Inflation Risk and P-C Insurance: Overview and Outlook

Joint Meeting of the Underwriting, Claims, and Emerging Issues Committees

Reinsurance Association of America

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Presentation Outline

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1. **What Causes Inflation?**
2. **Inflation’s Past and Future**
3. **Inflation’s Effect on Property-Casualty Insurance Claims**
4. **P-C Premium Growth and Inflation**
5. **Underwriting and Inflation**
6. **Investments and Inflation**
7. **Inflation, Reserve Adequacy, and Impairment**

- **Q&A**

What Causes Inflation?

What Makes Prices Increase?

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- An increase in the prices of the components (e.g., materials and labor) of the things we buy, if the sellers of those things pass along their increased costs to buyers
- Scarcity of supply in relation to demand. If there isn't enough of a good or service to meet demand, the price of that item will tend to rise (and some buyers will drop out, creating a supply/demand equilibrium at a higher price)
- Expectations. If sellers expect their costs to rise in the near future, they might raise prices now to avoid being caught. *This includes the category of "bubbles."*

What Makes the Prices of Items or Components from Overseas Rise?

- A drop in the value of the U.S. dollar. The price of any component that we buy from overseas could rise for us if the U.S. dollar’s value drops in relation to the value of the seller’s currency. In effect, it takes more U.S. money to convert to the same price in foreign currency.

Trade-Index-Weighted US Dollar Exchange Rate*

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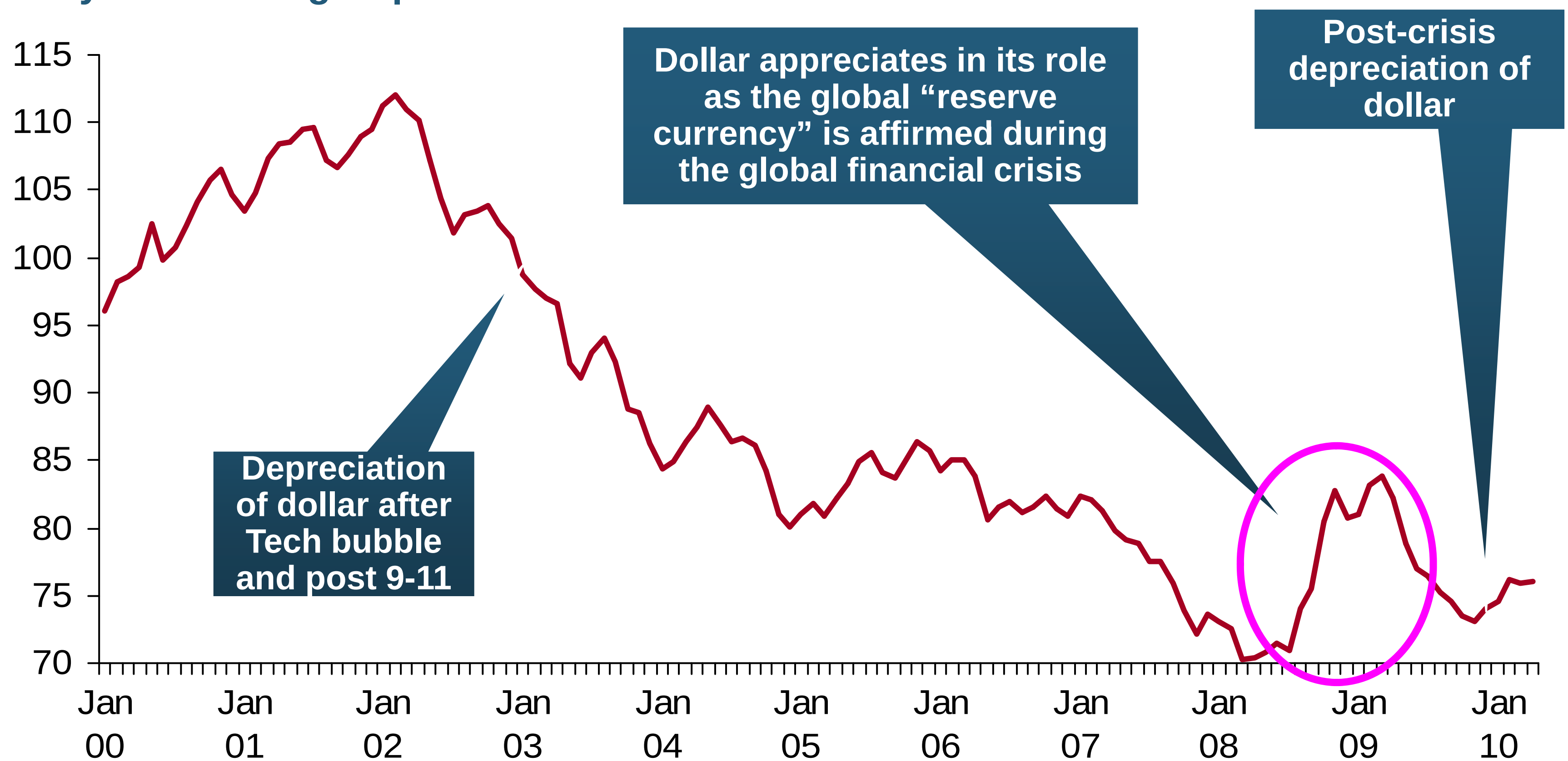
January 2000 through April 2010



Except in Times of Global Financial Crisis, The U.S. Dollar Has Weakened vs. Other Currencies

*The broad index is a weighted average of the foreign exchange values of the U.S. dollar against the currencies of a large group of major U.S. trading partners. The index weights, which change over time, are derived from U.S. export shares and from U.S. and foreign import shares.

Sources: US Federal Reserve, Board of Governors, at http://www.federalreserve.gov/releases/g5/current/ ; Insurance Information Institute.

What Makes the Prices of Items or Components from Overseas Rise?

- New taxes, tariffs, or other charges (e.g., shipping) that increase the effective price of an item.
- An increase in the price of the item in the selling country.

Inflation Rates for Largest European Economies & Euro Area, 2010F-2011F

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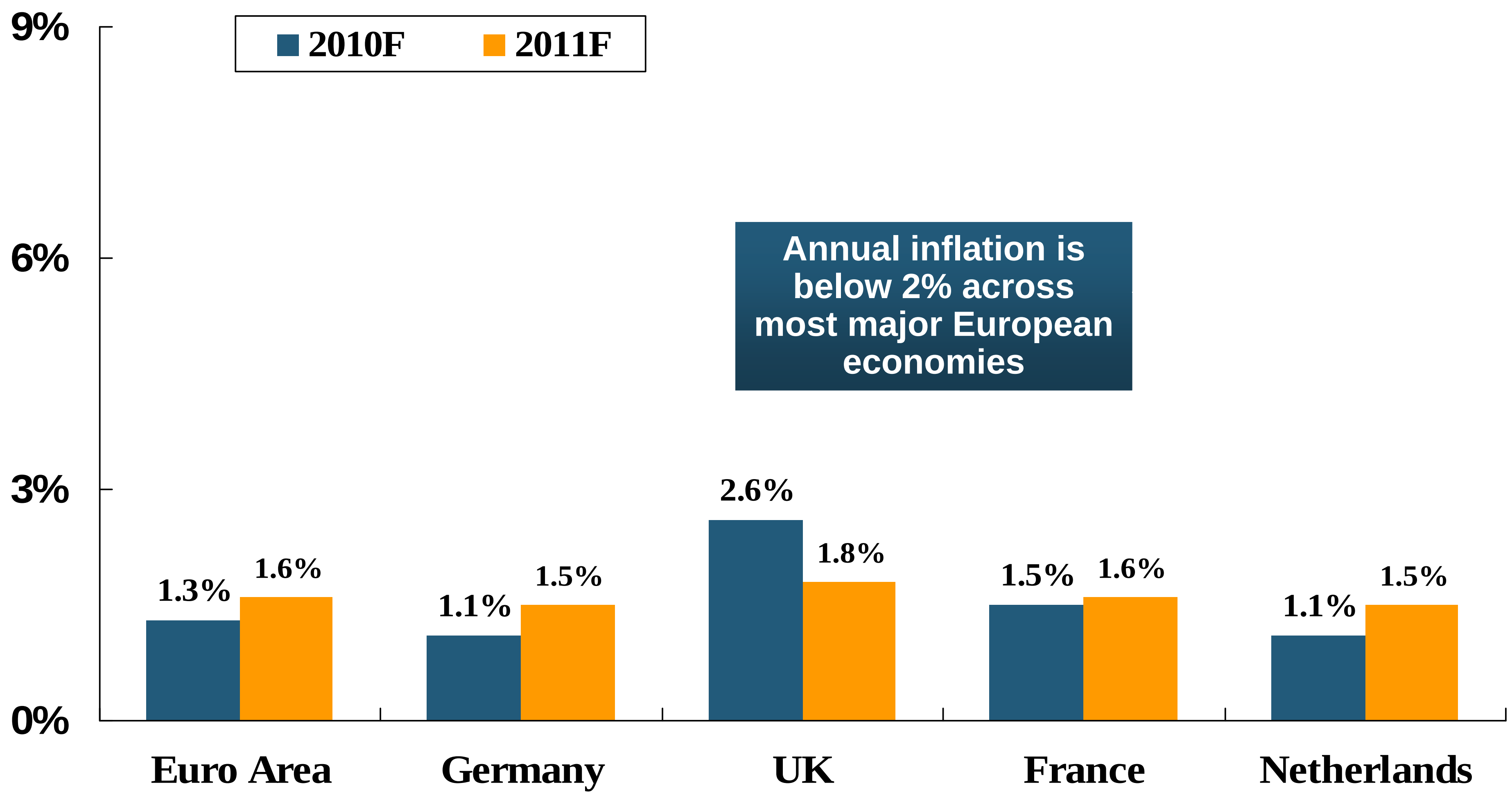
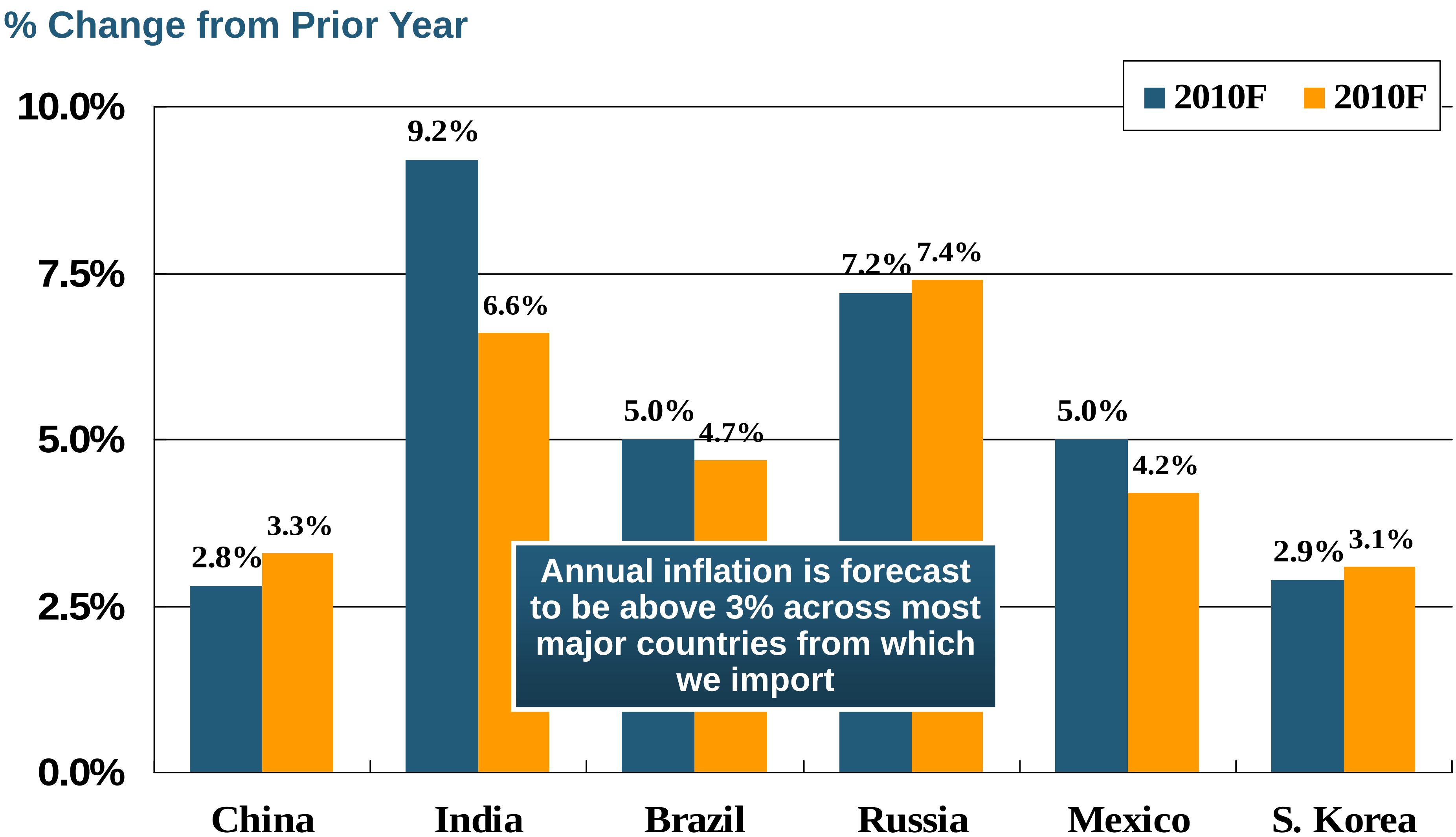
% Change from Prior Year



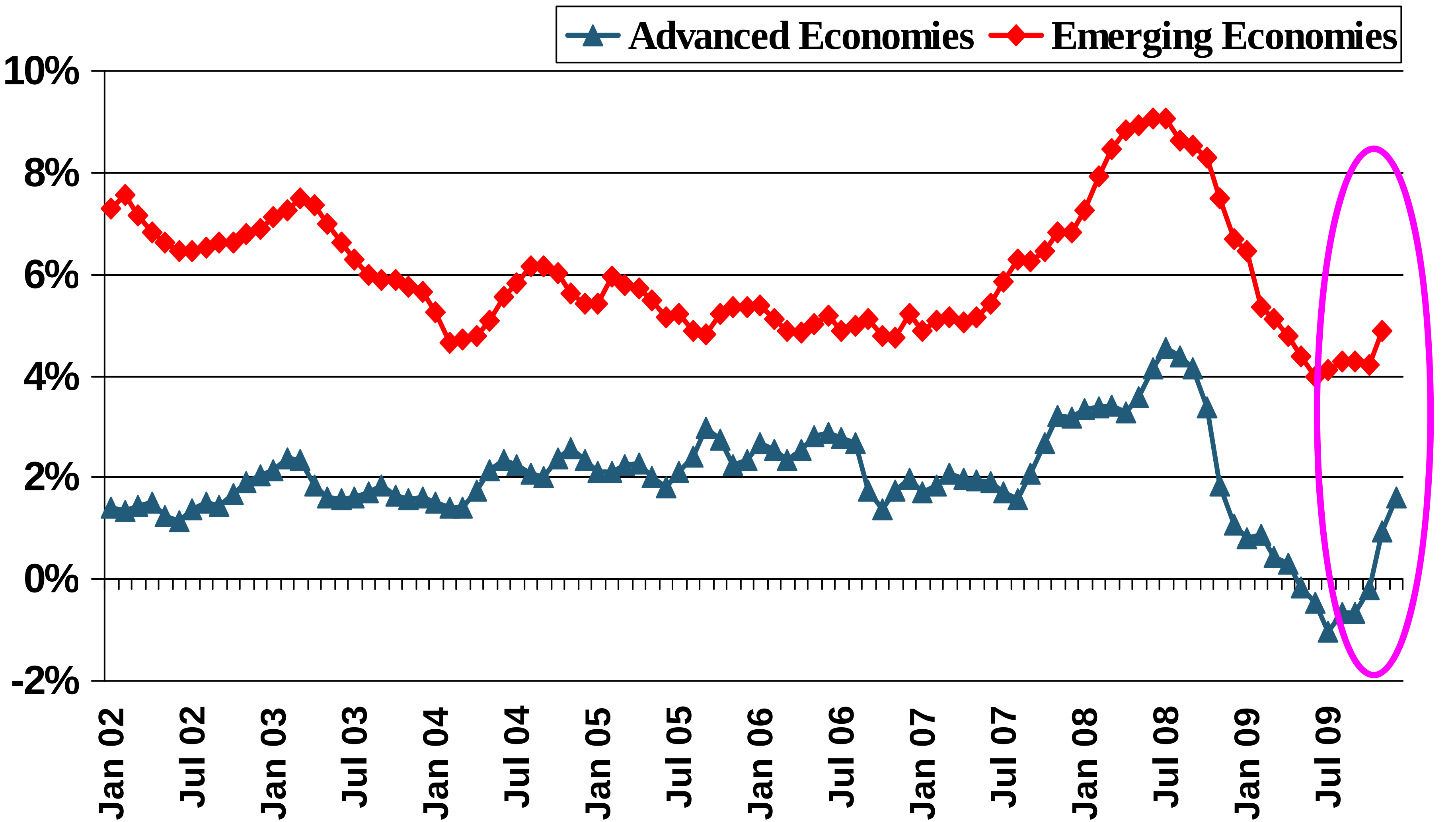
Source: Blue Chip Economic Indicators, 5/10/10 edition.

Inflation Rates for Major Emerging Economies, 2010F-2011F



Source: Blue Chip Economic Indicators, 5/10/10 edition.

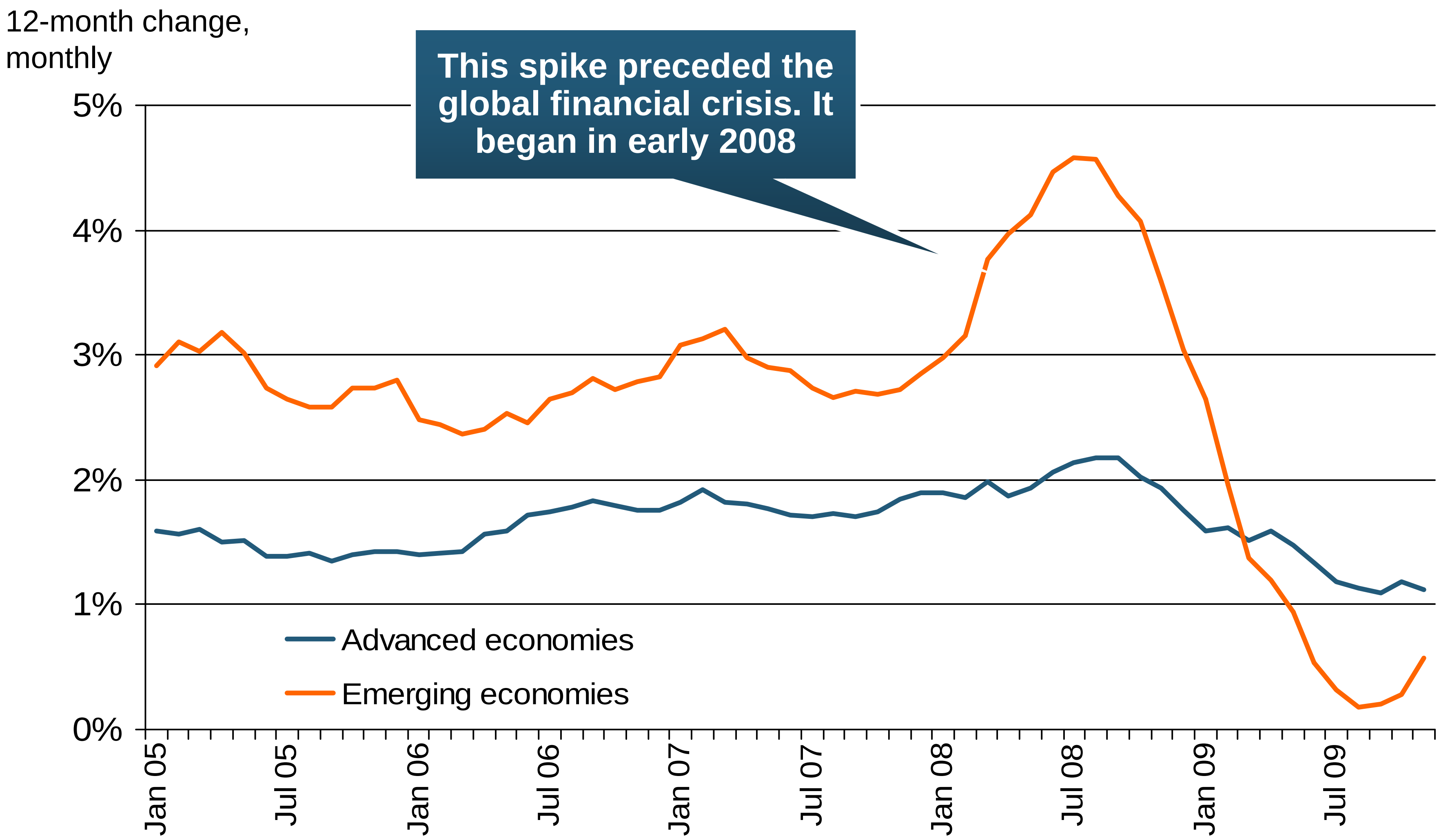
"Headline" Inflation Rates,* Emerging vs. Advanced Economies, 2002-2009



*12-month change in consumer price index, monthly

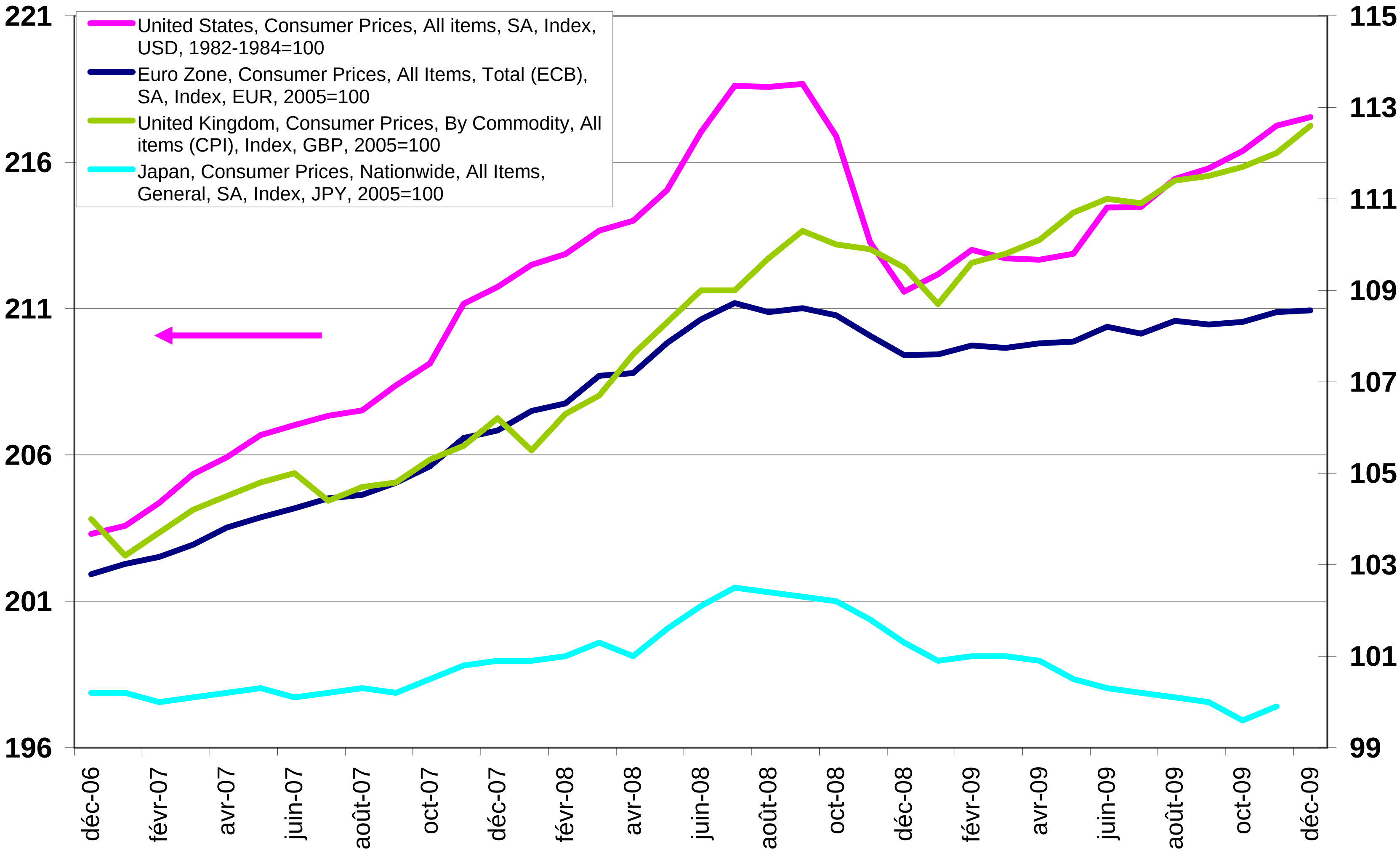
Source: International Monetary Fund, "World Economic Outlook" update January 2010

This is Odd: "Core" Inflation is Now Higher in Advanced vs. Emerging Economies



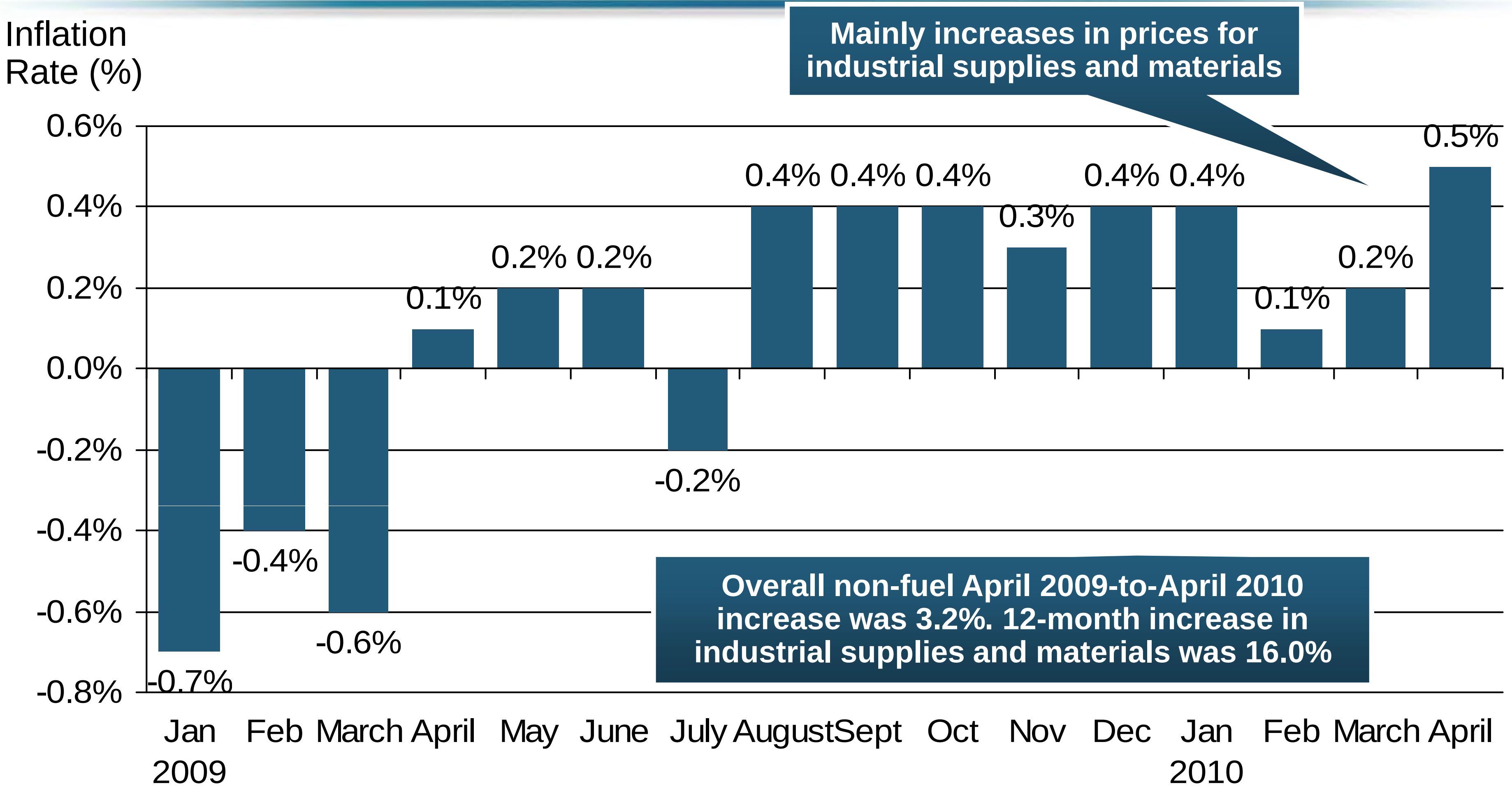
Note: data are through November 2009
Source: International Monetary Fund World Economic Outlook January 2010 update at http://www.imf.org/external/pubs/ft/weo/2010/update/01/data/figure_2.csv

Japan is an Inflation Exception Among Advanced Economies



Source : Ecowin & SCOR (2010)

Recent Monthly Changes in U.S. Non-Fuel Import Prices



Overall Inflation In Some Countries From Which We Buy Is Forecast to Be Modest, But More Severe in Others

Source: http://www.bls.gov/news.release/pdf/ximpim.pdf

Forecasts of 2010-11 Inflation Rates in Selected Countries

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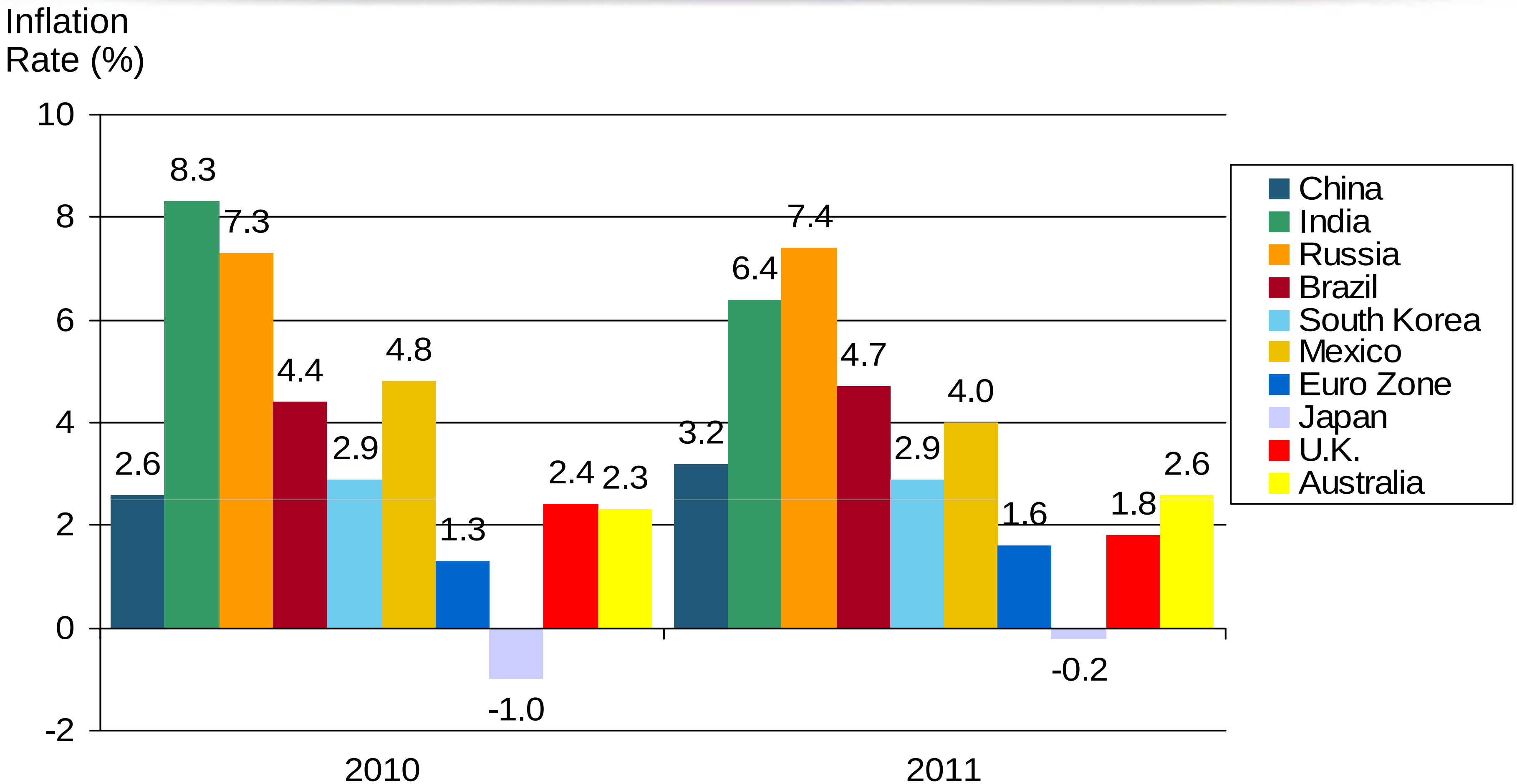

Overall Inflation In Some Countries From Which We Buy Is Forecast to Be Modest, But More Severe in Others

Source: Blue Chip Economic Indicators Mar. 2010.

Now, Really, What Causes Inflation?

- “Too much money chasing too few goods.” When the Federal Reserve and the “shadow” banking system provide more money than people need at current prices, prices rise to absorb the extra money.
  - “Inflation is everywhere and always a monetary phenomenon.” (Milton Friedman)

Inflation and the U.S. Monetary Base Have Roughly Moved Together (1975-2007)

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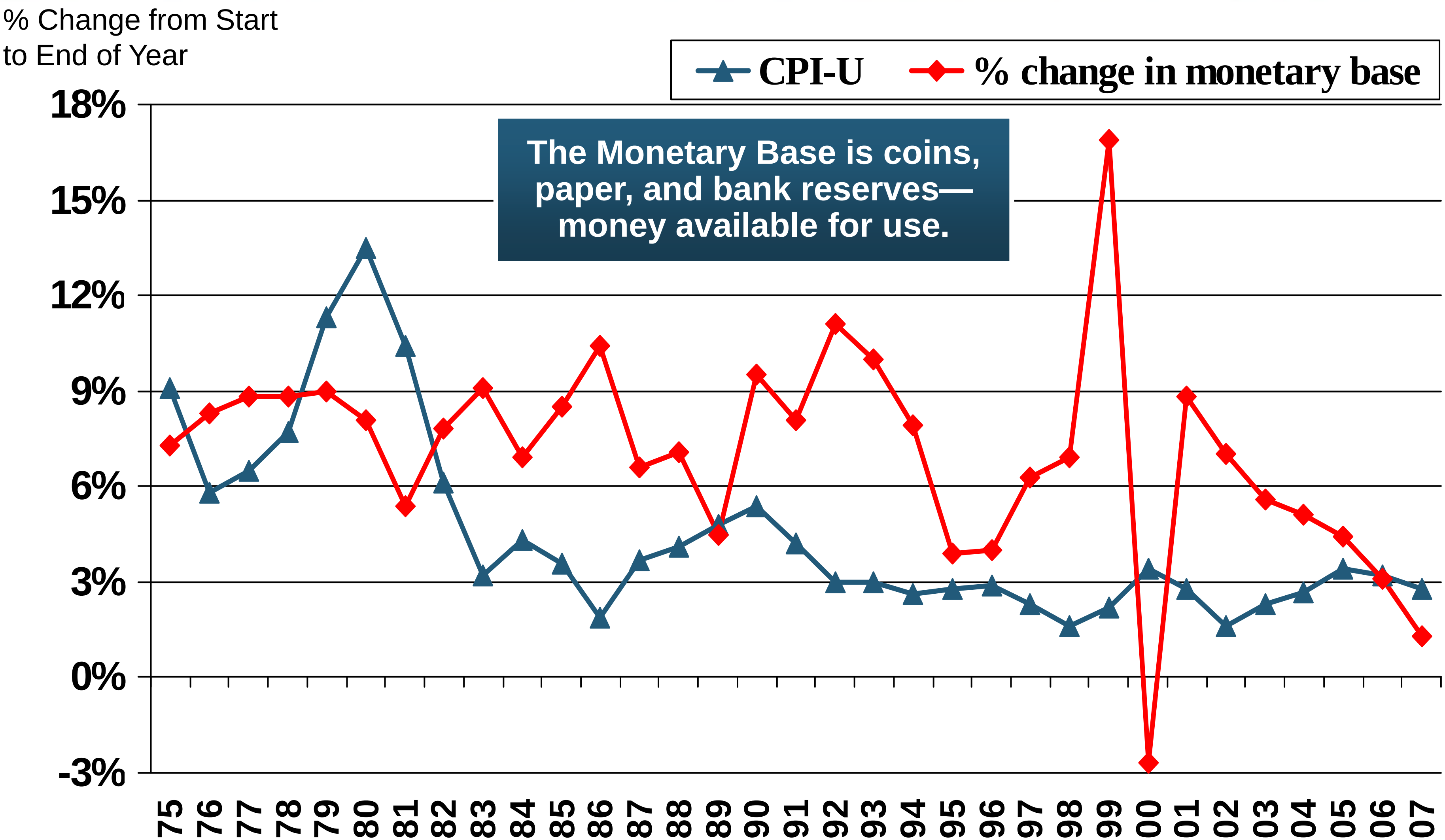

Sources: http://www.federalreserve.gov/releases/H3/hist/h3hist4.txt Insurance Information Institute (calculations).

But the U.S. Monetary Base Exploded in 2008 (Monthly, 1990–2010*)

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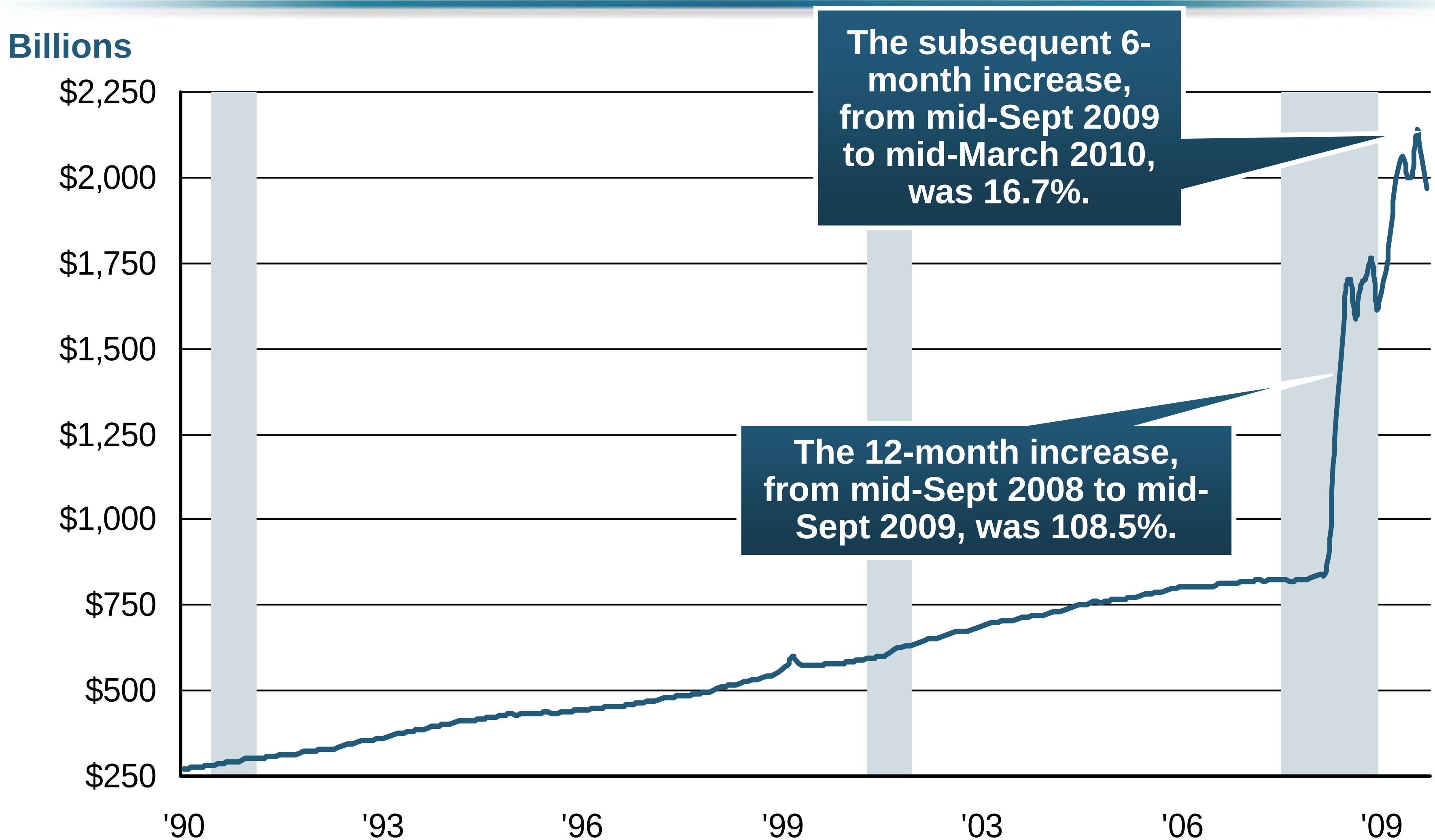
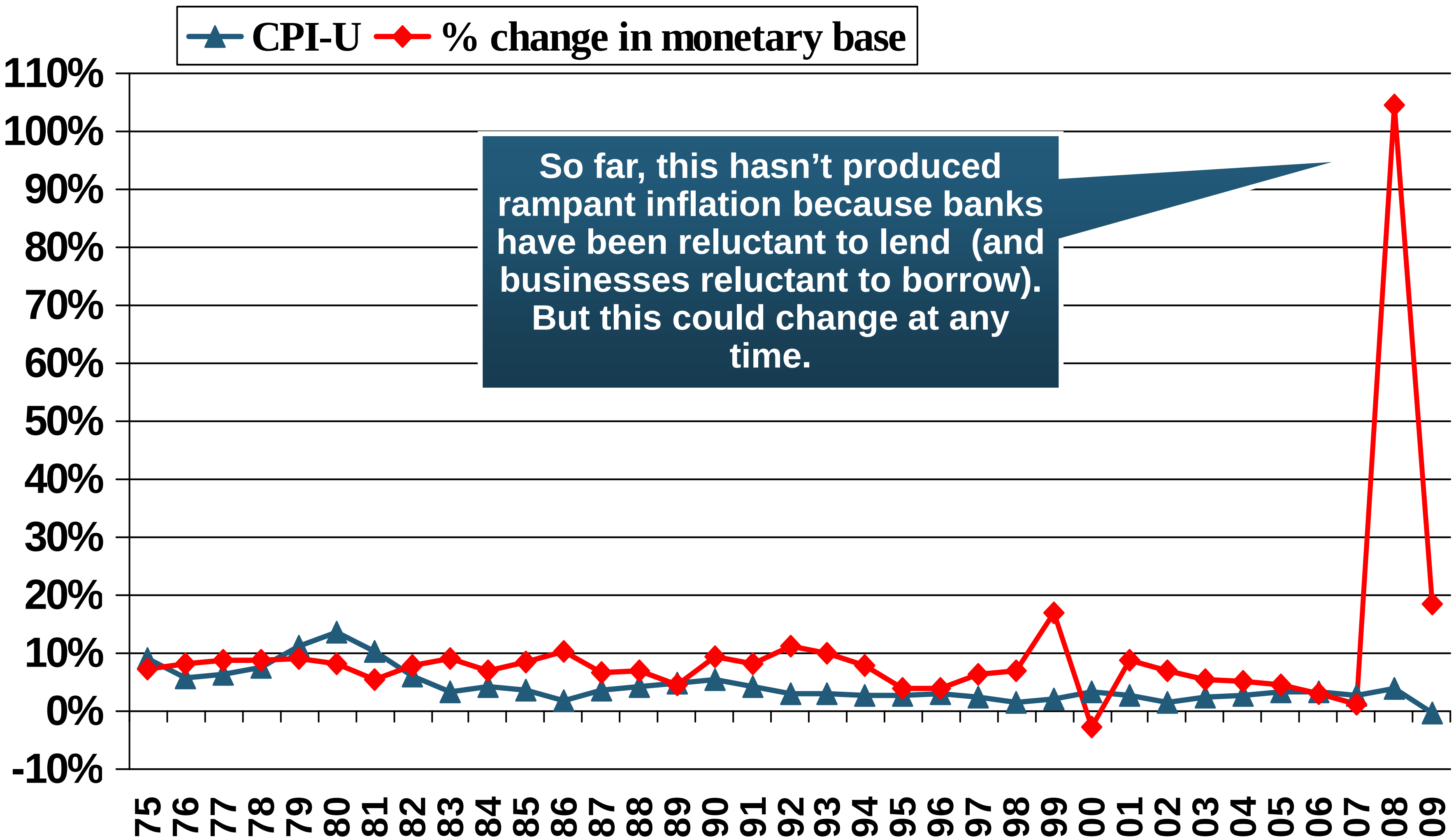


*As of end of April 2010; seasonally adjusted

Note: Recessions indicated by gray shaded columns.

Sources: http://www.federalreserve.gov/releases/H3/hist/h3hist4.txt National Bureau of Economic Research (recession dates); Insurance Information Institutes.

What Does the Spike in the Monetary Base in 2008-09 Mean for Future Inflation?



Source: US Department of Labor, Bureau of Labor Statistics

In 2008, Central Banks in Europe, the UK, and the US Dramatically Expanded the Money Supply

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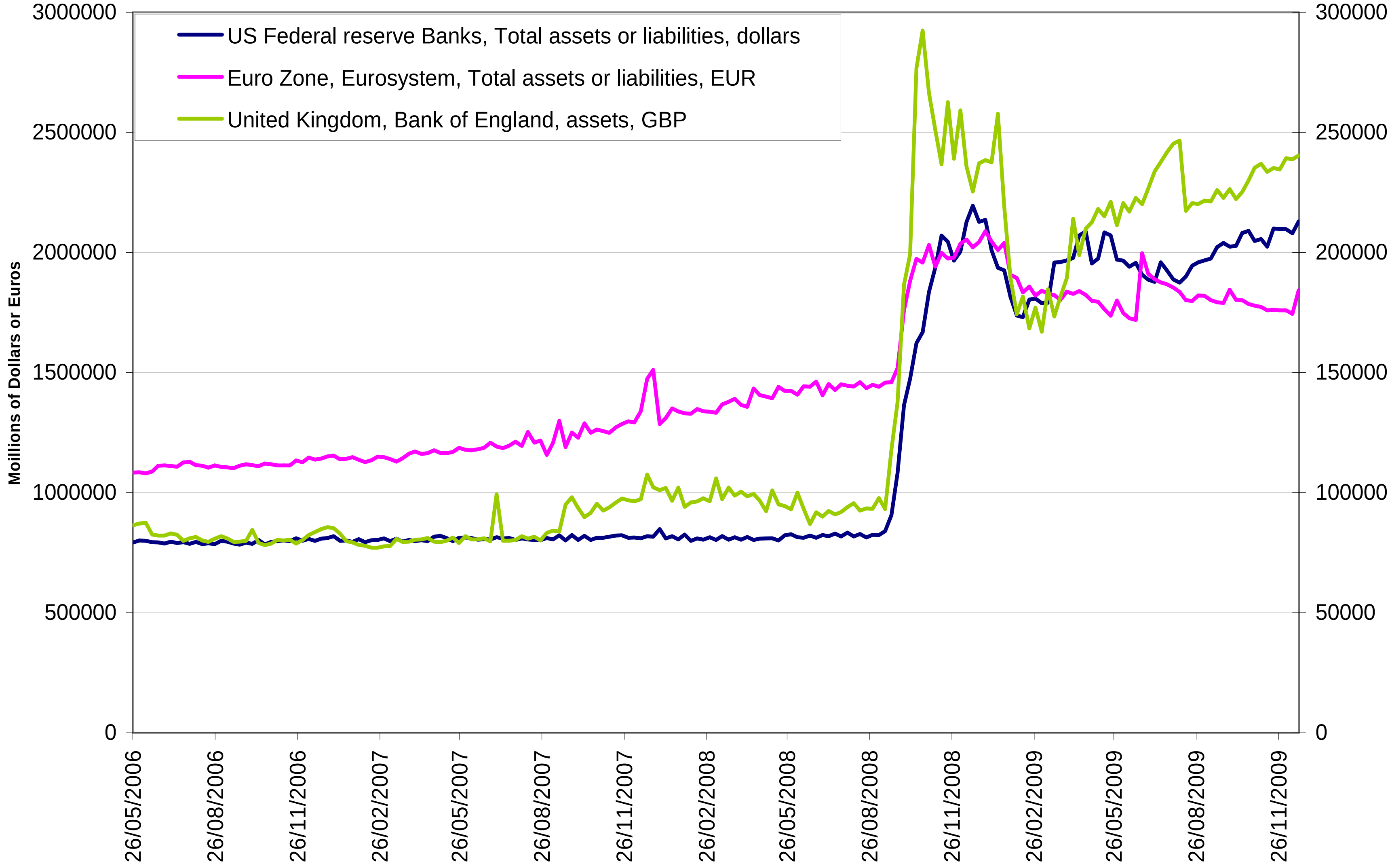

Source : Ecowin

Households and Businesses Are Now "Deleveraging": Low Inflation Pressure

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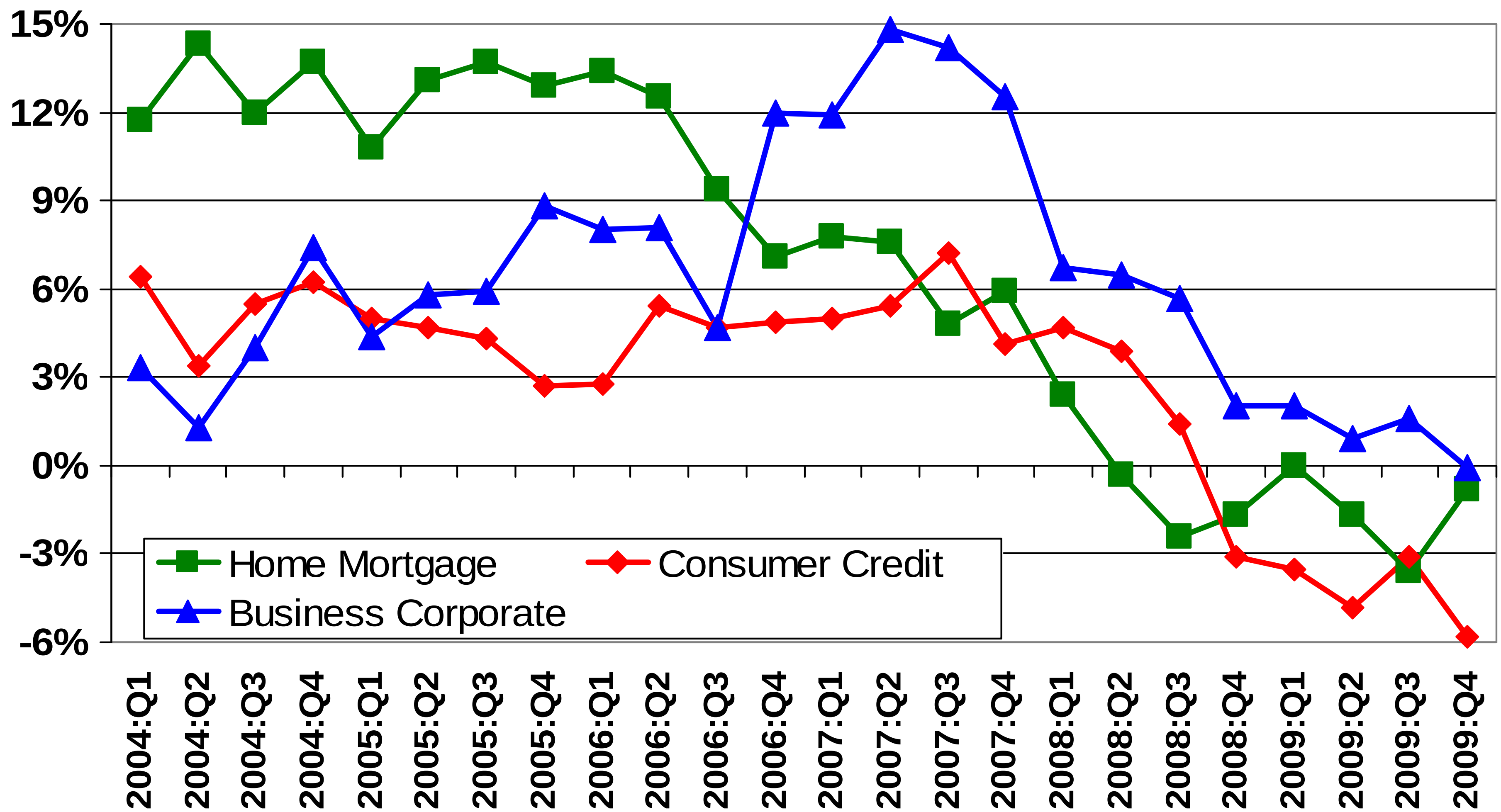
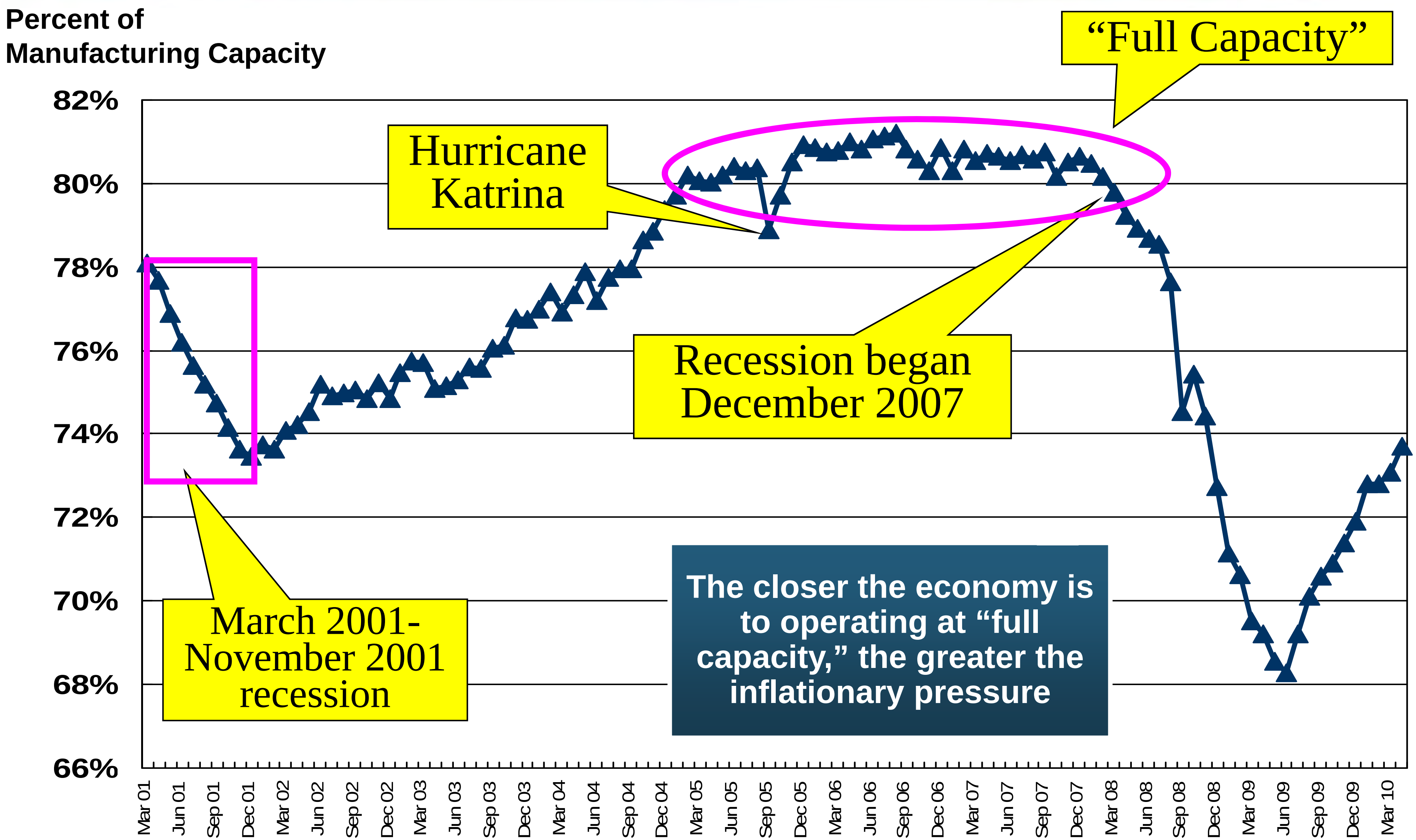
Percent Change in Debt Held
(Quarterly since 2004 at Annualized Rate)



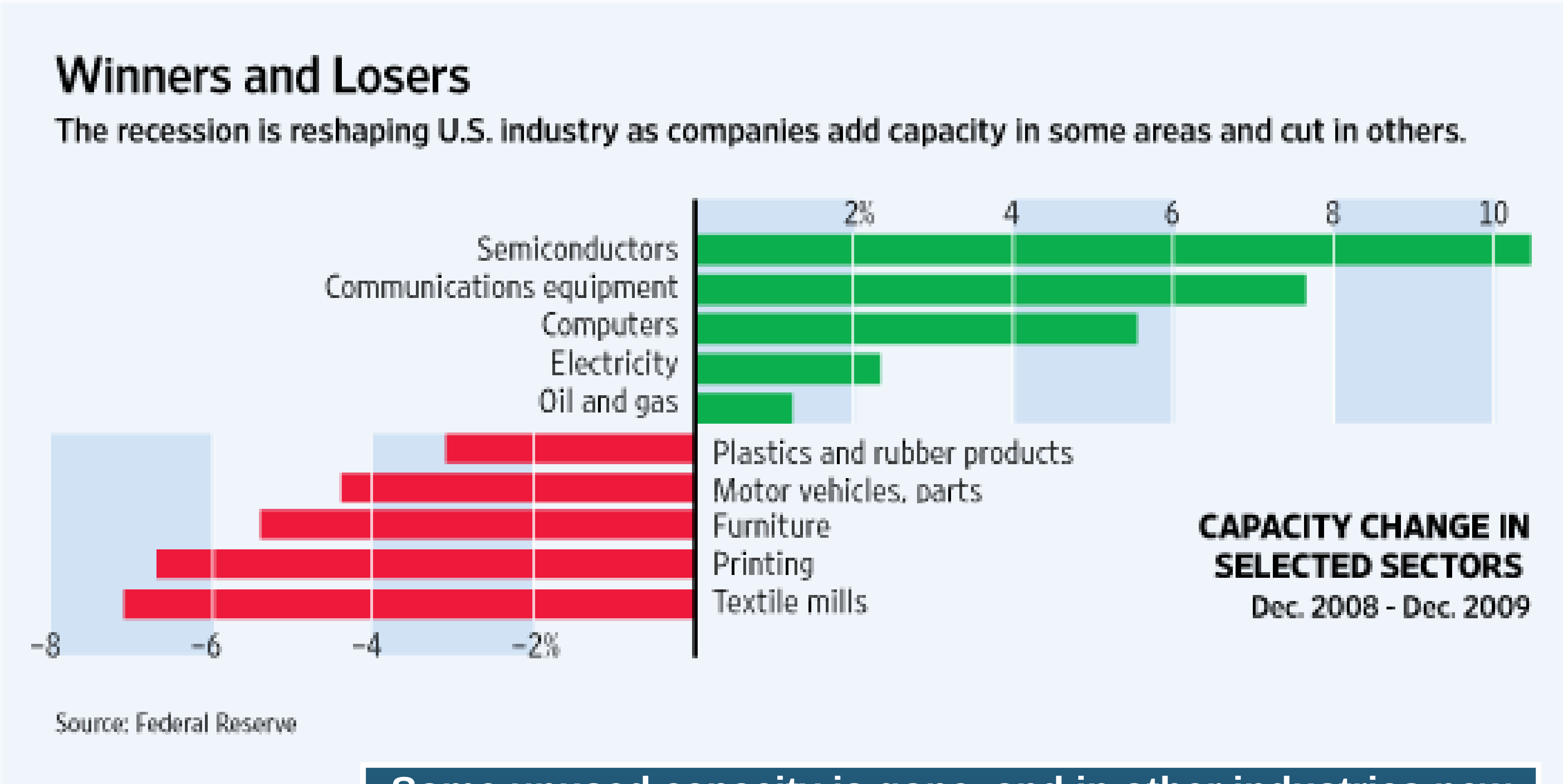
Source: Federal Reserve Board, at http://www.federalreserve.gov/releases/z1/Current/z1r-2.pdf (latest data as of 5/14/2010)

Conventional Wisdom: Inflation Won’t Threaten Until We’re At Full Capacity



Source: Federal Reserve Board statistical releases at http://www.federalreserve.gov/releases/g17/Current/default.htm

But Some Industrial Production Capacity Has Vanished



Some unused capacity is gone, and in other industries new capacity is needed, so the economy might be closer to full capacity than the industrial production numbers indicate. If so, this might spur inflation sooner than expected.

Source: Wall Street Journal, Feb. 3, 2009

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Inflation’s Past and Future

Inflation Isn't Double-Digit Now as It Was in 1974-81

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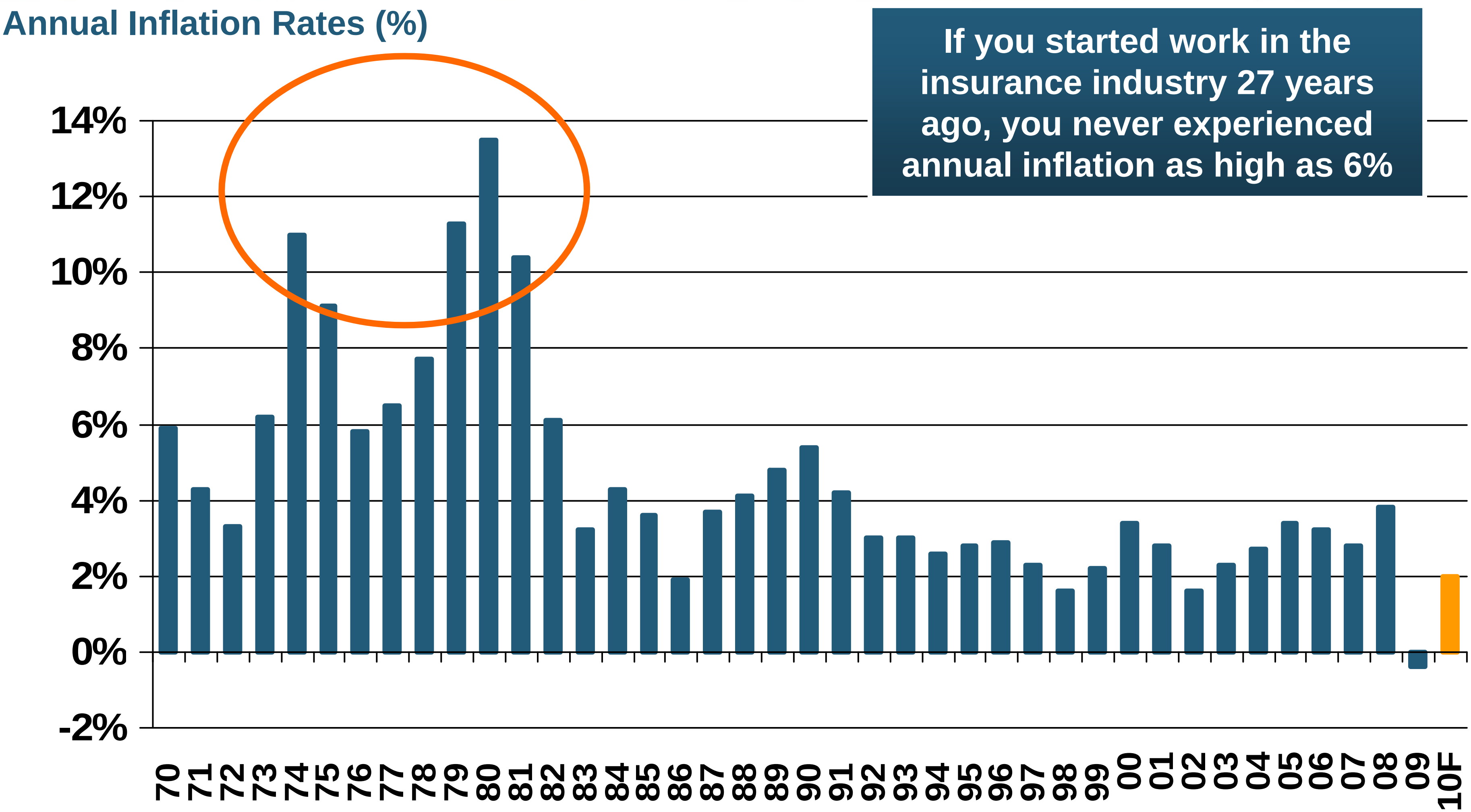

Sources: US Department of Labor, Bureau of Labor Statistics; Blue Chip Economic Indicators (5/2010 issue) (2010 forecast)

A Closer Look: Annual Inflation Rates (CPI-U, %), 1990–2014F

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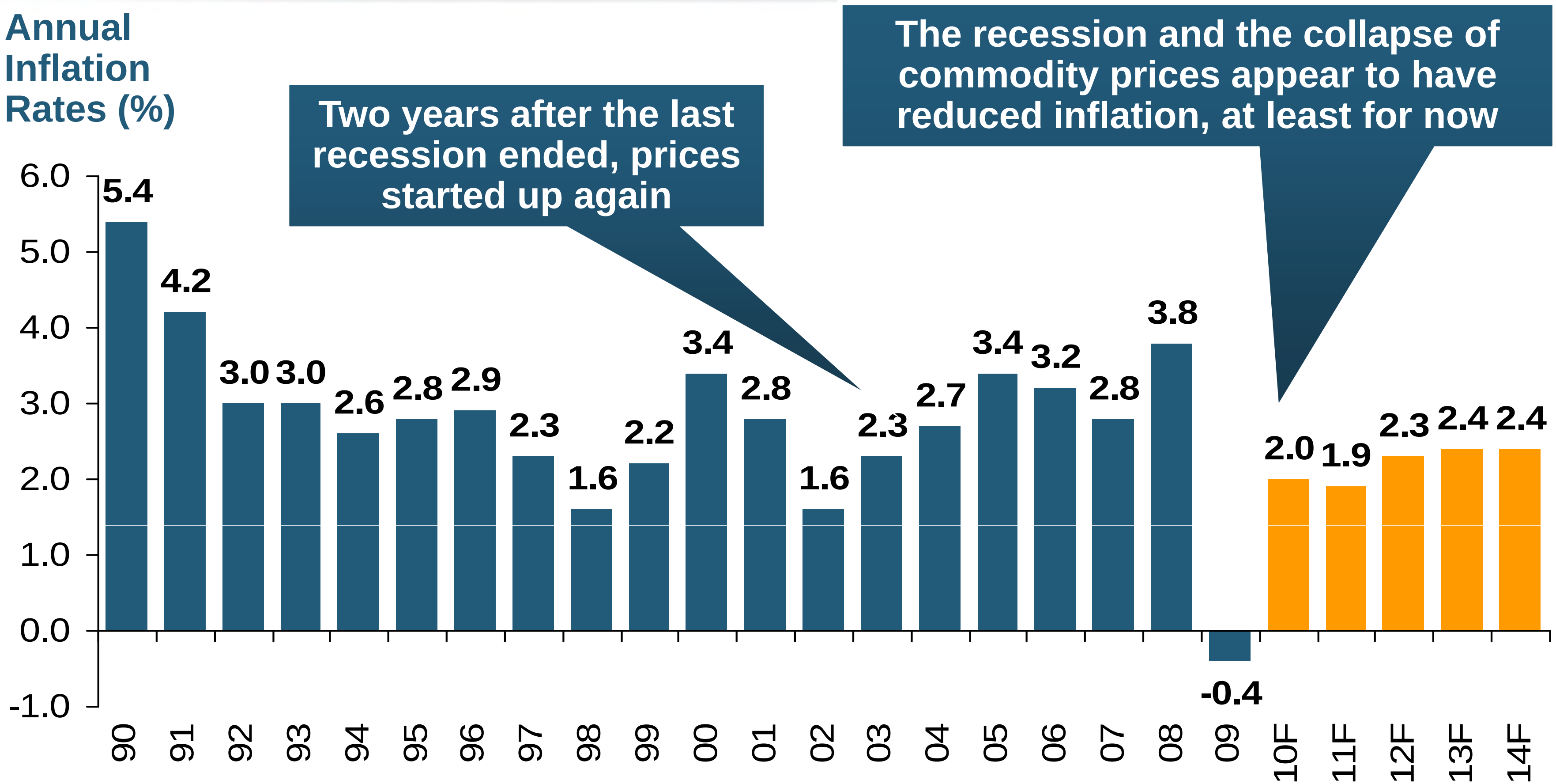

The Annual Inflation Rate (CPI-U) Has Been Below 4% Since 1992. The Compound Average Growth Rate of Inflation 1992-2009 was about 2.3%.

Sources: US Bureau of Labor Statistics; Blue Chip Economic Indicators, 3/2010 and 5/2010 issues (forecasts).

Forecasts of Yearly U.S. Inflation Rates (CPI-U, %), 2010–2015F

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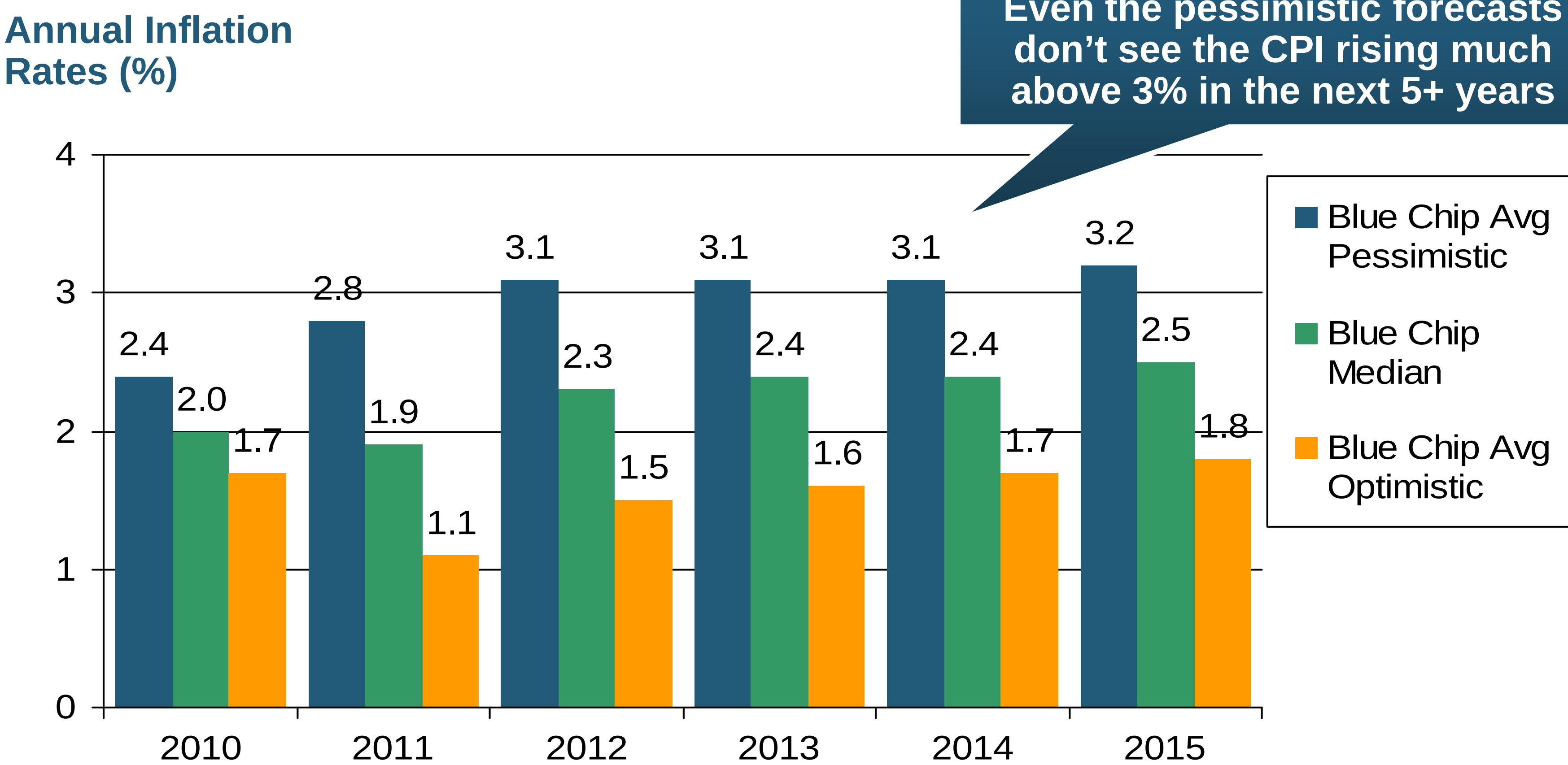
Even the pessimistic forecasts don't see the CPI rising much above 3% in the next 5+ years



Overall Inflation Is Forecast to Rise Modestly through 2015 but Is Not Expected to Become a Major Concern

Source: Blue Chip Economic Indicators Mar. 2010 and May 2010 issues.

But Some Economists Say the Fed's Inflation Target Should be Higher

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Headline in *Wall Street Journal* Monday February 22, 2010:

Low Inflation Always Best? Some Urge a Policy Rethink

- Higher inflation brings higher interest rates, giving the Federal Reserve "more room" to lower rates when it wants to stimulate the economy.
- Higher inflation also lessens the debt burden (inflation pushes incomes up but debt payments are fixed)

Proposed inflation target: 4% (Current target: 2%)

Bernanke's Recent Views on the Fed's 2% Inflation Target

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- A major inflation driver is expectations regarding the future rate of inflation
  - Firms will raise prices if they expect their costs to increase
  - Workers will demand pay raises to offset expected higher inflation
- Bernanke's worry: If the Fed changes its target to a higher inflation level, people might think that the Fed isn't serious about inflation, and might bid prices up proactively
- Bernanke: the Fed should maintain its 2% target in order to support current beliefs that the Fed will act to limit inflation to 2%

Source: http://www.federalreserve.gov/newsevents/speech/bernanke20100103a.htm

So If Inflation Isn't Threatening Now, Why Are We Worried About It?

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- **Rising Claim Severities**
  - Cost of claims settlement rises across the board (property and liability)
- **Rate Inadequacy**
  - Rates inadequate due to low trend assumptions arising from use of historical data
- **Reserve Inadequacy**
  - Reserves may develop adversely and become inadequate (deficient)
- **Burn Through on Retentions**
  - Retentions, deductibles burned through more quickly
- **Reinsurance Penetration/Exhaustion**
  - Higher costs → risks burn through their retentions more quickly, tapping into reinsurance more quickly and potentially exhausting their reinsurance more quickly

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Inflation's Effect on Property-Casualty Insurance Claims

P-C Claim Severity Generally Has Risen Faster than the CPI

Resurgent Inflation Would Shift Claim Severity Upward for any Given Distribution

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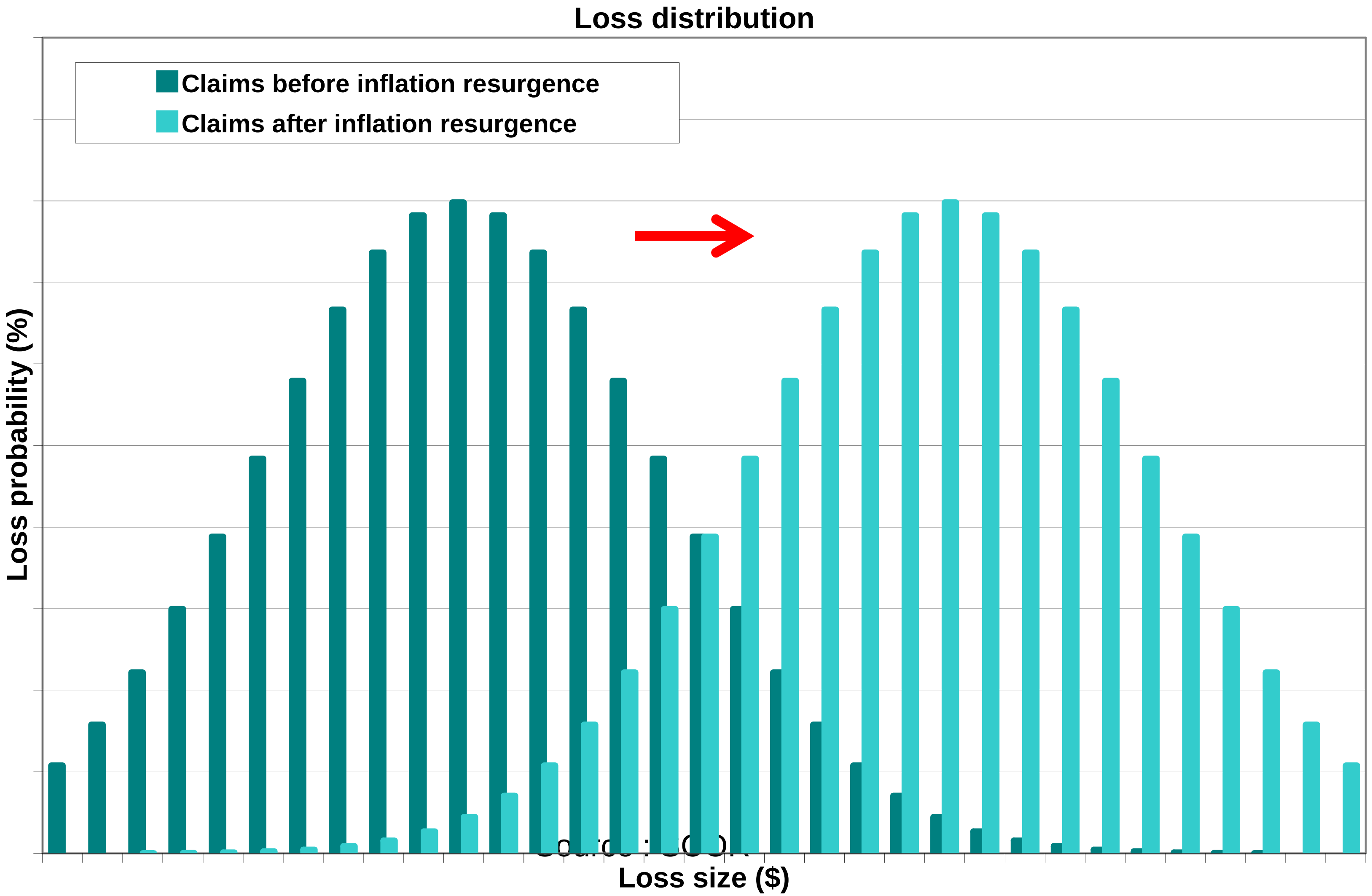
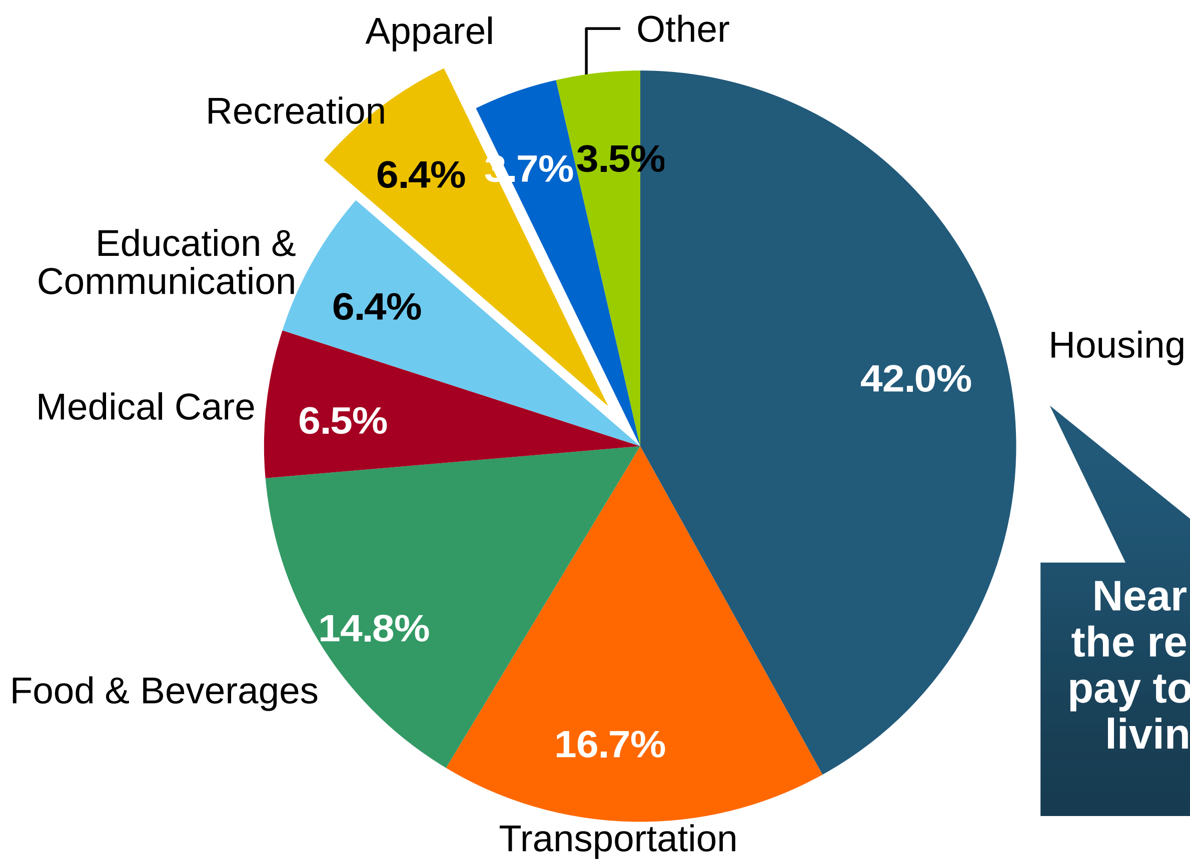


Source: Philippe Trainar, “Inflation risk: a long term Pressure scenario for insurance companies,” presentation at the Geneva Association’s Amsterdam Circle of Chief Economists, February 11, 2010.

Major Components of the CPI-U, by Weighting

P-C Insurance Doesn't Pay for the Major Items in the CPI. It Factors Slightly in Housing, Transportation; Significantly in Medical Care



Nearly 2/3 of this is the rent homeowners pay to themselves for living in their own home

Source: BLS News Release, March. 18, 2010 "Consumer Price Index – February 2010"

Inside the Jan. & Feb. 2010 CPI:* Components Move Differently

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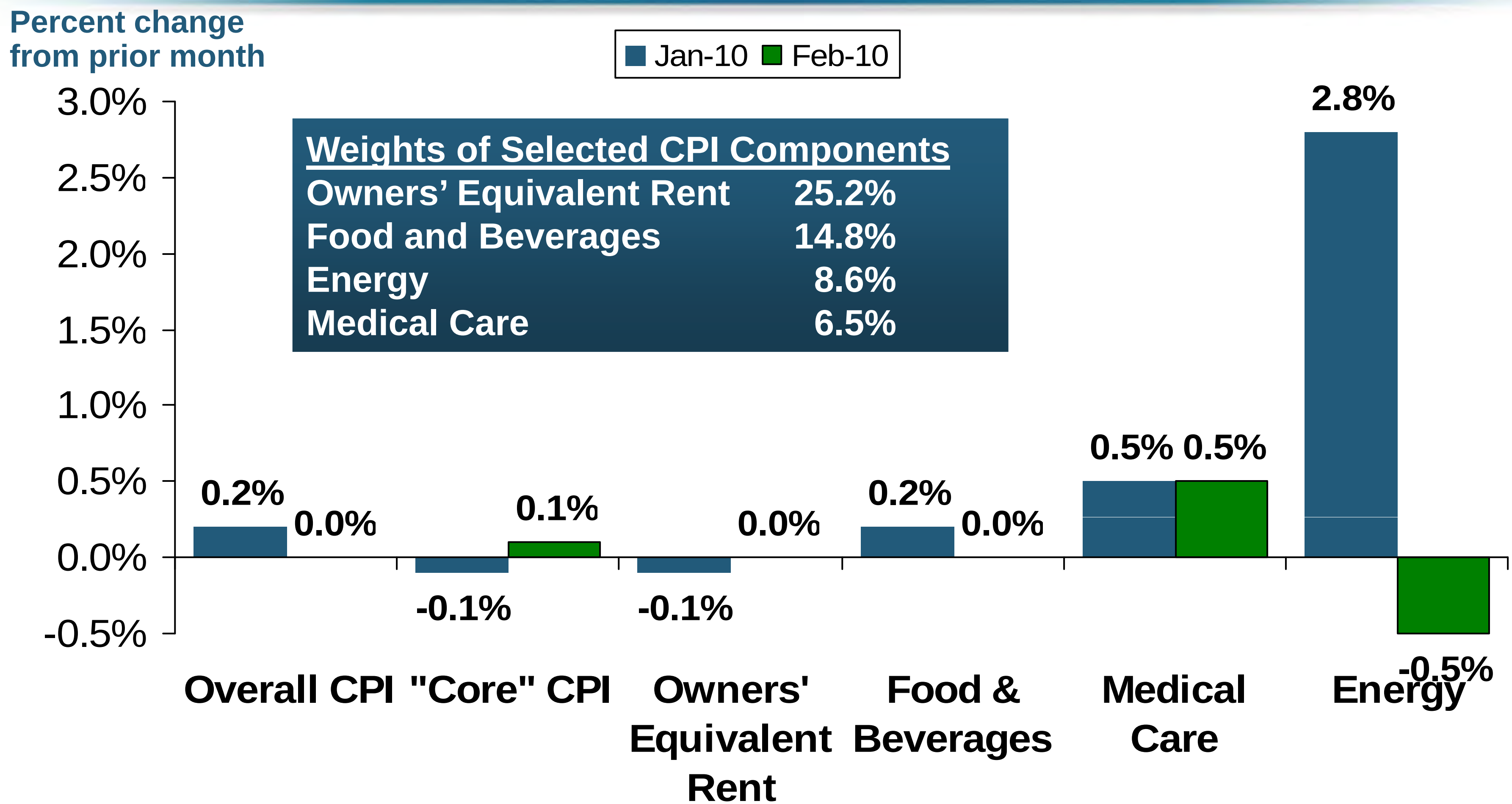

The "Core" CPI Excludes Price Changes for Food and Energy, Which Are Generally Volatile. These Items Are Nearly ¼ of the CPI. The Largest Single CPI Component is an Estimate of What Homeowners Would Pay as Rent to Themselves as Landlords.

*seasonally adjusted.
Source: BLS

Inside the Jan. & Feb. 2010 CPI:* Components Move Differently

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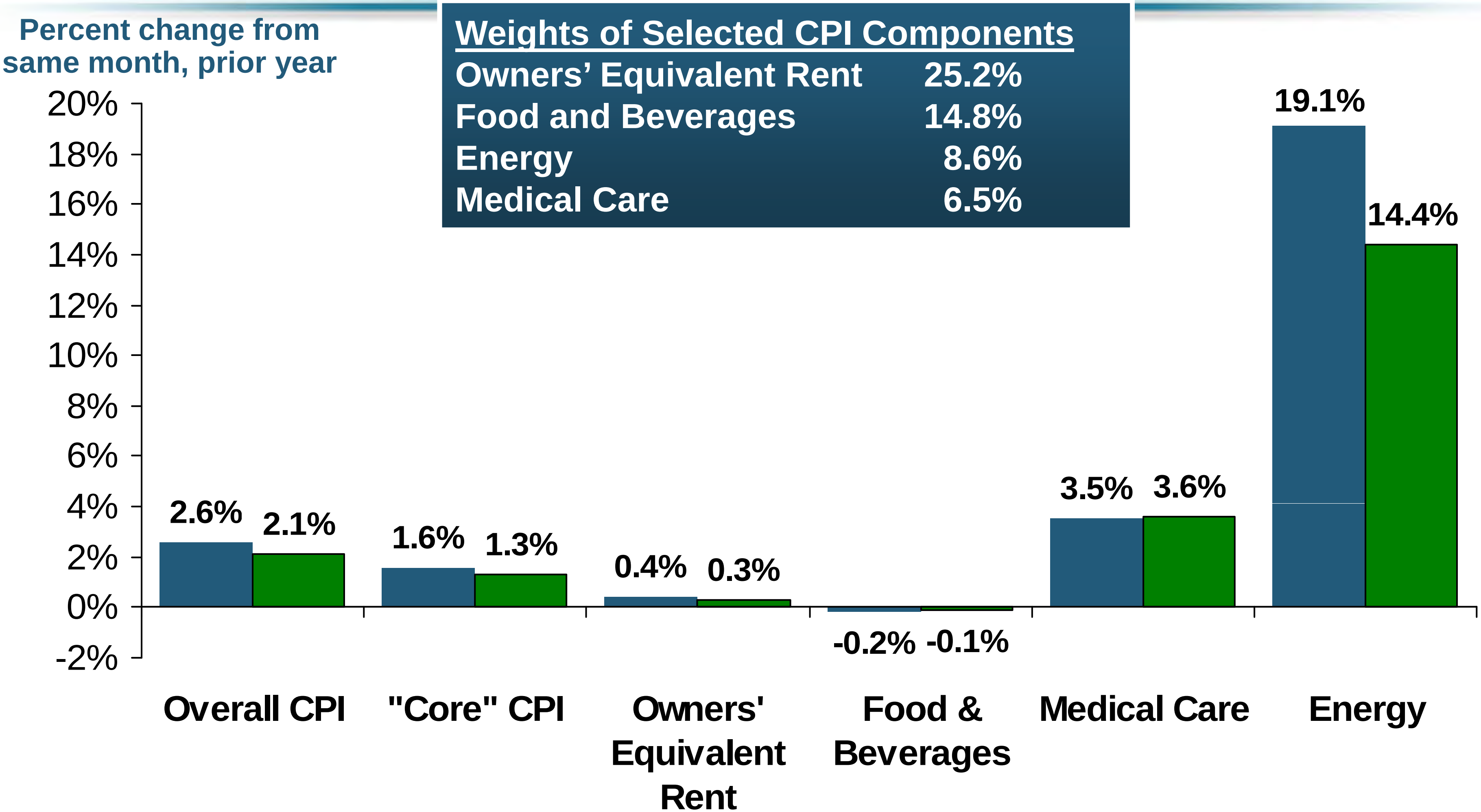
Weights of Selected CPI Components	
Owners' Equivalent Rent	25.2%
Food and Beverages	14.8%
Energy	8.6%
Medical Care	6.5%



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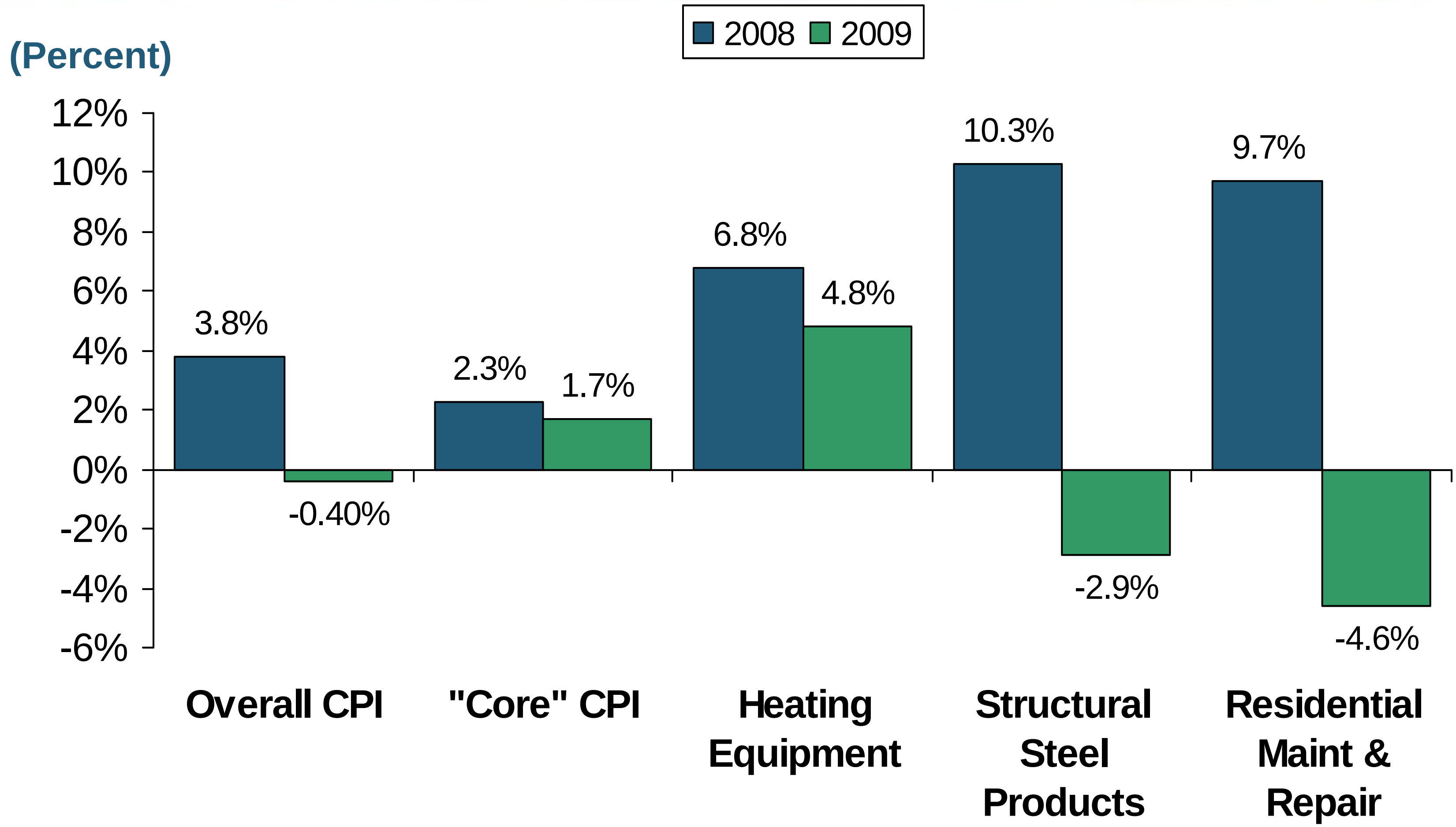
*seasonally adjusted.
Source: BLS

When Prices for Some Items Drop, Check the Prior-Year Surge



Some Costs Related to Construction Spiked in 2008, Far Above the Overall Inflation Rate (CPI), then Retreated in 2009

Sources: Bureau of Labor Statistics; Insurance Information Institute.

Price Indexes for Elements of Property Claims Monthly, Jan 2008-Feb 2010

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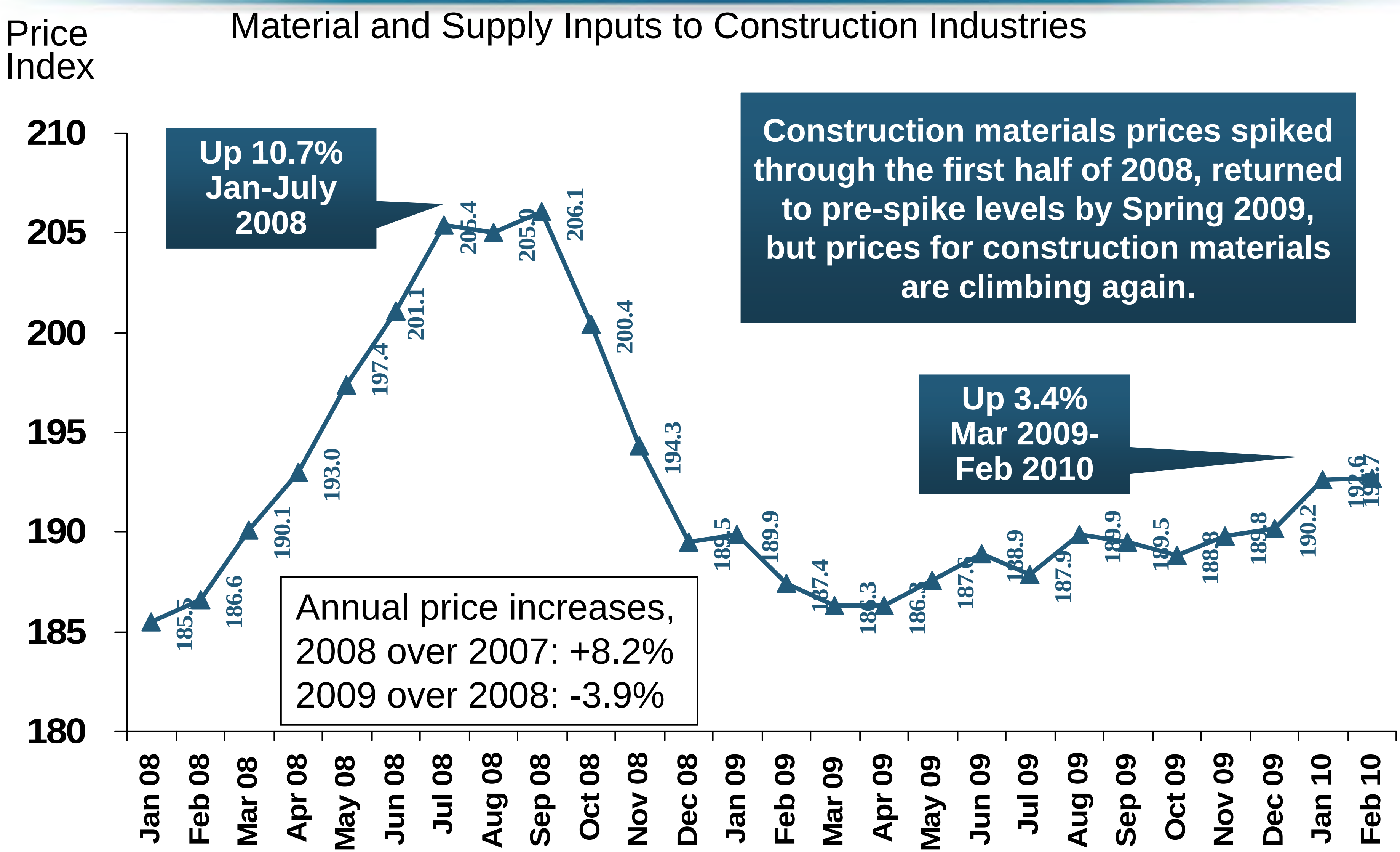

Sources: Bureau of Labor Statistics; Insurance Information Institute calculations.

Inflation in Legal and Auto Repair Costs Affects P/C Claims More than the CPI Suggests

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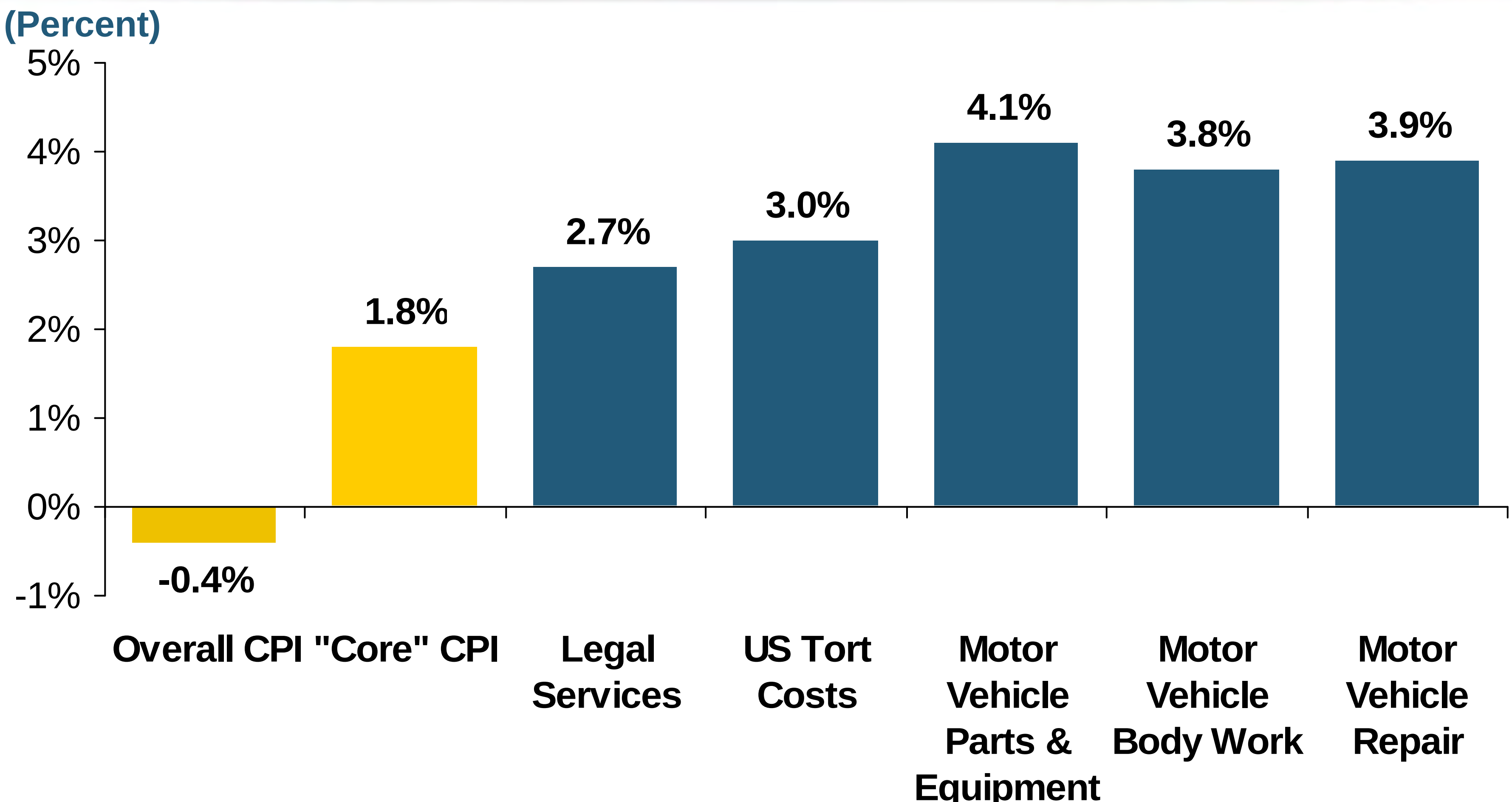
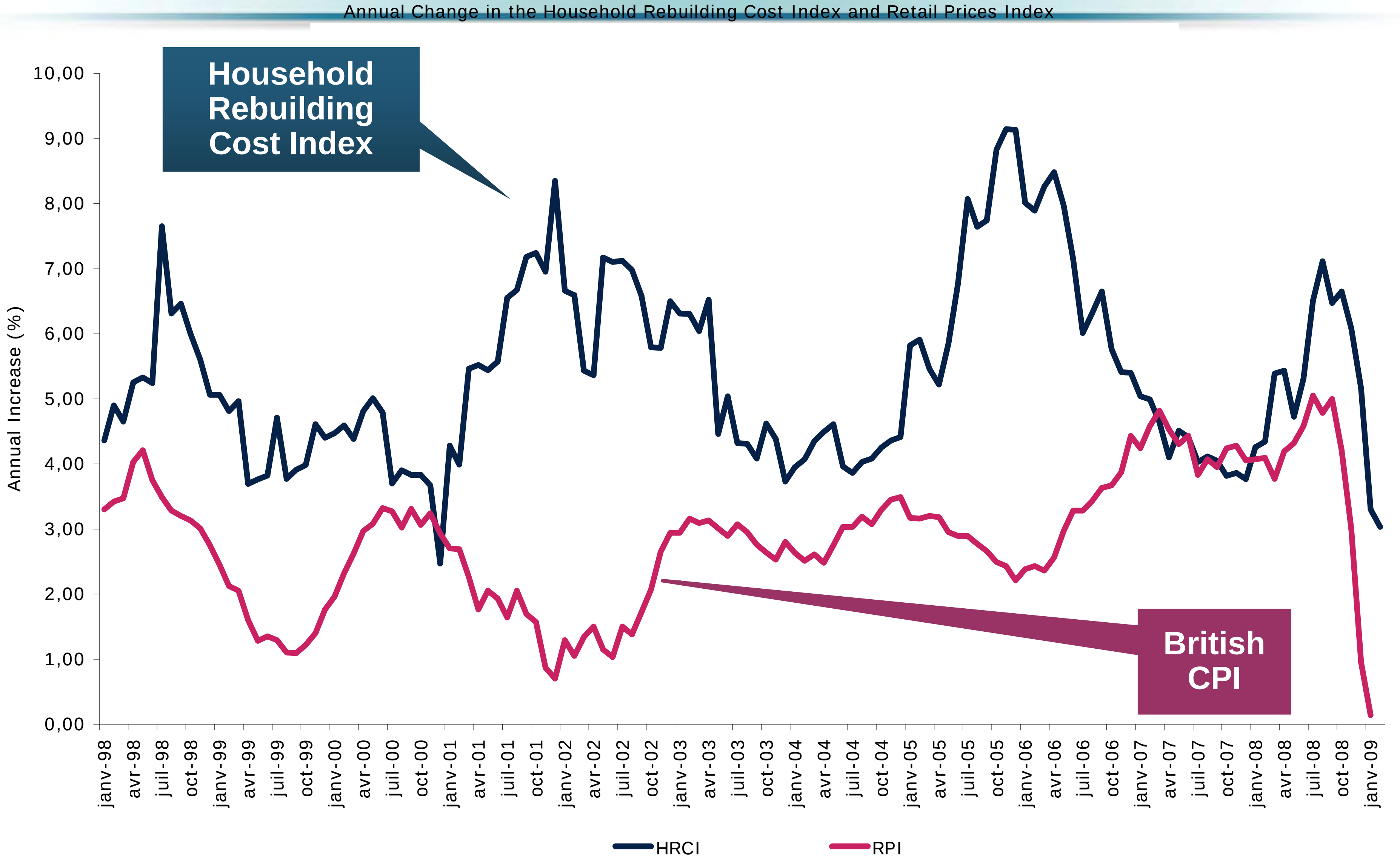


Repair Parts/Labor and Legal/Tort Costs Are Major P/C Insurance Cost Drivers.

Sources: BLS; Legal services and motor vehicle body work are avg. monthly year-over-year change from BLS;Tort costs is 2009 Towers-Perrin estimate.

In the UK, the Household Rebuilding Cost Index is Also Higher Than the British CPI



Source : Association of British Insurers

All Segments of French Motor Insurance Costs Have Grown Faster than the CPI for Over 20 Years

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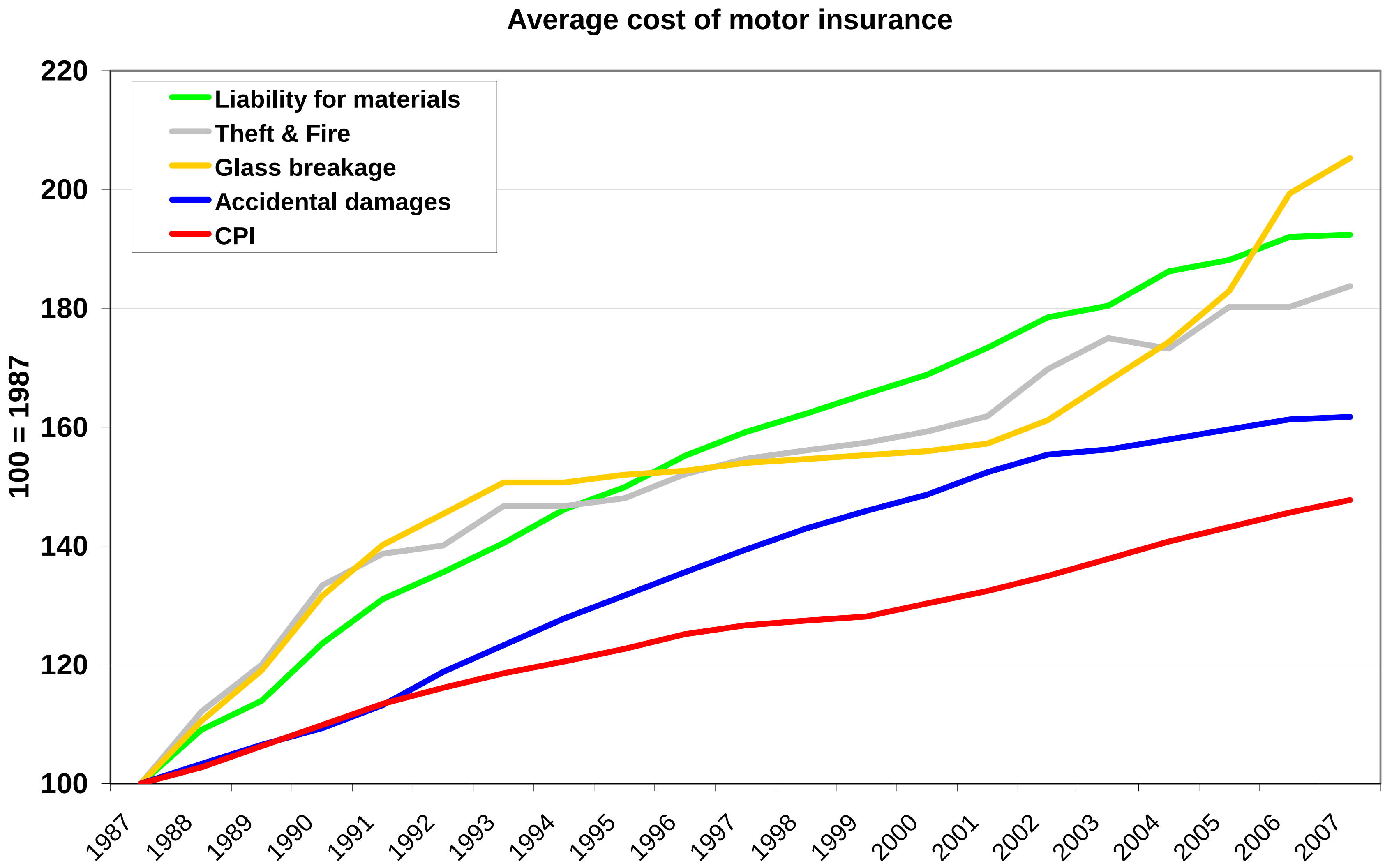
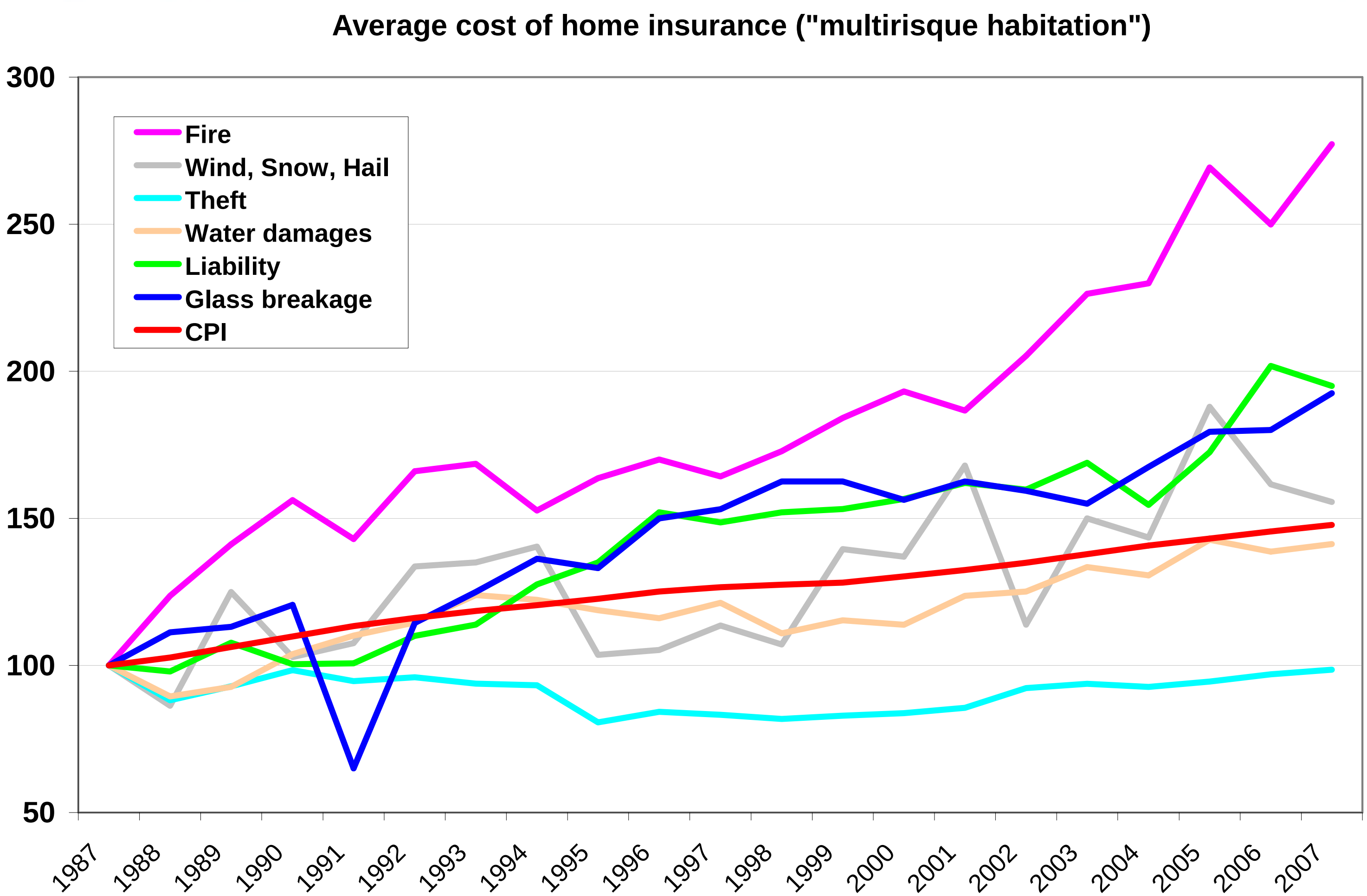


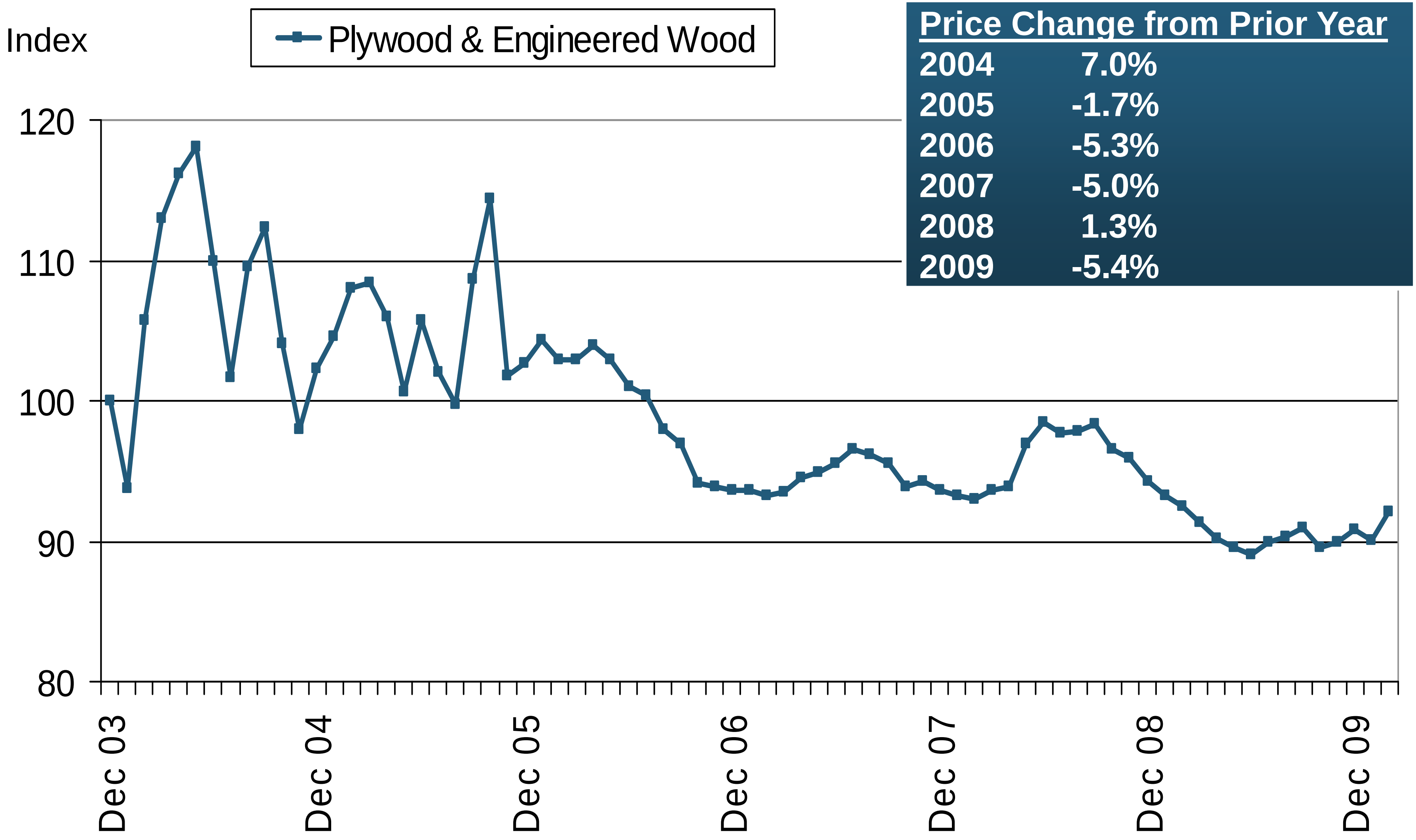
Source : Fédération Française des Sociétés d’Assurance

Most segments of French home insurance costs have been growing more rapidly than the CPI for more than 20 years



Source : Fédération Française des Sociétés d’Assurance

Of Course, The Prices of Some Things P-C Insurers Pay For Have Dropped



Price Change from Prior Year	
2004	7.0%
2005	-1.7%
2006	-5.3%
2007	-5.0%
2008	1.3%
2009	-5.4%

Source: Department of Labor (Bureau of Labor Statistics); not seasonally adjusted

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Inflation's Effect is Unusually Strong with Health Care Costs

This Isn't Just a U.S. Phenomenon

Medical Cost Inflation Has Outpaced Overall Inflation for Many Years

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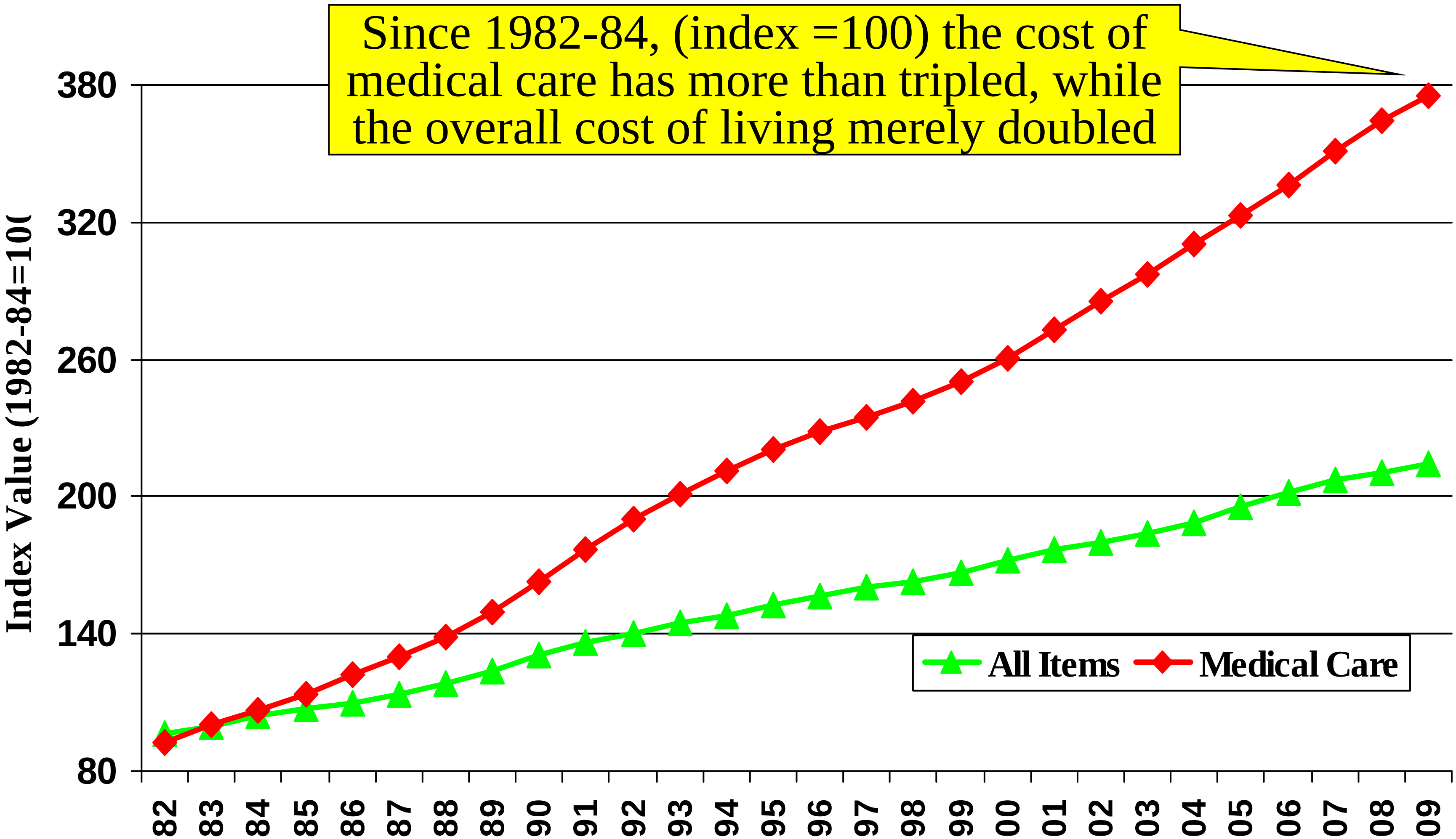
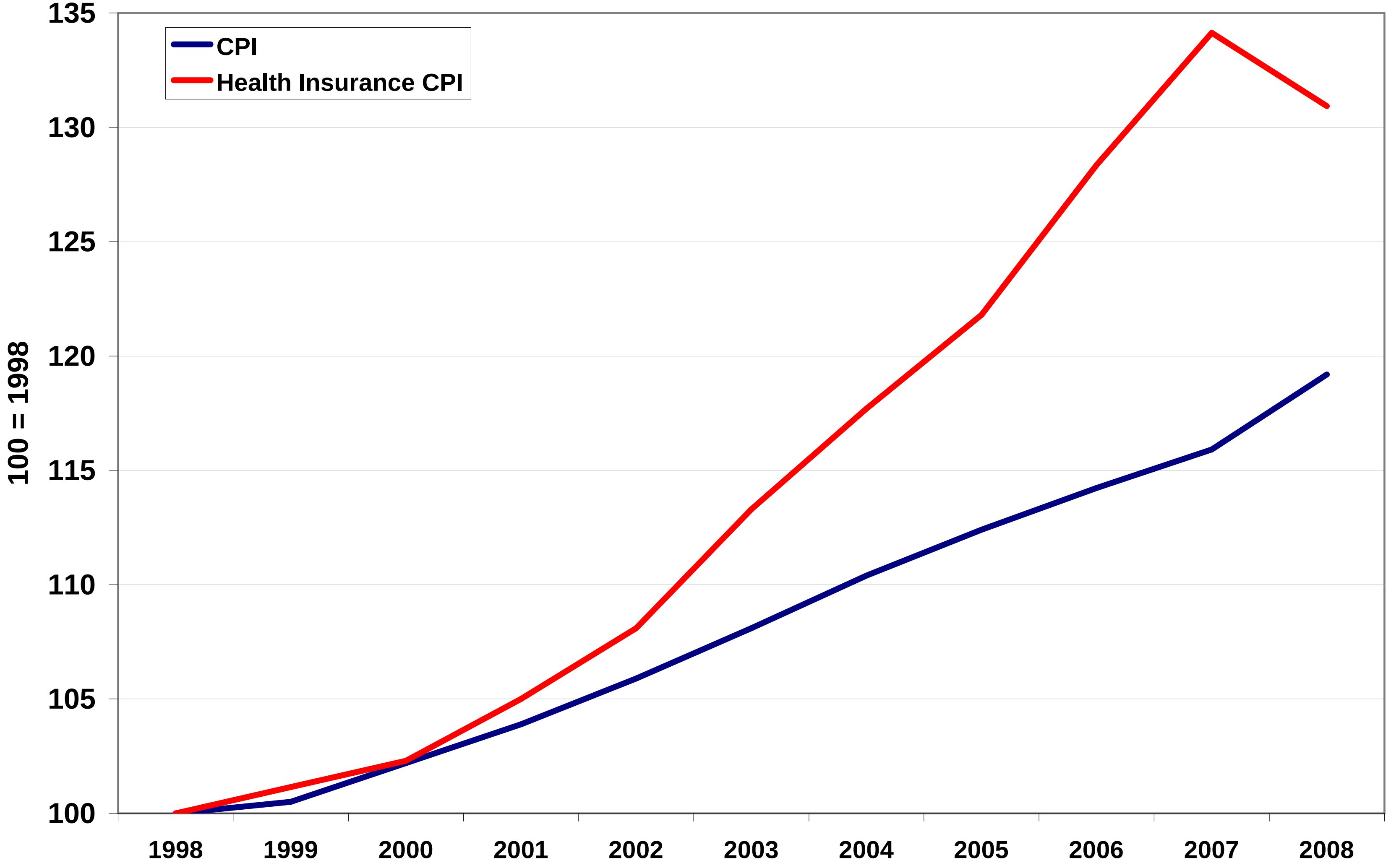


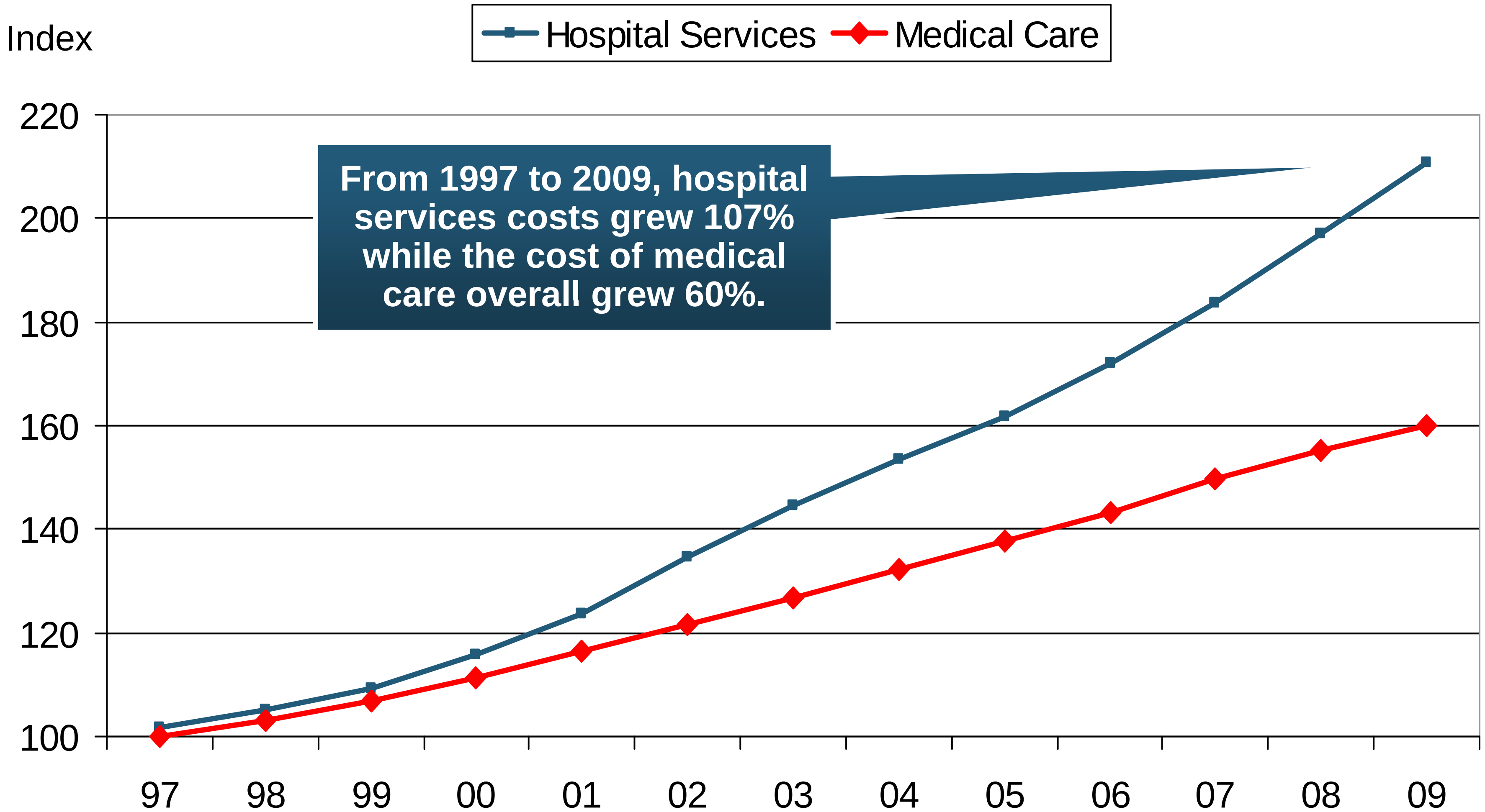
Source: Department of Labor (Bureau of Labor Statistics); not seasonally adjusted
http://www.bls.gov/news.release/pdf/cpi.pdf

French Health Insurance Tells the Same Story (as Does Many Other Countries)



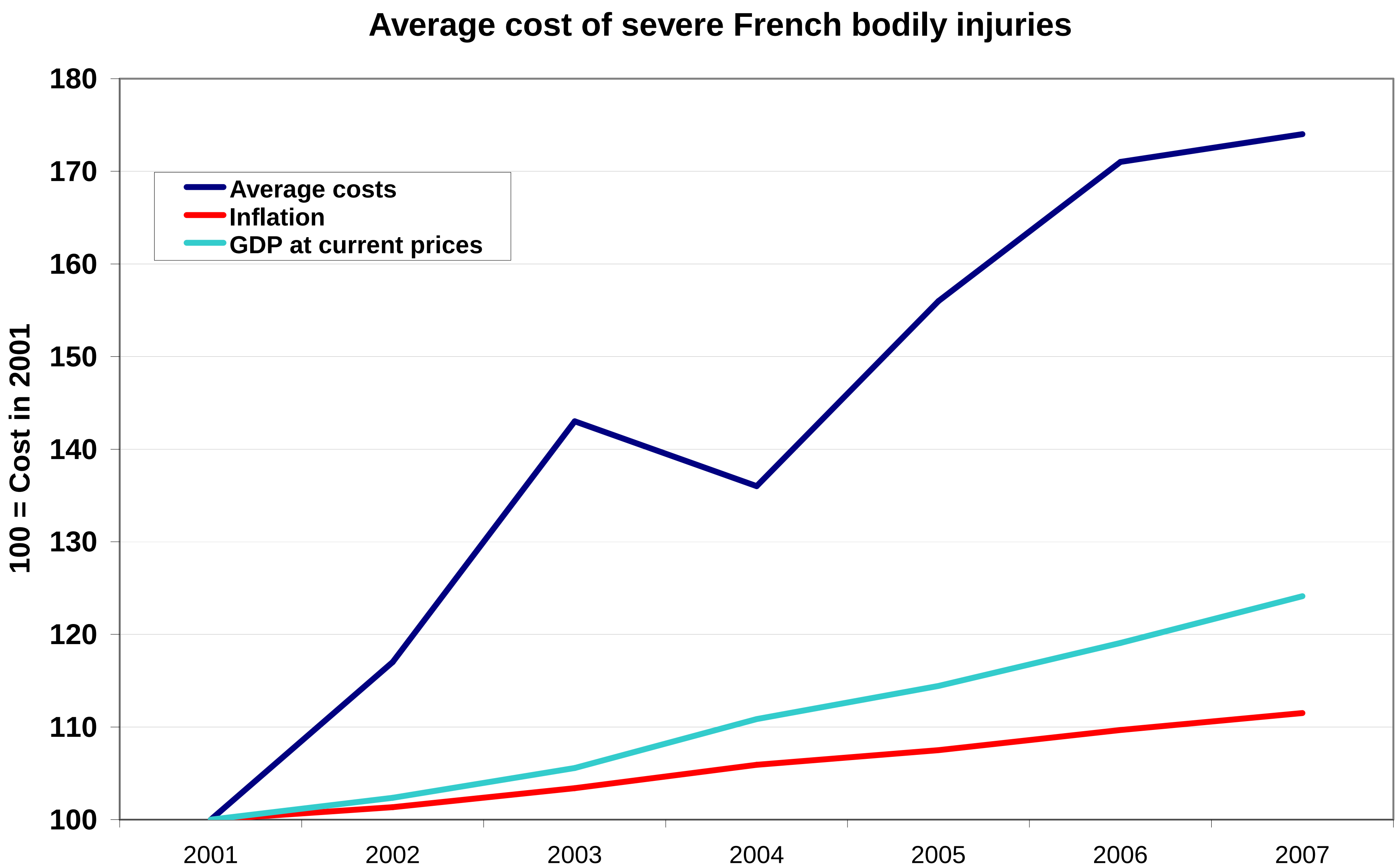
Source : INSEE

P-C Claims Tend to Be for Intense Medical Activities, Whose Costs Grew Faster than Medical Care in General



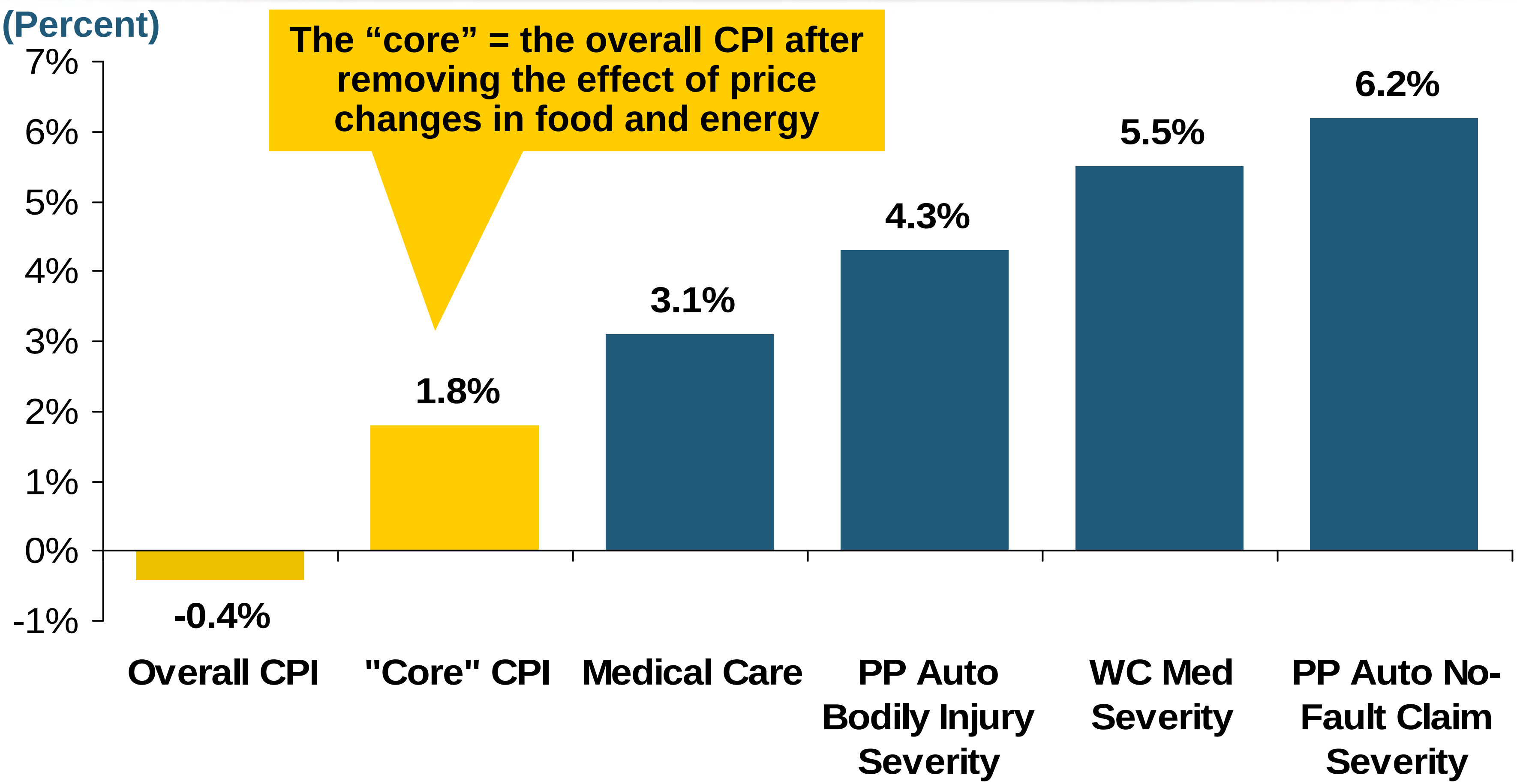
Source: Department of Labor (Bureau of Labor Statistics); not seasonally adjusted; medical care costs re-indexed to 100 in 1997 by III calculations

In France, since 2001 a growing gap between the growth rate of the cost of severe injuries and inflation/GDP growth rate



Source : SCOR Global Life (2009)

The Rising Cost of Medical Care Affects P/C Claims More than 2009 CPI Implies



Healthcare Costs Are Major P/C Insurance Cost Drivers. They Are Expected to Increase Above the Inflation Rate (CPI) Indefinitely

Sources: BLS; medical care changes are avg. monthly year-over-year change from BLS; BI and no-fault figures from ISO Fast Track data for 4 quarters ending 09:Q3. WC figure is I.I.I. estimate based on historical NCCI data.

Shifting Legal Liability & Tort Environment

Tort Costs Might Spike Again; but This Isn't the Conventional Sense of Inflation

The Frequency of Million-Dollar Verdicts* Was Increasing With Moderate Inflation

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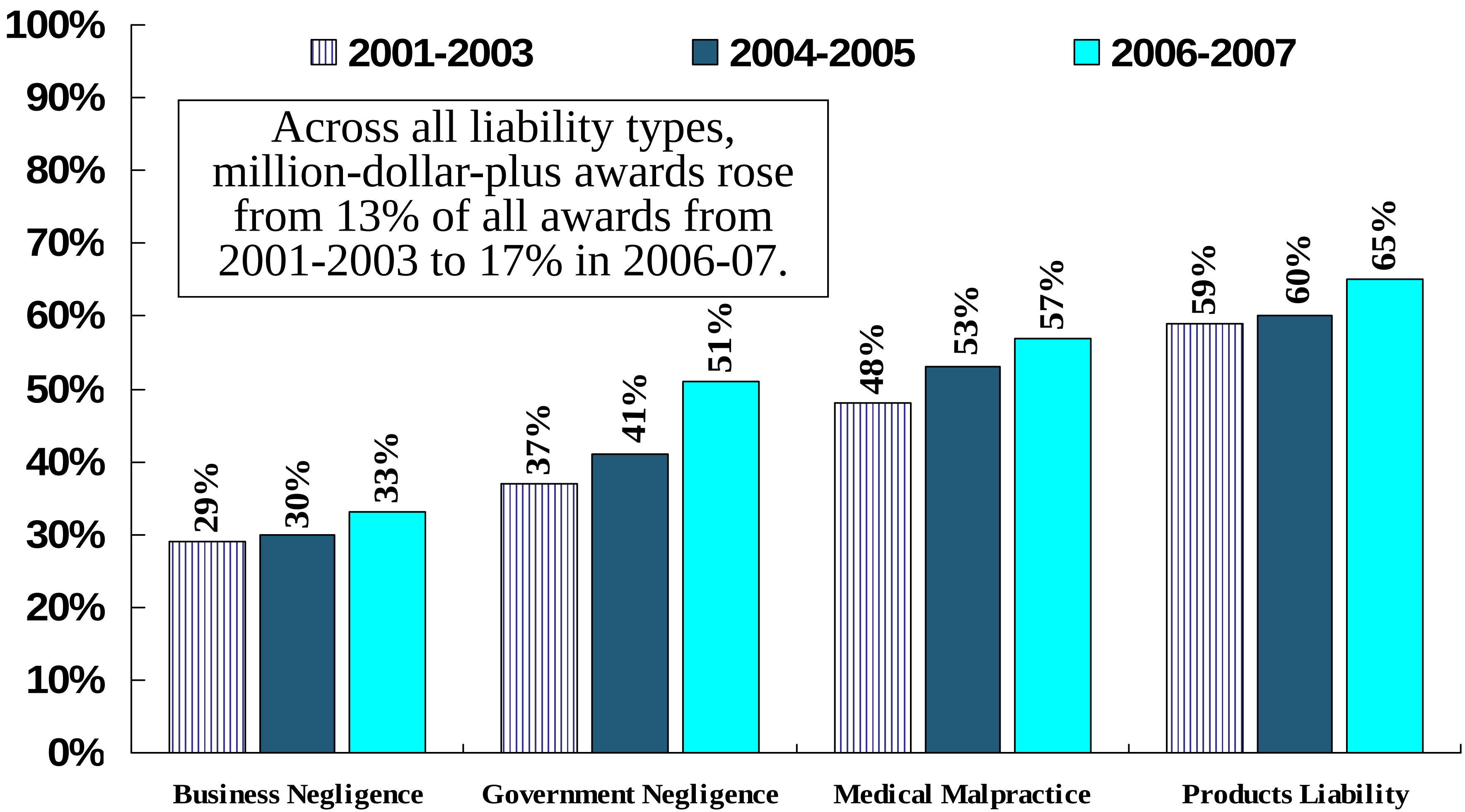

*Verdicts of $1 million or more.

Source: Jury Verdict Research; Insurance Information Institute.

In the 1990s and Since 2003, Tort System Cost Growth Has Moderated vs. Inflation

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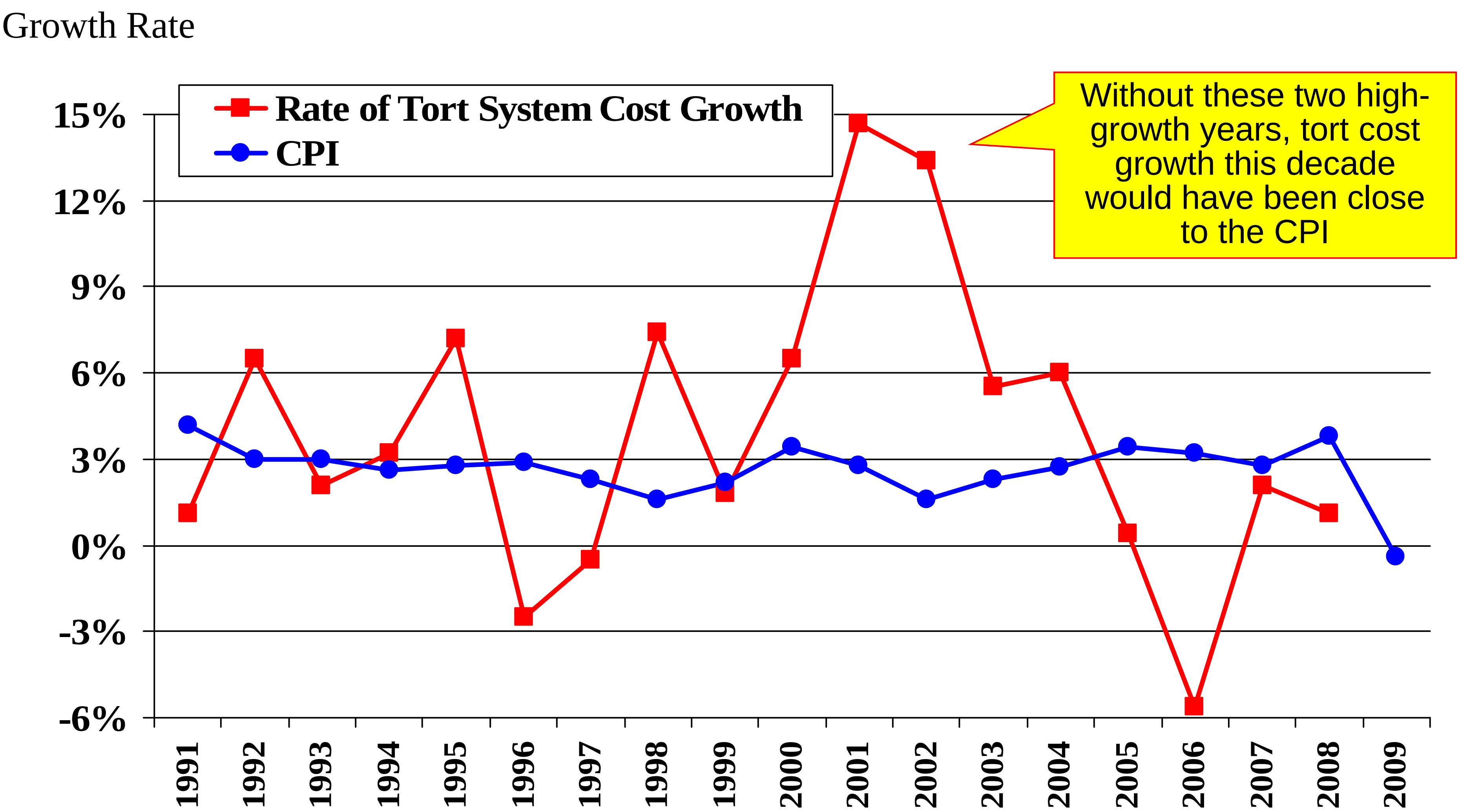

Sources: US Bureau of Labor Statistics, Tillinghast-Towers Perrin, *2009 Update on U.S. Tort Costs;* Insurance Info. Inst.

So P-C Insurance Claim Costs Increase Faster Than Inflation. But Why?

7 Reasons Why P-C Insurance Claims Often Rise Faster than Inflation

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1. They contain at least an element of moral hazard, if not also a fraud/abuse dimension that isn't present in prices generally.
   a. This is reinforced by "bad faith" laws and/or consumer attitudes (surveys show that many people believe that it's okay to inflate an insurance claim). So to avoid "bad faith" outcomes insurers pay some claims they might otherwise challenge

2. When deductibles apply, they tend to stay fixed (in dollars) over long periods of time, even though the price of the insured item increases (so that a larger percent of the damage is covered as time goes on)

Why P-C Insurance Claims Often Rise Faster than Inflation (cont'd)

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3. P-C insurance sometimes pays for open-ended items (e.g., additional living expenses, liability defense costs) which can, through the quantity of the item purchased, inflate the insurer's claims spending.

4. For claims that involve health care of severely-injured people, the cost of hospital services has ***far*** outstripped the CPI

Why P-C Insurance Claims Often Rise Faster than Inflation (cont'd)

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5. In some cases, competitive price forces don't operate as strongly on insured goods and services (vs. non-insured goods and services); for example, they might
   a. Be protected from international competition
      - You can't outsource repair of a car or a building to a lower-labor-cost country
   b. Be affected by the changing social value of life & suffering
      - The cost of pain medication for people with chronic pain is far outstripping general inflation
   c. Concern services where productivity gains are limited
      - Examples are defending lawsuits, repairing roofs, clearing debris, etc.

Why P-C Insurance Claims Often Rise Faster than Inflation (cont'd)

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5. for example, they might
   d. Be confident that they car raise prices without fear of a drop in demand for their services
      - If your property is damaged you generally must get it repaired or replaced
   e. Be affected by shortages of particular skilled labor despite general conditions of high unemployment
      - If might be difficult to find and keep mechanics with the training and experience to fix today's complex modern cars
   f. Be affected by the cost of acquiring expensive new diagnostic equipment and the "need" to use it (and charge for its use) perhaps more often than necessary

Why P-C Insurance Claims Often Rise Faster than Inflation (cont'd)

6. Demand Surge. In catastrophe (and some other) situations, demand for materials and labor is highly concentrated, pushing up prices for scarce resources.

7. Cost-shifting
   a. The "deep pocket" principle: as long as an insurer "can afford it," some Courts will extend their liability (judicial cost inflation)
   b. Medical care providers charge higher rates for patients not covered by Medicare or Medicaid

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P/C Premium Growth and Inflation

Mainly Driven by the Industry's Underwriting Cycle, Not the Economy

P-C NWP Growth Generally Matches or Exceeds Inflation 1971-2009

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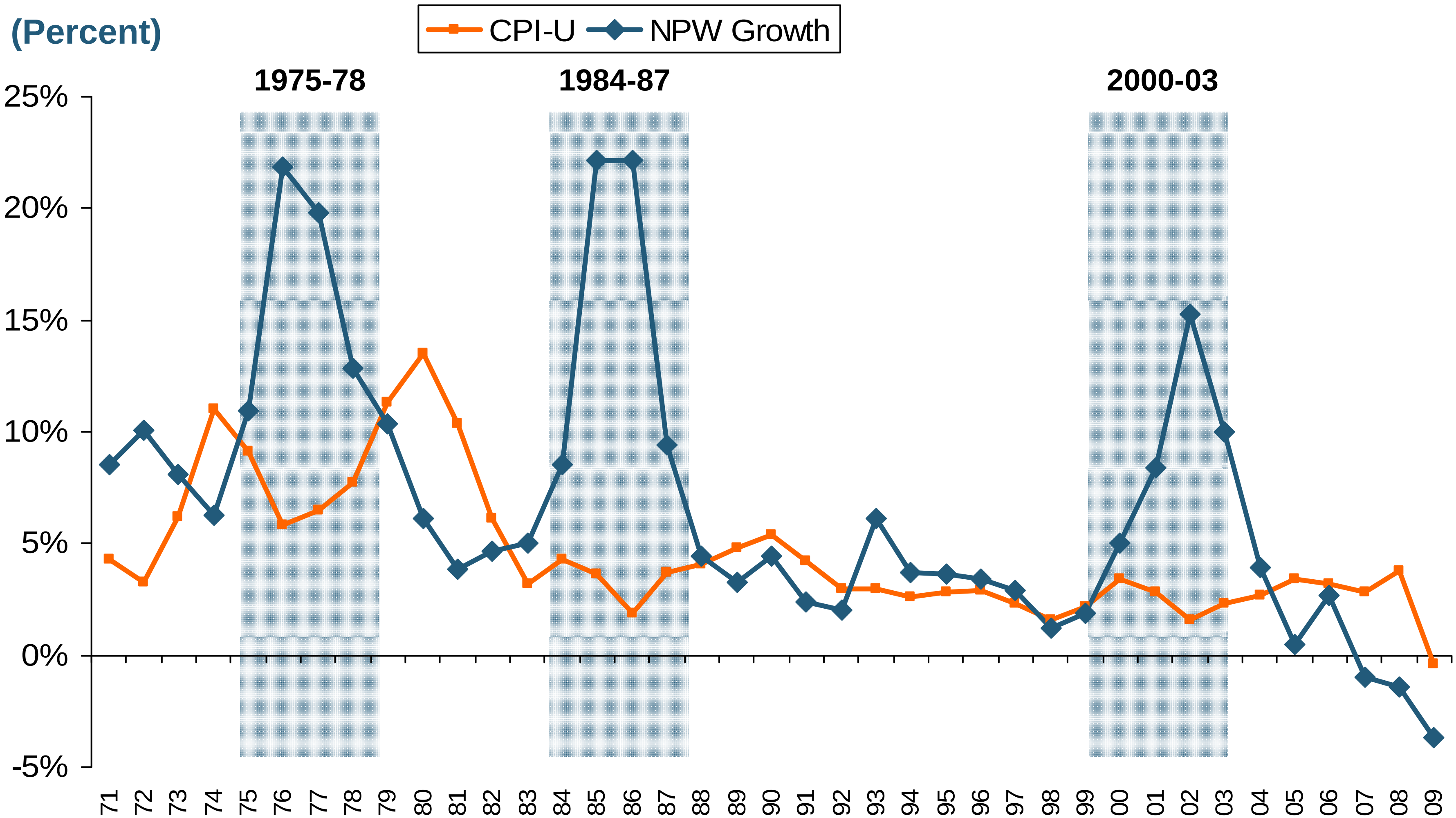

Shaded areas denote “hard market” periods
Sources: A.M. Best, ISO, Insurance Information Institute

Underwriting and Inflation

Other Underwriting-Related Effects of Higher Inflation

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- **Rising Insurable Values**
  - Premium volume and agent commissions will rise even if rates are flat
- **Increased Political Response to Rate Increase Requests**
  - Regulators might reject rate increase proposals to curry favor with insurance consumers
- **Lower Profits Due to Reserve Strengthening**
- **Burn Through on Retentions**
  - Retentions, deductibles burned through more quickly
- **Reinsurance Penetration/Exhaustion**
  - Higher costs ➔ risks burn through their retentions more quickly, tapping into reinsurance more quickly and potentially exhausting their reinsurance more quickly

An Inflation Spike Would be More Costly for "Long-tail" than "Short-tail" Insurance Lines

- Short tail LoBs (mainly property insurance) can quickly adjust to an increase in the rate of inflation
  - Policy periods generally last six months to a year, or may be on a reporting form, so they adjust premiums frequently
  - Claims tend to be paid soon after they're reported, so an inflation spike won't affect them as much
  - Their asset durations match their liability structure, so investment income may increase rapidly with interest rates

An Inflation Spike Would be More Costly for "Long-tail" than "Short-tail" Insurance Lines

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- Long tail LoBs have more difficulty with resurgent inflation
  - Claims tend to be paid long after they're reported, so an inflation spike would magnify claims
  - Their asset durations match their liability structure, so investment income may increase gradually, while values of existing assets would decline with an inflation spike
  - Needed reserve strengthening would sap profits, making it difficult to earn their equity cost of capital

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Investments and Inflation

Interest-Based Investments Benefit from Higher Inflation

Distribution of P/C Insurance Industry's Invested Assets

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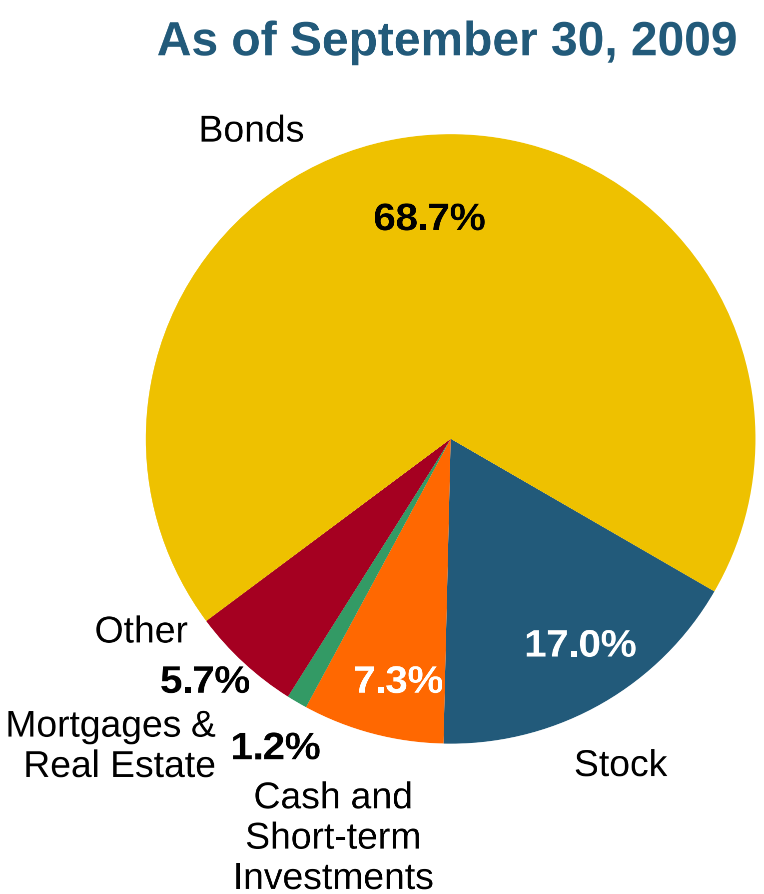
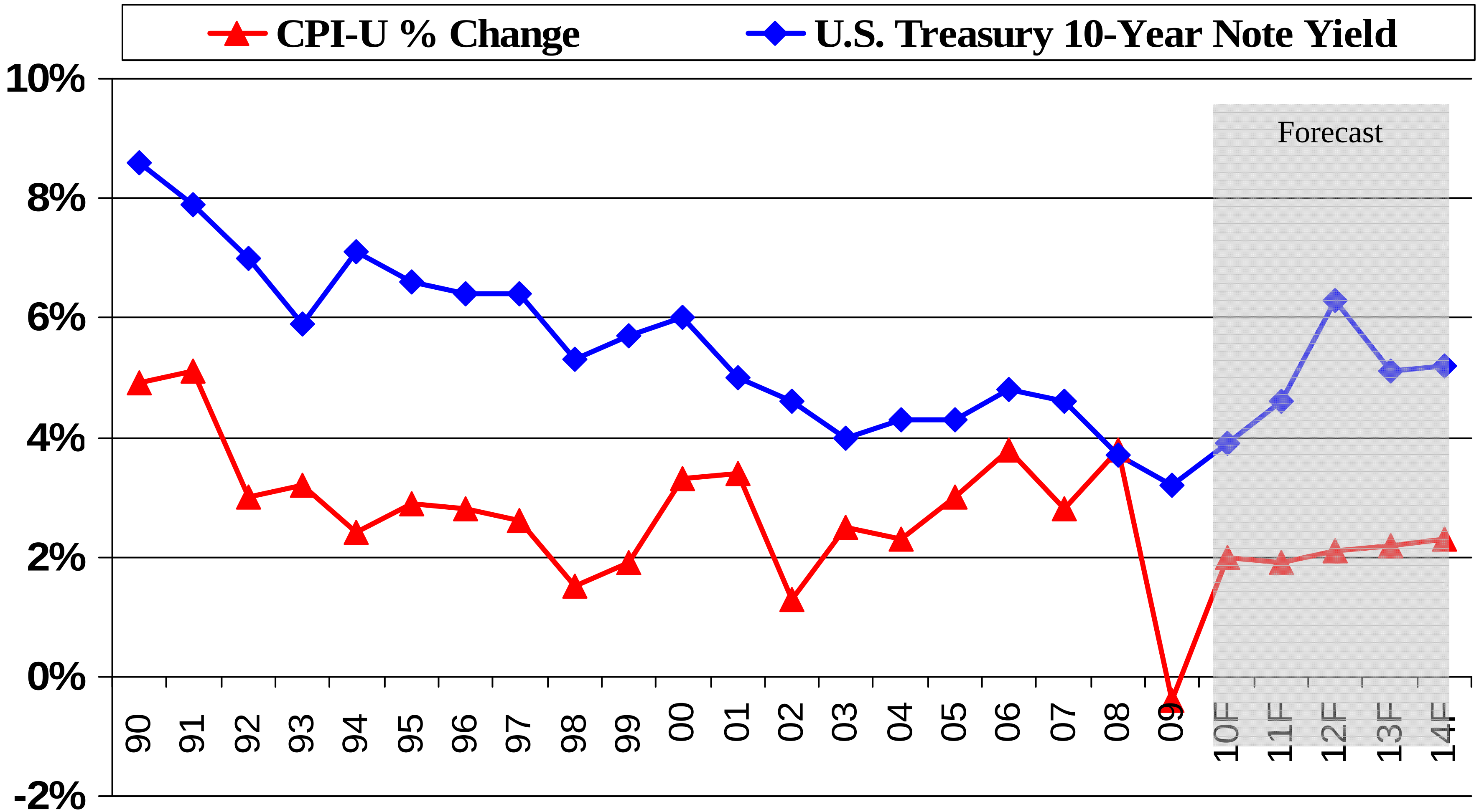
Portfolio Facts

- Invested assets totaled $1.245 trillion as of 9/30/09
- Insurers are generally conservatively invested, with more than 2/3 of assets invested in bonds as of 9/30/09
- Only about 17% of assets were invested in common and preferred stock as of 9/30/09
- Even the most conservative of portfolios was hit hard in 2008



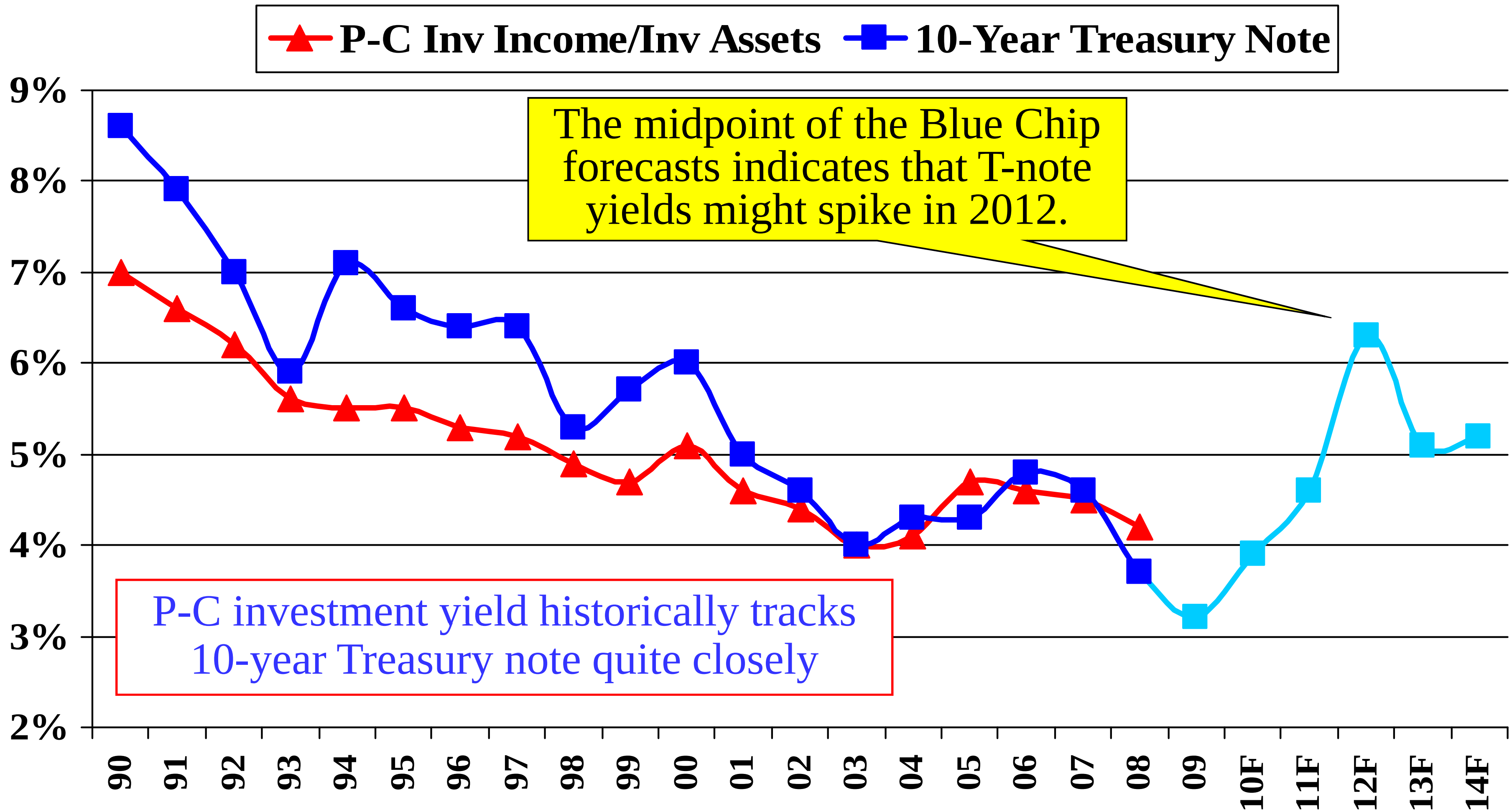
Sources: NAIC, via SNL Financial; Insurance Information Institute calculations.

Bond Yields Tend to Follow Inflation, but the Relationship is a Loose One



Sources: US Bureau of Labor Statistics (history); Blue Chip Economic Indicators, 10/09 and 2/10 issues (forecast)

P/C Investment Income* as a % of Invested Assets Follows 10-Year U.S. T-Note



*Not including realized capital gains/losses
Sources: history: Board of Governors, Federal Reserve System; A.M.Best; Insurance Information Institute.
forecasts: Blue Chip Economic Indicators, 10/2009 issue

Inflation's Effect on P-C Claim Reserves

Will Impairments Rise If Reserves Are Deficient?

Strengthening and Releasing P/C Reserves Appears Unrelated to Inflation

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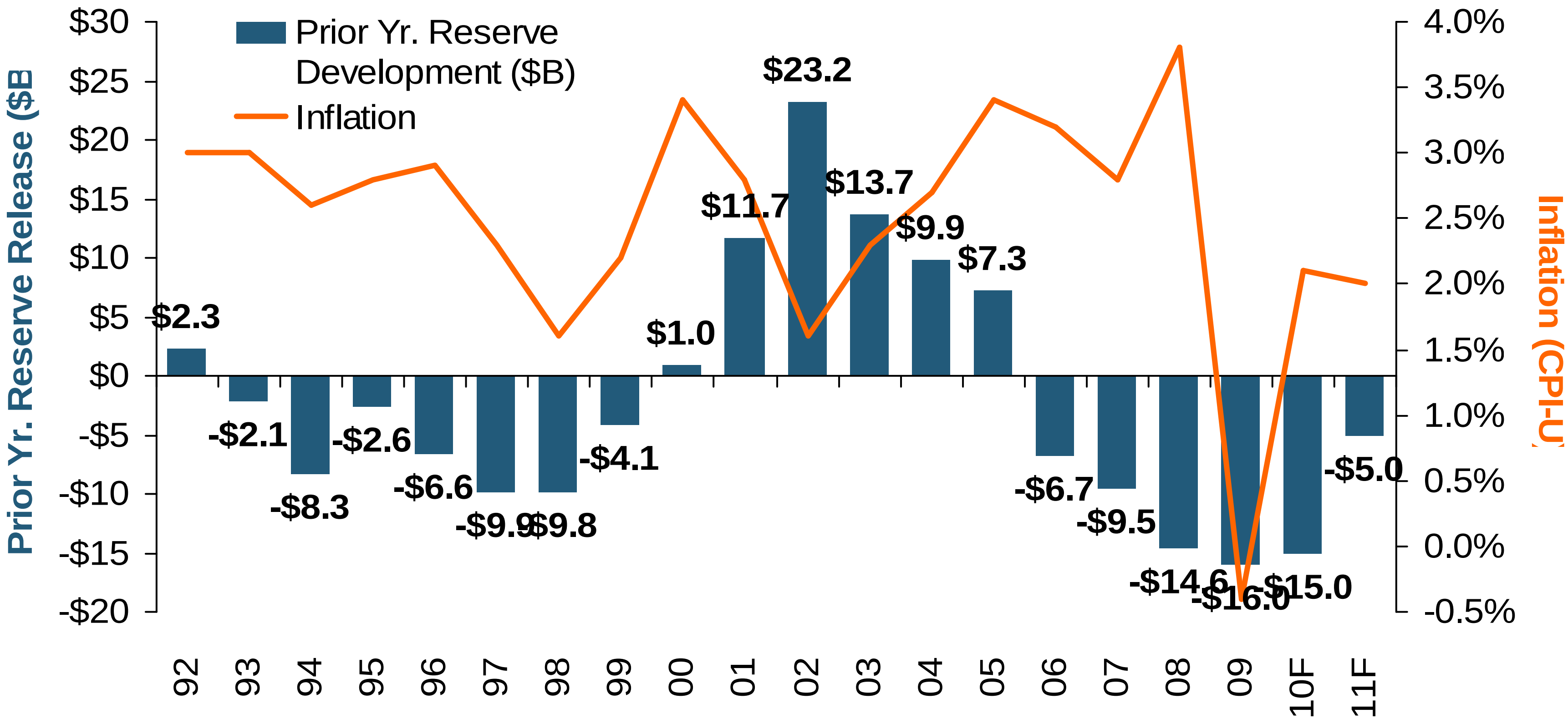


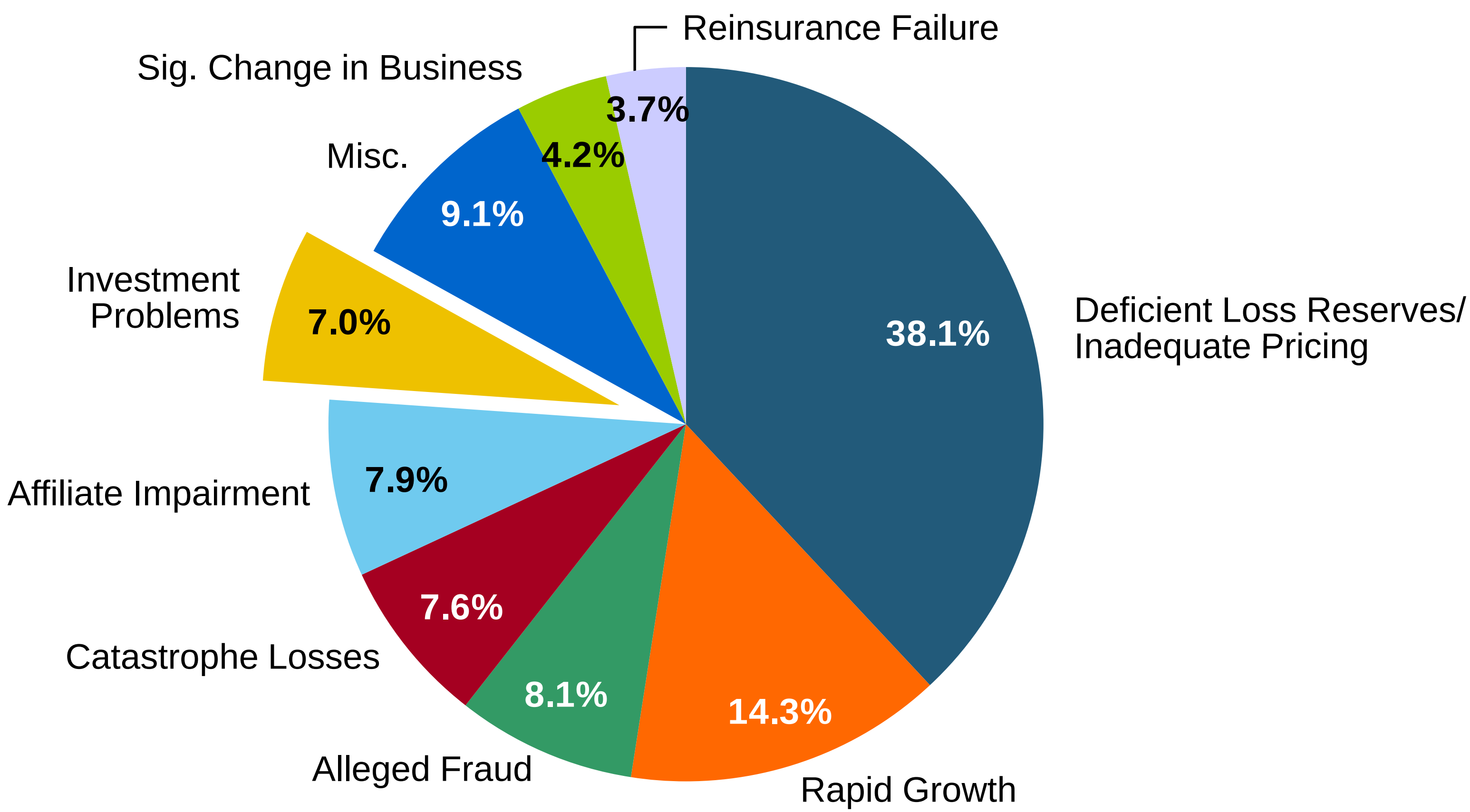
Reserve Releases Are Expected to Taper Off in 2010 and Drop Significantly in 2011

Note: 2005 reserve development excludes a $6 billion loss portfolio transfer between American Re and Munich Re. Including this transaction, total prior year adverse development in 2005 was $7 billion. The data from 2000 and subsequent years excludes development from financial guaranty and mortgage insurance.

Sources: Barclay's Capital; A.M. Best, BLS

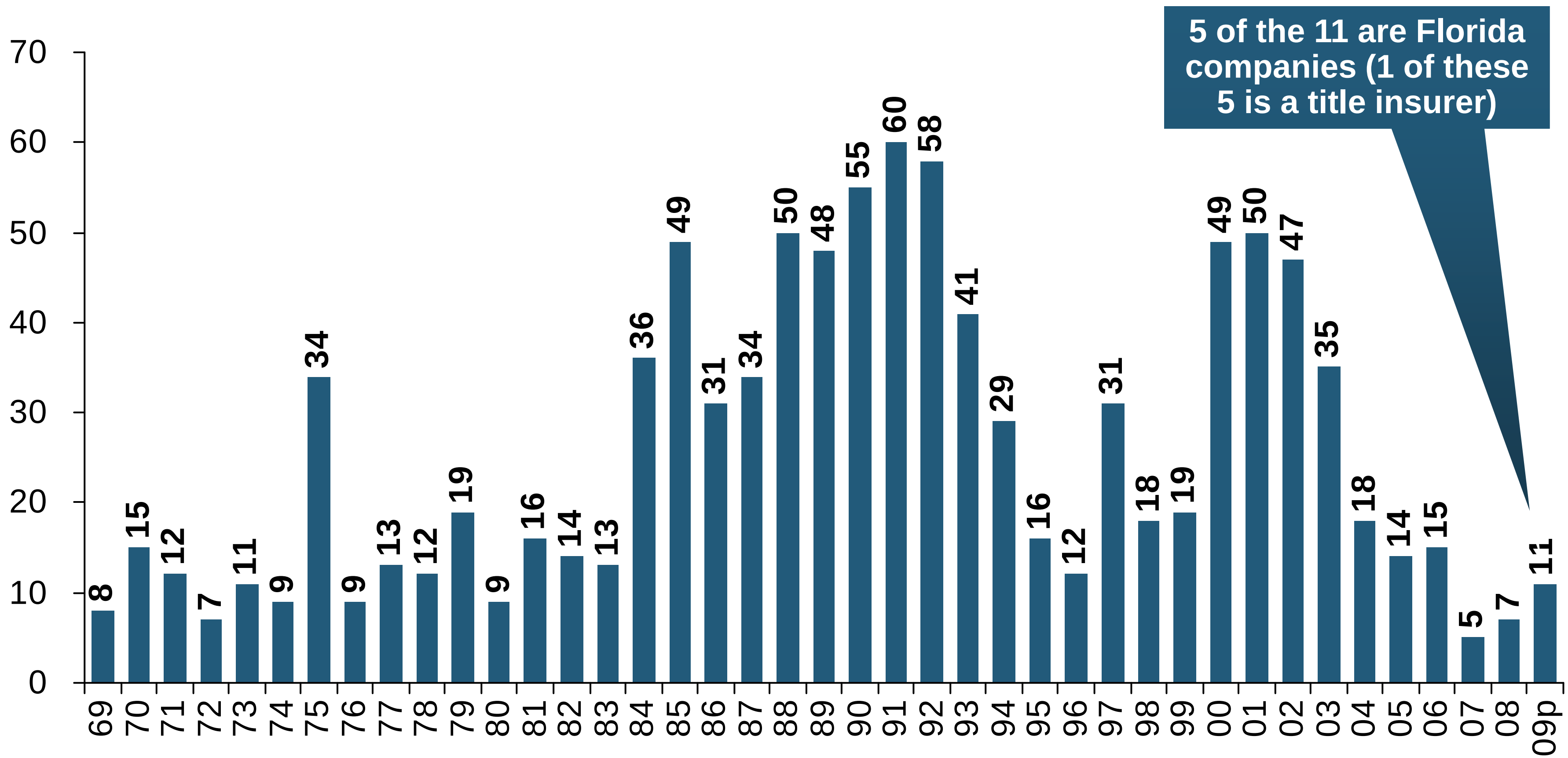
Reasons for US P/C Insurer Impairments, 1969–2008

Deficient Loss Reserves and Inadequate Pricing Are the Leading Cause of Insurer Impairments, Underscoring the Importance of Discipline. Investment Catastrophe Losses Play a Much Smaller Role



Source: A.M. Best: *1969-2008 Impairment Review*, Special Report, Apr. 6, 2008

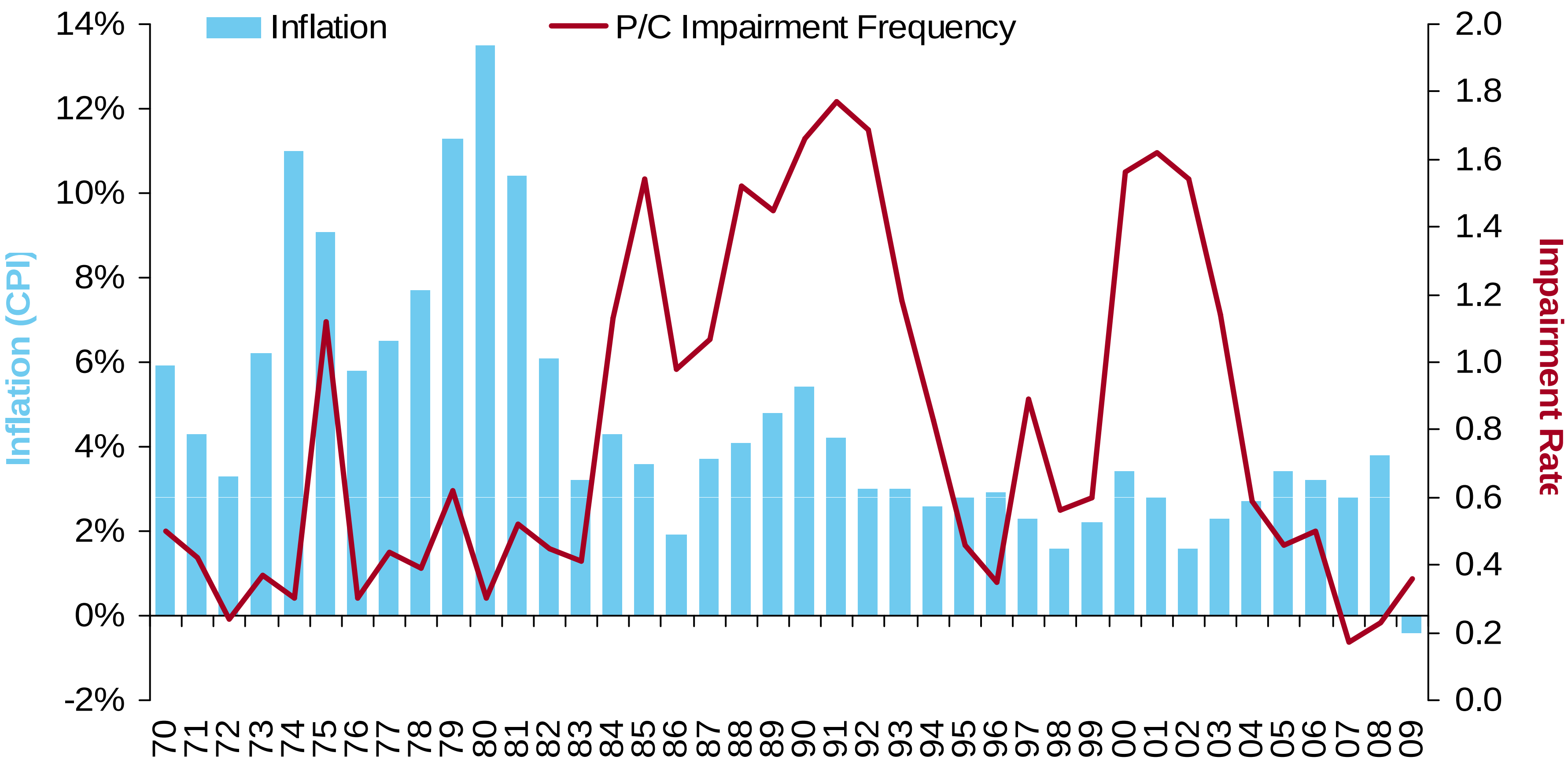
P/C Insurer Impairments, 1969–2009p



The Number of Impairments Varies Significantly Over the P/C Insurance Cycle, With Peaks Occurring Well into Hard Markets

Source: A.M. Best; Insurance Information Institute.

P/C Insurer Impairment Frequency vs. Inflation, 1970-2009p



The Highest Impairment Rates Appear Affected by Inflation, But the Correlation Isn't a Strong One

0.36% 2009 impairment rate is III estimate based on preliminary A.M. Best data.

Sources: BLS, A.M. Best, Insurance Information Institute

What Can Insurers Do?

Re-Ignited Inflation is An Economic Catastrophe (Like a Major Hurricane?)

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- Hold more capital to cover the uncertainty of re-emergent inflation
- Go more heavily into inflation-indexed investments
- Improve the quality of data used for reserving
  - Underlying trends & elasticities
  - Tailored inflation indexes?
- Regulators Must Be Part of the Discussion

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Thank you for your time and your attention!