



**To:** Cash Management Policy Board

**From:** John Krimmel, Partner and Jennifer Appel, Senior Analyst

**Date:** August 13, 2018

**Subject:** Delaware Budget Reserve Account 'Rainy Day Fund' Reserve Analysis

**Background**

NEPC was asked to update the Delaware Budget Reserve Account (Rainy Day Fund) analysis to ensure that an adequate reserve or cushion above the statutorily required amount was maintained. The minimum amount that must be maintained in the Budget Reserve Account, for Fiscal Year 2019 is \$240,415,000, which is an increase of \$8,775,000 from the Fiscal Year 2018 level of \$231,640,000. The current reserve or cushion for Fiscal Year 2018 was \$5 million bringing the total to \$236,640,000.

Consistent with the prior year review, JP Morgan and NEPC prepared analyses that considered increases in interest rates and other market shocks. The results of these separate analyses are presented in the following section and result in a recommendation for consideration by the Cash Management Policy Board.

**Analysis**

JP Morgan prepared the following analysis of the reserve based upon interest rate increases of 0.25%, 0.50%, and 1.00%.

Impact of Rate Changes on JPM Reserve Portfolio  
(and pro-rated impact on Rainy Day Fund)

As of June 30, 2018

Entire Portfolio		Rainy Day Portion	% of Total
Market Value	\$ 302,199,900	\$ 240,415,000	79.55%
Duration	1.64	1.64	
Interest Rate Shock (bps)			
25	\$ (1,241,286)	\$ (987,505)	
50	\$ (2,482,572)	\$ (1,975,009)	
100	\$ (4,965,144)	\$ (3,950,018)	



NEPC conducted a second analysis using JP Morgan’s historical volatility (standard deviation) and NEPC’s 2018 Capital Market Assumptions to determine expected volatility and confidence intervals. The analysis, presented below, mirrors the JP Morgan analysis in that the first result (labeled “Gross Decline”) presents the immediate results of a market shock and the second result (labeled “Net Decline”) presents the results (gain or loss) one-year forward.

State of Delaware  
Budget Reserve Account "Rainy Day Fund"  
Data as of June 30, 2018

Required Balance \$240.415 million

	<u>Return</u>	<u>Volatility</u>	<u>Gross Decline with a</u>		
			<u>1 SD Event</u>	<u>2 SD Event</u>	<u>3 SD Event</u>
JP Morgan Actual (3-Yrs)	0.91%	0.91%	\$ (2,187,777)	\$ (4,375,553)	\$ (6,563,330)
NEPC Capital Market Assumptions	2.51%	2.69%	\$ (6,467,164)	\$ (12,934,327)	\$ (19,401,491)

	<u>Return</u>	<u>Volatility</u>	<u>Net Decline with a</u>		
			<u>1 SD Event</u>	<u>2 SD Event</u>	<u>3 SD Event</u>
JP Morgan Actual (3-Yrs)	0.91%	0.91%	\$ 3,822,599	\$ 1,634,822	\$ (552,955)
NEPC Capital Market Assumptions	2.51%	2.69%	\$ (456,789)	\$ (6,923,952)	\$ (13,391,116)

Net Decline is a 1-year forward looking decline assuming the portfolio earns a 2.5% yield.

The table below presents the two analyses. Consistent with our findings last year, using JP Morgan’s historical volatility, the 1-standard deviation (Gross Decline) event corresponds roughly with the 0.50% interest rate increase (instantaneous), while the 2-standard deviation event corresponds roughly with a 1.00% increase.

State of Delaware  
Budget Reserve Account "Rainy Day Fund"  
Comparative Analysis

	<u>25 bps</u>	<u>50 bps</u>	<u>100 bps</u>
JP Morgan Results	\$ (987,505)	\$ (1,975,009)	\$ (3,950,018)
	<u>1 SD Event</u>	<u>2 SD Event</u>	<u>3 SD Event</u>
NEPC Gross Decline	\$ (2,187,777)	\$ (4,375,553)	\$ (6,563,330)
NEPC Net Decline	\$ 3,822,599	\$ 1,634,822	\$ (552,955)



In recent meetings with JP Morgan and other fixed income investment managers, each of the firm's outlooks were that rates would likely rise, but none anticipated more than three to four short-term interest rate increases by the Federal Reserve over the next 12 months.

**Summary & Recommendation**

In summary, both the JP Morgan and NEPC analyses indicate that the current \$5 million reserve or cushion in Delaware's Budget Reserve account can withstand a 1.00% or 2-standard deviation event.

Based on the result of these analyses, we believe that the Delaware Budget Reserve Account should maintain the \$5 million reserve.

We look forward to discussing the analysis with the Investment Subcommittee Meeting of the Cash Management Policy Board on Wednesday, August 22, 2018.