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TRANSITION MANAGEMENT

Commonwealth of Virginia Department of Treasury

SPDA Study of Eligible Collateral

F I N A L R E P O R T

J.P.Morgan

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Executive Summary

- Markets have continued to come off post Lehman Bankruptcy lows / wide spreads; VIX at pre Lehman levels
- (Stressed markets defined for our purposes as VIX greater than 40)
- Repo line with Escrow bank(s) – another reason to consider consolidating Escrow banks and renegotiating Escrow Agreements
- Suggest The Commonwealth consider the following modifications to its collateral program:

OPT OUT BANKS

- Consider requiring 102% if banks post US treasuries and/or fully guaranteed Agencies ONLY;
- Or , consider overall higher collateralization based on security type and duration (level of importance is increased with only a monthly mark-to-market
  - Consider eliminating "poor liquidity" securities (munis)
  - Consider limiting Agency CMOs and Mortgage Collateral to no more than 15% from any one bank and assigning collateral value to perhaps 80%; AAA only
- Letters of Credit 21% of existing pool; The only letters of credit that The Commonwealth accepts are irrevocable standby letters of credit issued by the Federal Home Loan Banks to secure public deposits of governments.   Currently require banks to replace FHLB LCs if obligations of FHLB are downgraded below AAA
- More frequent mark to markets – Daily. May require utilizing one Escrow Agent for Opt Out Bank collateral; Then monitoring Duration is less of an issue;
- Consider opening repo line with Escrow Bank for purposes of eliminating "need for speed" in selling collateral
- Opt out banks should have credit rating from Moody's / S&P / other sources of A or better

POOLED BANKS

- Consider overall higher collateralization based on security type and duration (level of importance is increased with only a monthly mark-to-market)
- US Agency debt – consider limiting to no more than 25% from any one bank and assigning collateral value of 95%
- Consider limiting "poor liquidity" securities (munis) to alleviate liquidity concerns during high market stress times;
  - Consider reducing to 10% from any one bank and assigning collateral value to the lower of all FRS collateral guidelines – as an example 80%; AAA only AND requiring diversification of Munis posted
  - Consider limiting Agency CMOs and Mortgage Collateral to no more than 20% from any one bank and increasing collateral requirement to conform with FRS guidelines bu security type and duration; daily marked for any bank posting these securities; AAA only
- Letters of Credit 21% of existing pool; The only letters of credit that The Commonwealth accepts are irrevocable standby letters of credit issued by the Federal Home Loan Banks to secure public deposits of governments.
- Several solutions or improvements available – e.g. limit % of "poor liquidity"; demand over collateralization; Increase the frequency of mark-to-market during times of stress; Can also consider whether to determine collateral requirements based more on the health of the institution, but less practical and harder to implement; Could look to S&P / Moody's Credit Watch
- Identify pricing sources from custodian banks and have full understanding of consistency and frequency; Consider reducing number of approved Escrow banks to one or two for pricing improvement and leverage for daily mark to marks

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SPDA Section 2.2-4401

Definitions

Public Deposit

Monies of the Commonwealth or of any county, city, town or other political subdivision thereof, including monies of any commission, institution, committee, board or officer of the foregoing and any state, circuit, county or municipal court, which monies are deposited in any qualified public depository in any of the following types of accounts: nonnegotiable or registered time deposits, demand deposits, savings deposits, and any other transaction accounts…

Eligible Collateral

Securities of the character authorized as legal investments under the laws of the Commonwealth for public sinking funds or other public funds and securities acceptable under United States Treasury Department regulations as collateral for the security of treasury tax and loan accounts.

*Required Collateral

Required collateral of a public depository means, (i) in the case of a bank, a sum equal to 50 percent to 100 percent of the actual public deposits held at the close of business on the last banking day in the month immediately preceding the date any computation of such balance…or (ii) in the case of a savings and loan association or savings bank, a sum equal to 100 percent of the average daily balance for the month immediately preceding the date of any computation of such balance…

***As of July 1, 2009 Banks can opt out of pool based on guidelines developed by the Treasury Board**

SPDA — Collateral Pool Summary

- SPDA Current Securities Collateral – 98.33% of portfolio
  - US Agency Debt – 23.90%; (85% very liquid; 15% Avg liquidity);
  - Letter of Credit – 21.10%; 8 banks anywhere from 90 - 100% of portfolio
  - Municipals – 18.61%; All "Poor Liquidity"
  - Agency CMO – 17.60%; All "Average Liquidity"
  - Mortgage Collateral – 17.12%; (85% very liquid; 15% Avg liquidity);
- Overall "Poor Liquidity" concentrated across 28 banks (100%-57% of portfolio); 17.86% of entire portfolio
- Overwhelming Majority of "Poor Liquidity" are Municipals Rated AA+ and lower
  - Generally purchased by wealthy investors as opposed to ERISA plans
  - Issue with Munis generally speaking is not default but rather liquidity;
  - *Good news is Muni market has bounced back to a degree off post Lehman bankruptcy lows*

Considerations Regarding Collateral Amounts and Security Sectors

Consider limiting "poor liquidity" securities (munis) from any one Bank to a certain % that they can pledge;

Consider reducing "Average Liquidity" (All Agency CMOs, certain Mortgage Collateral and certain Agency debt) from 25% of overall pool and limiting percent from any one Bank or S&L; AAA only or increasing collateral requirements

Letters of Credit 21% of existing pool; The Commonwealth only accepts irrevocable standby letters of credit issued by Federal Home Loan Banks. Generally a very secure asset as long as institution is in compliance with Commonwealth requirements

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Recent Major Financial Events and Impact on Sale of Fixed Income

Time Period	Market Event	Impact on Sale of Fixed Income	Comments
Apr 08	■ FED Cuts Target Rate 25 Bps to 2.00%	Positive	
Sep 08	■ FED Announces it's Seizing Fannie Mae & Freddie Mac ■ Lehman Brothers Files for Bankruptcy ■ Merrill Lynch Acquired by Bank of America ■ 17 Countries Place Restrictions on Short Selling ■ Goldman Sachs and Morgan Stanley File to Become Bank Holding Companies ■ Washing Mutual Collapses; FED Seizes and Firm Sold to JPMorgan ■ Citigroup Announces Plan to Purchase Wachovia for $2.1 bln	Negative	1. Demand for US Treasuries Increases- "Flight to Quality" 2. Extremely Volatility 3. S/T Collateral and Liquidity Pressure Intensify
Oct 08	■ Global Central Banks Slash Interest Rates ■ DJIA Posts Biggest One Day Point Loss ■ FED Cuts Target Rate 50 bps to 1.50% ■ SEC Lifts Restrictions on Short Selling ■ Wachovia Announces it Will be Acquired by Wells Fargo ■ US Gov't Injects Capital into 9 Financial Institutions	Neutral	
Nov 08	■ TALF unveiled to provide liquidity to ABS investors	Positive	1. ABS spreads begin to tighten
Jan 09/Feb 09	■ Quantitative easing – Fed "liquefying" because it can't cut rates more	Neutral	
Mar 09-May 09	■ Treasury Dept. releases public-private investment program ■ TALF kicks off ■ Jobless claims continue to be weak ■ Up tick in existing home sales and home prices - 3/23 and 3/24 ■ General positive economic data	Positive	1. New issues backed by credit cards, student loans, rental fleets and auto loans 2. ABS spreads continue to tighten (by 300+ bps since Nov) 3. High yield Corps very active

Disciplined Risk Management — Critical to your SPDA Program

Recent Market Trends

- Market turmoil has been the major concern since Q307, resulting in heightened awareness of risk

Risk

- Credit and liquidity crunch
- Global Macroeconomic deterioration

Mitigants

- Fed liquidity support
- Dlr deleveraging and capital raising
- Write-downs
- Natural replenishment cycle

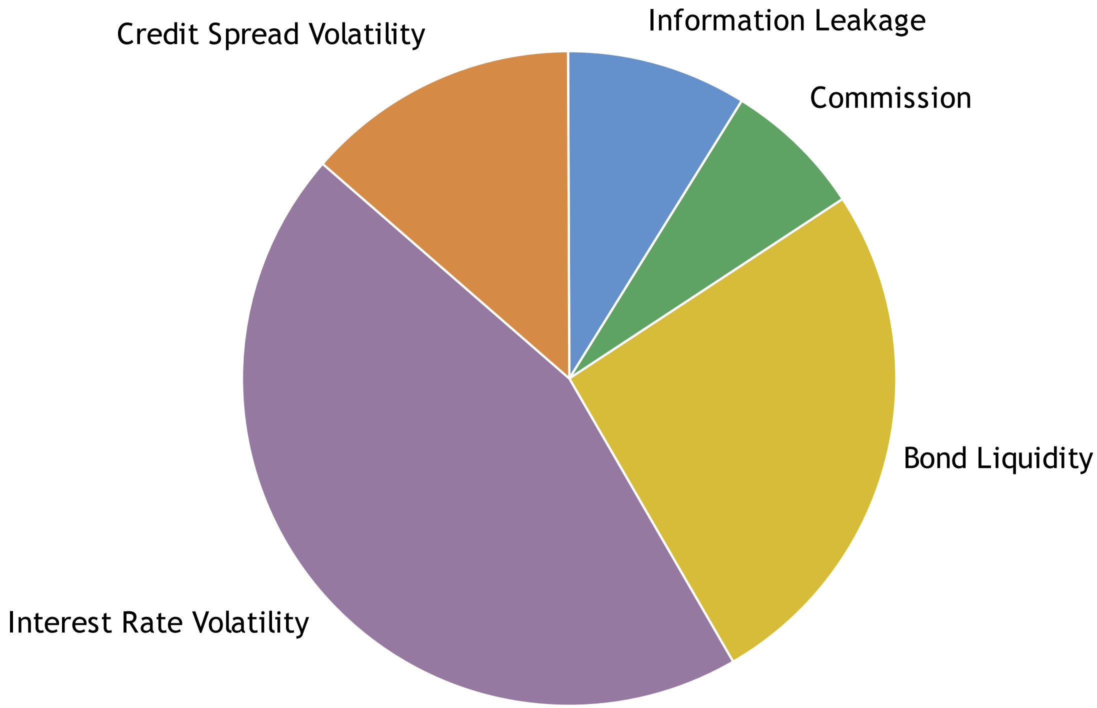
- While market stress peaked in the weeks after Lehman Bankruptcy, The Commonwealth needs to address Collateral requirements in normalized times as well as times of stress

Risks in Fixed Income Markets

- Largest risk in fixed income is interest rate risk, also known as market risk
  - This is measured by Duration – which is approximately equivalent to the percentage change in the market price of a bond to a 100 basis point change in prevailing interest rates.
- Second largest risk in fixed income is liquidity risk
  - This is the spread between the bid/ask prices for a security being offered in the secondary market.
- Third largest risk is credit risk
  - Credit spread risk is the larger spread between the bid & ask as the market perceives weaker financial health for the particular issuer.
- Other risks that are material
  - downgrade risk, sector risk and basis risk.
- Flight-to-liquidity
  - Large liquidity premium in Treasury Bonds, where evidence has shown is driven in part by changes in consumer confidence, flows into equity and money market mutual funds and changes in foreign ownership of Treasury
- FSA's (Equiv of SEC/NASD in UK) Prudential Sourcebook for Insurers states
  - Stock & Bond market liquidity and volatility are significantly correlated – There is a cross dependency between bond and stock markets that applies to liquidity, volatility and spreads. Evidence one can predict future liquidity and volatility change (short term) in the different markets An Empirical Analysis of Stock and Bond Market Liquidity; JPM Research
- Municipals – while it is anticipated defaults will increase, most will likely be of smaller, unrated issues; generally speaking default risk is less than corporate bonds

Cost Decomposition for Restructuring Portfolios

Fixed Income



Interest rates and liquidity are biggest drivers

Costs is a function of the bid-offer spread

Side-by-side Comparison of Japan's Banking Crisis and the Current Crisis

Timeline of key events in Japan's banking crisis and comparable events in the current crisis, with J.P. Morgan forecast for ZIRP

JAPAN		UNITED STATES	
1991-92	Peak in land prices	**Jul-06**	Peak in housing prices
1992	*Jusen* (mortgage lending companies) fall into trouble	**2007**	Mortgage lending companies, sub prime ABS investors fall into trouble
1993	*Jusen* to implement rehabilitation plan with support of the MOF		
1994	Two credit cooperatives and one regional bank go bankrupt; several others are ordered to suspend business		
1995	Agreement among MoF, creditors and owners to dissolve the jusen		
1996	Diet passes six laws and establishes Housing Loan Administration Corporation and Resolution Collection Bank to cope with liquidation and recovery of assets of failed *jusen* and cooperatives. Deposit Insurance Scheme strengthened	**10/03/08**	Congress passes TARP/EESA to buy troubled assets from financial institutions
1997	Peak of crisis: several large and high profile institutions in effective bankruptcy	**Sep-08**	Peak of crisis: several large and high profile institutions in effective bankruptcy
1997	Japanese authorities introduce Prompt Corrective Action (PCA) framework: introduction of a self-assessment process with external auditing; require regulatory action if capital ratios fall below thresholds		
Nov-97	Government to guarantee full amount of deposits in yen and other currencies, bank debentures and certain trusts offered by trust banks	**10/03/08**	Under TARP/EESA, deposit limit increased to $250K for individuals; government still working on plan for unlimited guarantee for small businesses
Feb-98	Two new laws passed including a provision of ¥30tn to recapitalize banks	**10/14/08**	TARP modified to provide up to $250bn of capital for banks
Mar-98	Government injects ¥1.8tn into large banks	**10/14/08**	Government injects $125bn into 9 banks; offers another $125bn to others
1998	Authorities temporarily relax accounting rules to boost tier 2 capital		
Jun-98	Financial Supervisory Agency (FSA) created		
Oct-98	Financial Revitalization Law and the Financial Early Strengthening Law passed; Deposit Insurance Law amended. Provision for bank recapitalization increased to ¥60tn (12% of GDP)		
Late1998	Government offers ¥20tn for credit guarantee schemes	**Oct-08**	FDIC to temporarily guarantee the senior debt of all FDIC-insured institutions and their holding companies, as well as deposits in non-interest bearing deposit transaction accounts; Treasury establishes guarantee program for money market funds; CPFF created to provide liquidity backstop for CP issuers
Feb-99 to Aug-00	BoJ employs zero interest rate policy	**Sep-07 - Jan-09**	Fed initiates easing 9-18-07 culminating in zero interest rate policy (ZIRP) Jan -09
Mar-99	Government injects ¥7.5tn into banking system into large banks		
Apr-99	Government extends recapitalization program to regional banks		
Sep-99	Government introduces scheme to guarantee bonds of small and medium sized companies		
1999-	Consolidation of banking system	**2008-**	Consolidation of banking system
Mar-01	BoJ introduces quantitative easing		
Nov-02	BoJ began purchasing stocks held by private banks		
Apr-03	Government nationalizes a large bank (Resona Bank)		
Jun-03	BoJ starts purchasing ABS (including ABCP)	**Oct-Nov 08**	MMIFF created to purchase assets from money market funds; TALF created to provide liquidity to ABS investors

Source: Akihiro Kanaya and David Woo, "The Japanese Banking Crisis of the 1990s: Sources and Lessons," IMF Working Paper, January 2000. Masaaki Kanno, "How Japan's banking crisis ended in a lost decade," J.P. Morgan Economic Research note, 10/31/08.

Default Rates — Munis

- Source S&P, Moodys - The Municipal Bond Fairness Act (HR 6308) introduced September 9 2008 (did not pass), included the following table giving bond default rates from **1970 up to 2007** for municipal versus corporate bonds by rating and rating agency.
- This ratings disparity can also have the effect of driving demand for bond insurance. Bond insurers, or monolines, guarantee repayment of securities for a fee. Many issuers will choose to insure A-rated bonds to the AAA level in order to pay lower interest rates over the life of the security.

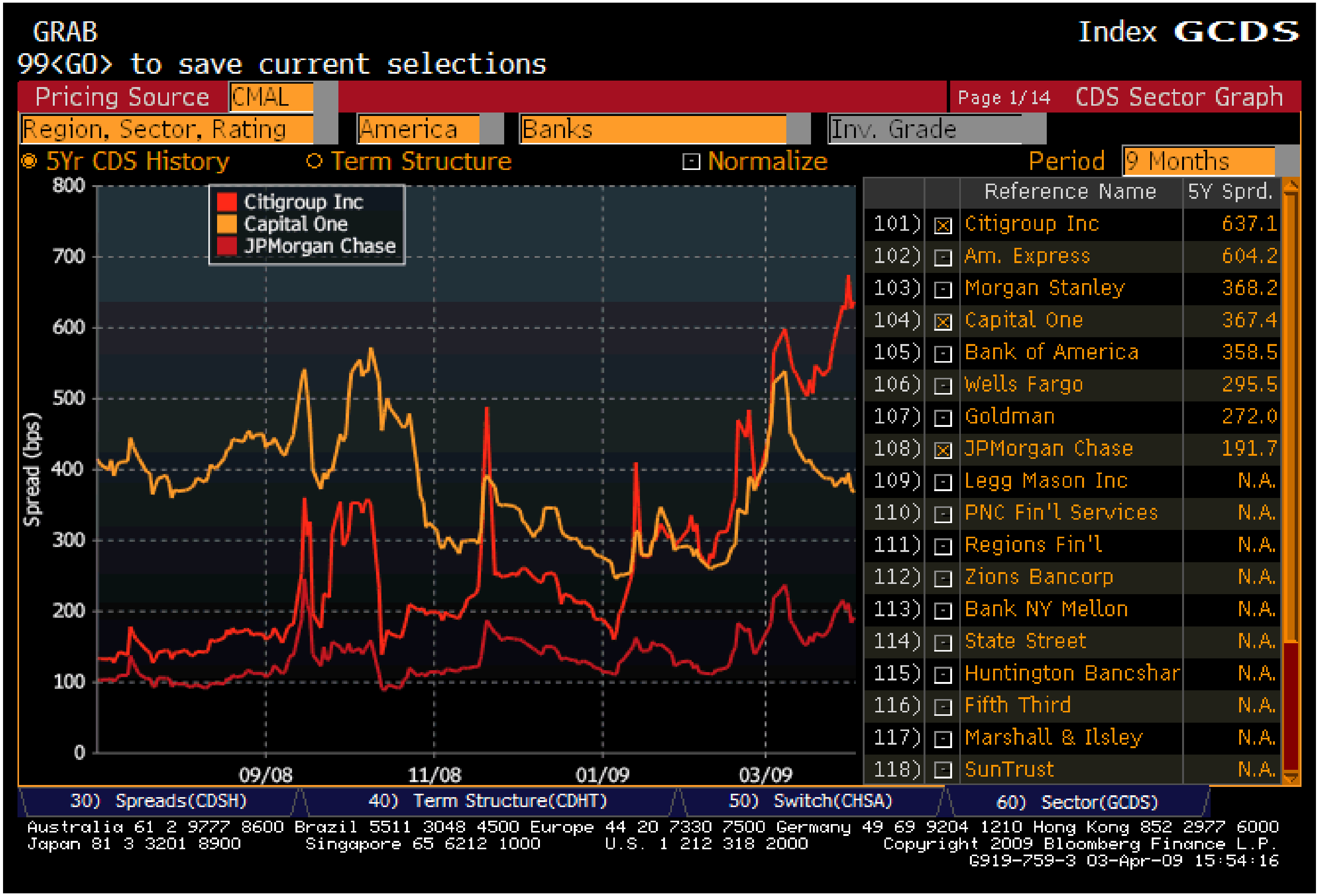
Cumulative Historic Default Rates (in percent)

	Moody's		S & P	
Rating Categories	Muni	Corp	Muni	Corp
Aaa/AAA	0.00	0.52	0.00	0.60
Aa/AA	0.06	0.52	0.00	1.50
A/A	0.03	1.29	0.23	2.91
Baa/BBB	0.13	4.64	0.32	10.29
Ba/BB	2.65	19.12	1.74	29.93
B/B	11.86	43.34	8.48	53.72
Caa-C/CCC-C	16.58	69.18	44.81	69.19
Investment Grade	0.07	2.09	0.20	4.14
Non-Invest Grade	4.29	31.37	7.37	42.35
All	**0.10**	**9.70**	**0.29**	**12.98**

- The historical default rate for municipal bonds is lower than that of corporate bonds.

5 Yr CDS Protection — 9 Month History

Credit Default Swap - Bank default protection cost continues to persist at record highs



VIX History 2-year

VIX (Volatility Index) peaked during weeks after Lehman Bankruptcy

VIX History 8-month

VIX off its highs is now at pre Lehman levels - only 1.5x normalized levels

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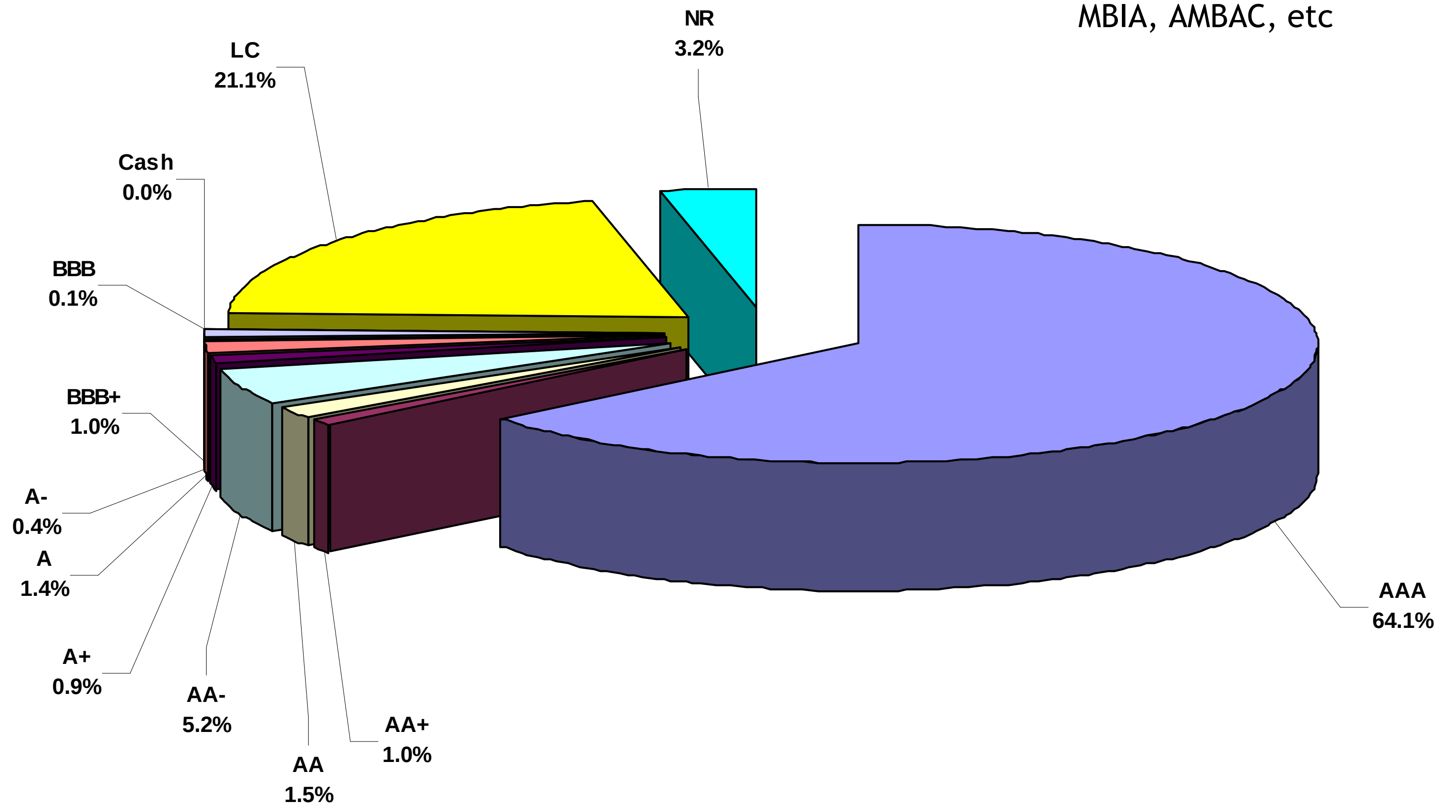
Liquidity Breakdown

Definitions

Very Liquid	Average Liquidity	Poor Liquidity
Pricing received from custodian is very reliable and anticipated that will trade relatively quickly with multiple bids/offers. Pricing within an 1/8th of a point and sell in one to two days.	Some but not all of the qualifications of “very liquid”; May or may not receive multiple bids - example solicit 6 bids and receive back only 3; Likely cost of execution to be in the range from 25 – 50 basis points;	Pricing very unreliable and inconsistently can change dramatically even day to day; multiple bids generally very difficult to obtain; Likely cost of execution to be in the range of greater than 100 basis points (250 basis points in times of high stress)
Includes US Treasuries, some US Agency Debt and some Mortgage Collateral	***Includes Agency CMO, some Mortgage Collateral, some US Agency Debt, Corporate Bonds***	***All Municipals***

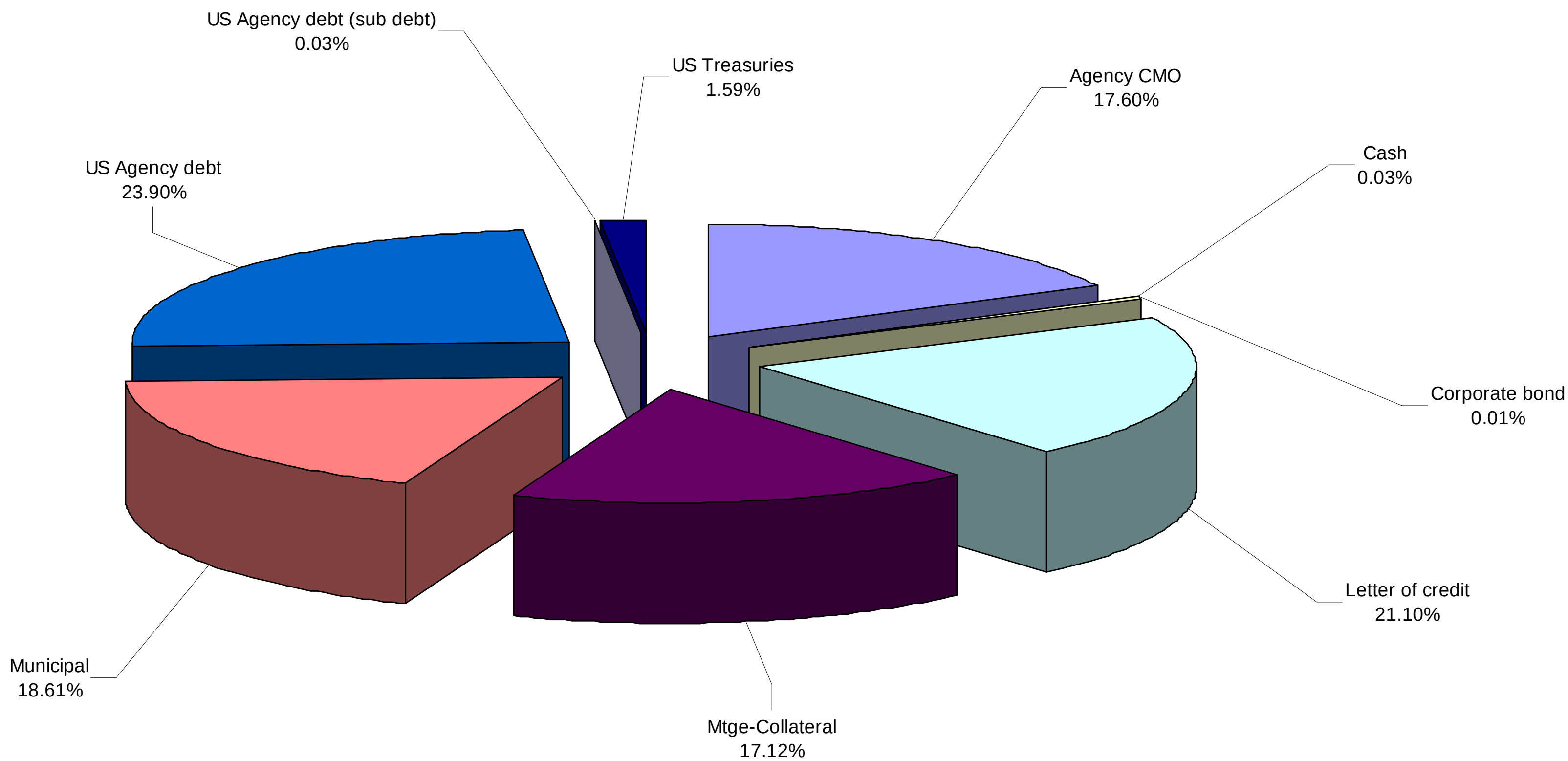
SPDA Portfolio — S&P Credit Quality

- Not all AAA are the same anymore
- Issues with Rating Agencies
- Munis AAA due to the Insurers – MBIA, AMBAC, etc

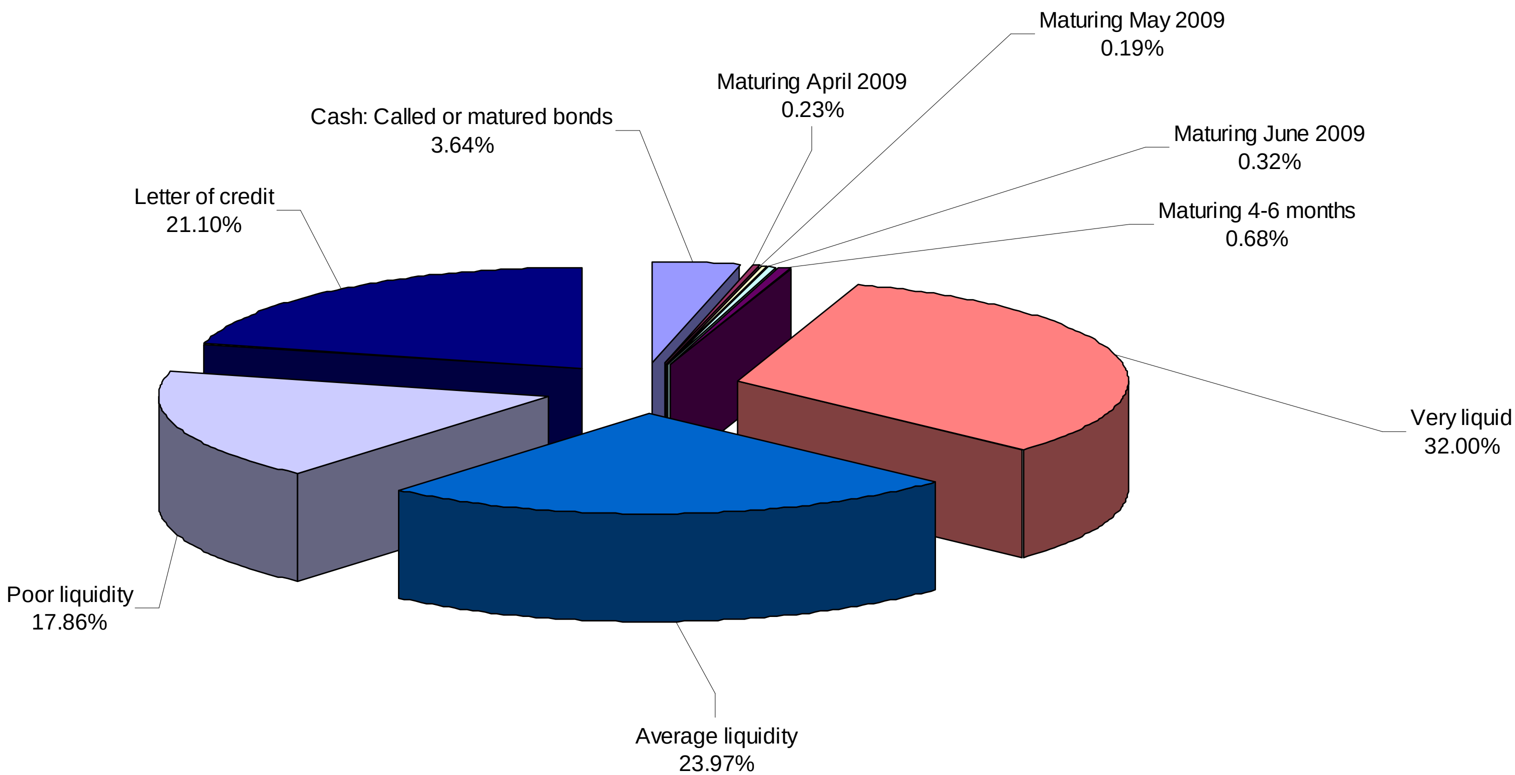


SPDA Portfolio — Sector Breakdown

- **US Agency Debt** – Bonds, Debentures issued by the Gov’t agencies Fannie, Freddie and Ginnie
- **US Agency Debt (Sub Debt)** – Same as above but when issued, rated below AAA
- **Agency CMO** – Structured mortgages made up of Mtge Collateral pools; e.g. “FNR, FHR”
- **Mtge Collateral** – Mortgage loans pooled together that meet Agency requirements (Fannie, Freddie and Ginnie); e.g securities typically starting with a pool # or “FN, FG, FH”



SPDA Portfolio — Liquidity Breakdown



Discussion Points — Pricing

- ***How reliable are reported market prices for the various types of securities, with particular attention to times of high stress in the market?***

  As liquidity declines and credit ratings are reduced, the reliability of pricing is diminished in the average liquidity and poor liquidity securities. Reported prices are just less frequent. During high stress times, government bond liquidity (Treasuries) increases as all others decline (flight to quality/safety). That said, pricing in municipal bonds is very unreliable, as muni deals are usually small in size and largely sold to individuals, they trade on an irregular basis, and when they do trade the size of the trade is generally small.

- ***How volatile is the market value of the different types of securities under normal market conditions and in a stressed market environment?***

  The primary driver of volatility is the interest rate and duration of the securities if credit is taken out of the equation. During stressed markets the willingness of market makers to commit capital becomes a primary driver to market values.

- ***Should the Treasury Board consider requiring the banks and their escrow agents to disclose their pricing sources and how they determine market value for each type of collateral that they hold? How closely should the Treasury Board monitor the market prices that are provided for the various types of securities pledged? What special capabilities\expertise would the Treasury Board need to evaluate this information?***

  Generally providers use multiple sources – IDC, JPM/BS, S&P and Reuters. The Treasury Board should request to see pricing from all vendors for comparison purposes. During periods of increased market volatility the Treasury Board may wish to require their Escrow Agents to re-collateralize positions with greater frequency than monthly. One could consider looking at indicators such as the VIX or CDX spreads to predetermine levels that would force collateralization on a more frequent basis. The Treasury Board should understand what prices are derived from actual trades that have taken place versus prices provided that are based on matrix pricing or other computations.

- ***Looking at the types of eligible collateral, how did the October/November downturn in the market affect the price of each type of security – during the October/November timeframe and currently what is the volatility risk? What other volatile periods in the market should be looked at (for example the Russian bond crisis)?***

  The better historical vantage point for precedent purposes would be the Japanese Banking Crisis of the 1990s which is similar both conceptually and in the response to the crisis. Good news is the response in the current crisis has been swift in comparison and bodes well for a quicker recovery. In many respects other market disruption events such as the Oct '87 crash, the Asian Debt Crisis were relatively short lived in comparison to the current market environment. The Japanese Bank crisis may well be the best example to seek guidance from due to the length and severity of the disruption.

- ***For the selected periods in item 6 above, show which of the eligible types of securities had the biggest drop in price and what has been the rate of recovery?***

  Munis clearly have had the largest negative impact as referenced above. Moreover, mortgage collateral and agency debt has had the largest recovery as demand in the current environment has rebounded and as stated are trading at or near 100% of their evaluation prices.

- ***Can J.P. Morgan give us any indication of the effect on the pricing and liquidation of the eligible types of securities, especially municipal securities, if the economy continues to deteriorate? If some municipalities default on their bonds, what impact does J.P. Morgan believe this will have on the municipal market?***

  Defaults in the Municipal market may be viewed as having a certain contagion risk. The larger the Municipality that might default, the larger the perceived contagion risk would be. Deterioration in the current economic environment would certainly have effects on the tax base of municipalities and thus increase default risk. Many factors beyond the economy are currently effecting valuations in municipal securities including the deteriorating health of municipal insurers. The lack of transparency of the tax code on a going forward basis for example as well as the effects of so many aspects of the stimulus programs.

Discussion Points — Pricing

				Normal / Stress	Normal / Stress
Liquidity Bucket	**MV**	**% Of Liq Bucket**	**% of total Pool**	**Reliability of Mkt Prices**	**Volatility**
Poor Liquidity	$672,776,461		18%		
Municipals	*$ 672,776,461*	*100.0%*		Not Reliable / Not Reliable	N V / Volatile
Average Liquidity	$ 902,884,980		24%		
Agency CMO	*$ 662,908,285*	*73.4%*		Reliable / Not Reliable	Volatile / V V
Mortg Coll	*$ 101,106,787*	*11.2%*		Reliable / Reliable	Volatile / V V
US Agency Debt	*$ 137,331,077*	*15.2%*		V R / V R	N V / Volatile
US Agency sub debt	*$ 1,055,630*	*0.1%*		Reliable / Reliable	N V / Volatile
Corp Bond	*$ 483,200*	*0.1%*		Reliable / Not Reliable	N V / Volatile
Very Liquid	$ 1,205,172,642		32%		
Mortg Coll	*$ 543,473,471*	*45.0%*		Reliable / Reliable	Volatile / V V
US Treas	*$ 54,250,032*	*5.0%*		V R / V R	N V / Volatile
US Agency Debt	*$ 607,449,139*	*50.0%*		V R / V R	N V / Volatile
Letter of Credit	$ 794,750,000		21%	N/A	N/A

Discussion Points — Liquidation of Securities

- ***Based on normal market conditions and then stressed market conditions, evaluate the liquidity of the various securities held as collateral by type of securities and then different classes of securities within each type and by recovery time.***

  See prior slide. For items with poor liquidity, perhaps the Commonwealth should have a "repo" line in place so that rather than force a sale, one can lend against positions held and then over time sell the underlying bonds in an orderly way. Need to bring in banking partners (Escrow Agents). As liquidity has improved significantly since last year, the above strategy would have worked well from the period of October/November to present. Concern thus in this category is primarily on Munis and Agency CMOs in times of stress.

- ***If the collateral had to be sold over a one to two day period with very little reduction in reported market value, what securities could possibly be sold at 100 percent of their market value? To what extent would the size of the pledged holdings affect the liquidation realized prices within a 48 hour time frame? A longer time frame?***

  US treasury, mortgage collateral, and agency debt are very much in demand in the current environment and for the most part be sold close to 100% of their evaluation price. Several of the US Agencies that we analyzed are callable and from smaller issues that will require some concession in price to sell in the order of 1/4-1/2 a point. For Treasuries and Agencies the size that you are holding would not have an impact on the market even over a 48 hour period, let alone a longer time frame. Concern thus in this category is primarily on Munis and Agency CMOs in times of stress.

- ***If the collateral could be sold over a two-five day period, how would that change your recommendations? Over several weeks?***

  In systemic risk, the risk of default to any of your institutions is highest during a period of economic weakness and high market volatility. The advent of default would most likely be caused by write-downs of assets being held by financial institutions. With this backdrop in mind, the differential in time between a couple of days and weeks is of little consequence when dealing with lower credit or less liquid securities. When dealing with idiosyncratic risk, we could be dealing with a healthy economic background but a troubled financial institution. In that case, securities across the risk spectrum may be able to be liquidated without much market impact especially if one was able to slightly extend the duration of the sales.

- ***If Treasury Board wanted to continue to permit less liquid securities (such as muni-bonds) to be eligible collateral, what percentage of "excess value" over listed price should the Treasury Board consider requiring to ensure the recovery of 100 percent of public deposit balances?***

  See slide on risk/reward. Municipal securities carry a range of ratings and issue sizes that have an effect on the haircut or discount that one might receive by being a forced seller. Frequency of mark-to-market is also a factor. The over-collateralization needs to be a function of the expected discount that the Commonwealth would receive during a period of economic stress and market volatility on municipal securities versus Agencies and governments in an attempt to avoid assigning a over-collateralization factor to each credit, duration and issue size bucket. The Commonwealth may be best served by applying an average discount to all municipals but also limiting the percentage any one institution can collateralize through municipal securities. The average size of the municipal positions held by the Commonwealth was approximately $536,000. We estimate that during a period of duress in the market the discount for selling a position of this size might be on average 200 bps. We would suggest increasing the collateral required against municipal positions by the estimated discount.

- ***If Treasury Board had to liquidate a large block of one of the eligible security types, what effect would this possibly have on the market under normal trading conditions and also under stressed market conditions? How much of each type of security would potentially have to be sold to impact the market? How would this affect market price?***

  Negligible effect under either scenario based on the current size of the SPDA portfolio, and even if that makeup were to become more concentrated. JPMorgan has performed Fixed Income transitions multiples of this size…

Discussion Points — Cost of Liquidation

- ***If a firm had to be hired to assist with liquidating a portfolio of collateral, what is the going price for this type of service based on varying sizes and types of portfolios? Factor in varying dollar amounts of the portfolio to be sold which could range from $1 million to $350 million or more. Factor in that there could be ten to twenty securities to several hundred securities in the portfolio to be liquidated. There could also be a variety of different security types in the portfolio.***

  For a security pool of mixed types and liquidity, it would be in the Treasury's best interests to work with a Transition provider that offers Agency execution for a negotiated "commission". A Transition Manager providing Agency execution will deliver to the Commonwealth multiple bids and provides full transparency and reporting. The fewer lines of securities, larger the size and the more liquid the securities, generally speaking the lower the commission. Commissions range from 4 – 15 basis points generally speaking, with 10-15 being the market rate for large, less liquid portfolios, or liquid portfolios with small dollar notional values.

  Example of pricing for a large, liquid portfolio:

  Domestic Fixed Income Basis Point:
  Less than $500 million - 4-6 bps
  $500 million to $1 billion - 3-5 bps
  $1 billion and up - 2-4 bps

  Non-US Fixed Income Basis Point
  Less than $500 million - 6 bps
  $500 million to $1 billion - 3-5 bps
  $1 billion and up - 2-4 bps

- ***How would J.P. Morgan recommend factoring the cost of liquidating the various types of securities into the collateral requirements? (For example, increasing the market value of the collateral to be pledged by certain percentages based on the types of securities pledged and the difficulty in selling them at their recorded market value.)***

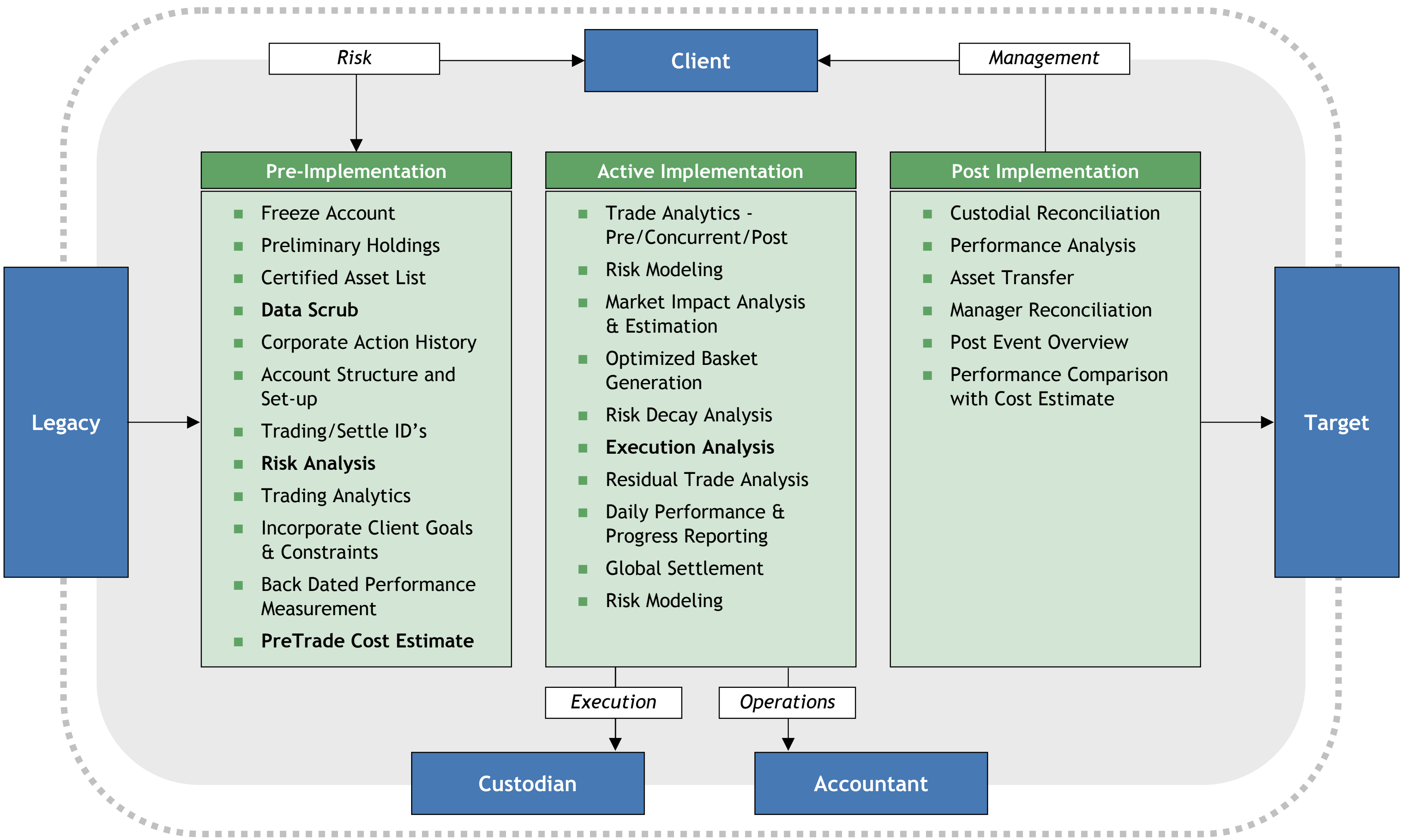
  Commissions, for example 10 basis points or 0.1%, should not be a factor in the collateral requirements. We suggest considering simply increasing collateral amounts to for example 102%, and potentially moving toward a more frequent mark to market or collateral assessment particularly during times of high market stress.

What is Transition Management?

- The coordination and execution of portfolio restructuring driven by:
  - **Manager terminations**
  - Manager personnel changes
  - Rebalancing
  - Changes in asset allocation
  - Corporate and/or Plan mergers
  - **Liquidation to raise cash**
  - **Liquidation of securities lending collateral pool post Lehman Brothers Bankruptcy filing**
- TM service includes planning, pre-trade & strategy development, trade execution, and post-trade analysis
- Can involve multiple asset classes and markets (cash and derivatives)

Full Service Transition Manager

Successful transitions encompass more than just the trade execution



Discussion Points — Eligible Collateral

- ***Should the Treasury Board consider limiting the percentage of certain types of securities that can be pledged by a bank as collateral to facilitate a smoother liquidation of the collateral?***

  The Treasury Board should consider limiting the percentage and types of securities that can be pledged Specifically limit the amount of poor liquidity from any one bank or S&L to less than 25% from any one institution OR require that if Munis are to be utilized that these deposits are over collateralized up to 105%; discussed more in Suggestions.

- ***Should the Treasury Board consider raising the debt ratings that are required of certain types of securities pledged such as municipals?***

  Raising the debt ratings on Municipals as exhibited by analysis would not necessarily have desired effect; Municipals can receive AAA because they have insurance; Liquidity is biggest issue in Muni market versus default rates (see chart); discussed further in Suggestions.

- ***Should the Treasury Board consider limiting the types and/or the percentage of municipal and other asset-backed securities that may be pledged? Which are more marketable and less subject to price fluctuations than others?***

  Marketable means not subject to market impact, as opposed to being subject to price fluctuations.

  Suggestion is to limit the % of "poor liquidity" securities from any one institution or increase the collateral requirement – or both. Both will provide the Commonwealth greater protection. See Suggestions section.

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Disciplined Collateral Risk Management — Risk / Reward Trade-offs

SPDA Collateral Program

LOWER RISK ⟷ HIGHER RISK

J.P. Morgan Suggestion

- US Treasuries
- US Fully guaranteed Agency Debt
- 102% collateralization
- FHLB Letter of Credit (20% overall) from accredited institutions
- One to two Escrow providers providing daily marks in normal market conditions
- Consider repo line with Escrow Bank(s)

Opt Out Banks

Optimal Collateral requirement

- US Treasuries
- US Fully guaranteed Agency Debt
- US Agency Debt - Fannie, Freddie and/or Ginnie Mae[1] securities
- Limit Munis and Agency CMOs and mortgage collateral
- FHLB Letter of Credit from accredited institutions
- AAA-rated Municipal Securities
- Collateralization based on security type and duration
- One to three Escrow providers

Pooled Banks

Optimal Collateral requirement

- US Treasuries
- US Agency Debt - Fannie, Freddie and/or Ginnie Mae[1] securities
- FHLB Letter of Credit from accredited institutions
- AAA-AA rated Municipal Securities
- AAA-AA rated high-quality[8] asset-backed securities

Requiring 100-102% Collateralization on Munis and Agency CMOs

Three or more Escrow providers providing monthly marks in normal and stressed market conditions

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- US Treasuries
- US Agency Debt - Fannie, Freddie and/or Ginnie Mae[1] securities
- FHLB Letter of Credit from accredited institutions
- AAA-AA rated Municipal Securities
- AAA-AA rated high-quality[8] asset-backed securities
- AAA-AA rated lower-quality[10] asset-backed securities

Requiring 50-100% Collateralization on all security types

Three or more Escrow providers providing monthly marks in normal and stressed market conditions

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- US Treasuries
- US Agency Debt - Fannie, Freddie and/or Ginnie Mae[1] securities
- FHLB Letter of Credit from accredited institutions
- AAA-AA rated Municipal Securities
- AAA-AA rated high-quality[8] asset-backed securities
- AAA-AA rated lower-quality[10] asset-backed securities
- Other corporate bonds, notes, asset-backed commercial paper, asset-backed securities

Requiring 50-100% Collateralization on all security types

Three or more Escrow providers providing monthly marks in normal and stressed market conditions

Suggestions for The Commonwealth's Consideration

- Markets have continued to come off post Lehman Bankruptcy lows / wide spreads; VIX at pre Lehman levels
- (Stressed markets defined for our purposes as VIX greater than 40)
- Repo line with Escrow bank(s) – another reason to consider consolidating Escrow banks and renegotiating Escrow Agreements
- Suggest The Commonwealth consider the following modifications to its collateral program:

OPT OUT BANKS

- Consider requiring 102% if banks post US treasuries and/or fully guaranteed Agencies ONLY;
- Or , consider overall higher collateralization based on security type and duration (level of importance is increased with only a monthly mark-to-market
  - Consider eliminating "poor liquidity" securities (munis)
  - Consider limiting Agency CMOs and Mortgage Collateral to no more than 15% from any one bank and assigning collateral value to perhaps 80%; AAA only
- Letters of Credit 21% of existing pool; The only letters of credit that The Commonwealth accepts are irrevocable standby letters of credit issued by the Federal Home Loan Banks to secure public deposits of governments.
- More frequent mark to markets – Daily. May require utilizing one Escrow Agent for Opt Out Bank collateral; Then monitoring Duration is less of an issue;
- Consider opening repo line with Escrow Bank for purposes of eliminating "need for speed" in selling collateral
- Opt out banks should have credit rating from Moody's / S&P / other source of A or better

POOLED BANKS

- Consider overall higher collateralization based on security type and duration (level of importance is increased with only a monthly mark-to-market)
- US Agency debt – consider limiting to no more than 25% from any one bank and assigning collateral value of 95%
- Consider limiting "poor liquidity" securities (munis) to alleviate liquidity concerns during high market stress times;
  - Consider reducing to 10% from any one bank and assigning collateral value to the lower of all FRS collateral guidelines – as an example 80%; AAA only AND requiring diversification of Munis posted
  - Consider limiting Agency CMOs and Mortgage Collateral to no more than 20% from any one bank and increasing collateral requirement to conform with FRS guidelines bu security type and duration; daily marked for any bank posting these securities; AAA only
- Letters of Credit 21% of existing pool; The only letters of credit that The Commonwealth accepts are irrevocable standby letters of credit issued by the Federal Home Loan Banks to secure public deposits of governments.
- Several solutions or improvements available – e.g. limit % of "poor liquidity"; demand over collateralization; Increase the frequency of mark-to-market during times of stress; Can also consider whether to determine collateral requirements based more on the health of the institution, but less practical and harder to implement; Could look to S&P / Moody's Credit Watch
- Identify pricing sources from custodian banks and have full understanding of consistency and frequency; Consider reducing number of approved Escrow banks to one or two for pricing improvement and leverage for daily mark to marks

Table of Contents

J.P.Morgan's Approach to Financial Management

- JPMorgan Chase & Co. is a leading global financial services firm with $13.2 trillion in assets under custody, $5.4 trillion in assets under administration, and firm assets of $1.8 trillion.
- JPMorgan Chase & Co. has operations in more than 60 countries.
- The firm is a leader in investment banking, financial services for consumers and business, financial transaction processing, asset and wealth management and private equity.

JPMorgan Chase & Co.

Investment Bank
- # 1 Global Syndicated Loans
- # 1 Global Leveraged Loans
- # 2 Global High Yield Corporate Bonds
- # 2 Global Debt, Equity & Equity-Related
- # 2 Global Emerging Markets Corp. Debt
- # 2 Global Investment Grade Corp. Bonds
- # 3 Global Announced M&A
- # 3 International Emerging Market Bonds

Asset & Wealth Management
- $1.2 trillion in assets under supervision
- $898 billion of assets under management, including
  - $86 billion of alternatives
  - $171 billion of long-term fixed income
  - $392 billion in equity and balanced

Treasury & Securities Services
- # 1 in USD Clearing & Commercial Payments
- # 1 Securities Custodian
- # 2 ADR Bank in market capitalization under management
- Leader in Securities Lending

Card Services (Managed)
- # 1 Global Co-brand Rewards Issuer
- # 1 Global Merchant Acquirer
- # 1 Global Visa Issuer
- # 2 U.S. Credit Card Issuer
- # 3 Global MasterCard Issuer

Retail Financial Services
- # 2 in Total Deposits
- # 4 in Mortgage Originations and Servicing
- # 2 in Home Equity Originations
- # 1 in Auto Finance (non-captive)

Commercial Banking
- More than 25,000 commercial banking customers
- 42% market penetration and 14% lead share in our 15-state footprint, nearly twice that of our nearest competitor
- # 1 Asset-Based Lender

J.P.Morgan's Approach to Financial Management

Recent Market Events are absolutely unprecedented, and pose tremendous challenges

In a turbulent economic environment, the health of your banking institution can directly impact your ability to provide the mandatory services to the Commonwealth. We want to offer you reassurance that J.P. Morgan's approach to financial management has allowed us to achieve our objective of maintaining liquidity, preserving capital and providing current income throughout both historical cycles and past market events. Although current market conditions clearly pose very significant challenges, we believe we are coming into this period well prepared to weather a substantial financial storm and provide support and solutions to our clients and strategic partners.

Important Facts:

- Even after our acquisition of WAMU, we continue to be well capitalized under regulatory definitions.
- Our deposit base represents a stable source of funding for the Firm. Total deposits of approximately $900 billion represent balances both in our retail and wholesale businesses.
- We have total assets of $2 trillion with exposures to a diverse group of wholesale and consumer markets.
- We have large reserve levels across all of our wholesale and consumer businesses.
- Our credit ratings remain strong
- J.P. Morgan money market funds maintain a strong liquidity and credit quality profile, evidenced by the fact that J.P. Morgan has never delayed payment of redemption proceeds on a money market fund even in times of great stress in the markets, such as the events surrounding 9/11.
- The team running J.P. Morgan is solid and experienced. Together this team has successfully weathered a number of financial crises. We are confident that they have made, and will continue to make, measured and sound decisions.
- Jamie Dimon has commented that the first two months of 2009 have been profitable.

Current Credit Ratings, Financial Information & Capital Ratios

Current Credit Ratings for JPMorgan Chase & Co. & JPMorgan Chase Bank, N.A.

JPMorgan Chase & Co.

	Moody's	S&P	Fitch
Outlook	Negative	Negative	Stable
Commercial Paper	P-1	A-1	F1+
Senior Unsecured	Aa3	A+	AA-
Subordinated	A1	A	A+
Junior Subordinated	A1	A-	A+
Preferred Stock	A2	A-	A+

JPMorgan Chase Bank, N.A.

	Moody's	S&P	Fitch
Short-term Deposits/Debt	P-1	A-1+	F1+
Long-term Deposits/Debt	Aa1	AA-	AA-

Financial Information & Capital Ratios (As of September 30, 2008)

Capital Base	Value
Total Assets	**$2.3 trillion**
Total Stockholder Equity	**$137 billion**
Market Capitalization	**$174 billion**

Capital Ratios	JPMorgan Chase & Co.	Regulatory Minimum
Tier 1 Capital Ratio	8.9%	4%
Total Capital Ratio	12.7%	8%
Tier I Leverage Ratio	7.2%	4%

Income	JPMorgan Chase & Co.	Treasury & Securities Services
Total Revenue*	$14.7 billion	$2 billion
Net Income*	$527 million	$406 million
Return on Equity	(1)%	46%

** Value for the quarter ending September 30, 2008, not YTD*

Fixed Income — Transition Execution & Oversight Solution

STAGE 1 — Transition Management

Fees, Pricing & Liquidity

- Acceptable price and liquidity parameters discussed and set prior to execution, considering current conditions and custody pricing
- Pre-agreed upon agency commission attached to portion of portfolio executed by Transition Management desk

Execution Activities

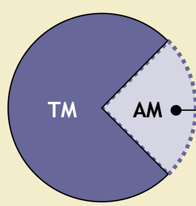
Transition Management

- Complete pre-trade on assets in legacy portfolio
- Identification of illiquid, high impact names
- Objective assessment of portion likely to trade in transition management stage
- Liquidation of most liquid portion of portfolio

Timeframe

< 10 Days

Pre-agreed short-term timeframe



STAGE 2 — Asset Management

Fees, Pricing & Liquidity

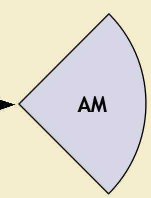
- Asset Management executes securities within appropriate and pre-agreed parameters
- Asset Management fee attached to residual portion of legacy portfolio

Execution Activities

Asset Management

- Residual portfolio transferred to J.P. Morgan Asset Management for fiduciary oversight, maintenance and ultimate liquidation
- Professional asset management by team of J.P. Morgan portfolio managers
- Residual securities continuously reviewed / market intelligence shared with Plan

Timeframe



> 10 Days

Renewable one year assignment

Glossary

- Basis Risk
  - Risk associated with imperfect hedging using futures;
- CDS – Credit Default Swap
  - A credit default swap (CDS) is a credit derivative contract between two counterparties. The buyer makes periodic payments to the seller, and in return receives a payoff if an underlying financial instrument defaults
- CMO - Collateralized mortgage obligation
  - a CMO is a special purpose entity that is wholly separate from the institution(s) that create it. The entity is the legal owner of a set of mortgages, called a pool. Investors in a CMO buy bonds issued by the entity, and receive payments according to a defined set of rules.
- Credit Spread – Yield spread
  - Difference in yield between different securities, due to different credit quality. Liquidation of securities lending collateral pool post Lehman Brothers Bankruptcy filing
- Duration
  - Sensitivity of the asset's price to interest rate movements; the percentage change in a bond's price function with respect to interest rate; Duration units are years;
- "FHR" – Freddie Mac
  - Agency Collateralized mortgage pool
- "FNR" – Fannie Mae
  - Agency Collateralized mortgage pool
- "GNR" – Ginnie Mae
  - Agency Collateralized mortgage pool
- VIX – Chicago Board Options Exchange Volatility Index (aka "fear index")
  - Popular measure of the implied volatility of S&P 500 index options. A high value corresponds to a more volatile market and therefore more costly options, which can be used to defray risk from volatility Can involve multiple asset classes and markets (cash and derivatives)

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