



# TAIL RISK

Tad Montross



Photo Source: Google Images

“There are known knowns;  
there are things we know that  
we know.

There are known unknowns;  
that is to say, there are things  
that we now know we don't  
know.

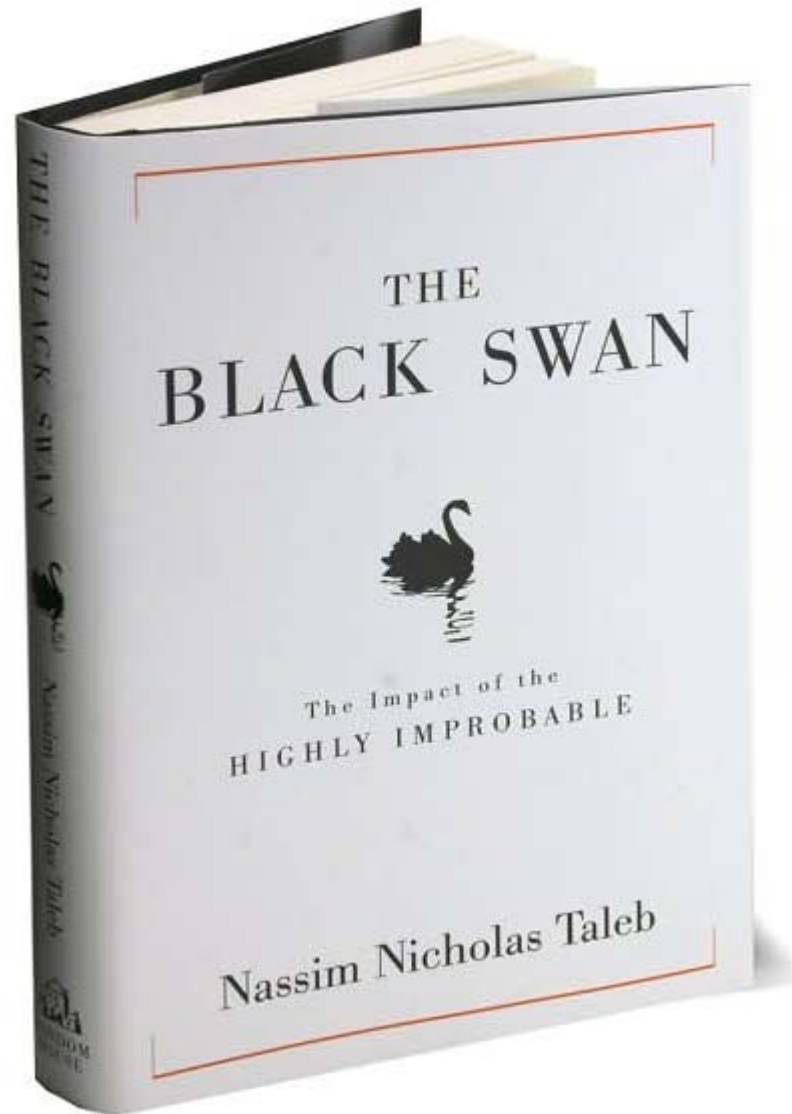
But there are also unknown  
unknowns – there are things  
we do not know we don't  
know.”

Donald Rumsfeld, February 12, 2002



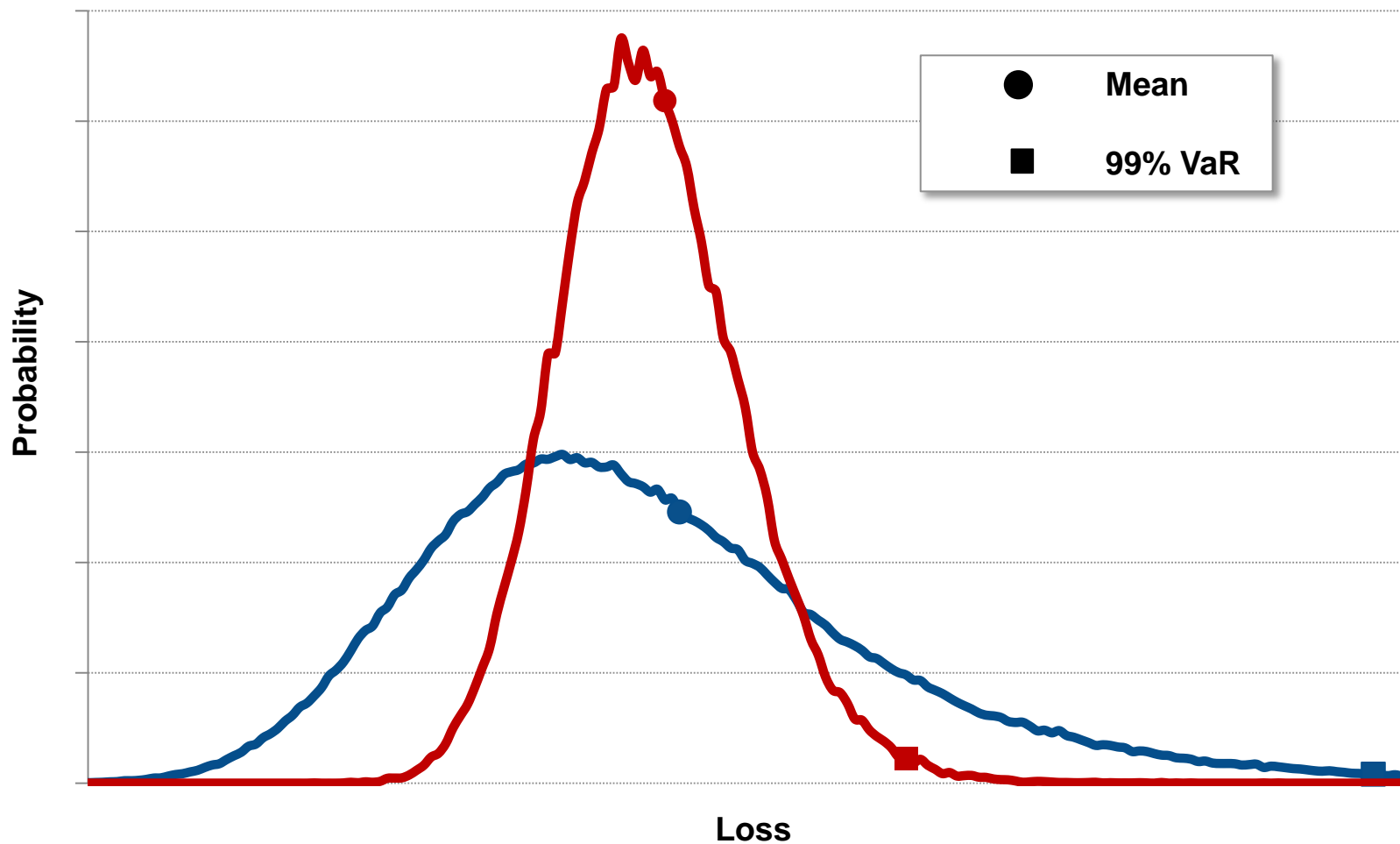
Source: NASA

# The Black Swan



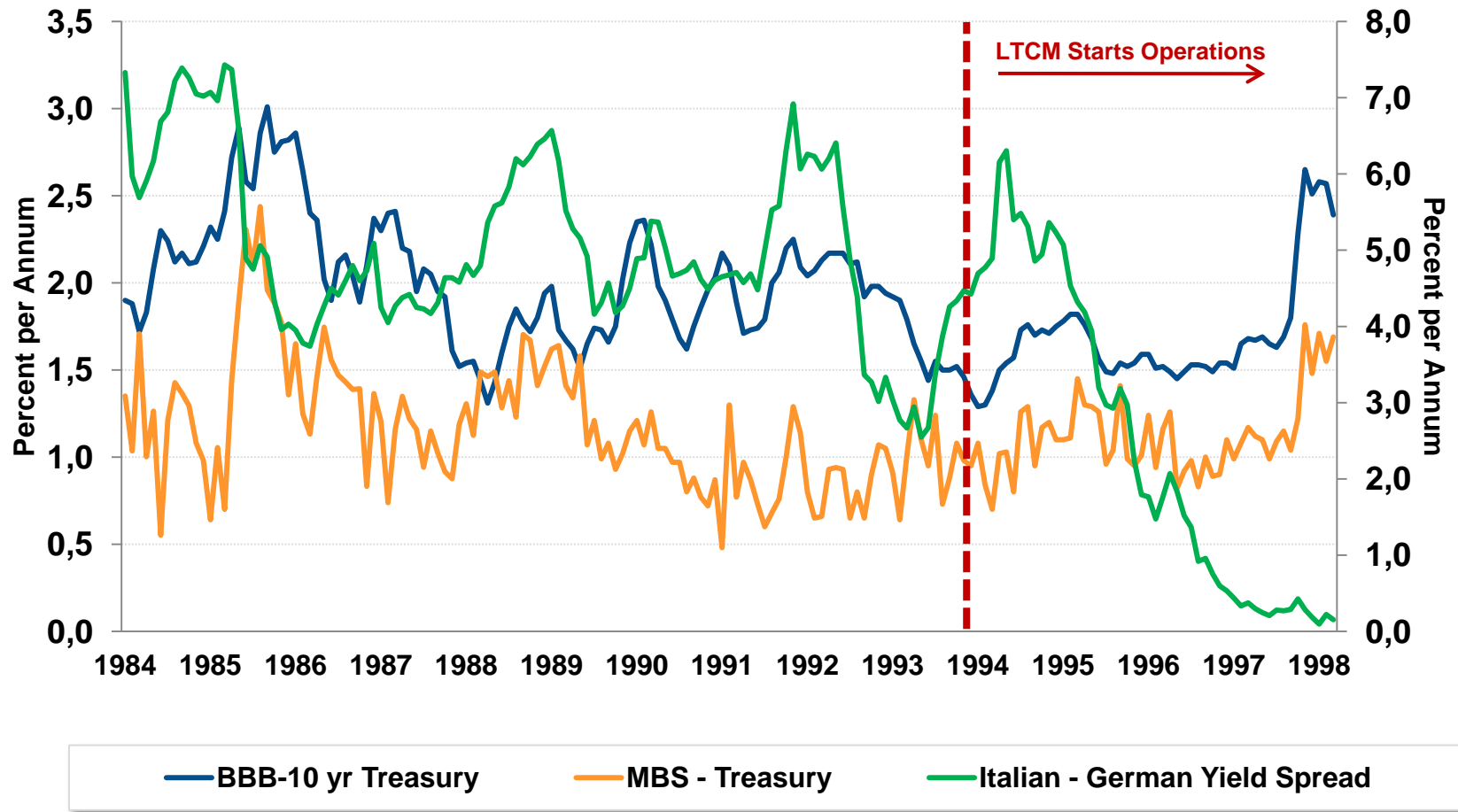
Source: Google Images

# Tail Risk





## Bond Yield Spreads

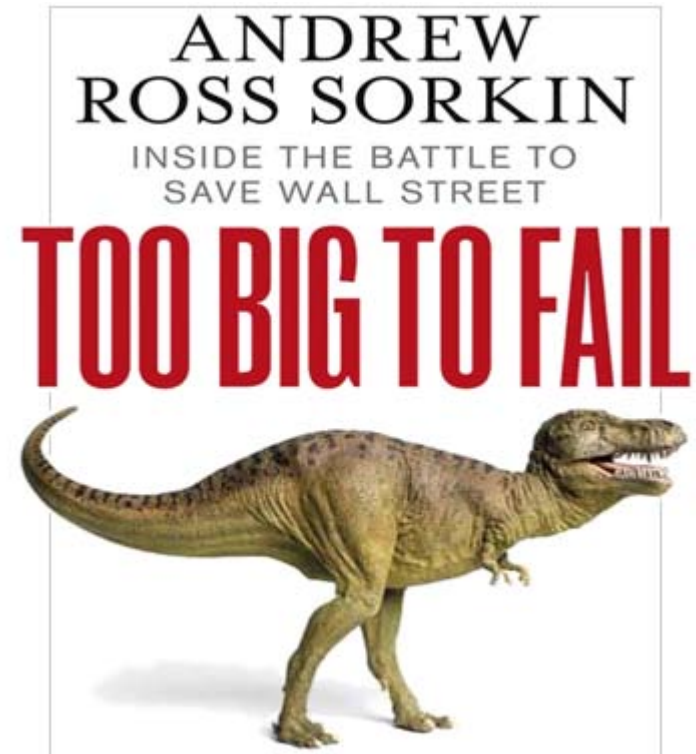


Source: Federal Reserve Board, Deutsche Bundesbank, Banca D'Italia, Bloomberg, Haver

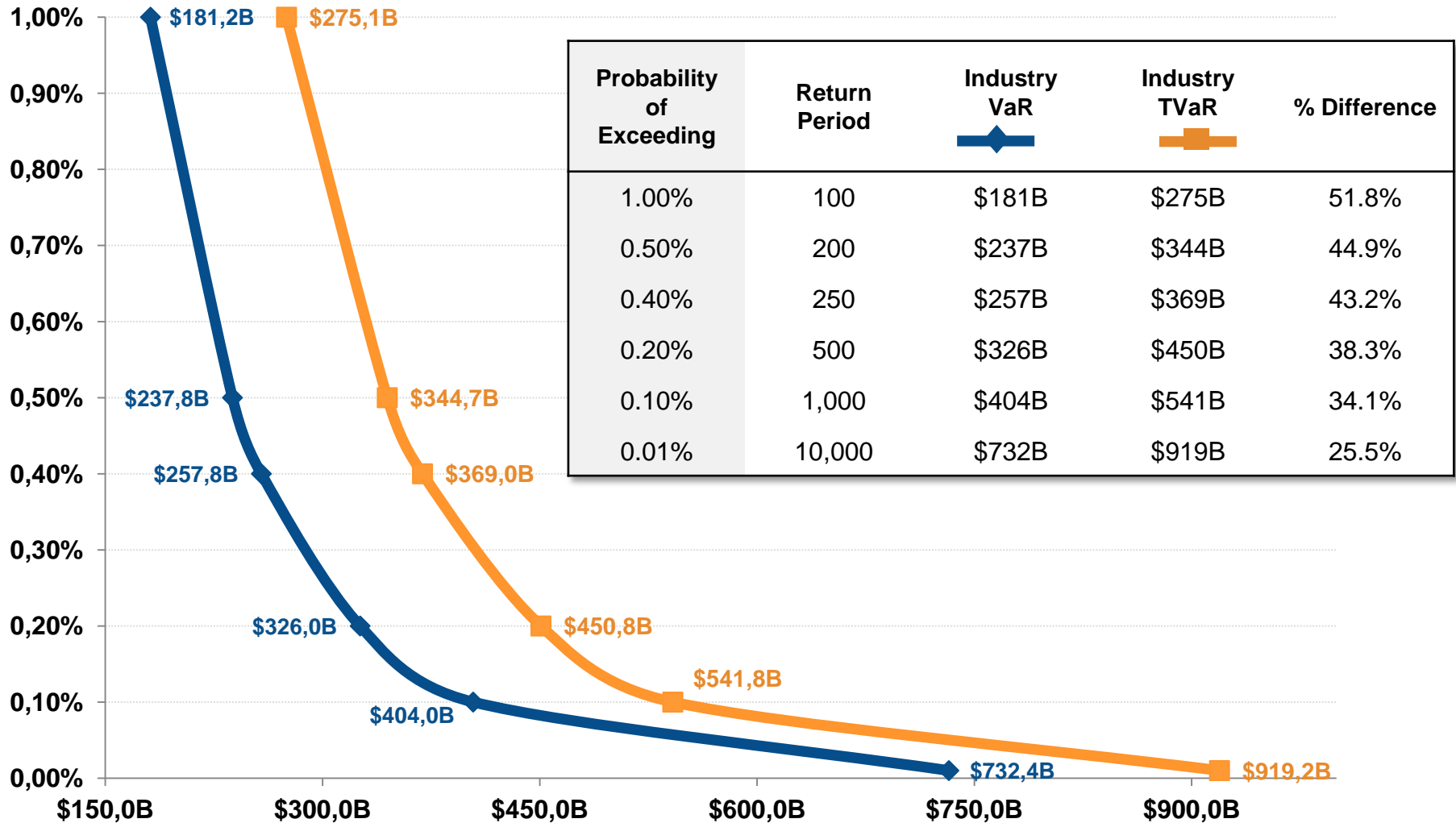
Note: BBB-10 yr Treasury and MBS-Treasury graphed on primary Y-axis; Italian-German Yield Spread graphed on secondary Y-axis



1. Tail Risk– Housing Market
2. Liquidity – Collateral
3. Leverage – 40 to 1



# Industry Natural Catastrophe Losses

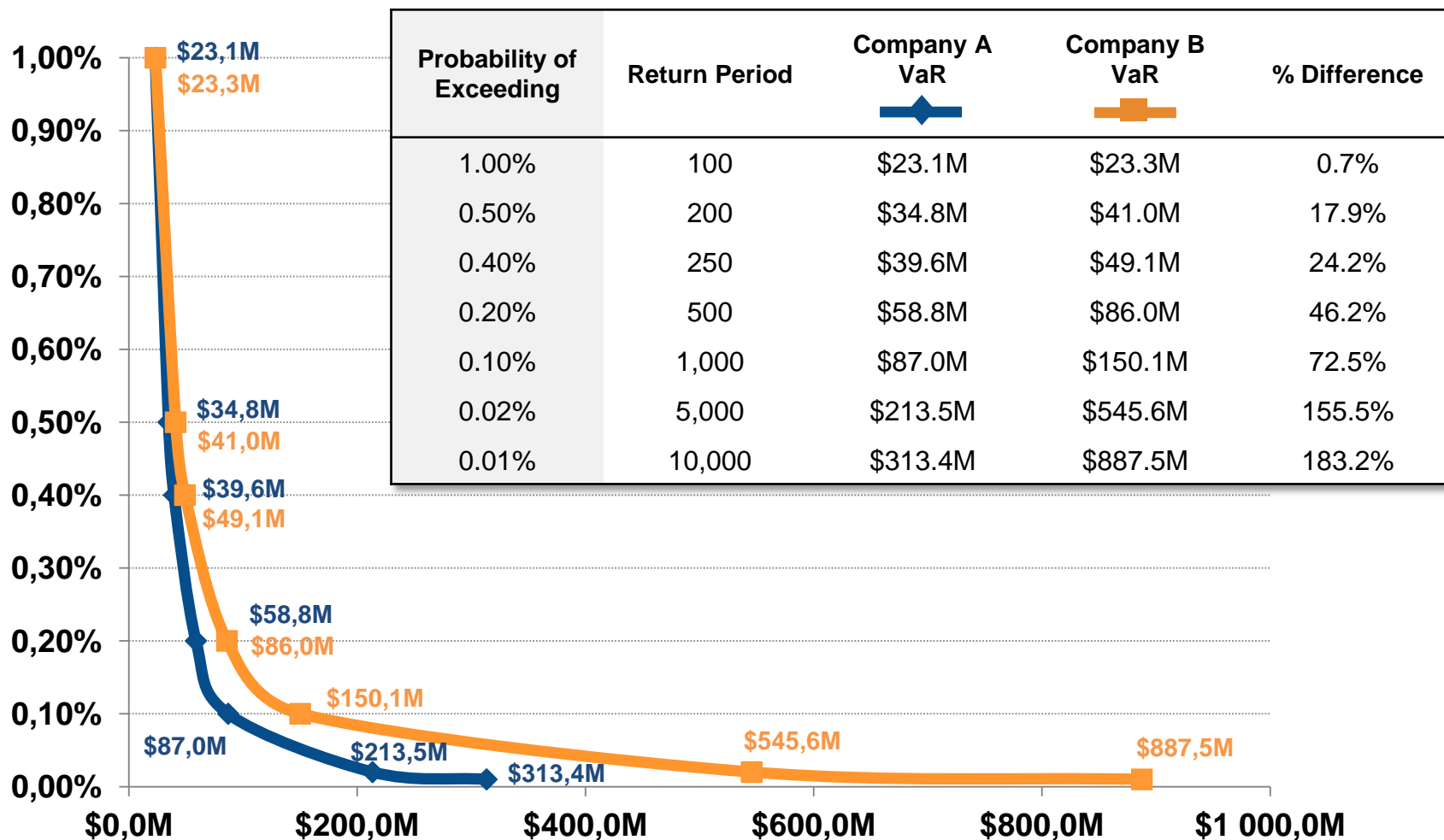




# Catastrophe Models



## Tale of Two Tails



A close-up photograph of a scorpion on a bed of light-colored, coarse sand. The scorpion is dark brown with a segmented tail and two large pincers. A semi-transparent white rectangular box is overlaid on the right side of the image, containing the text "Thank You" in a bold, blue, sans-serif font.

**Thank You**