com/documents/earnings/2015/q4-2015-northern-trust-quarterly-earnings-trend-report.pdf?bc=24251052
https://www.northerntrust.com/about-us/investor-relations/financial-information/credit-ratings

State Street:
http://investors.statestreet.com/Cache/1001206188.PDF?O=PDF&T=&Y=&D=&FID=1001206188&iid=100447
http://investors.statestreet.com/CustomPage/Index?KeyGenPage=302726

Investment Policy Monitoring Factors

<u>Global Market Context of Moody's Ratings Action</u>

DB response to request for additional information on ratings changes suggests that the change in Moody's rating is driven by structural considerations within the German marketplace ("bail-in" regime and German insolvency laws) rather than fundamentals.

- **The clarification of the seniority of deposits (as opposed to unsecured bonds) led to the former being rated higher than the latter by Moody's.**
- **A negative outlook persists on debt and deposit ratings,** "*…reflecting the near-term execution challenges relating to the firm's new strategic plan, which is pressuring the bank's creditworthiness. The plan is intended to result in a simpler and more stable business mix, with lower leverage and a more conservative return-on-equity target, all of which would benefit bondholders. However, execution risk will remain high for the next two years, according to the rating agency.*"
- **Future ratings actions could be variable** "*…Although the outlook on the ratings is negative, a conclusive achievement of the new strategic plan that leads to significantly improved financial results could lead to upward rating pressure in the medium term. Alternatively, failure to make steady progress to strengthen and stabilize results could lead to further rating pressure.*"

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Several Breach Resolution Options

1) Accept Increased Potential Risks and Modify Program

- TMRS Board may desire to provide permanent waiver of credit rating compliance variation (through action to modify IPS requirements) and consider the option of increasing earnings potential through the broadening of guidelines for indemnified repurchase agreements.
- Potential increase in earnings may be offset by further financial / credit exposure to Lending Agent during times of uncertain market stress.

2) Accept Current Potential Risks and Maintain Program

- TMRS Board may desire to provide temporary or permanent waiver of credit rating compliance variation (through instruction to Investment Staff or action to modify IPS requirements) and maintain existing securities lending program.
- Incremental annual earnings to TMRS is approximately$2 Million.

3) Reduce Potential Risks and Wind Down Securities Lending Program

- TMRS Board may desire to reduce potential risks presented by the current market environment and this compliance variation through the wind-down (interim partial wind-down has commenced) of the securities lending program.
- Custody RFP process in 2017 presents a natural opportunity to re-examine market conditions and securities lending benefits, risks, and place within the TMRS Investment Portfolio.