

## Trust for Credit Unions

### Interest Rate Sensivity Analysis - Duration and Price Impact

TCU Short Duration Government Portfolio									
As of	10/31/2017								
Convexity	-0.40								
Duration	1.94								
	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>← Lower</span> <span>Interest Rate Change</span> <span>Higher →</span> </div>								
<b>Rate Change (%)*</b>	-3.0	-2.0	-1.0	-0.5	0.0	0.5	1.0	2.0	3.0
<b>Duration Impact**</b>	0.00	0.50	1.22	1.60	1.94	2.15	2.28	2.42	2.48
<b>Price Impact (%)</b>	2.62	2.56	1.62	0.90	0.00	-1.03	-2.13	-4.42	-6.74

TCU Ultra Short Duration Government Portfolio									
As of	10/31/2017								
Convexity	0.00								
Duration	0.86								
	<div style="display: flex; justify-content: space-between; align-items: center;"> <span>← Lower</span> <span>Interest Rate Change</span> <span>Higher →</span> </div>								
<b>Rate Change (%)*</b>	-3.0	-2.0	-1.0	-0.5	0.0	0.5	1.0	2.0	3.0
<b>Duration Impact**</b>	0.00	0.18	0.68	0.73	0.86	0.96	1.03	1.15	1.24
<b>Price Impact (%)</b>	1.33	1.32	0.75	0.40	0.00	-0.46	-0.96	-2.05	-3.22

\*Assumes instantaneous parallel shift in yield curve.

\*\*Duration for given level of interest rate change and convexity assuming there is no active management and hedging.

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Effective duration estimates the percentage price move of a bond for a given parallel shift in interest rates. Effective duration accounts for any optionality embedded within a bond adjusting cash flows accordingly. For instance a mortgage backed security with an effective duration of 3% would change by roughly 3% for a 100 bps change in interest rates, the estimate would also account for the cash flow variability of mortgage backed securities.

Convexity measures the sensitivity of a bond's duration to changes in interest rates and is used with effective duration to more accurately estimate changes in price for a given change in interest rates.

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