

# Finding Your “Goldilocks” Fund Balance (in “Extenuating” Times)

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# Overview

- Today's Municipal Bond Market
  - How did we get here?
  - Where are we headed?
  - Should I worry?
- What do current market conditions tell us about the “optimal” fund balance?
  - Key concepts and assumptions
  - Findings
  - Recommendations

# Key Points

- Recent events in the financial markets illustrate the differences among trends, cyclicalities, and volatility
- Most jurisdictions are under-prepared to address their potential financial volatility
- A volatility-based analysis of the “optimal” reserve fund produces substantially different outcomes than a trends-based analysis

# Key Questions for States and Local Governments

- Should I put my planned bond sale on hold?
- Will fewer investment banks mean higher borrowing costs? Can regional underwriters pick up the slack?
- How did we get here?
- How will the smaller 1) hedge fund presence, and 2) smaller property/casualty insurer presence affect borrowing costs?
- Is municipal bond insurance dead?
- What happened to the credit rating agencies?
- Can anything good come of this?
- What's next? (hint – student loans and consumer credit)

# How Did We Get Here?

- Greenspan – “The Global Savings Glut”
- Housing prices fell, mortgage-backed securities lost substantial value, and...:
  - Insurers, securities firms, hedge funds, others sold assets – including municipal bonds – to free up cash
  - The “Financial Accelerator” accelerates
  - Major losses among monoline bond insurers
  - Substantial liquidity problems for some auction-rate and/or variable rate municipal securities

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## Top Senior Managers: All Issues for January-June 2008

Rank	Firm	Amount (\$ millions)	Issues
1	Citi	\$32,979.00	277
2	Merrill Lynch & Co.	22,372.00	184
3	JPMorgan	20,386.90	181
4	Morgan Stanley	19,449.60	185
5	Goldman, Sachs & Co.	19,151.70	132
6	Lehman Brothers	18,406.30	146
7	UBS Securities LLC	15,422.60	193
8	Banc of America Securities L	11,565.20	194
9	RBC Capital Markets	7,229.60	268
10	Morgan Keegan & Co.	6,214.20	248

*Source: Thomson Reuters*

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## Holders of Municipal Debt: 1999-2008 (in \$ billions)

	2000	2008
Households	\$ 531.2	\$ 896.7
Mutual funds	\$ 230.4	\$ 381.1
Money market funds	\$ 242.5	\$ 495.3
Closed-end funds	\$ 67.7	\$ 93.1
Nonfinancial corporate businesses	\$ 31.9	\$ 21.3
Nonfarm noncorporate businesses	\$ 2.4	\$ 5.8
Government-sponsored enterprises	\$ 29.2	\$ 32.4
State & local government general funds	\$ 3.7	\$ 5.6
Rest of the world	\$ 8.0	\$ 33.5
Commercial banks	\$ 114.1	\$ 202.8
Savings institutions	\$ 3.2	\$ 10.1
Property & casualty insurance companies	\$ 184.1	\$ 377.0
Life insurance companies	\$ 19.1	\$ 35.5
State & local government retirement funds	\$ 1.7	\$ 0.8
Brokers & dealers	\$ 11.3	\$ 66.0
Total Debt Outstanding	\$ 1,480.7	\$ 2,656.9

*Source: Federal Reserve Board, Flow of Funds Accounts, Flows and Outstandings, First Quarter 2008.*

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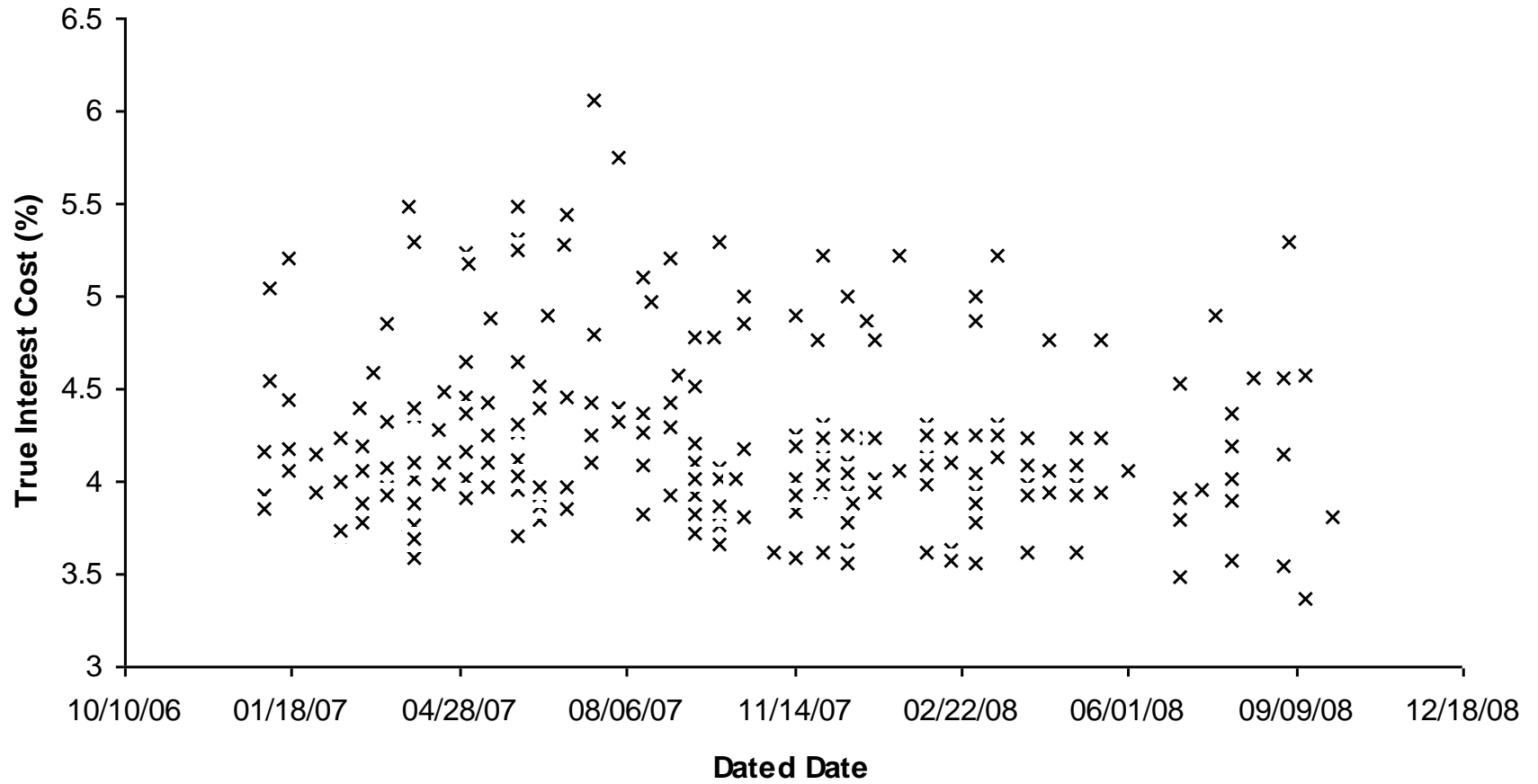
# Long-Term Implications

- The optimist's perspective: The municipal bond market is enormous, decentralized, and resilient; the current turbulence will subside and have no lasting effects
- The cynic's perspective: The recent market turbulence brought about structural changes that will disadvantage municipal borrowers for the foreseeable future

# Near Term Implications for Kansas

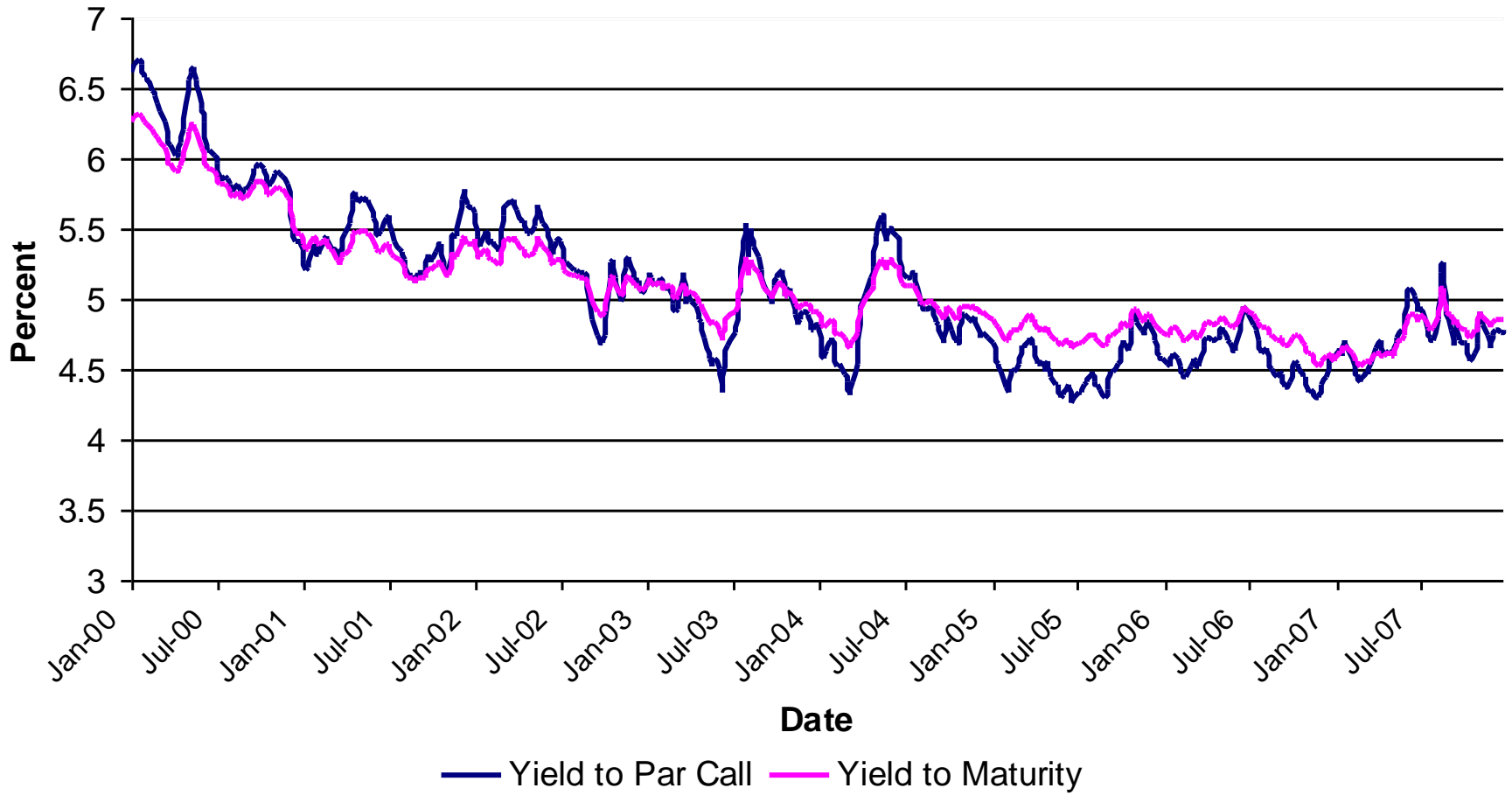
- Have we observed any of the following?
  - Increased borrowing costs for recent Kansas issues
  - Higher current yields across the market
  - Higher current yields on bonds from Midwestern state borrowers
  - Market-wide sales of all types of bonds at discount prices

# True Interest Costs for Kansas Municipal Bonds, January 2007 - September 2008



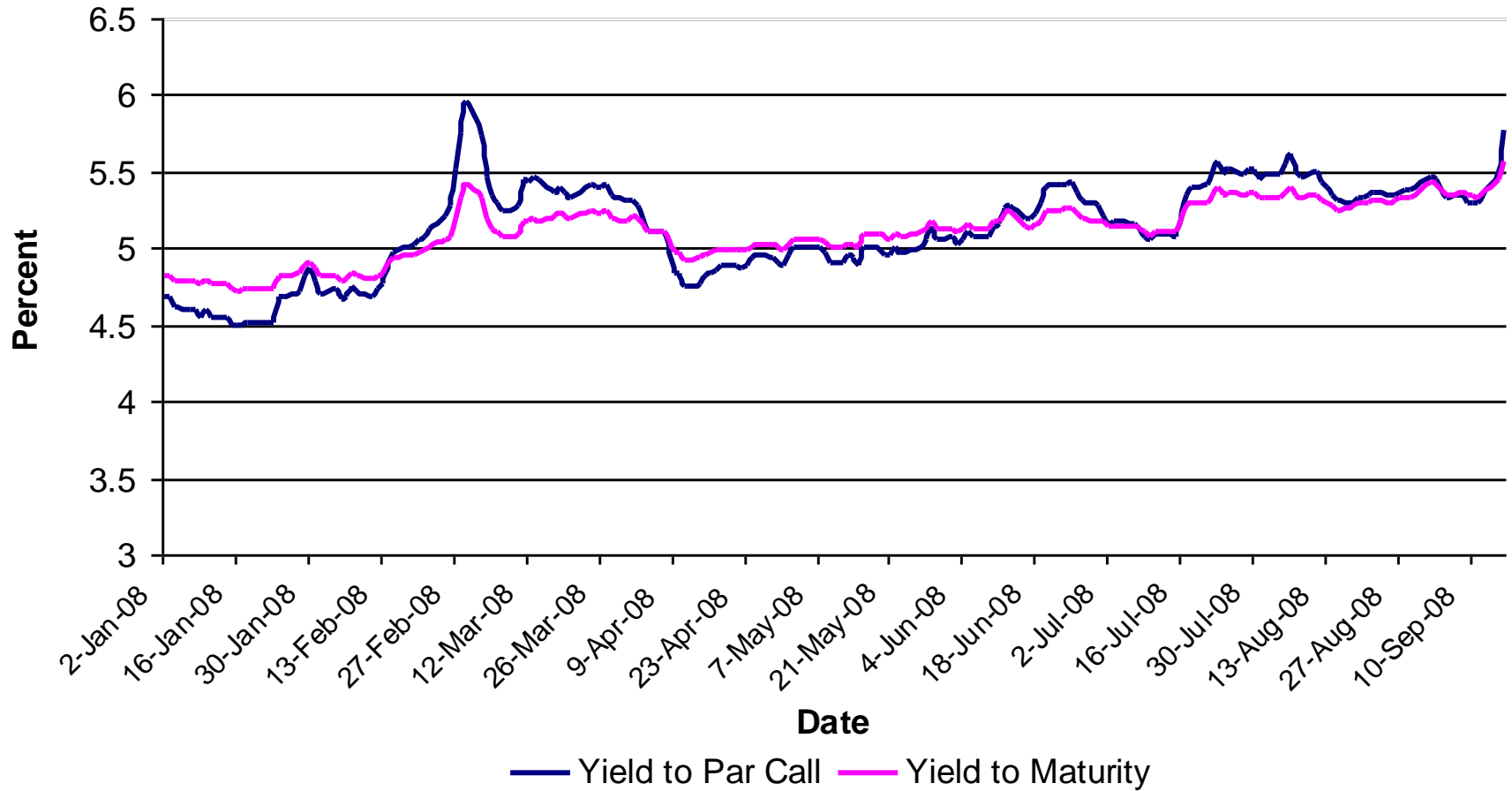
# ***Bond Buyer Weekly Yield Indices***

## **First Quarter 2000- Fourth Quarter 2007**

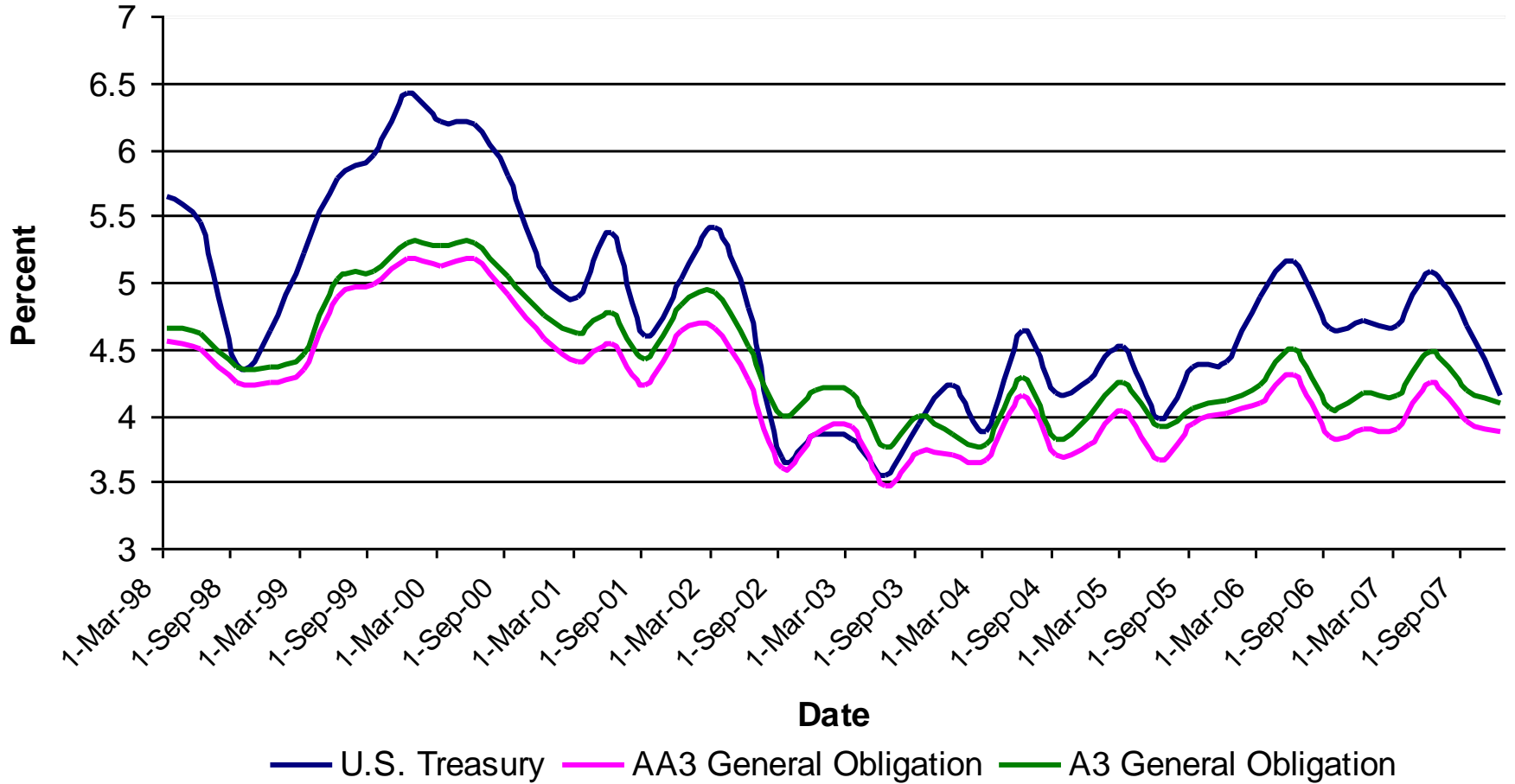


# Bond Buyer Daily Yield Indices

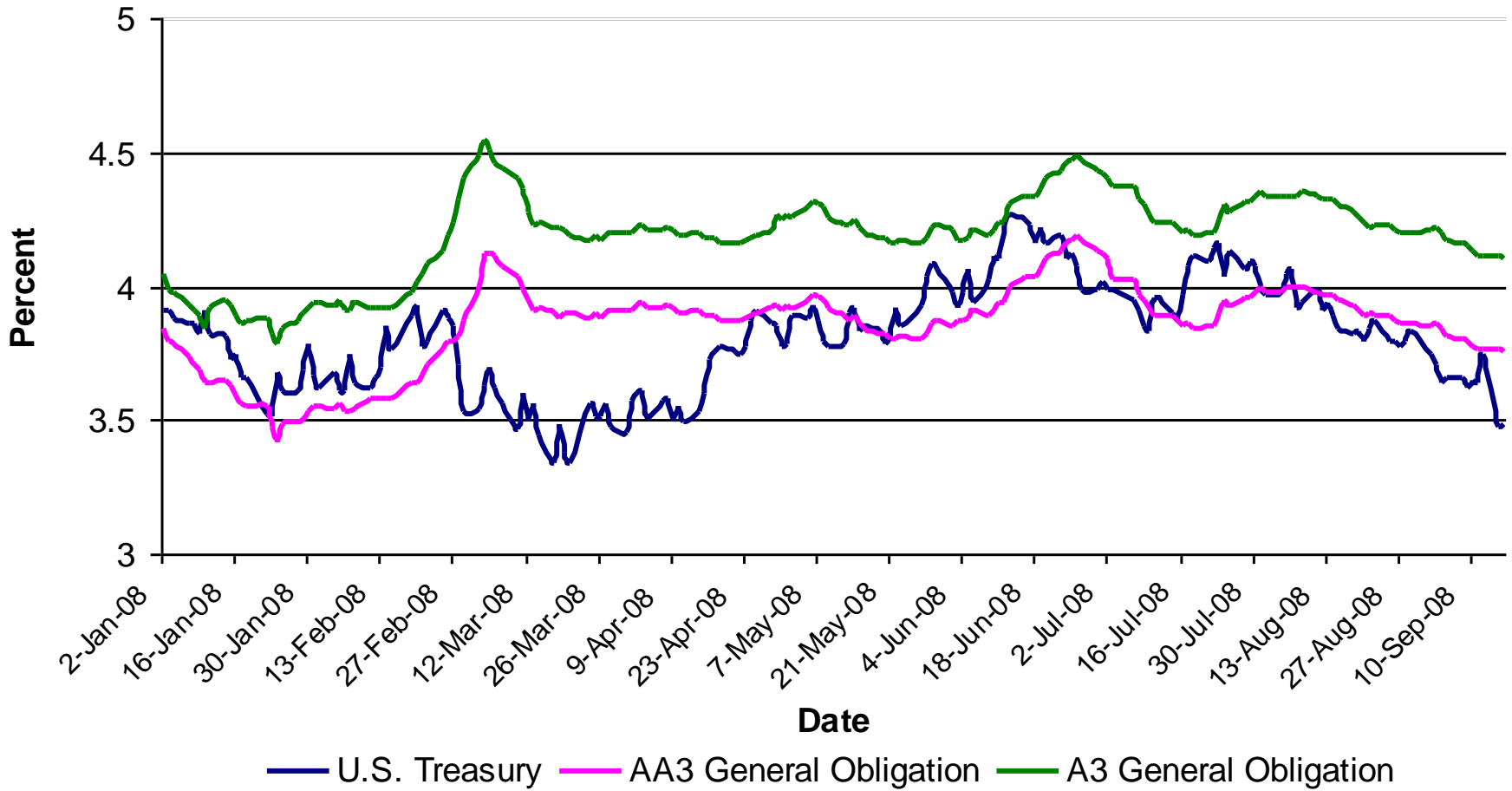
## January 2, 2008 - September 16, 2008



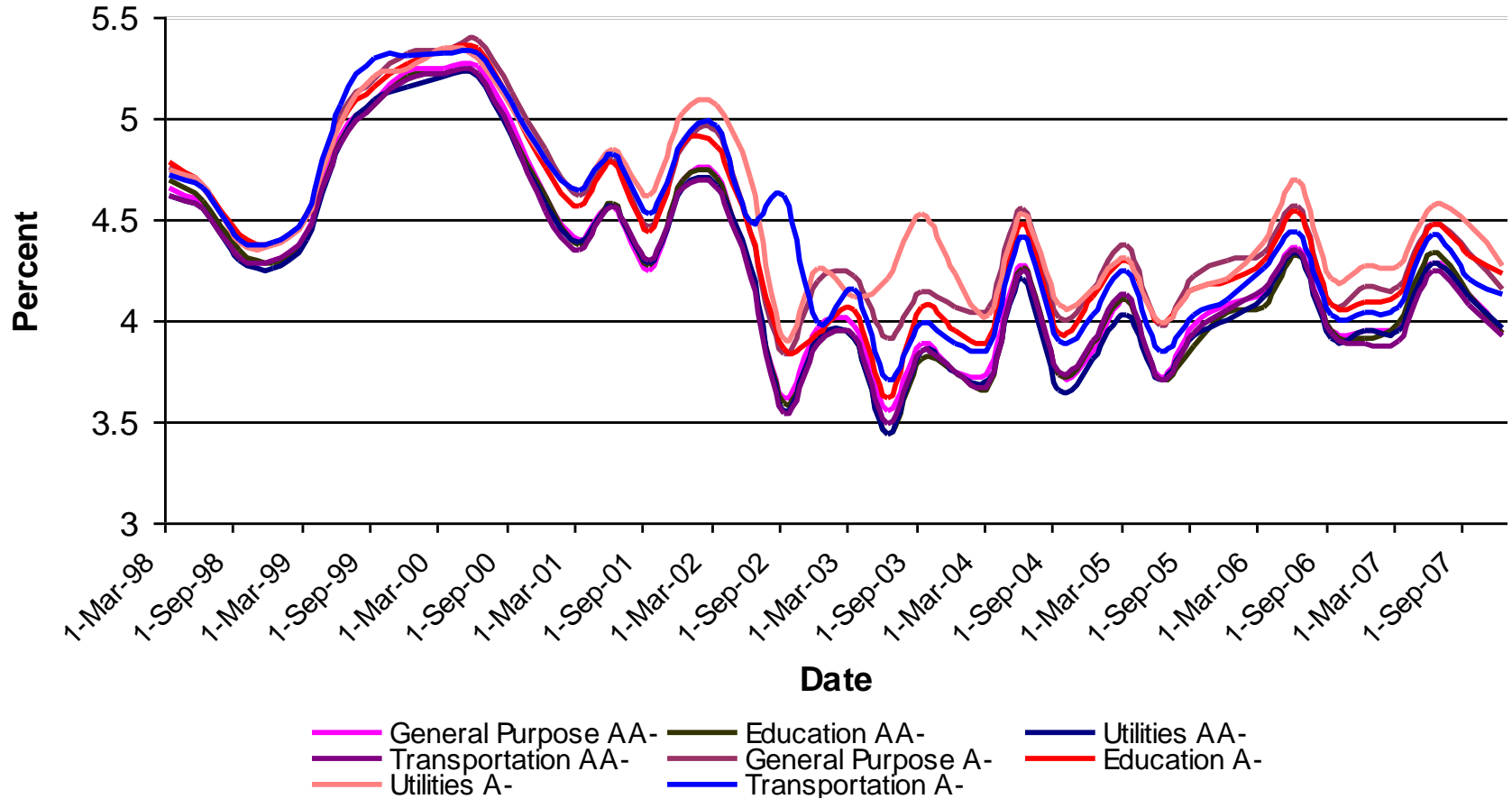
# Bloomberg Fair Market Quarterly Yields for 10 Year Bonds, First Quarter 1998 - Fourth Quarter 2007



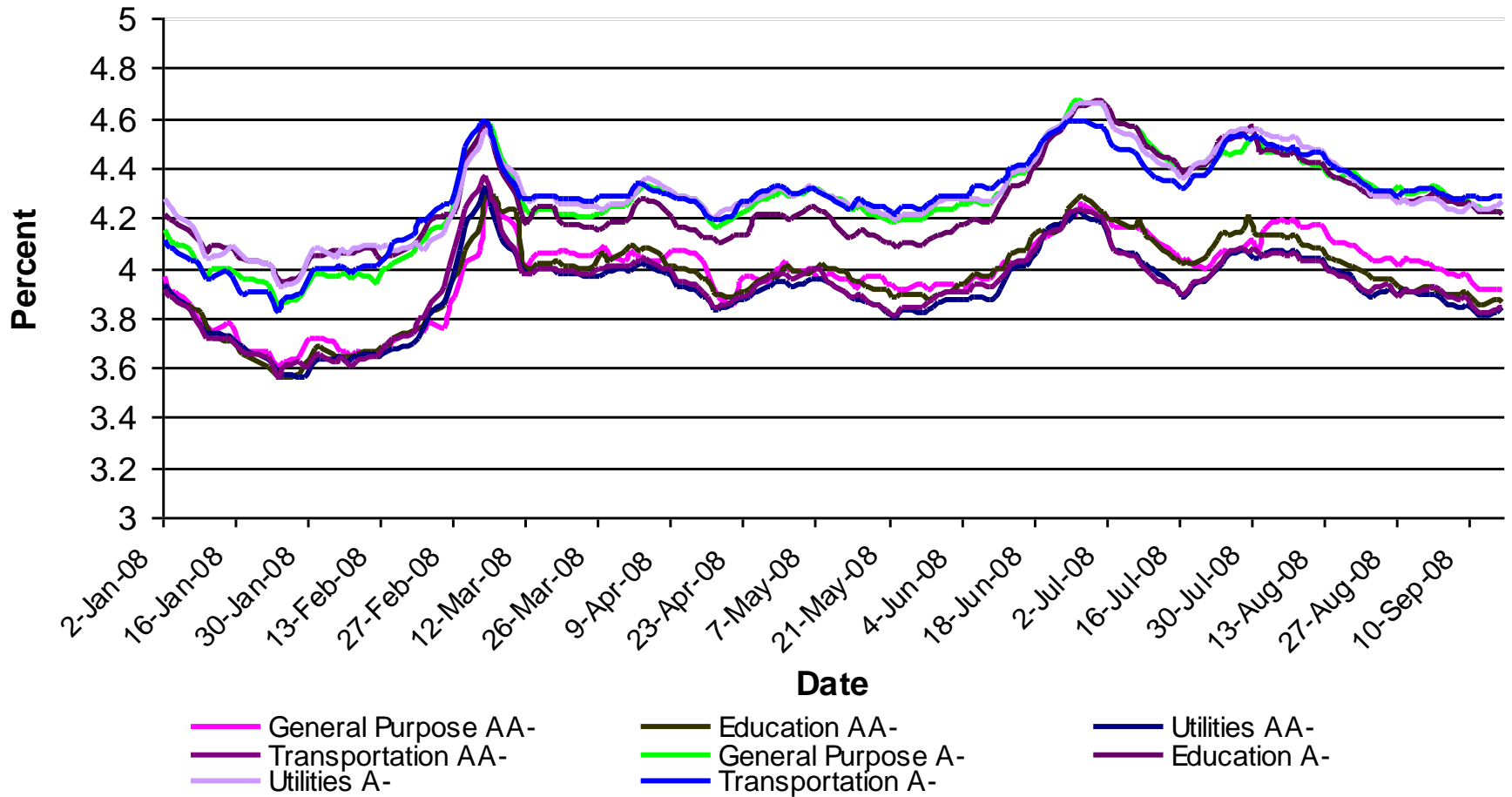
# Bloomberg Fair Market Daily Yields for 10 Year Bonds, January 2, 2008 - September 16, 2008



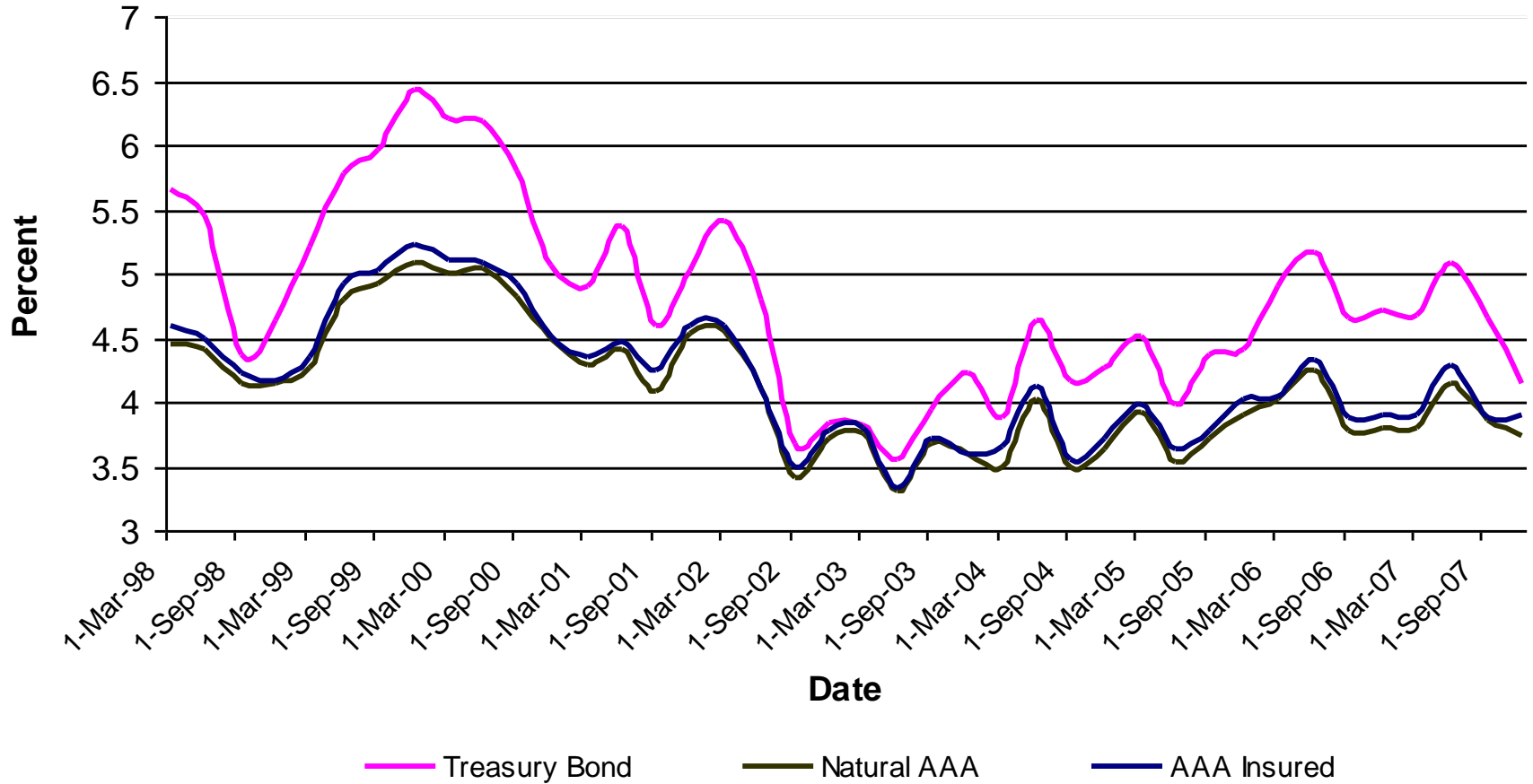
## Bloomberg Fair Market Quarterly Yields for 10 Year Bonds, First Quarter 1998 - Fourth Quarter 2007



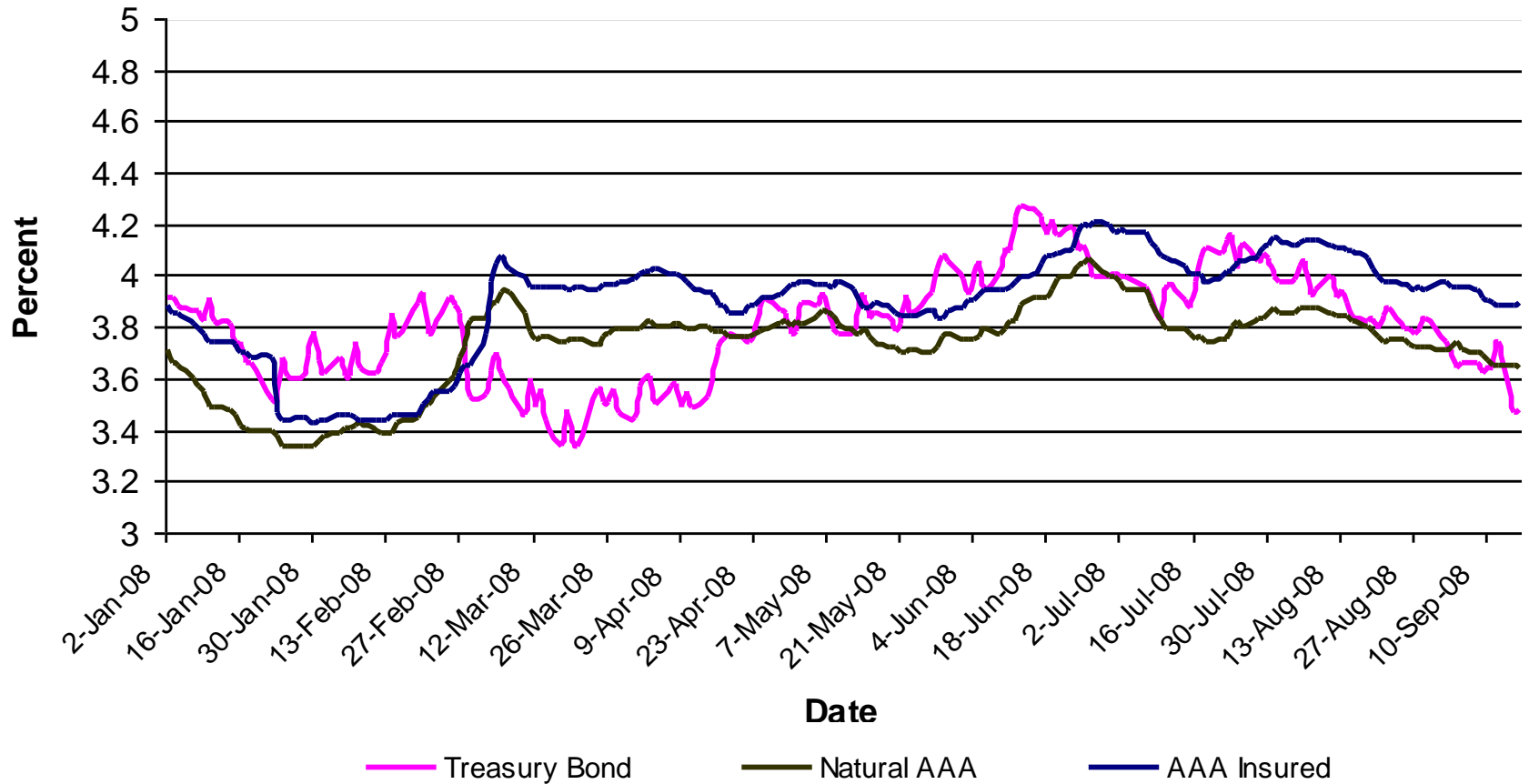
# Bloomberg Fair Market Daily Yields for 10 Year Bonds, January 2, 2008 - September 16, 2008



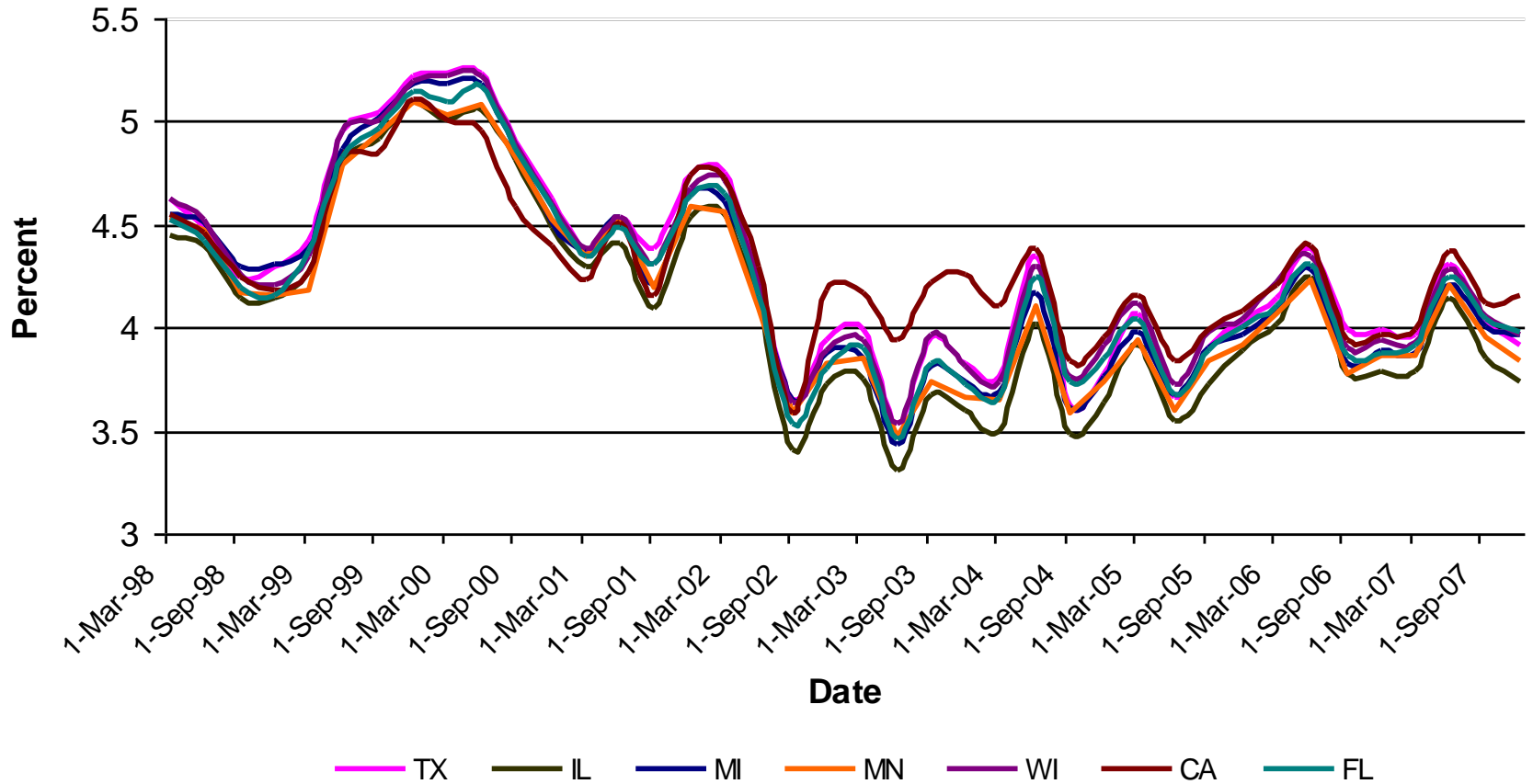
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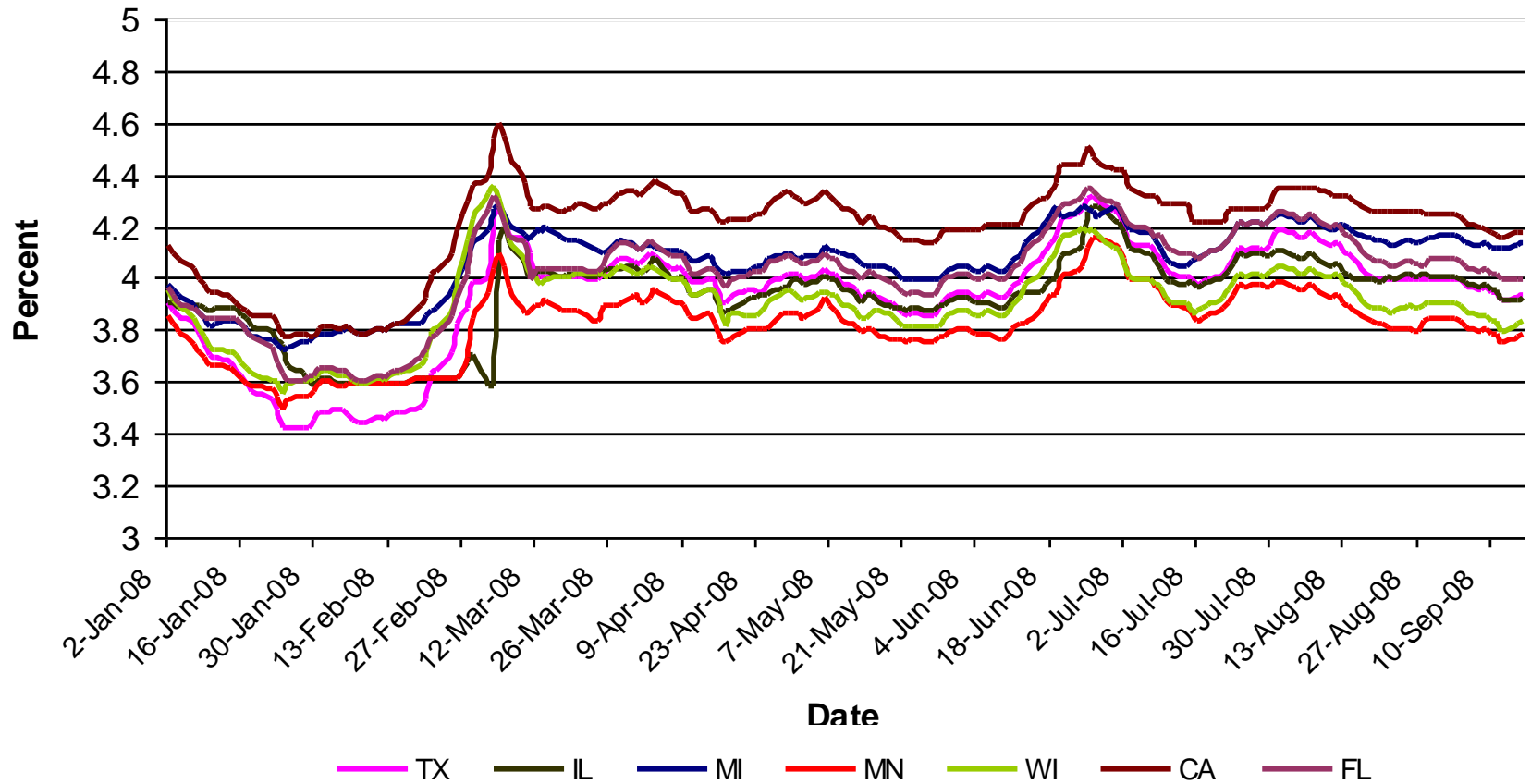
# Bloomberg Fair Market Daily Yields for 10 Year Bonds, January 2, 2008 - September 16, 2008



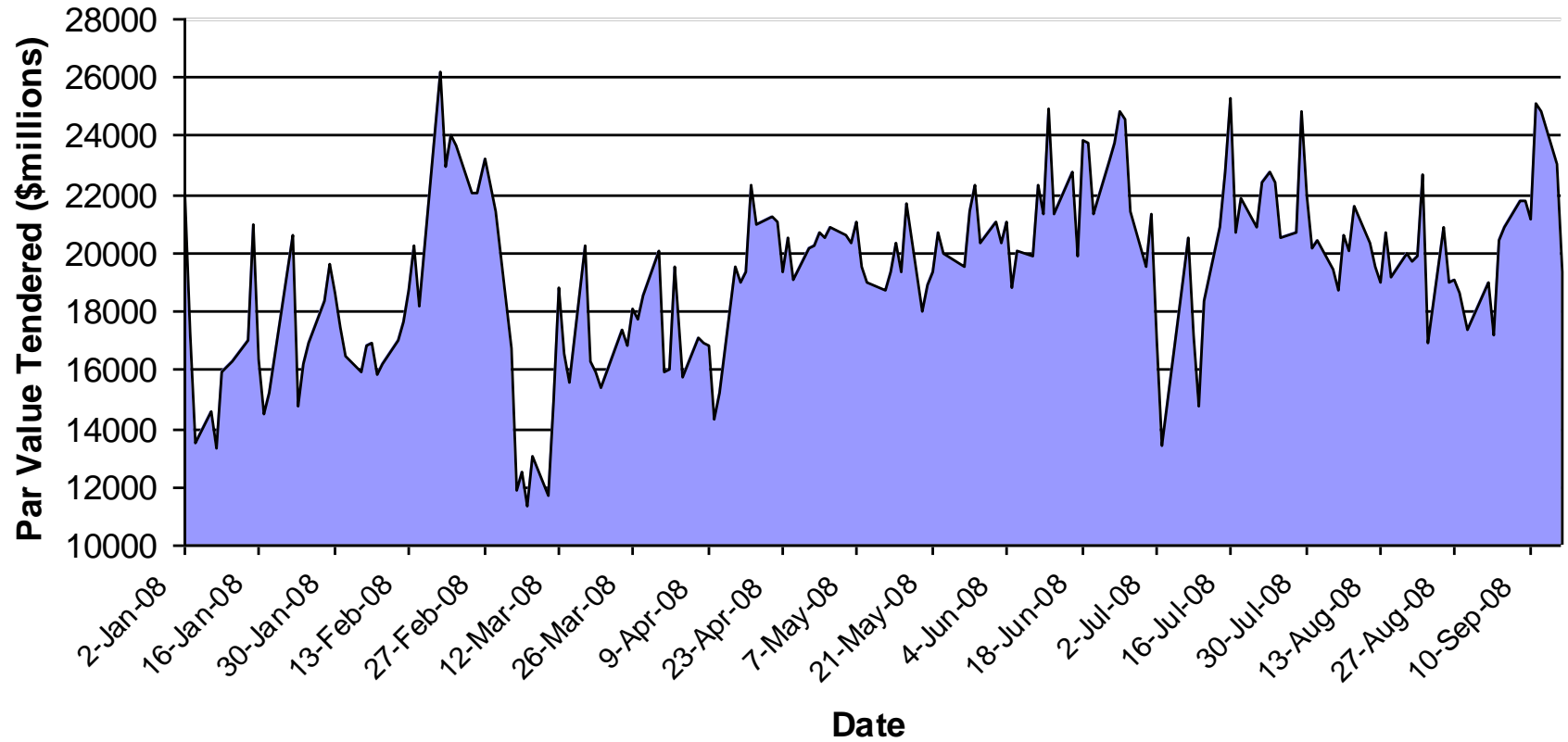
# Bloomberg Fair Market Quarterly Yields for 10 Year Bonds, First Quarter 1998 - Fourth Quarter 2007



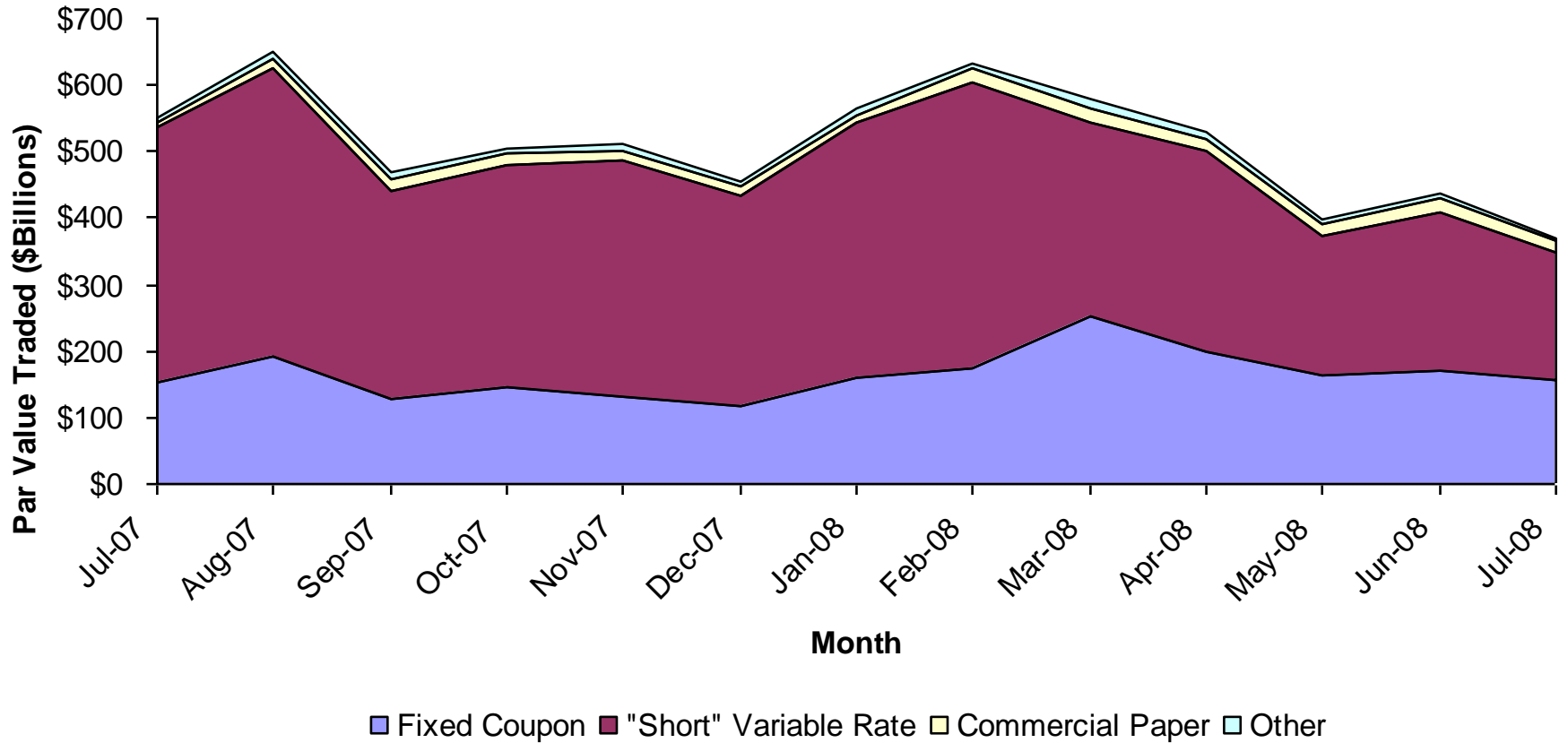
## Bloomberg Fair Market Daily Yields for 10 Year Bonds, January 2, 2008 - September 16, 2008



## Par Value of Bonds "For Sale", January 2, 2008 - September 16, 2008



## Secondary Municipal Market Trades by Type of Security, July 2007 - July 2008



# Findings

- No evidence of a direct, immediate impact on borrowing costs for KS municipal borrowers
- Market-wide municipal yields are up, but are also low by historical standards
- Most of that increase driven by robust trading in variable rate securities

# Finding Your “Goldilocks” Fund Balance

- Key reserve fund considerations:
  - Revenue growth
  - Revenue volatility
  - Desired expenditure growth
  - Interest rate that can be earned on invested slack resources

# Finding Your “Goldilocks” Fund Balance

- The main assumption – revenues follow a “Markov” process
  - Past revenue trends are irrelevant – i.e. no such thing as last year plus three percent
  - Future revenue collections follow a “random walk”
  - We can simulate revenue collections with computer software

# Finding Your “Goldilocks” Fund Balance

- The goal: Determine the reserve fund necessary to ensure some level of confidence about future expenditures
- Example: “If we want to be 75% confident that we can cover 3% expenditure growth next year, we should maintain reserve funds of xx% of current revenues”

# The Method in Practice

- I implemented this model for 10 first class and 8 second class Kansas cities
- Revenue and expenditure simulations based on FY 1996 – 2006 data
- Analysis based on 1000 simulations for FY 2007 revenue behavior

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**Base Simulation Results, Interest Rate = 3.5%**  
*Expenditure Growth Policy*

*Confidence*

<i>Level</i>	<i>3%</i>	<i>4%</i>	<i>5%</i>
50%	0.25%	6.30%	13.48%
75%	18.25%	41.58%	92.57%
95%	95.54%	158.18%	188.65%

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*Figures reported are percentage of current general fund revenue*

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# Conclusions

- “Extenuating circumstances” will probably linger
- Revenue and expenditure fluctuations will likely become less predictable and less connected to past trends
- Financial managers can add value by exploring and anticipating the universe of potential revenue outcomes