# Identifying a bubble: paying attention to the real side!

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Main question:

- Can broad monetary and credit aggregates help identify a bubble/ select an appropriate monetary policy stance, e.g, leaning against a bubble?
- Christiano, Motto & Rostagno: a first encouraging answer
- Very specific context: broader reading of the recent literature calls for prudence; competing explanations for booms & busts; « other shocks »
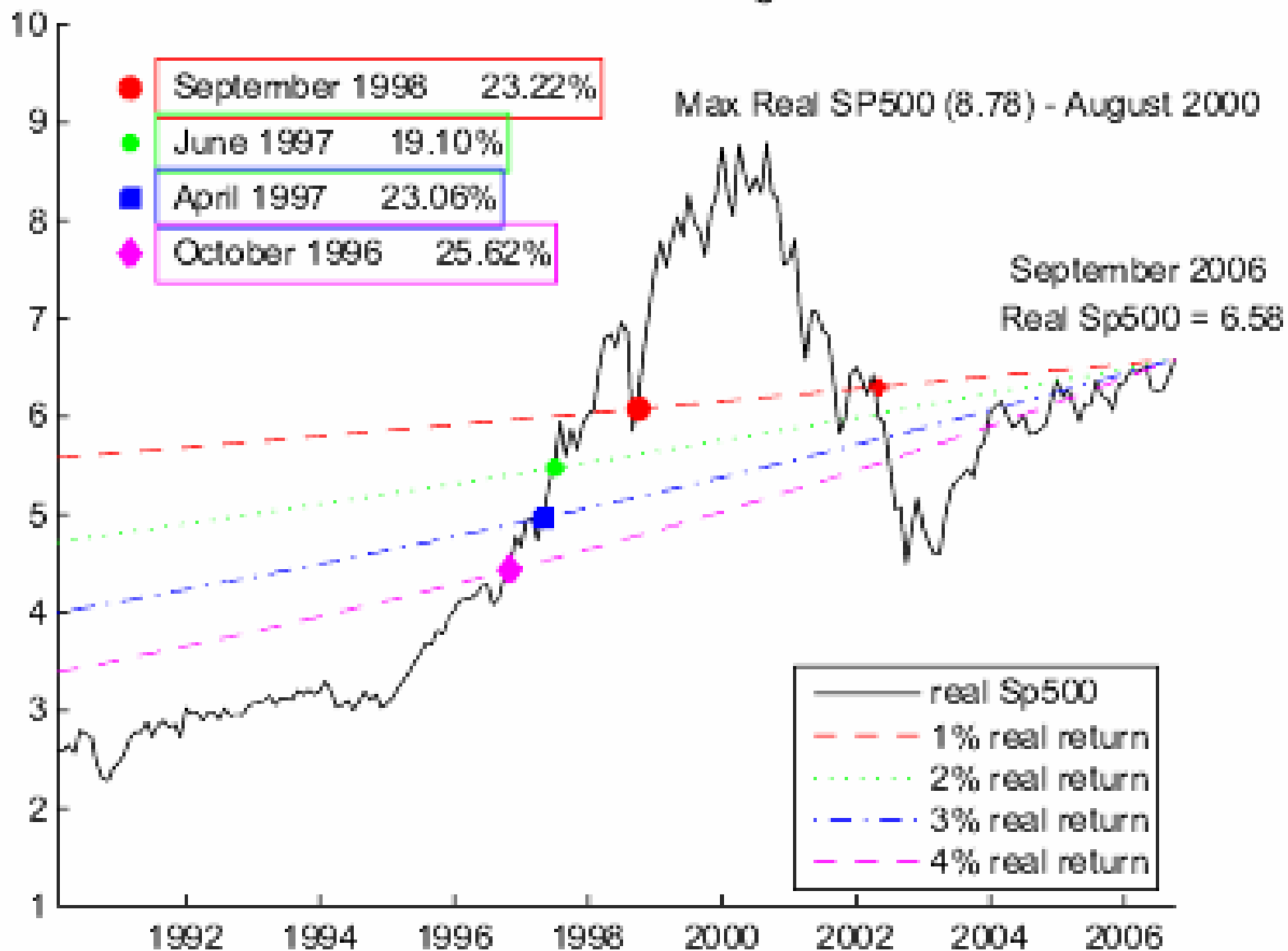- Important public finance and labor market issues

The great bubble of 2000 in hindsight
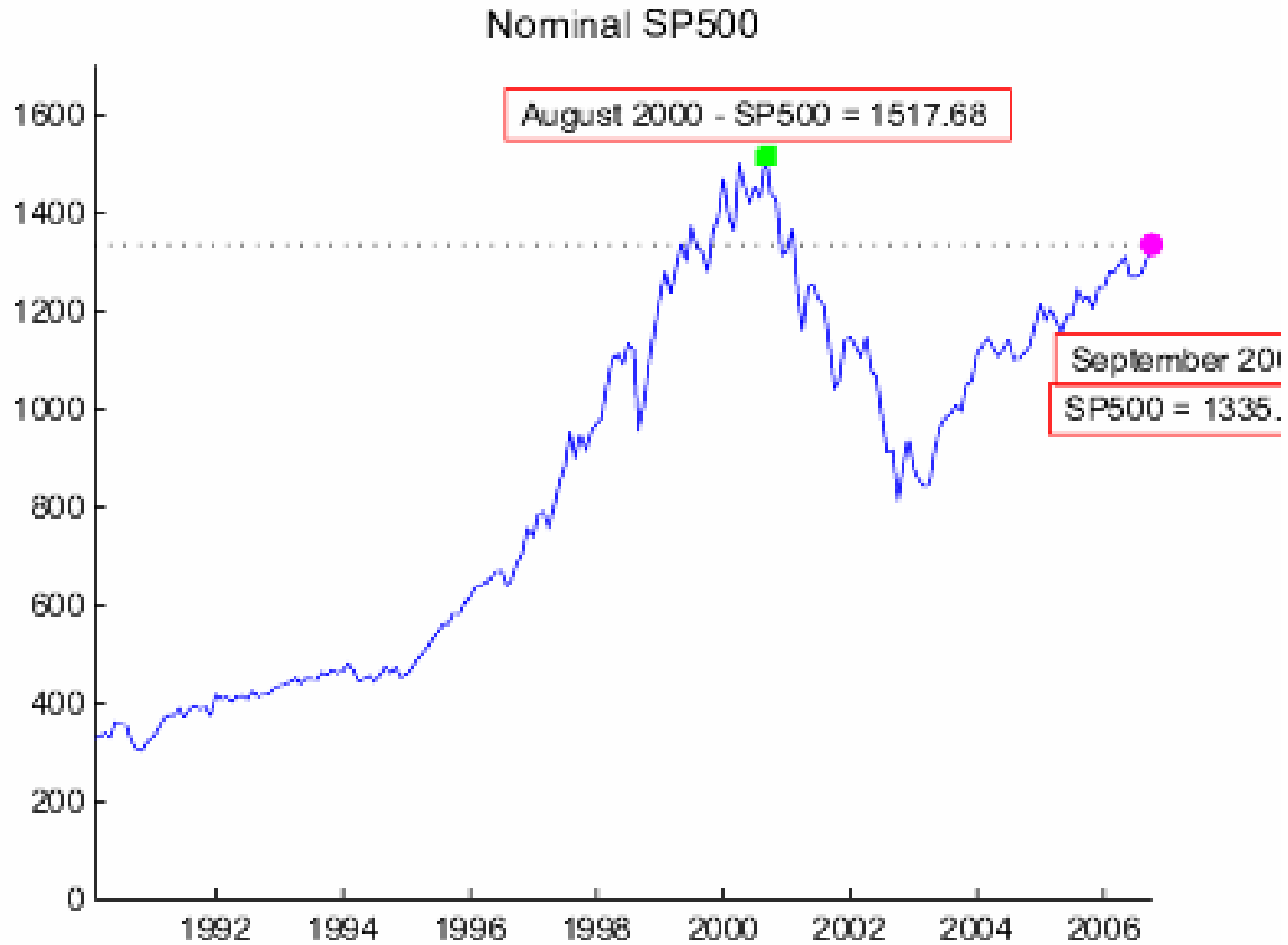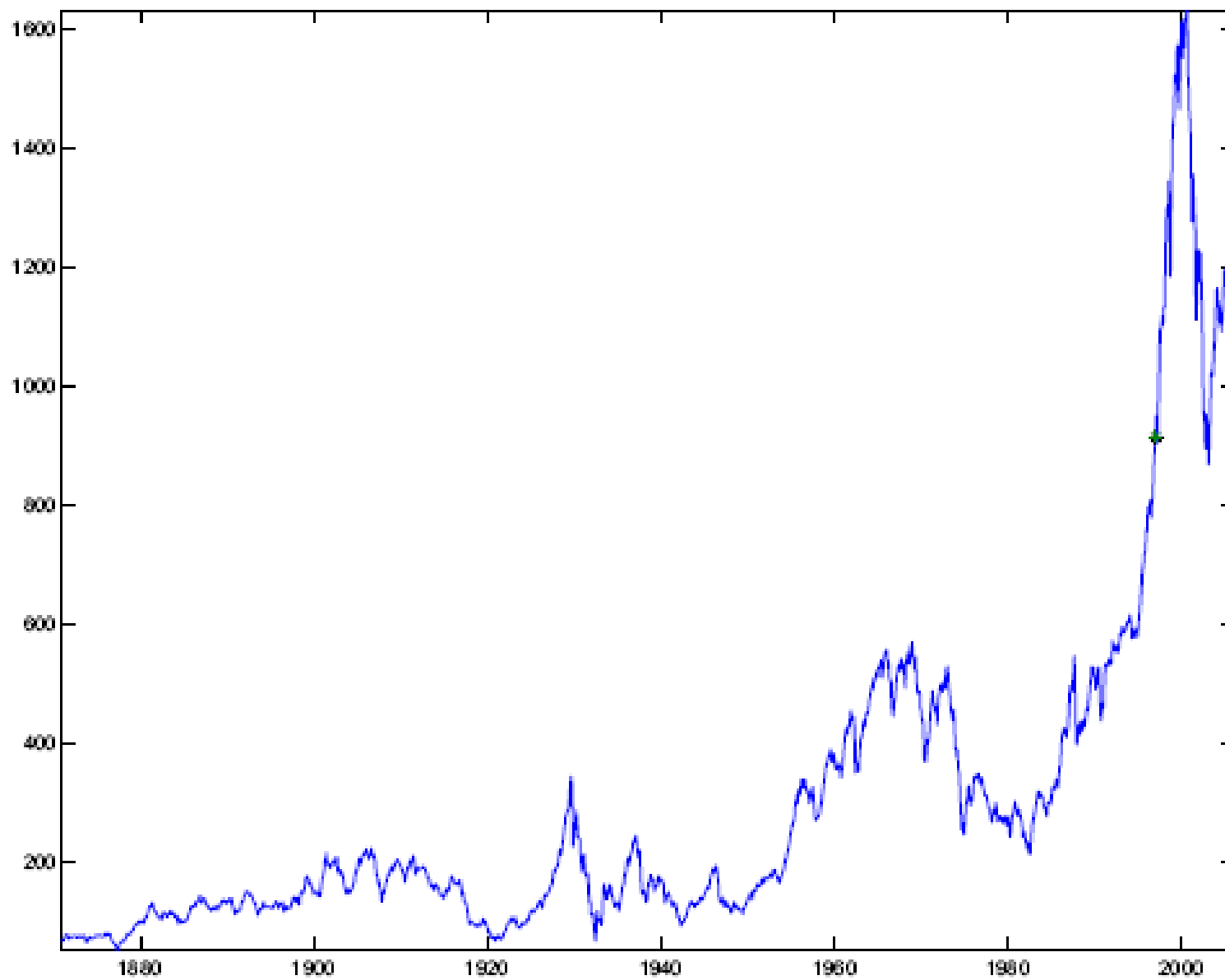
SP500 deflated using CPI

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Lesson

- In hindsight it is clear that it would have been appropriate, assuming no negative spill-overs, to lean against the bubble as of September 1998, possibly as early as June 1997
- Not clear that it was warranted earlier
- Should it have been clear *ex-ante*?

Figure 1: S&P500 Divided by CPI (Shiller)

A slightly different perspective: the Lucas tree

Ratio of the nominal SP500 over the nominal GDP

Max Ratio (0.1556) - April 2000

September 2006
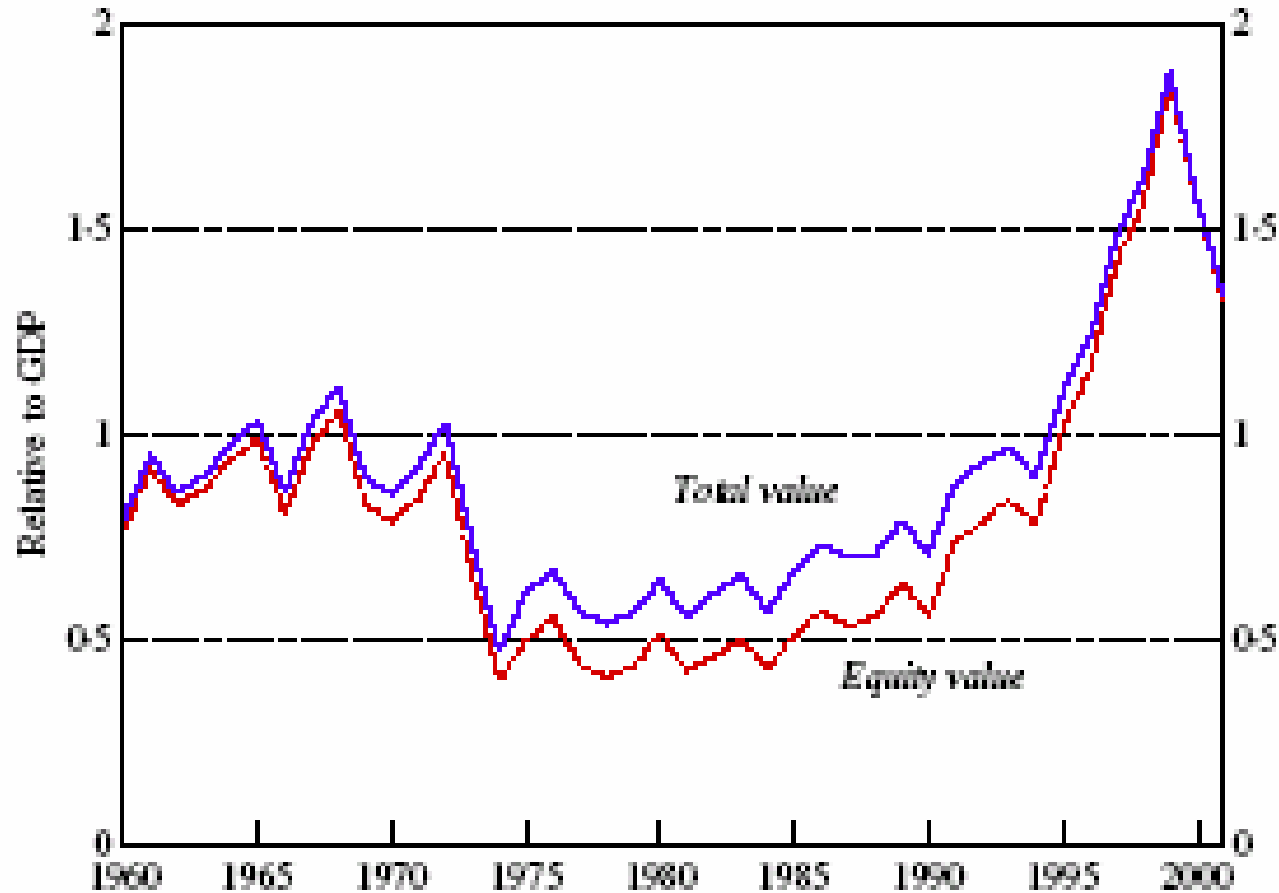Real Sp500 = 0.10

Large moves not unprecedented

FIGURE 1

Value of U.S. corporations, 1960–2001

Puzzling?

- Puzzling changes in the ratio Market Cap /GDP (increases in the 1980's and 1990's) with little changes in the capital to output ratio or earnings share of output can be accounted for by growth model *if one takes into account changes in taxes and regulatory system* [McGrattan & Prescott, REStud (2005)]
- Effective marginal tax rates on distribution fell by more than a factor of two

Critical factors

- Reductions in marginal income tax rates
- Elimination of capital investment subsidies
- Changes in the legal and regulatory system leading to dramatic increase in the share of corporate equity held by entities (pension funds, individual retirement accounts, and non-profit organizations) that pay no tax on dividends or capital gains income: from 4% in 1960 to 51% in 2000.
- Low frequency? Constraints on individuals shifting savings from non-retirement accounts to retirement accounts result in long adjustment (15-year transition period)

Lucas tree perspective

- Stock prices depend on cash flow generating process - characteristics hard to identify
  - Changes in trend productivity growth
  - Mis-measurement of underlying factors: intangible capital / e-capital
- **And** on the link from cash flows (earnings) to distributions:
  - Effective tax rate on distributions
  - Sharing of value added between capital and labor

Intangible capital

- One key element of MGP's reasoning consists in measuring intangible capital. For the US, careful analysis suggest mis-measured capital is close to .7 GDP!
- Hall (2001) had suggested that e-capital could explain a good deal of the rise in stock market values in the 1990's
- Danthine and Jin (forthcoming) argue that the process of accumulating intangible capital is very different by nature from the accumulation of physical capital. Assuming intangible investment is akin to R&D investment helps explain observed (high) volatility of aggregate returns, market cap to GDP ratio, and price/earnings ratio.

Distribution risk

- Variations in factor income shares are large and persistent

- From viewpoint of capital owners: major source of risk (presumably uninsurable)

- Taking distribution risk – persistent, idiosyncratic, priced risk - into account explains significant rise and fall in equity prices

Conclusions

- Christiano et al.: interesting, intriguing, «constructive » contribution
- Goes too far when asserting that equity booms and busts are predominantly money made.
- Understanding asset price movements requires, inter alii, insights from public finance and labor markets.
- Disentangling *ex-ante* these real changes in valuation from non-fundamental movements/ bubbles such as expectations errors fed by inappropriate monetary policy is a huge task only in its infancy!