Risk Management As an Art: Some History

By

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History of Risk Management in Banks: Using the Language

- History of Risk Management
  - A Personal Story
  - Developed in Response to Losses
- Tools are just Tools, not Solutions
  - Technique vs. Theory – Scary Maths
  - LTCM – Optimization on History distorts Risk
  - SIVs – The Perfect Misunderstanding
- Art is Knowing How to Apply the Tools

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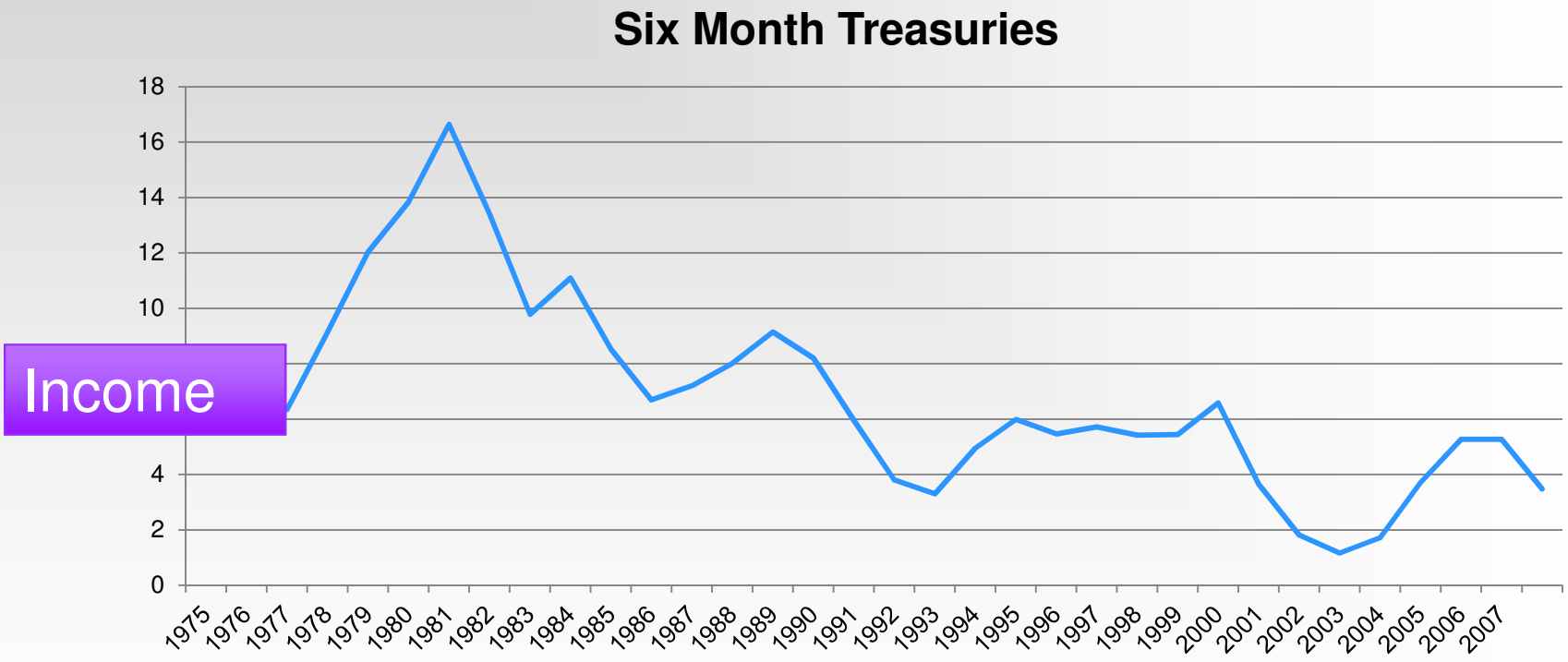
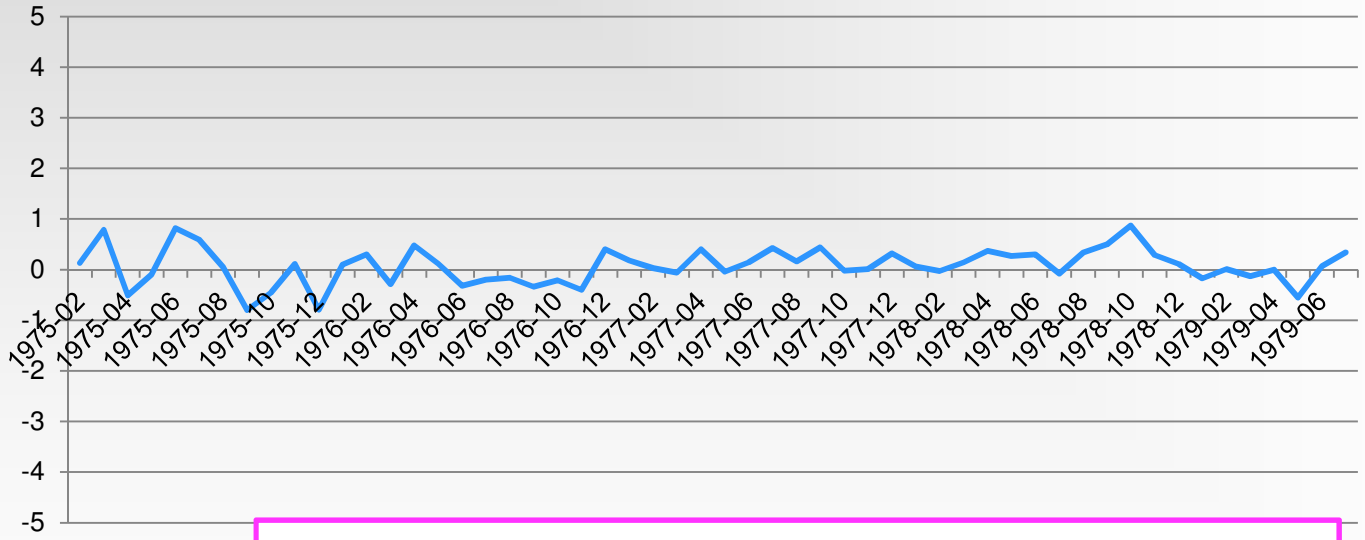
Treasury Rates and Bank Risk Measures 1975 – 2009



Change in 5 year U S Treasuries 1975 till August 1979

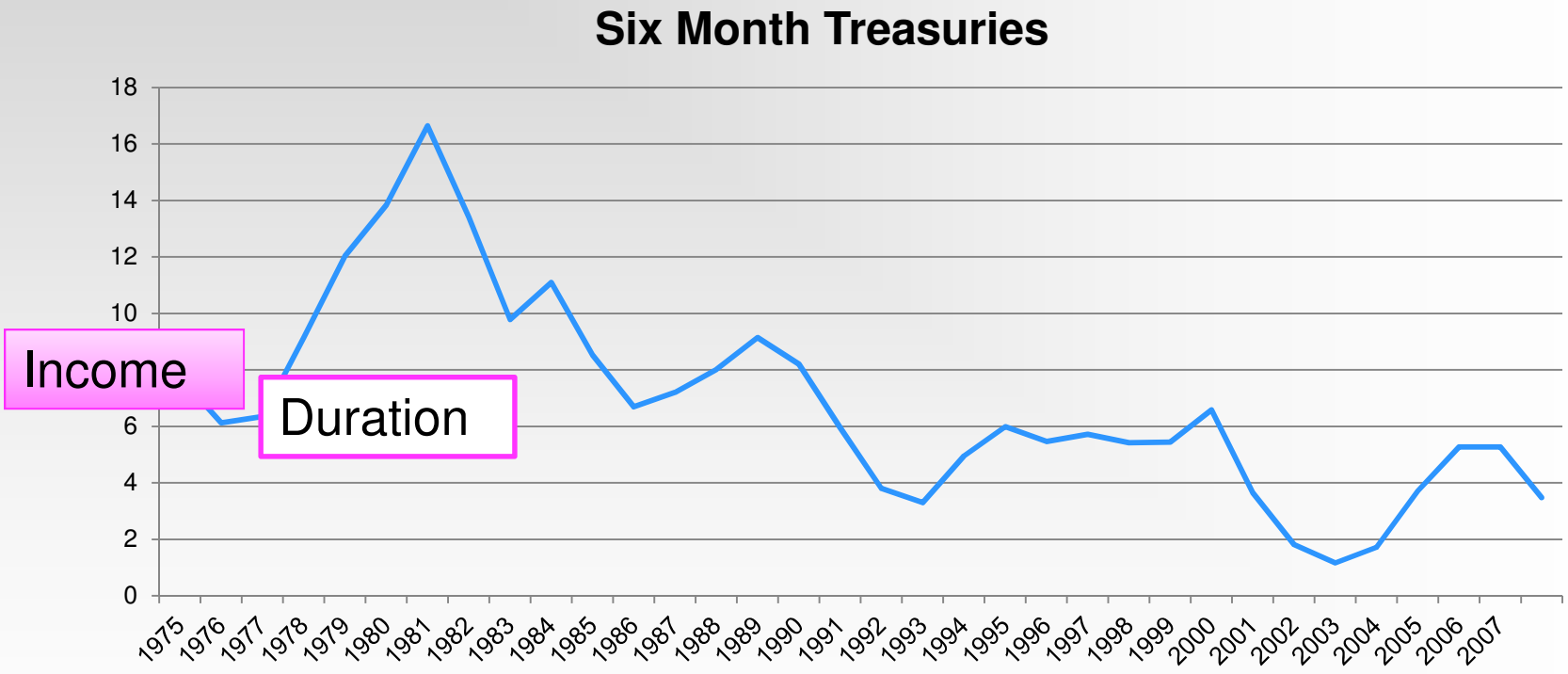


Why Worry about Value Changes!!!

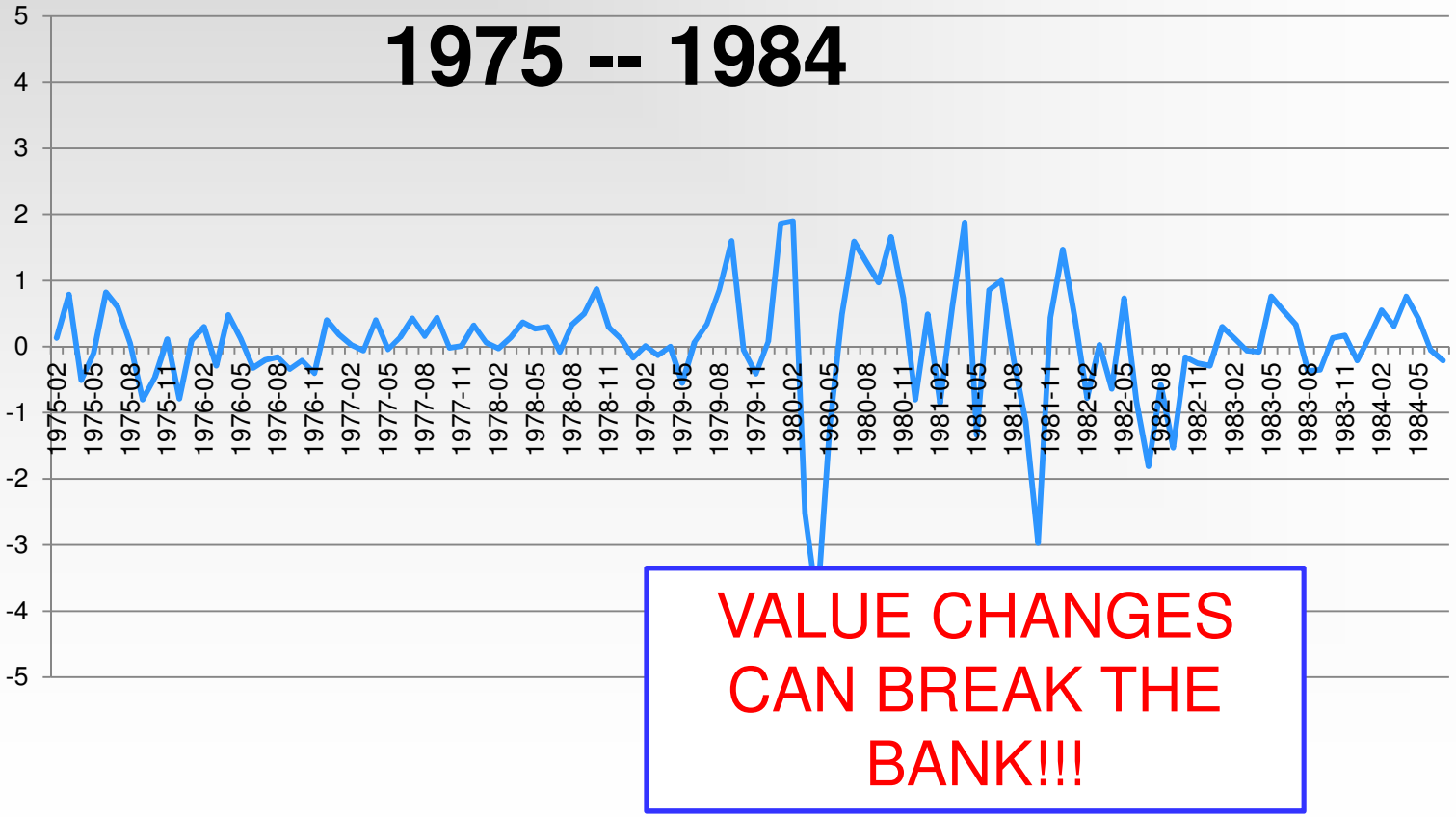
FOCUS IS ON INCOME

Treasury Rates and Bank Risk Measures

RATES QUICKLY DOUBLE AND MORE

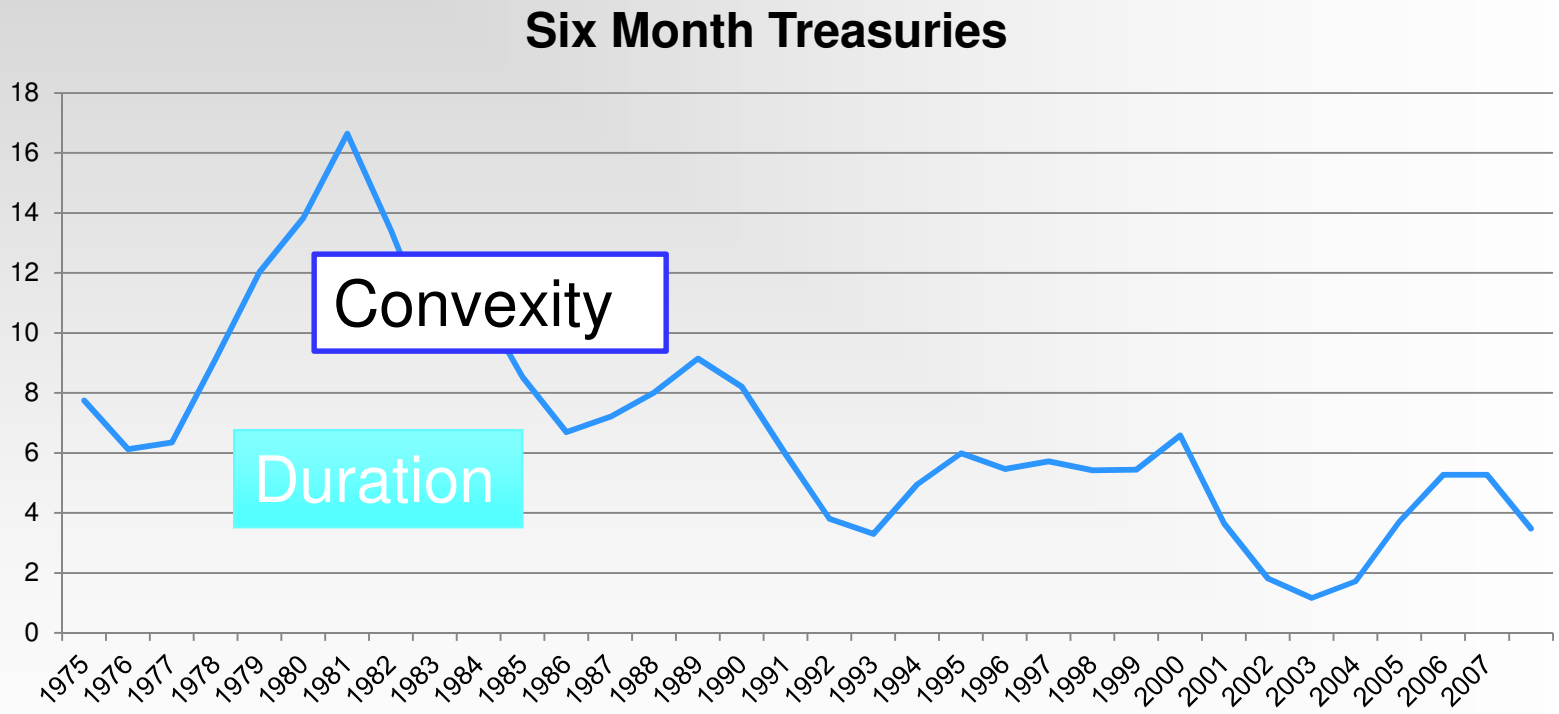


Change in 5 Year U S Treasuries 1975 -- 1984



VALUE CHANGES CAN BREAK THE BANK!!!

Treasury Rates and Bank Risk Measures



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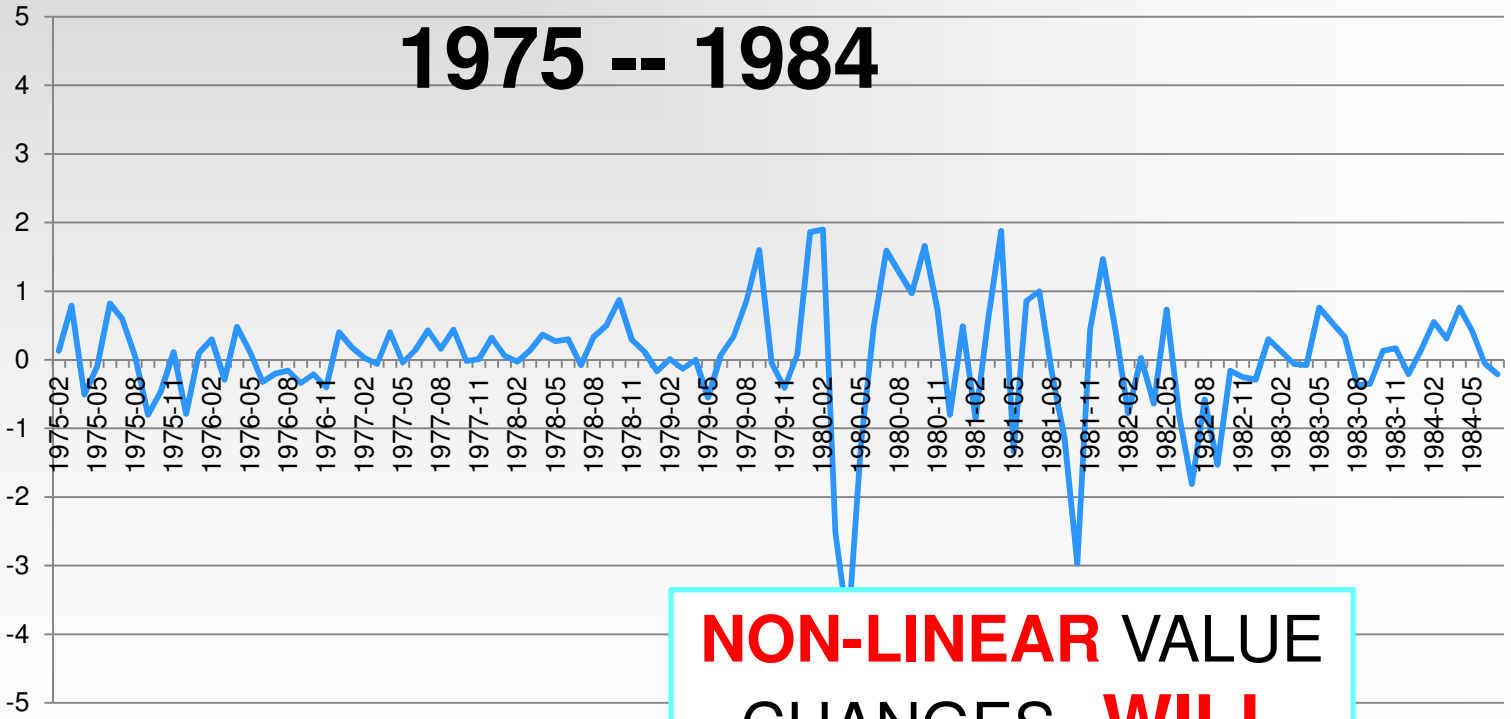
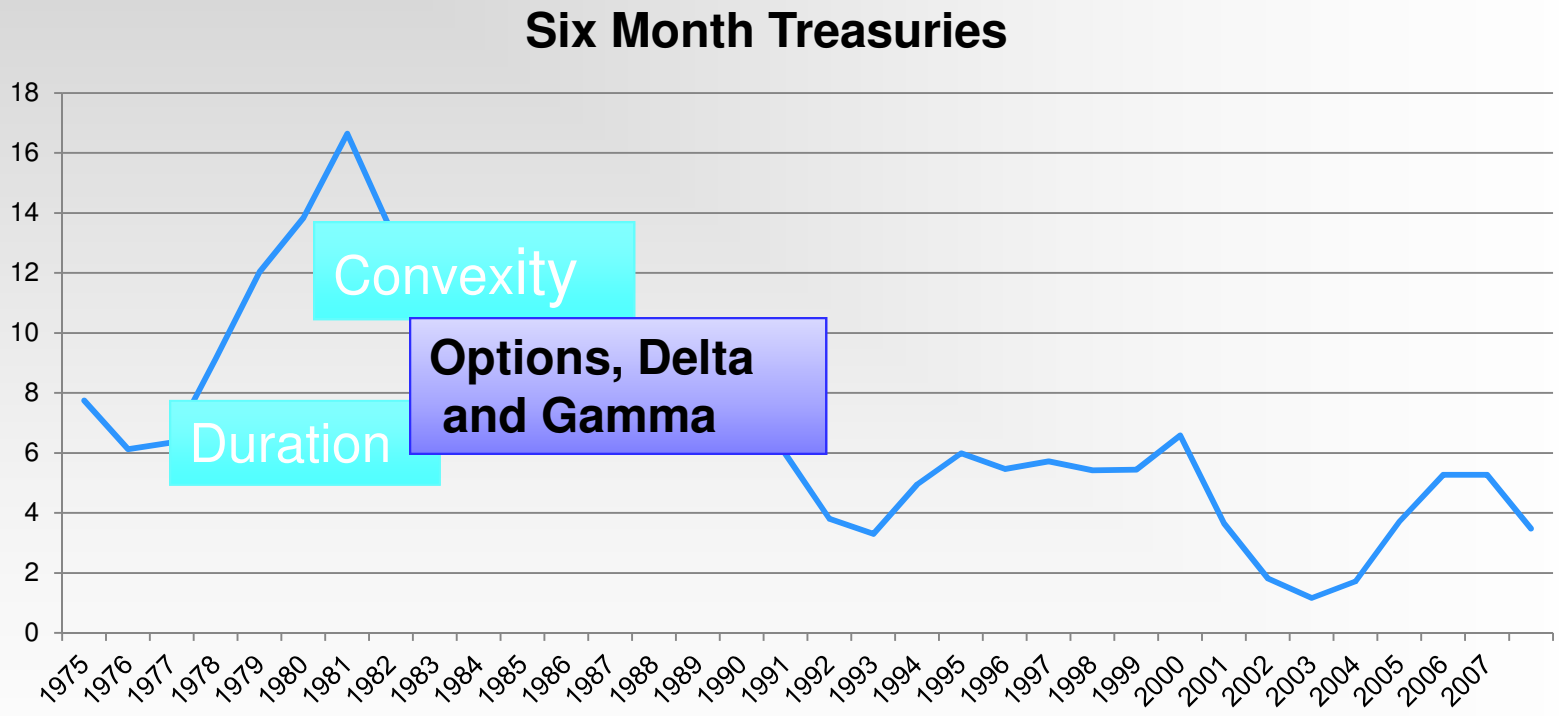


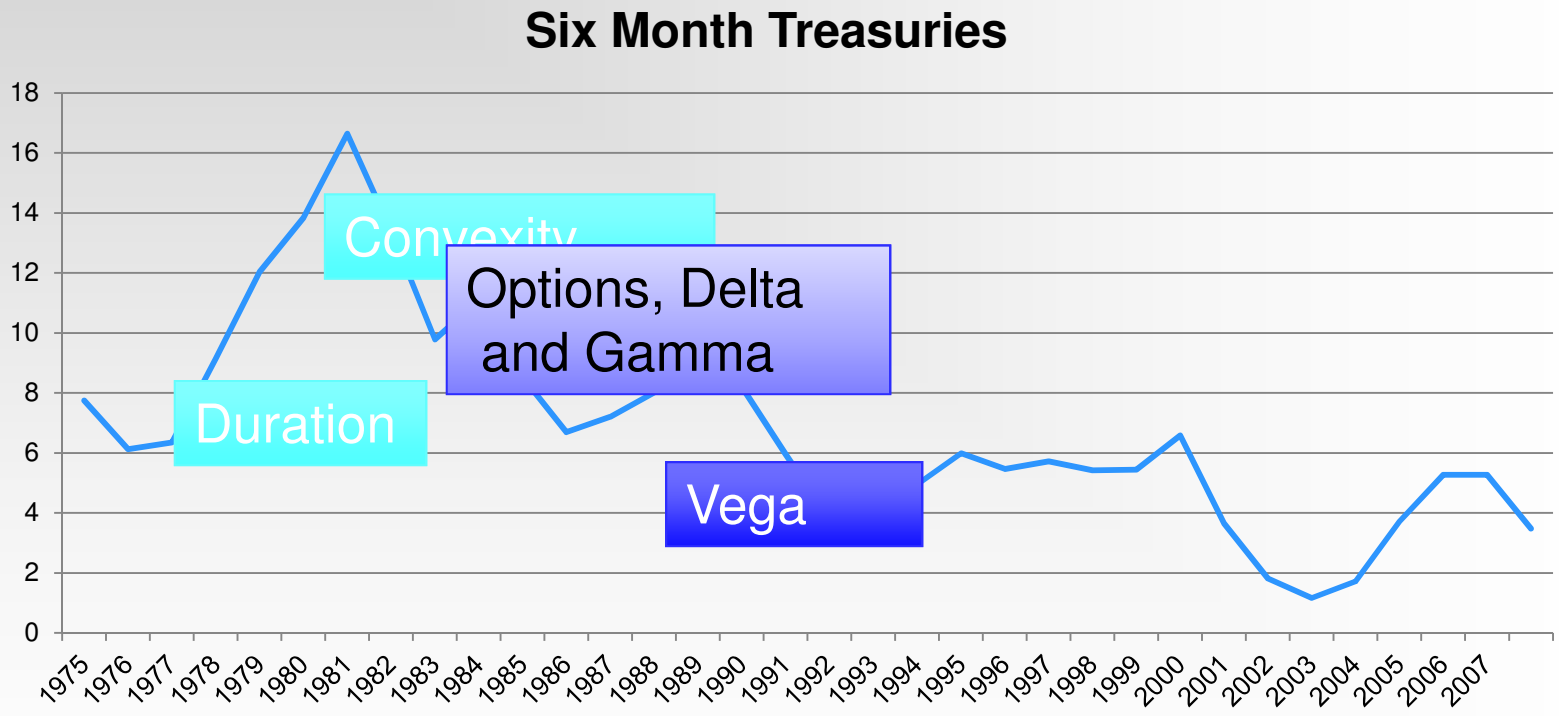
NON-LINEAR VALUE CHANGES **WILL** BREAK THE BANK!!!

Treasury Rates and Bank Risk Measures

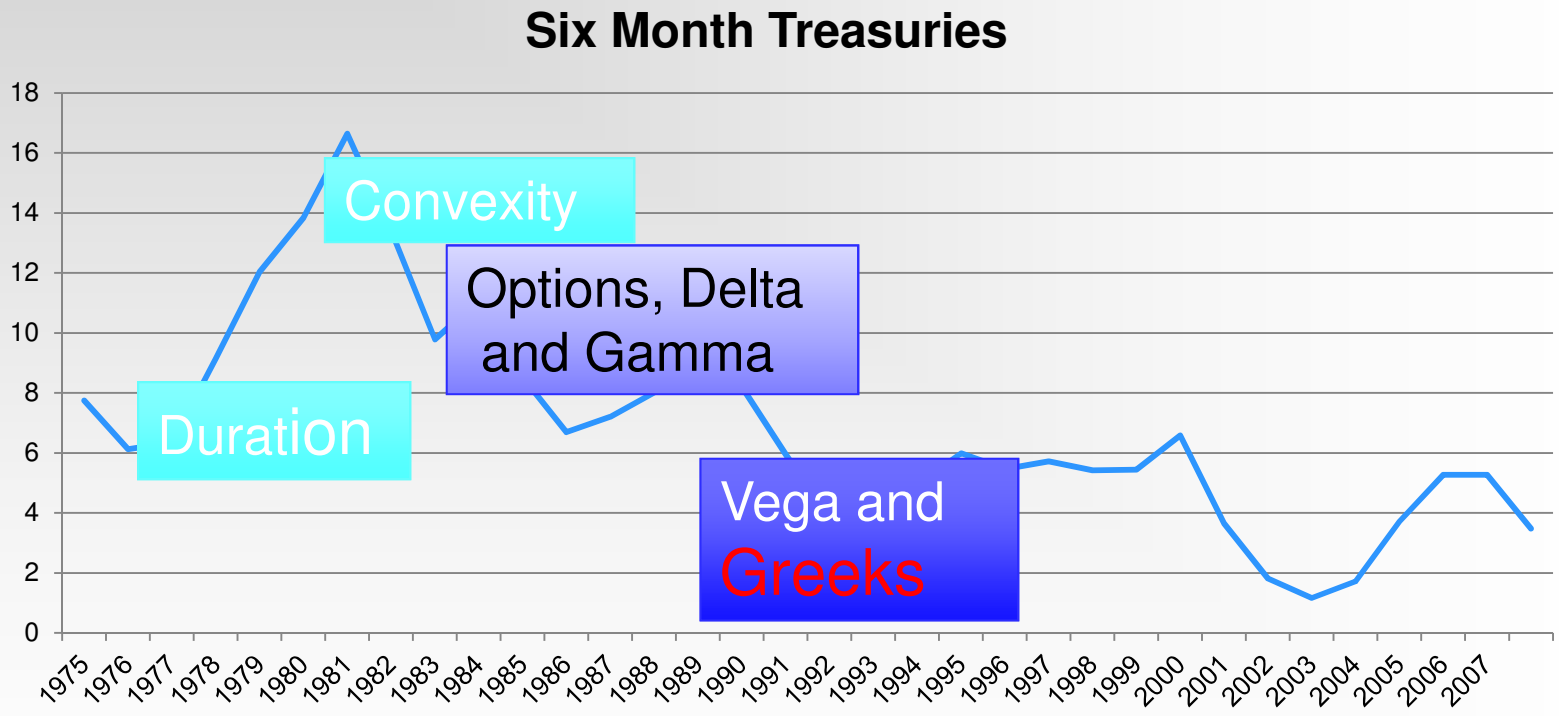


SEARCHING FOR NEW WAYS TO DEAL WITH NON-LINEAR ISSUES

Treasury Rates and Bank Risk Measures



Treasury Rates and Bank Risk Measures



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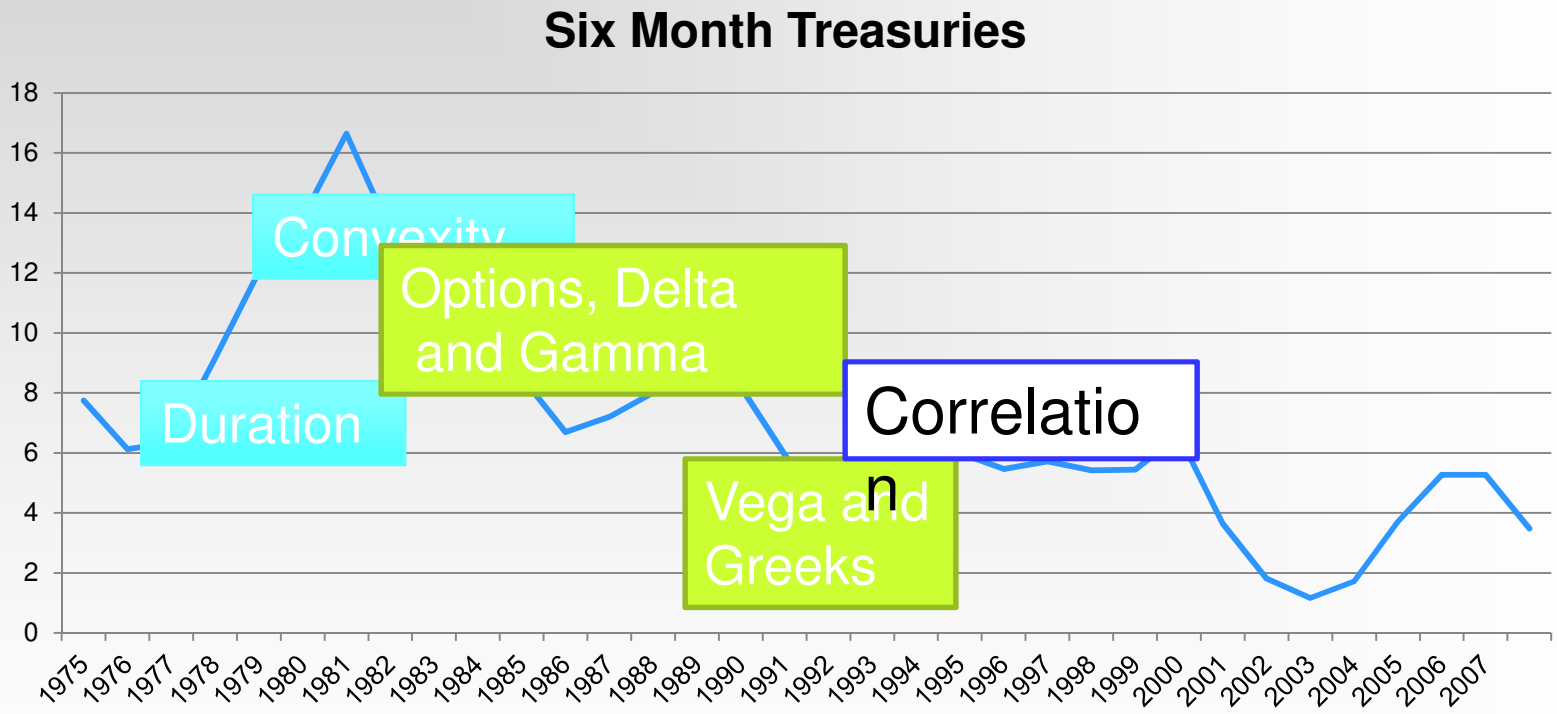

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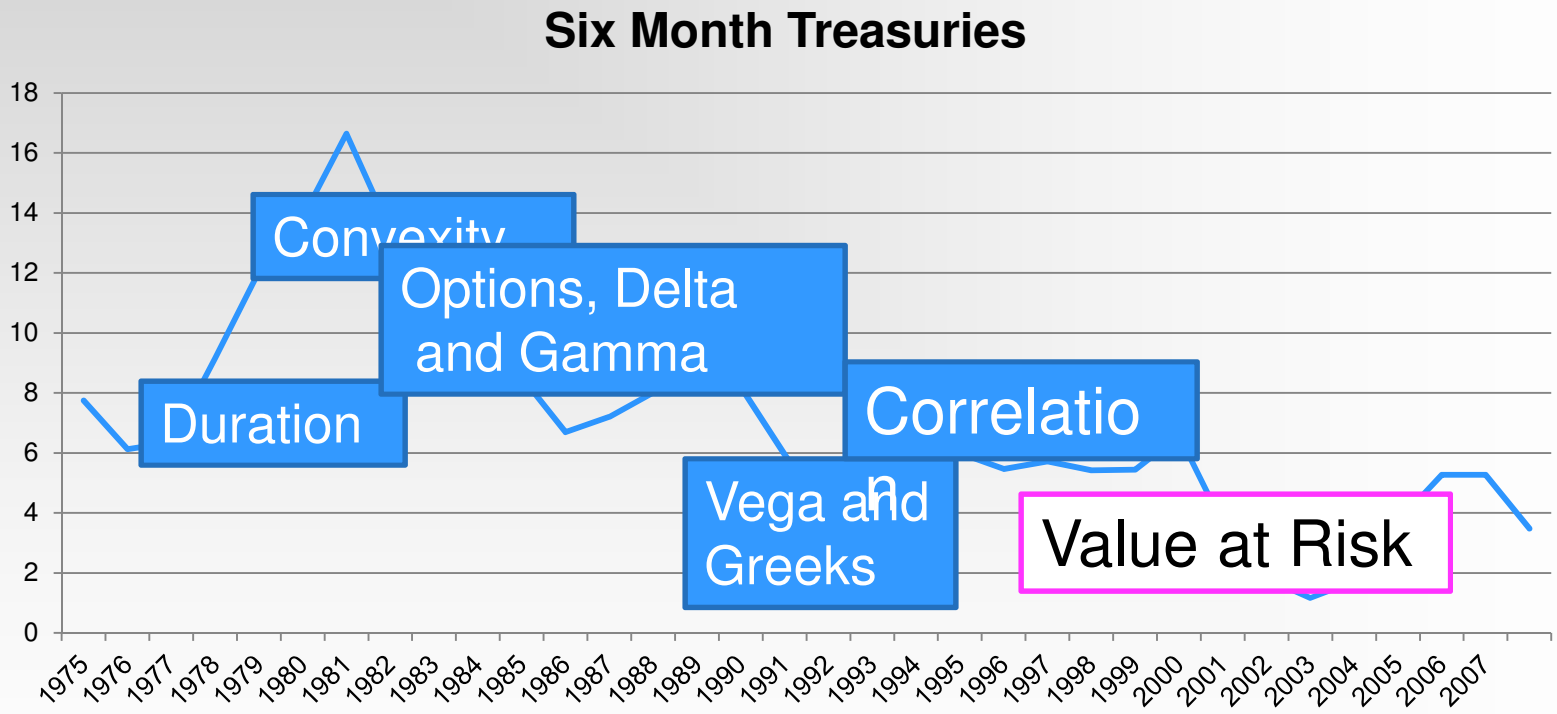

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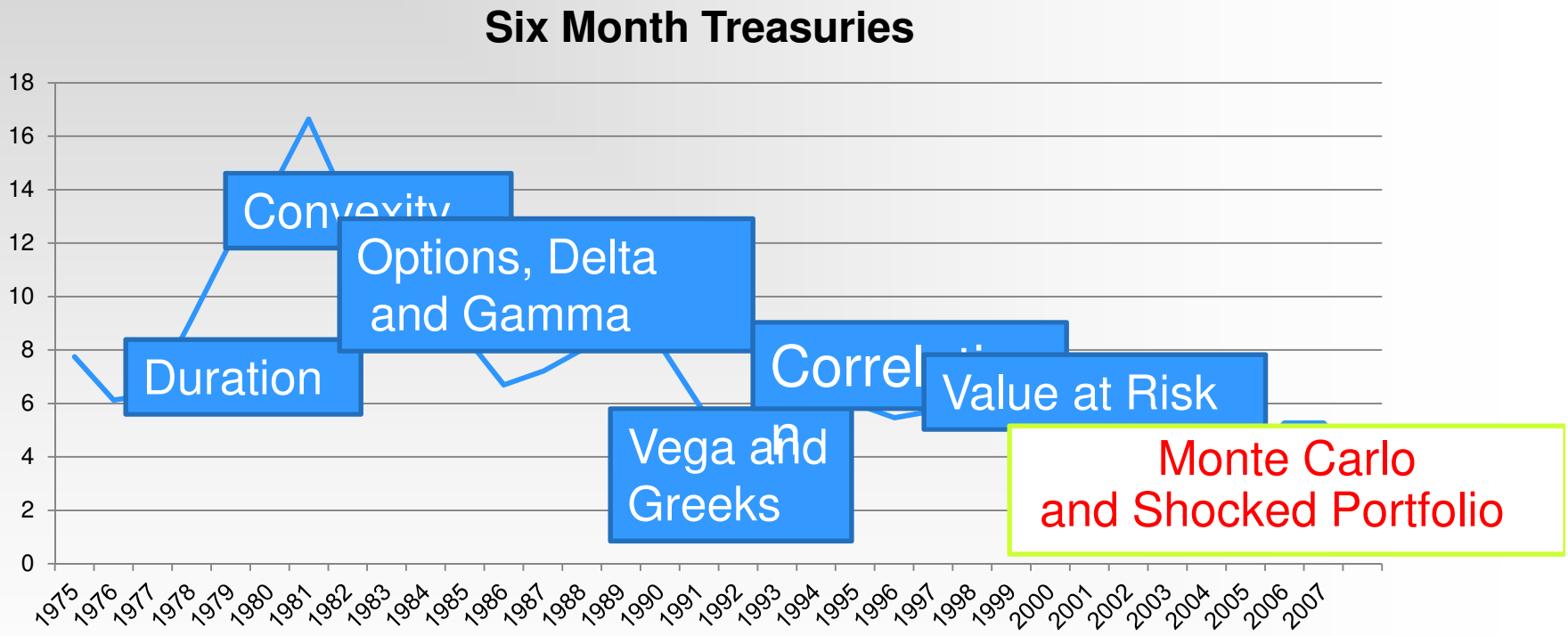

The History

- Duration – Linear and additive (Bonds)
- Convexity – Non- Linear
- Options Theoretic – Non-Linear Plus
- Delta, Gamma – Change (linear), Non-Linear
- Vega, Theta & the Greeks – More Non-Linear
- Correlation – Stability of Two Relationships
- VaR – Multi-Market Relationships ex post
- Monte Carlo and Shocks – VaR Possibilities

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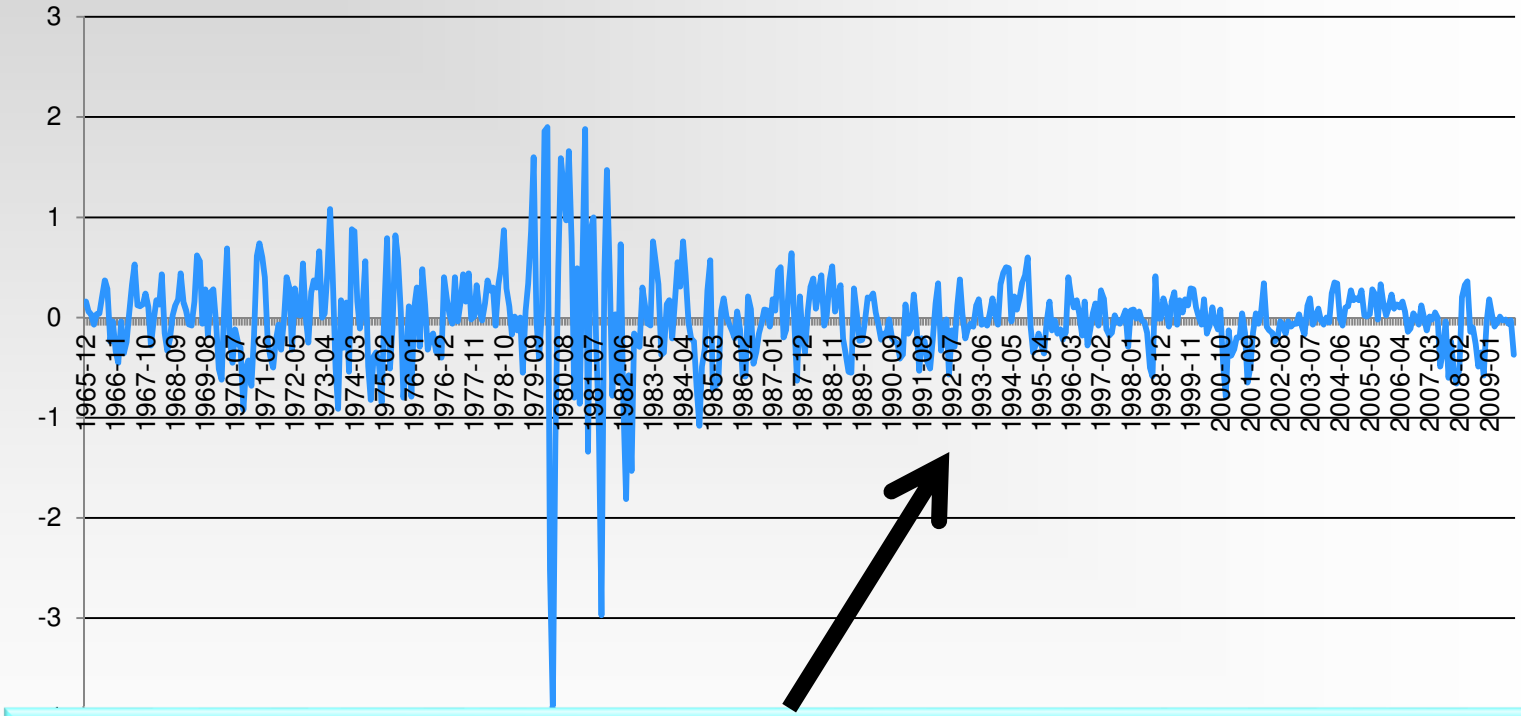
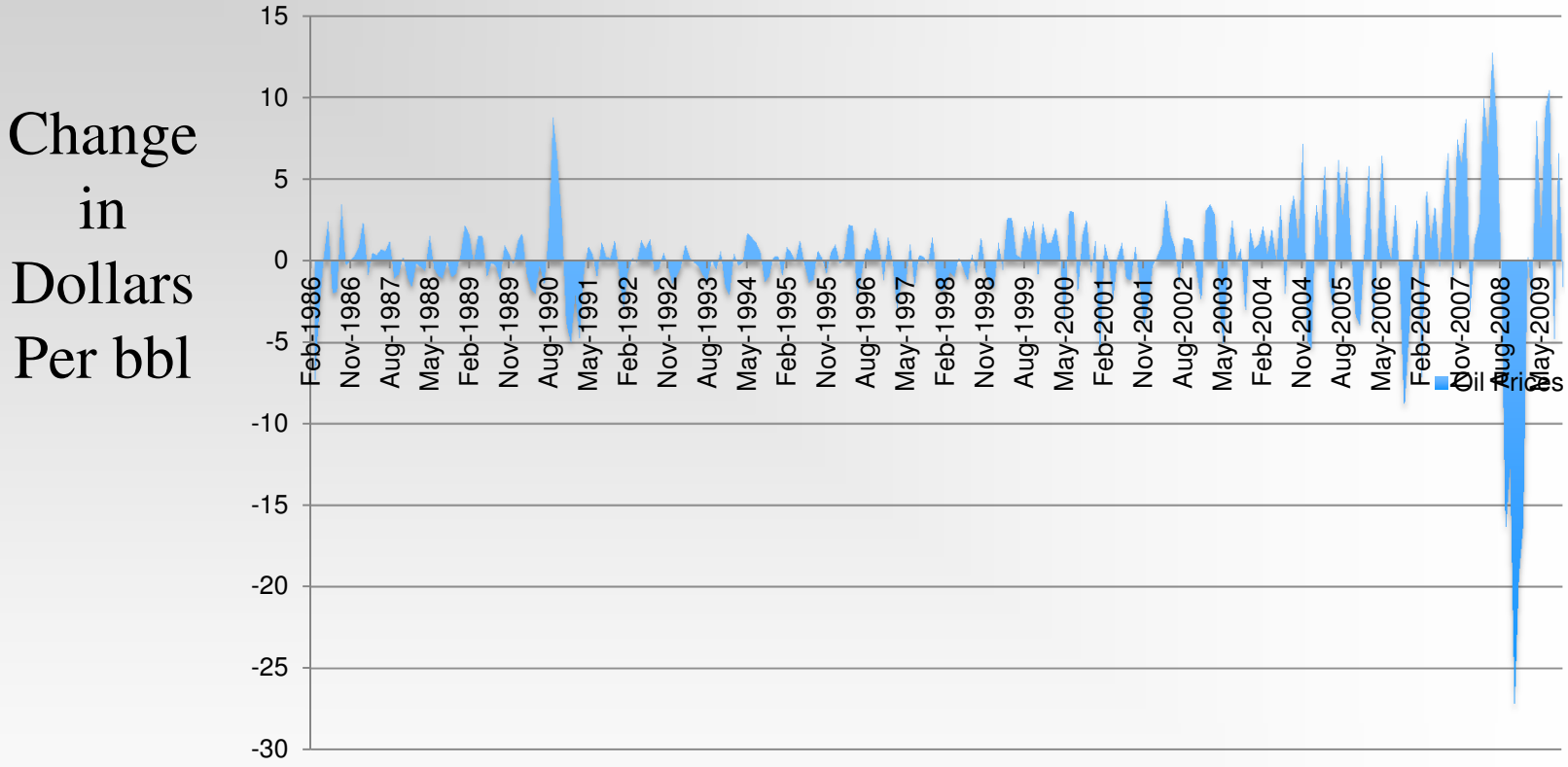
Change in US Treasury 5 year Rates 1965-2009



RISK DROVE THE TECHNOLOGY: TREASURIES HAVE CALMED DOWN – BUT WHAT ABOUT Oil?

Change in the Price of Oil in Dollars 1986 – 2009 Monthly Data



The average price of Oil was USD 23 between 1986 and 2005
Average = USD 71 between 2005 and end of 2009

Looking at Client Risks: Language

- Duration: Debt on the balance sheet
- Convexity: Yes with debt
- Options: Many places on both sides
  - Delta, Gamma, Lambda etc.
- Correlations: Remember the Copper Company's Correlation between P_{cu} and i
- Value at Risk: ?
- Simulations: Should be a Standard Tool

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What is Next?

- To Big to Fail: Stress Tests and Moral Hazard Revisited
- Bi-Modal Techniques
- Painting Risk Like and Artist
- Do not stand in the Front of a Train
  - SIVs
  - ZIRP
  - Can the Maths Protect you?
- NO!

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