

# Inflation Risk and Inflation Risk Premium

by Geert Bekaert and Xiaozheng Wang

Discussion by: Fabrizio Perri  
University of Minnesota and Minneapolis FED

Economic Policy Meeting, Madrid, April 2010

# The questions

- Do existing assets provide a good hedge against inflation risk?
- How big is the inflation risk premium i.e. the interest compensation markets demand for bearing inflation risk

# The questions

- Do existing assets provide a good hedge against inflation risk?
- How big is the inflation risk premium i.e. the interest compensation markets demand for bearing inflation risk

Relevant questions, in particular question 2 relevant now, i.e. can governments save substantial interest payments by issuing indexed bonds

# Do existing assets provide good hedge against inflation risk?

Methodology:

$$i_{it} = \beta \pi_{it} + \epsilon_{it}$$

for different assets (stocks, bonds, real estate, gold, foreign bonds, portfolios), different countries, different time horizons (1 through 5 years) and different measures of inflation (total and unexpected)

# Do existing assets provide good hedge against inflation risk?

Methodology:

$$i_{it} = \beta\pi_{it} + \epsilon_{it}$$

for different assets (stocks, bonds, real estate, gold, foreign bonds, portfolios), different countries, different time horizons (1 through 5 years) and different measures of inflation (total and unexpected)

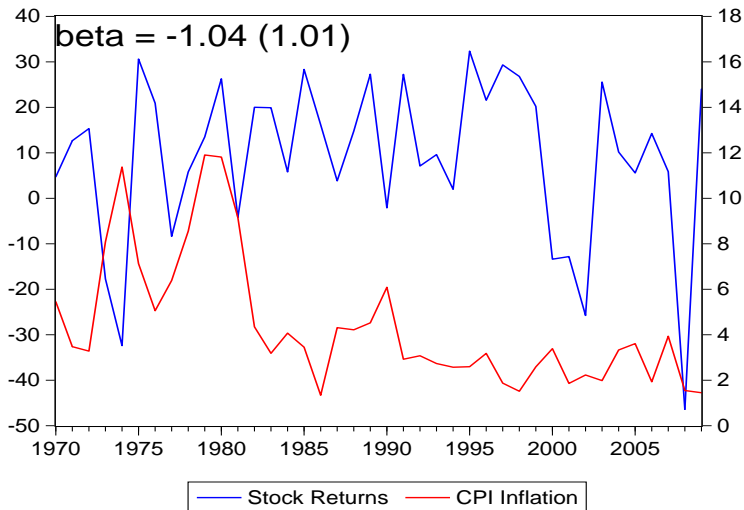
Bottom line: Most betas very far from 1, *Next to impossible to use and individual asset or a portfolio of assets to adequately hedge inflation risk!*

# Is inflation hedging really that hard?

- Focus on US, stocks:

# Is inflation hedging really that hard?

- Focus on US, stocks: YES



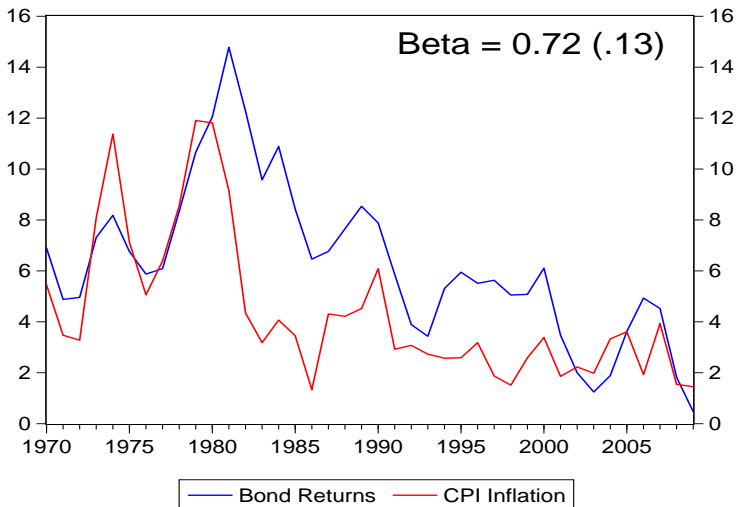
# Is inflation hedging really that hard?

- Focus on US, 1 y. bonds:



## Is inflation hedging really that hard?

- Focus on US, 1 y. bonds: NO



## A summary

- One year nominal bonds in US possible hedge against 1 year inflation, but..

## A summary

- One year nominal bonds in US possible hedge against 1 year inflation, but..
- Still this does not mean that TIPS are not a useful instrument
- A sequence of short bonds hedge against inflation risk but subject to return risk
- Long bonds hedge return risk but subject to inflation risk

## A summary

- One year nominal bonds in US possible hedge against 1 year inflation, but..
- Still this does not mean that TIPS are not a useful instrument
- A sequence of short bonds hedge against inflation risk but subject to return risk
- Long bonds hedge return risk but subject to inflation risk
- TIPS hedge against both, provide **certain real long return** (complete intertemporal markets)

# More direct evidence on the usefulness of real bonds

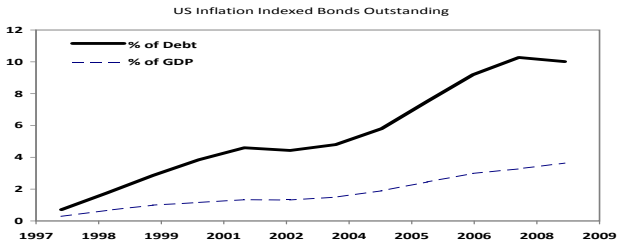


Figure 1A

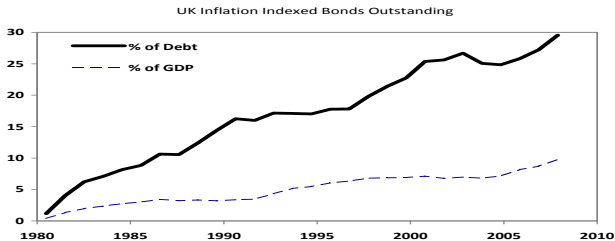
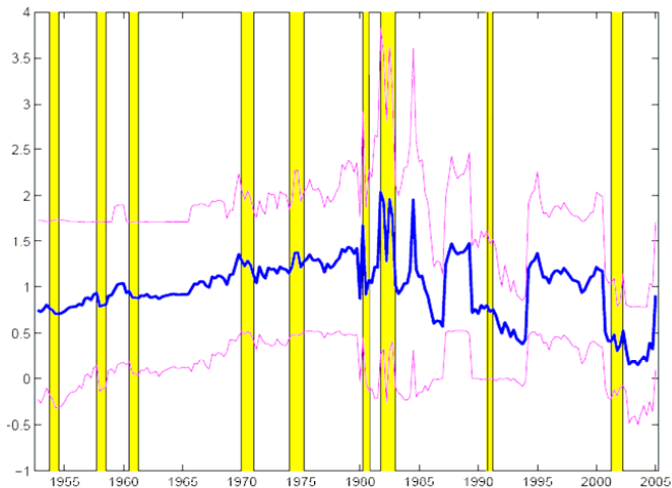


Figure 1B

# How big is the inflation risk premium?

- How many **real** resources would governments save by issuing real instead of nominal bonds?
- And if a significant amount is it efficient for the government to do it (i.e. it is efficient for govt. to bear inflation risk)?

## The answer of the paper



Inflation premium is volatile and HIGH, case for TIPS easy to make!

## How is the inflation premium calculated?

- Compute a nominal pricing kernel (using nominal yield curve data)
- Compute a process for inflation and inflation expectation (using RE)
- Pick inflation risk premium at one maturity and let the model derive the premium at different maturities
- Key: do not use TIPS yields
- Identification not very intuitive, in particular why is the inflation risk premium high?



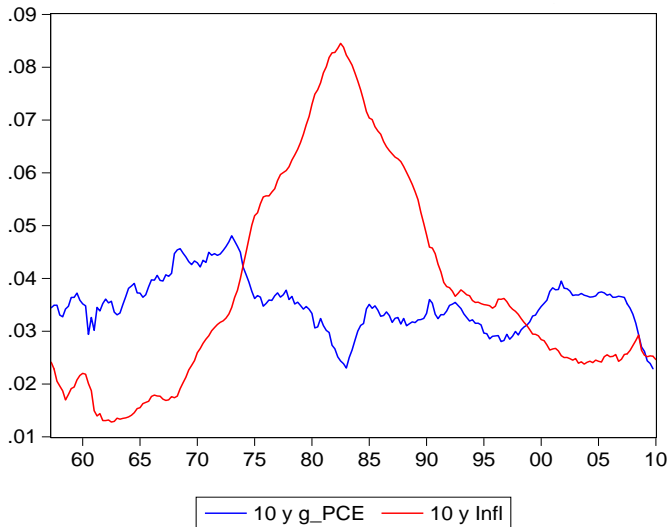
# A CCAPM approach to inflation RP

If CRRA utility,

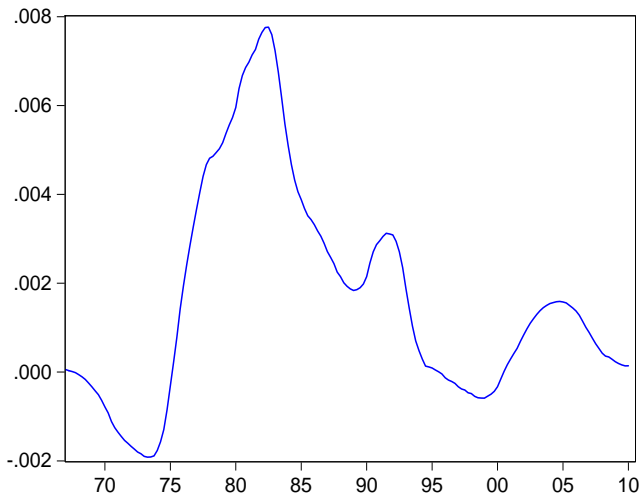
$$\begin{aligned}SDF &= g_c^\gamma \\RP &\simeq -\gamma \text{cov}(g_c, \pi)\end{aligned}$$

Inflation risk premium is high if inflation is high at times of low consumption growth

# 10 years inflation and consumption growth

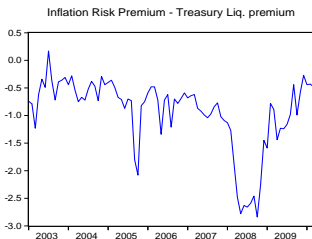
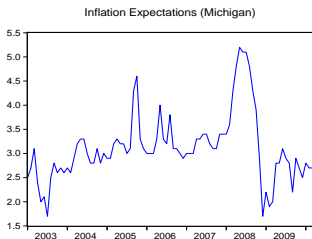
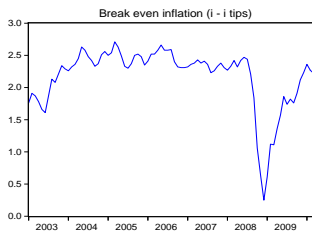
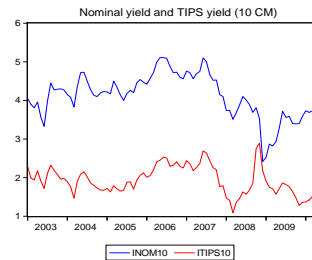


## CCAPM Risk premium ( $\gamma = 100$ )



Pattern of Inflation RP similar to ABW, level much lower

# A more direct way of measuring inflation risk premium



If Treasury liquidity premium is not too high ( $< 0.5\%$ ), Inflation risk premium is low or negative

# Conclusions

- Real bonds are useful in financial markets
- If inflation risk premium is high and if govts want to shoulder inflation risk, govts should use real bonds more

# Conclusions

- Real bonds are useful in financial markets
- If inflation risk premium is high and if govts want to shoulder inflation risk, govts should use real bonds more
- Not clear that inflation risk premium is so high (might be negative)

# Conclusions

- Real bonds are useful in financial markets
- If inflation risk premium is high and if govts want to shoulder inflation risk, govts should use real bonds more
- Not clear that inflation risk premium is so high (might be negative)
- Evidence points to higher inflation risk premium in the 1970s, yet real bonds have blossomed in the late 1990s. Maybe use of real bonds tied more to the explosion of derivatives or legal requirements.

# Is (unexpected) inflation hedging really that hard?

- Focus on US, bonds:



# Is (unexpected) inflation hedging really that hard?

- Focus on US, bonds: YES

