Updated May 1, 2008

Yield Curve Inversions and Future Economic Growth

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Issue

- Current global financial turmoil focuses on the potential impact of a U.S. recession
- I pioneered in my 1986 dissertation at the University of Chicago a recession prediction model linked to the term structure of interest rates
- For over a year, the model has signaled a U.S. recession

Historical Track Record

- Yield curve measure attracted significant attention in **accurately forecasting** the last six recessions
- The measure also **avoided false signals** (for example, it forecasted strong growth in 1988 after the October 1987 crash and it forecasted strong growth in 1999 after the August 1998 financial crisis).

Evaluation of the 2001 Recession

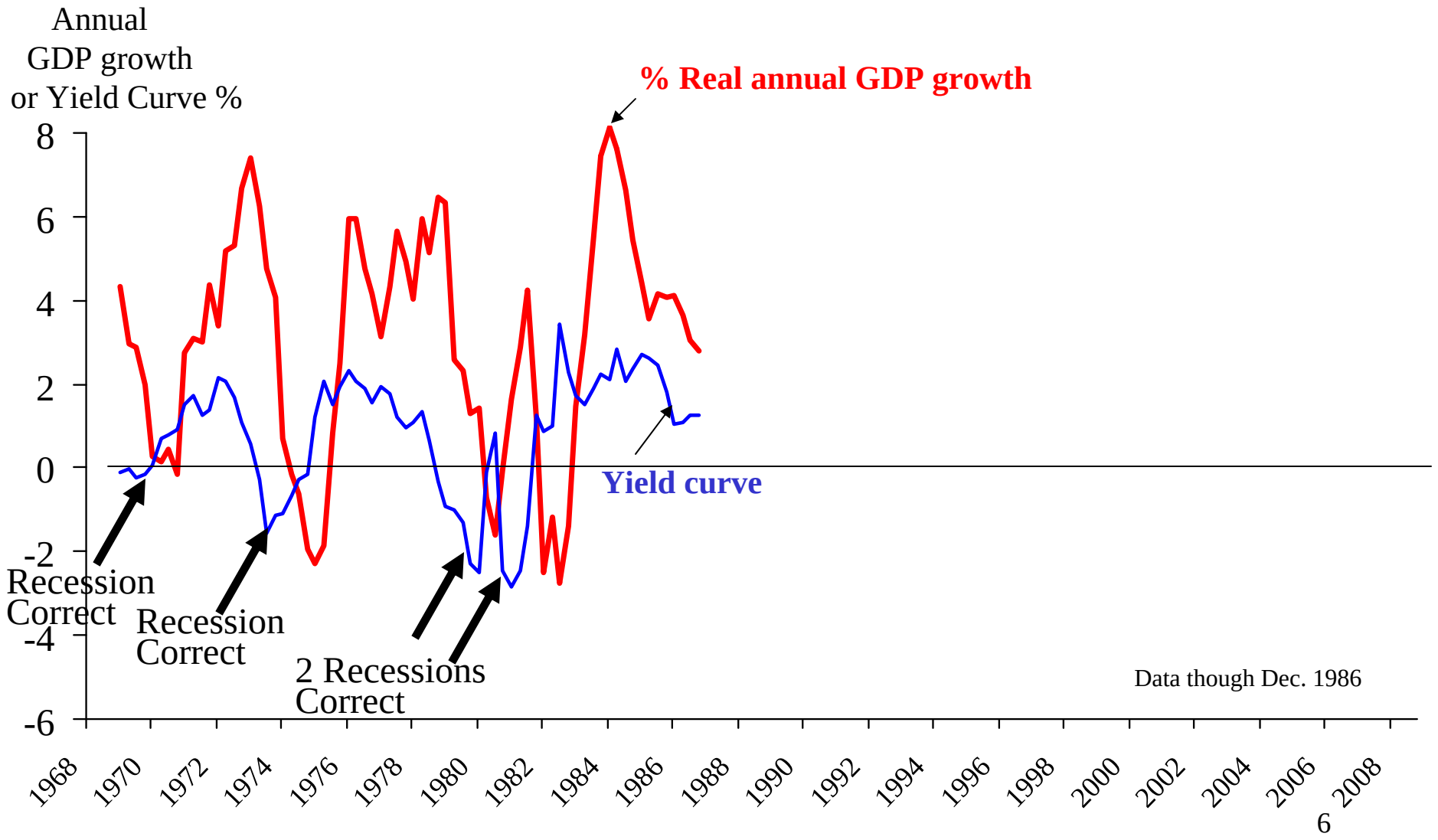
- In July 2000, the yield curve inverted forecasting recession to begin in June 2001.
- Official NBER Peak is March 2001 (yield curve within one quarter accurate).
- In March 2001, the yield curve returned to normal forecasting the end of the recession in November 2001.
- On July 17, 2003 the NBER announced the official end of the recession was November 2001.

Lead Lag Analysis in Months

Business Cycle			*5-Year Yield Spread*				
NBER Peak	**NBER Trough**	**Length of Cycle**	**Inversion**	**Lead**	**Normal**	**Lead**	**Length of Inversion**
Dec-69	Nov-70	12	Oct-68	15	Feb-70	10	17
Nov-73	Mar-75	17	Jun-73	6	Jan-75	3	20
Jan-80	Jul-80	7	Nov-78	15	May-80	3	19
Jul-81	Nov-82	17	Oct-80	10	Oct-81	14	13
Jul-90	Mar-91	9	May-89	15	Feb-90	14	10
Mar-01	Nov-01	9	Jul-00	9	Mar-01	9	9
Average last six		12		12		9	15
Current Episode							
?	?	?	Jul-06		May-07		11

Yield Curve Inverts Before Last Six Recessions

(5-year Treasury note minus 3-month Treasury bill yield – constant maturity)



Source: Campbell R. Harvey. Update of Harvey (1986, 1988, 1989, 1991).

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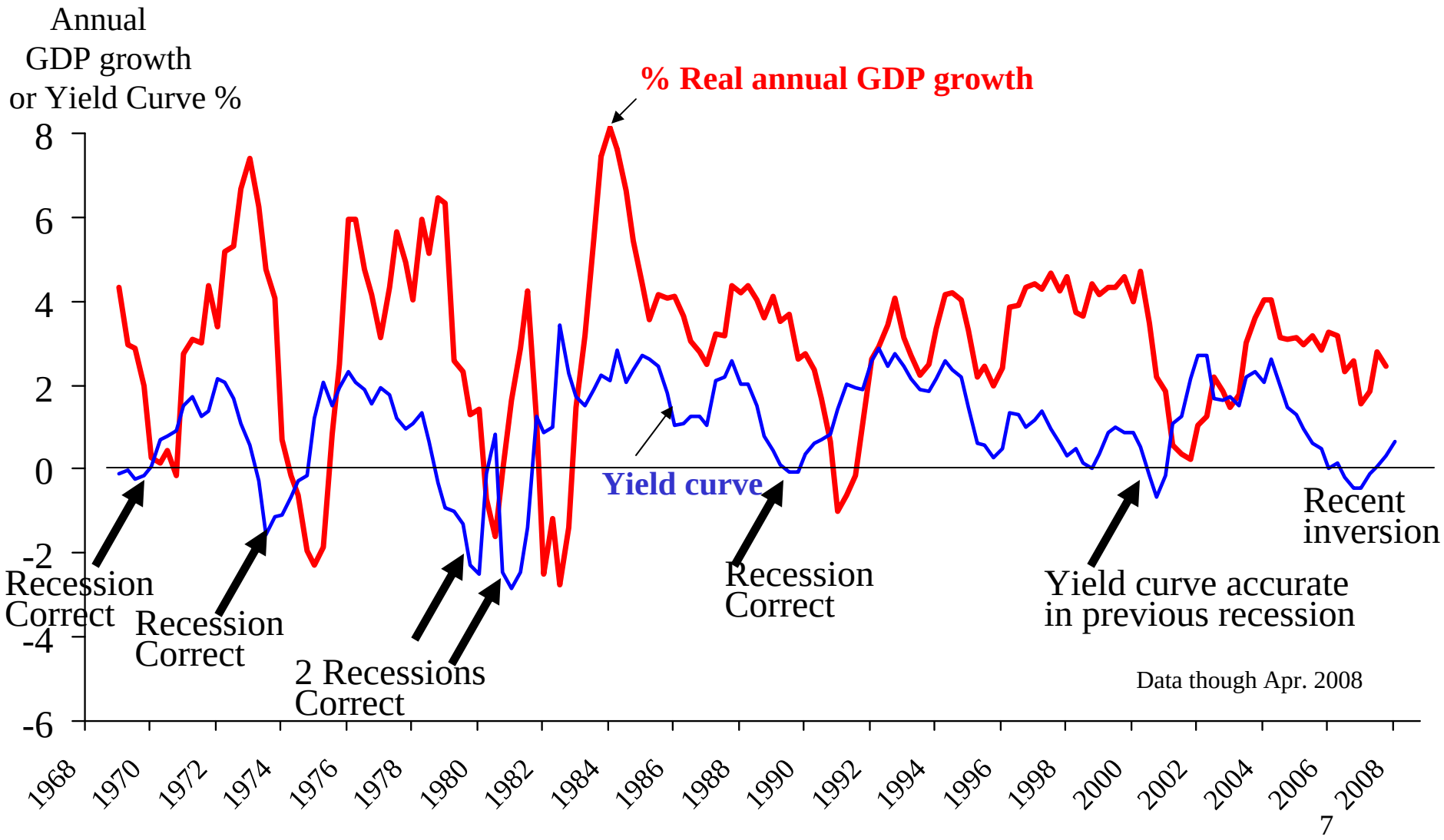

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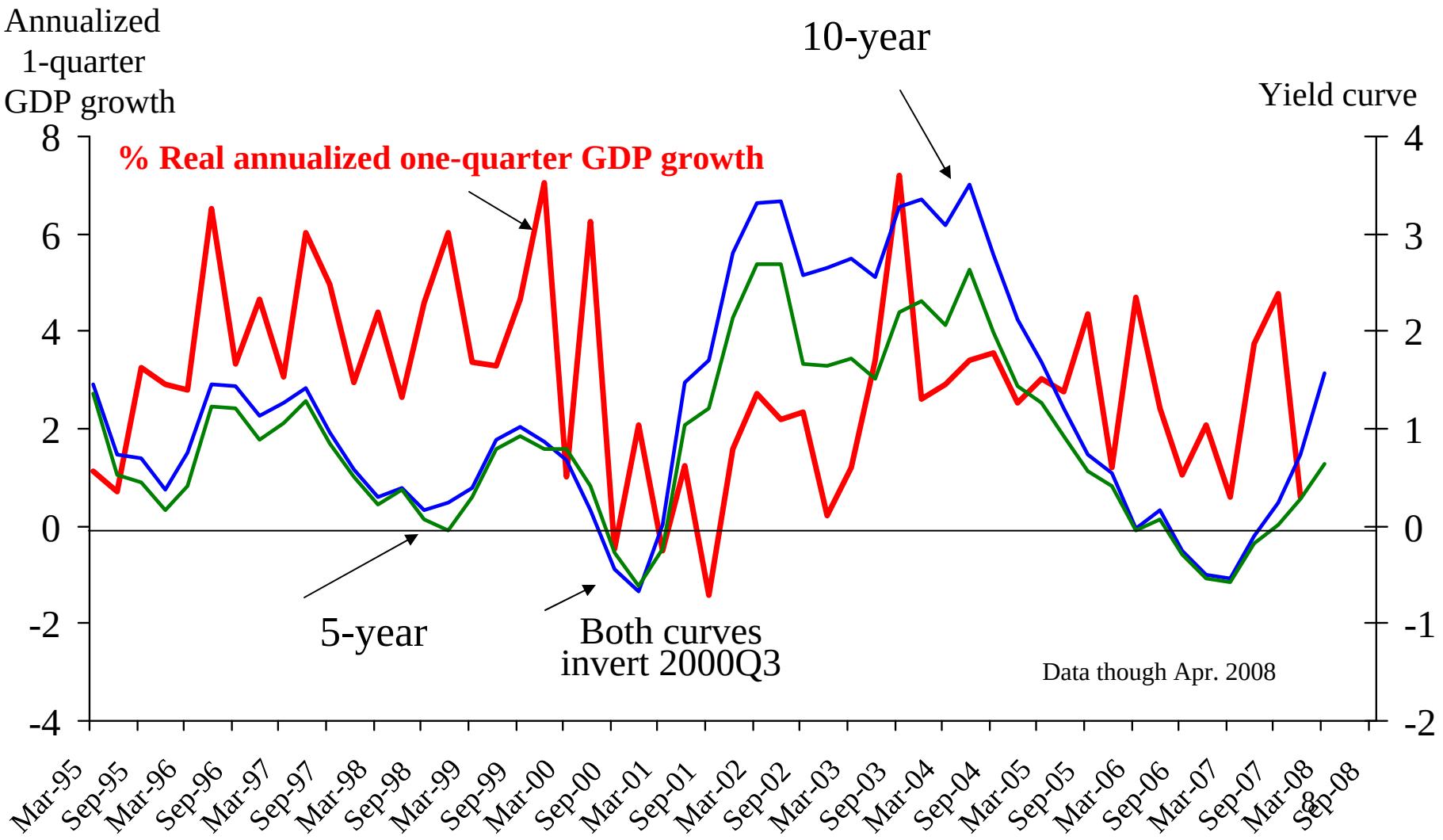
Recent Annualized One-Quarter GDP Growth

(10-year and 5-year Yield Curves-secondary market)



Current Recession Forecast

- In July 2006, the Yield Curve inverts for 11 months
- Lead time to NBER Peak is 9-15 months over last six business cycles
- **Model predicts recession beginning 2007Q4**
- **Model predicts recovery beginning 2008Q4**

Evaluation of Current Situation

- Situation would appear dire:
  - Housing in free fall
  - Credit crunch
  - $100+/bbl oil
- In previous business cycles, any **one** of these factors could push us into recession
- However, the economy is much more resilient today… why?

Mitigating factors

1. Housing. We face a bear market in housing for the next two years. There is a huge inventory of vacant houses that need to move. Nevertheless,
   - housing investment is only 7% of GDP
   - While homeowners take a wealth loss, the impact of the loss depends on when you bought the house (and the size of the mortgage).
   - Fiscal policy
   - Monetary policy (recent cuts will reduce the pain of the adjustable rate resets)

Current Situation

2. Oil. In contrast to 1973, 1979, 1981, oil expenditures are a much smaller component of the GDP. Indeed, we have already seen a large run up in the price of oil with little or no effect on economic growth. This is a sharp difference from the previous oil price shock recessions.

Current Situation

3. Credit crunch. Contrary to some perceptions, the world is awash in liquidity. Sovereign wealth funds appear to be eager to invest in large financial institutions. There are also substantial domestic resources actively purchasing (and waiting to purchase) distressed assets.

Current Situation

4. Financial risk sharing. While we mainly hear about U.S. banks writing down the value of their subprime portfolio, there have been substantial write downs outside the U.S. (UBS, Bank of China, etc). This risk sharing dulls the negative impact on the U.S. economy.

Current Situation

5. Goods risk sharing. The size of the U.S. trade sector is dramatically larger than in the past. In addition, there are strong growth expectations for many of our primary trading partners. This means that a U.S. slow down can be (to some extent) deflected by strong foreign demand. Even if international economies slow somewhat (e.g. China dropping from 9% to 7% real growth), they still offset much lower demand within the U.S. economy.

Current Situation

6. No drastic corporate actions. U.S. corporate balance sheets are in remarkably good shape. In contrast to previous economic slowdowns, there is very little leverage. This means that corporations do not need to go into emergency mode and slash employment and/or halt capital investment.

Interpretation

- While we face three large risk factors, the outlook is not consistent with a “deep recession”.
- The yield curve model is projecting a period of much slower growth which could be classified as an official NBER recession. However, the slower growth will be consistent with the growth rates in 2001 and 1990-91.
- GDP for Q4 2007 and Q1 2008 is running at only 0.6% growth is consistent with the model timing
- In contrast to previous two recession, the current slowdown will be longer (a full year).

Yield Curve and GDP Research Chronology

- Campbell R. Harvey's *Ph.D. Thesis*, University of Chicago, 1986.
- Campbell R. Harvey, "The Real Term Structure and Consumption Growth," *Journal of Financial Economics*, 1988
- Seven other works found at:

http://www.duke.edu/~charvey/research_term_structure.htm