Discussion

"*The Changing Relationship Between Commodity Prices and Prices of Other Assets with Global Market Integration*"
by Barbara Rossi

Domenico Giannone
Université libre de Bruxelles, ECARES and CEPR

IMF-TMB Conference
Policy Responses to Commodity Price Movements

Istanbul, April 2012

Once upon a time...

American Economic Association meetings, 2009

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Once upon a time...

Discussion of "Can exchange rates forecast commodity prices?"

Hélène Rey

London Business School, CEPR, NBER

Once upon a time...

Intriguing result

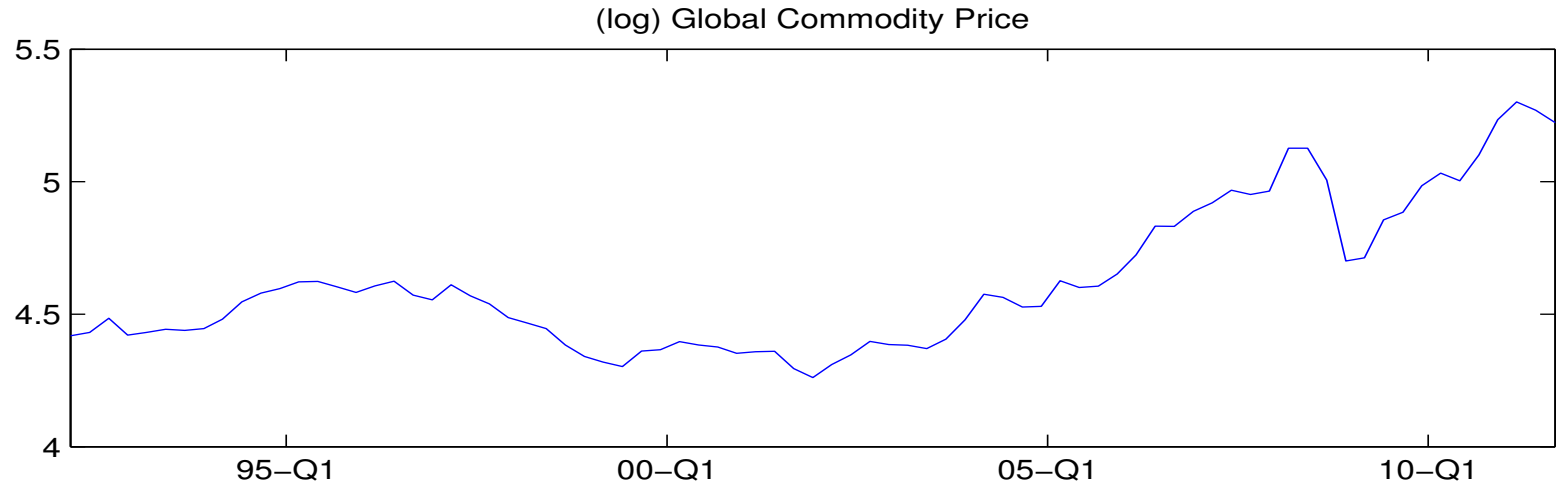
- Exchange rates of small commodity exporters have forecasting power for global commodity index. True in and out of sample.
- Reverse is not true, i.e. commodity prices do not seem to forecast exchange rates very well (and not out of sample).

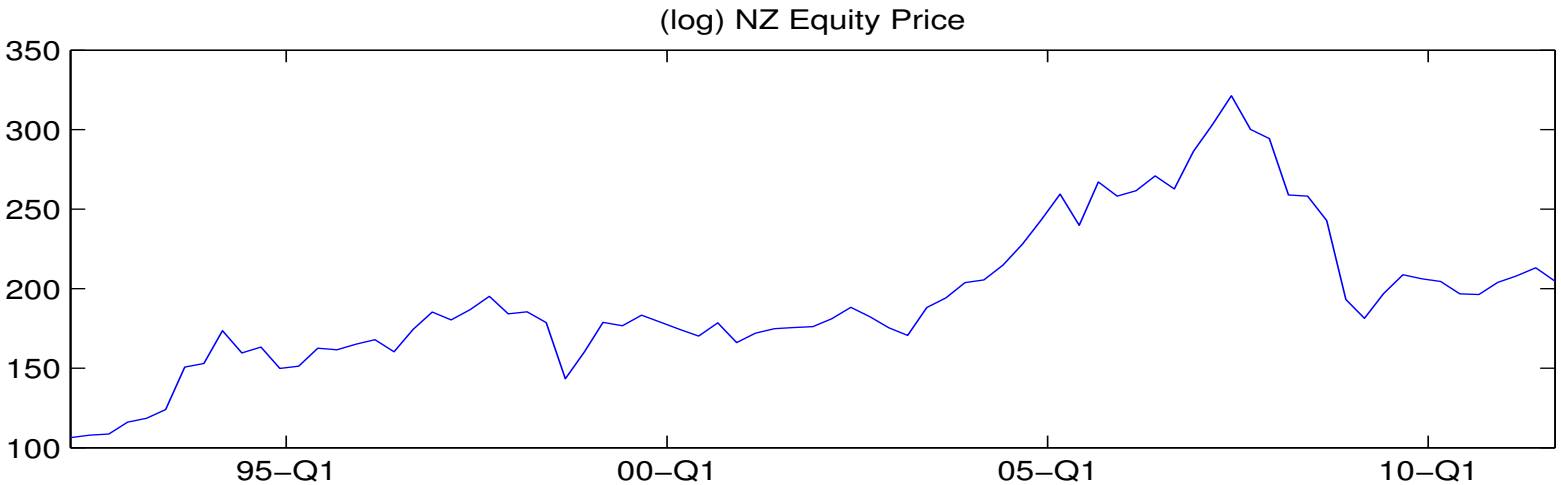
Once upon a time...

Conclusions

- Very interesting set of results
- Calls for extensions
- Stock market index has also some forecast ability in and out of sample.
- Seems a slightly noisier predictor than the exchange rate.

The Data


(log) Global Commodity Price
5.5
5
4.5
4
95–Q1
00–Q1
05–Q1
10–Q1


(log) NZ Equity Price
350
300
250
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150
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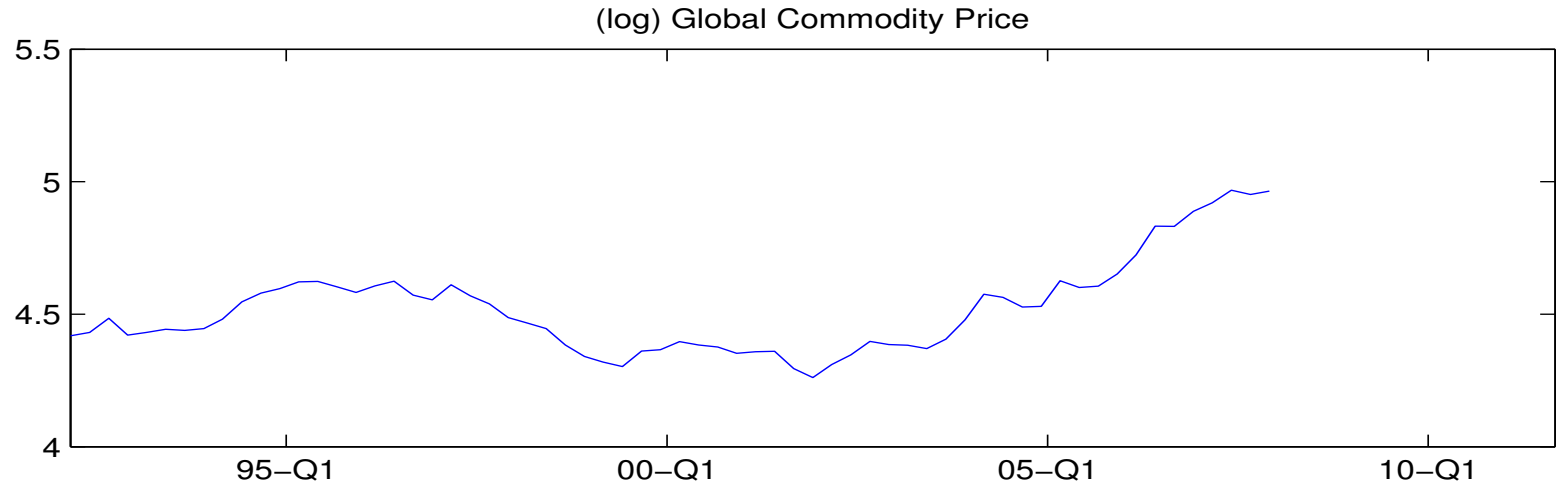
The Sample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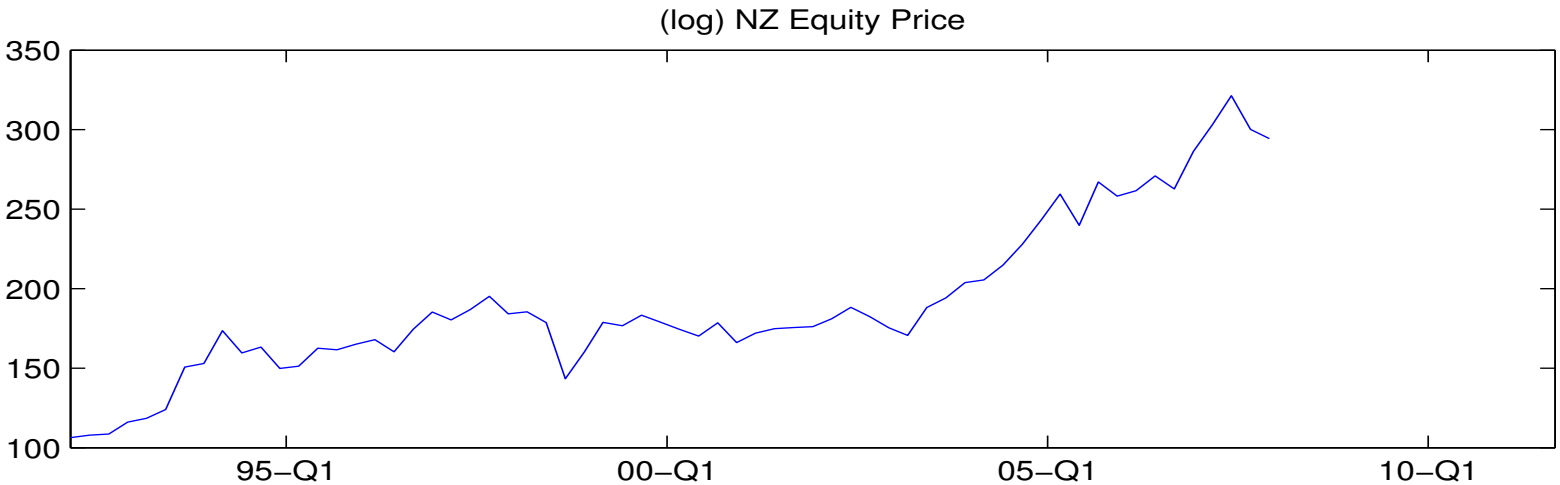
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Forecasting Global Commodity Prices (CP)

Forecasting Global Commodity Prices (**CP**) using asset prices of small commodity producers (e.g. New Zealand (**NZ**))
- Exchange Rate (**EXR**)
- Equity Prices (**EP**)

This paper (EP)

$$E_t \Delta CP_{t+1} = \alpha + \beta \Delta EP_t^{NZ} + \rho \Delta CP_t$$

Barbara's previous work (EXR):

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The Naive Benchmark: Random Walk

$$E_t \Delta CP_{t+1} = 0$$

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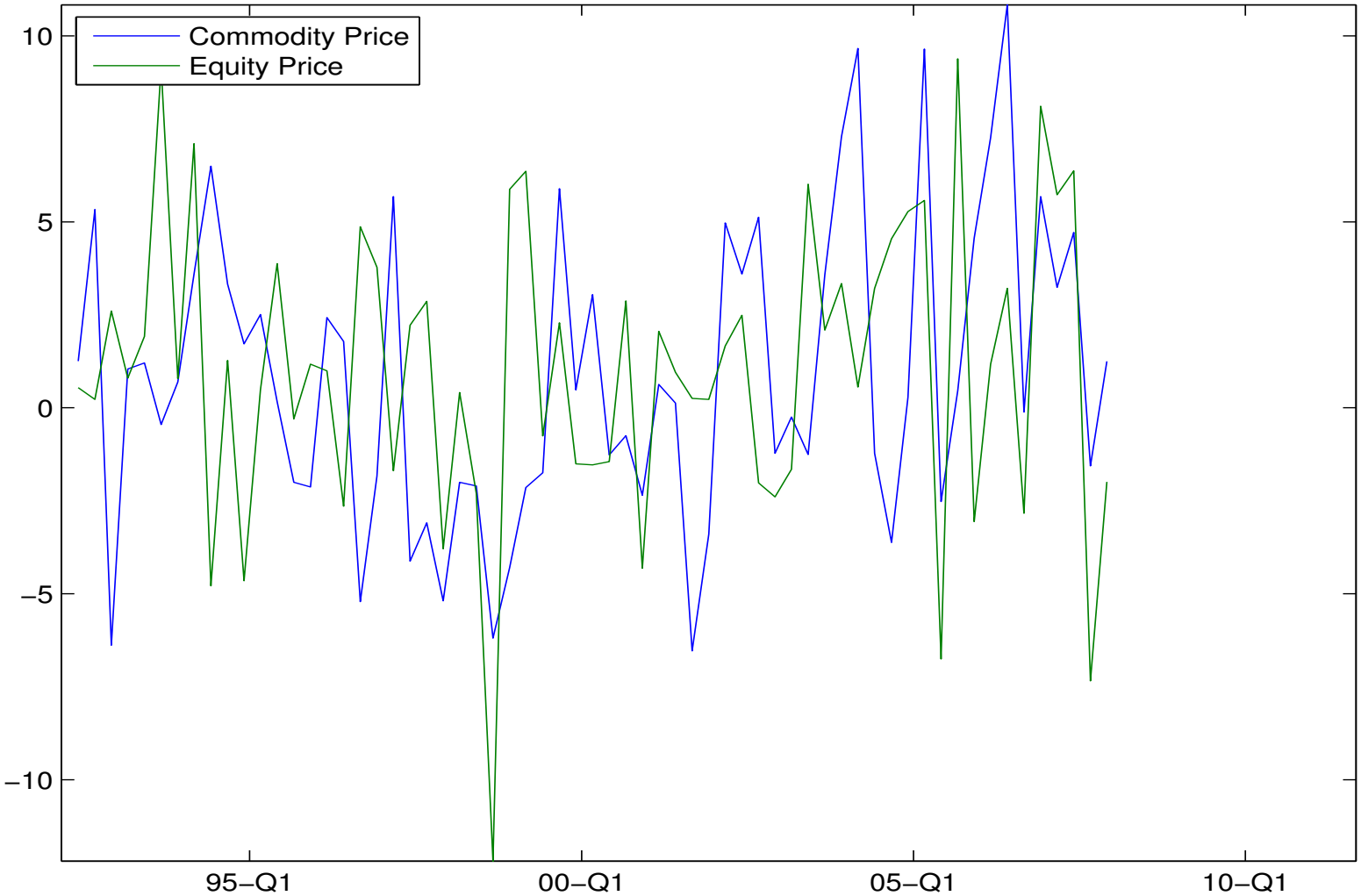
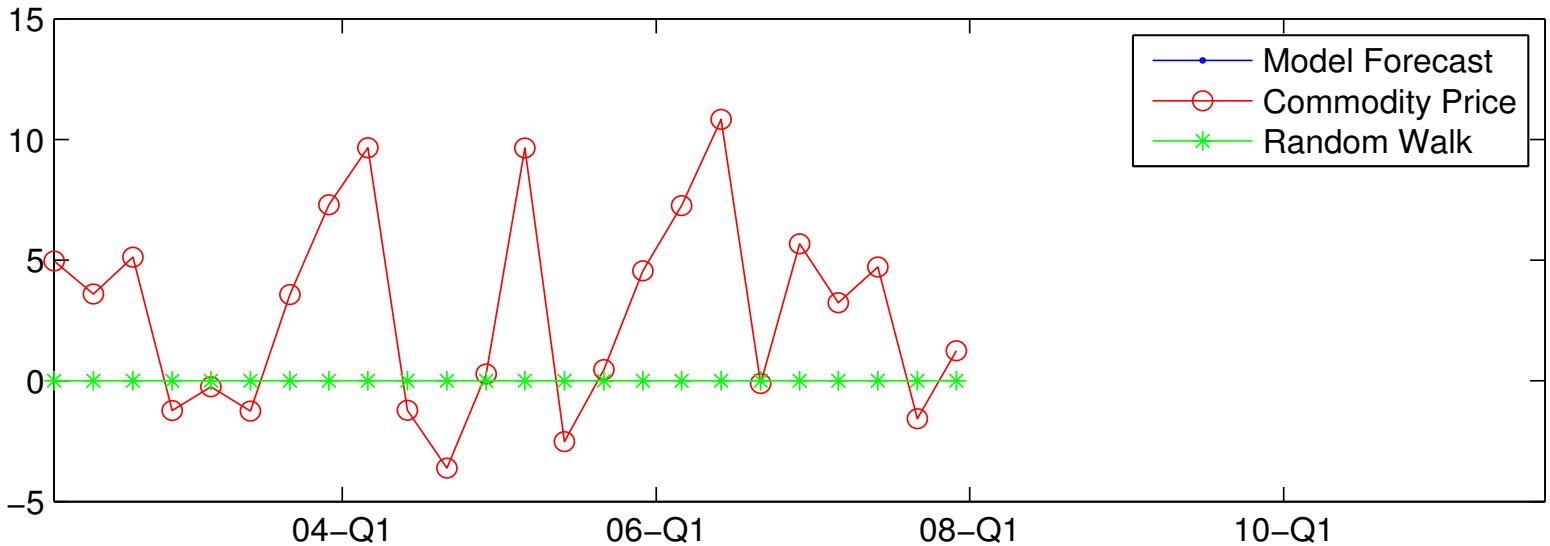


The Output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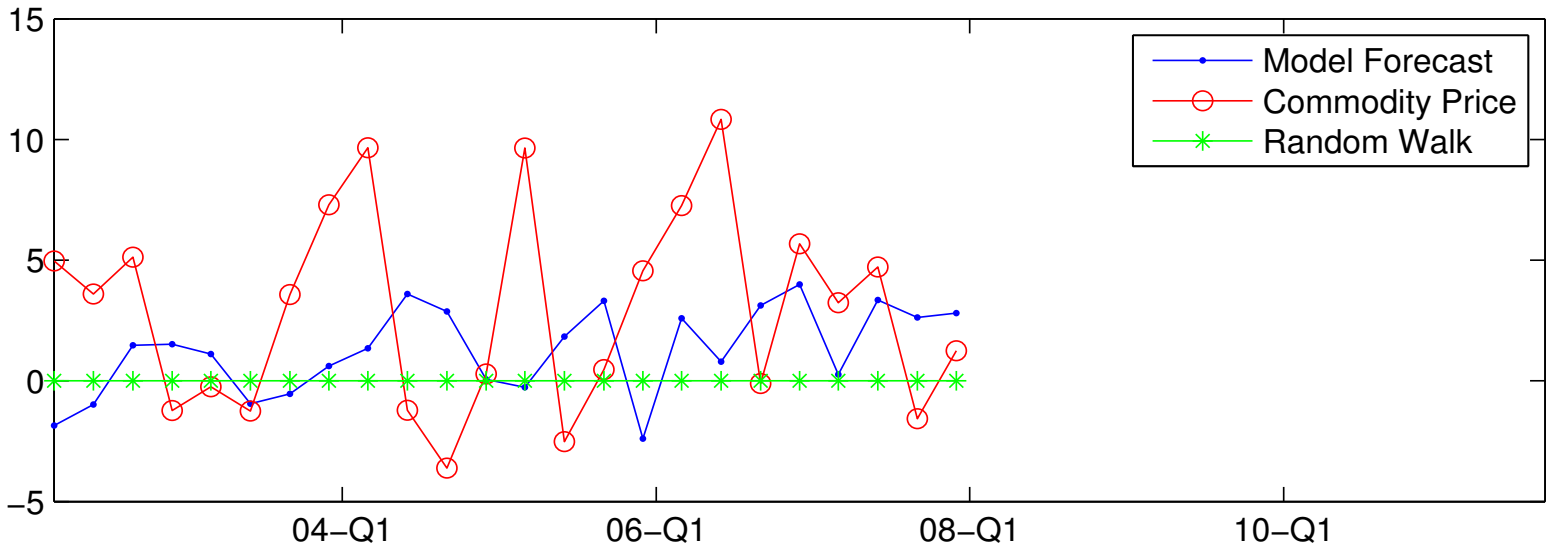
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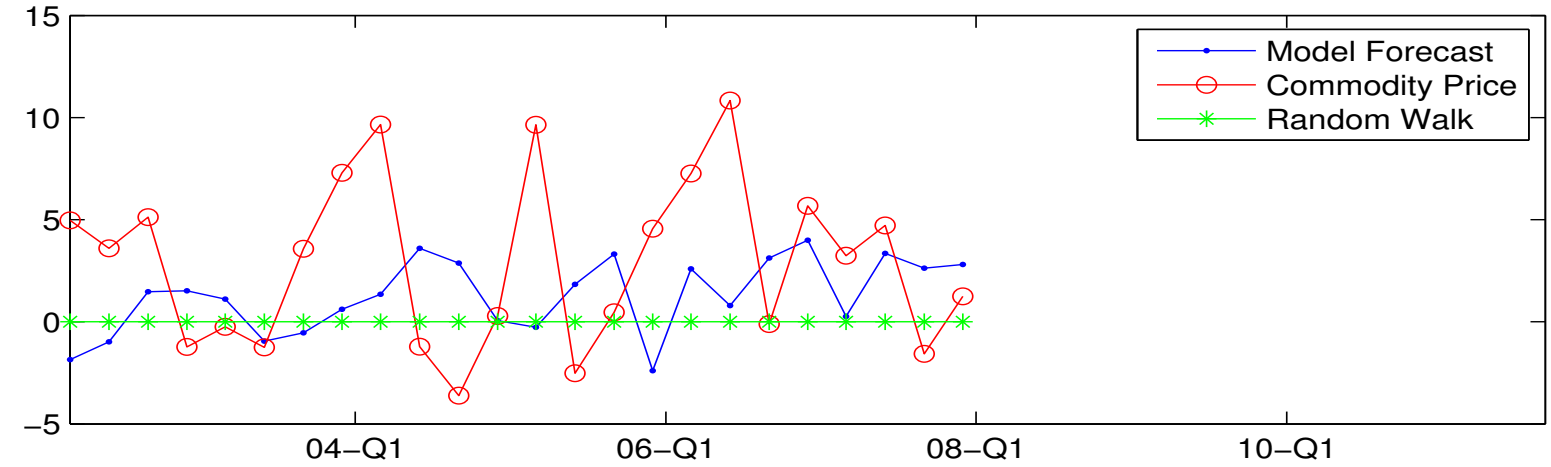
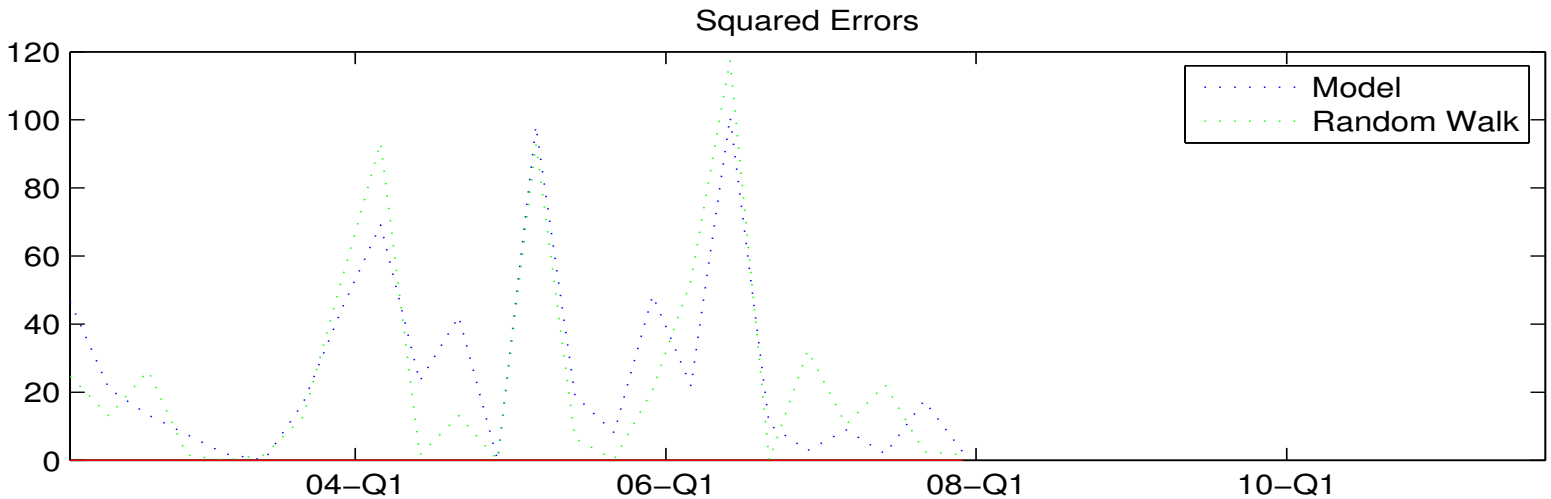
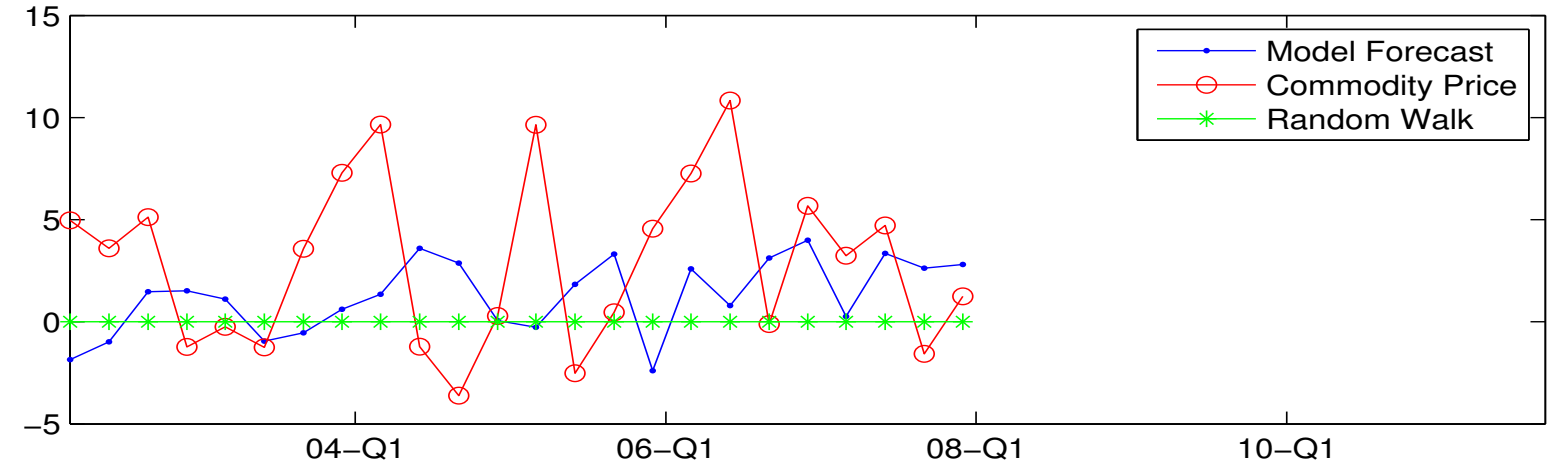
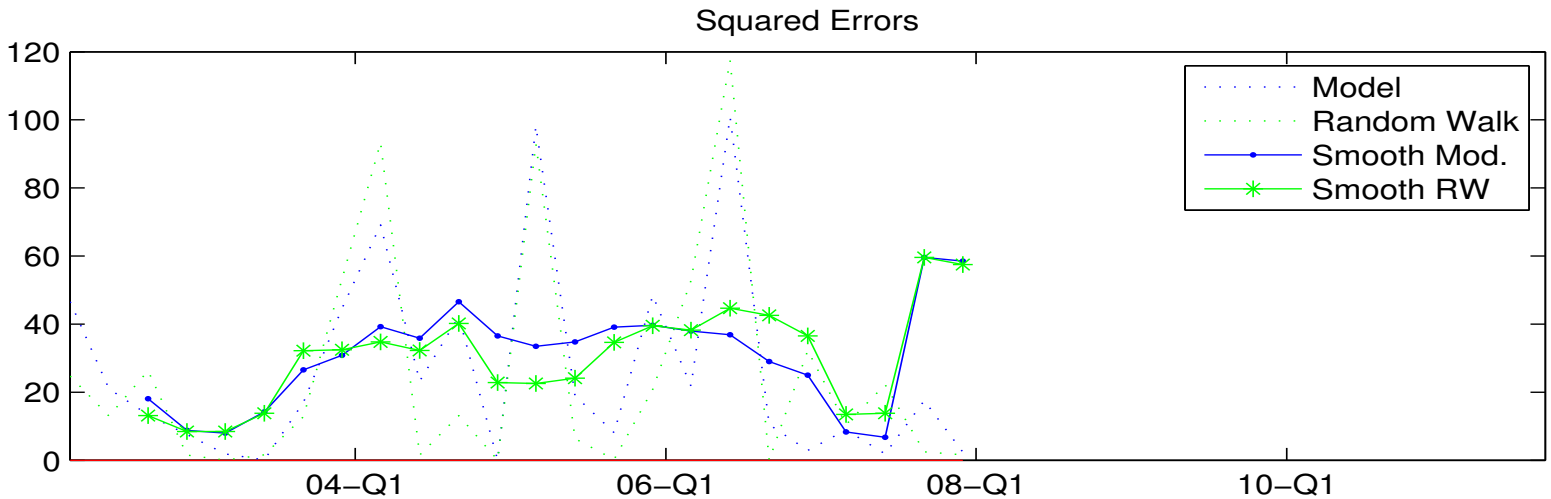
The Evaluation: Quadratic Loss





The Evaluation: Fluctuation Test





The empirical finding

[...] the appearance of the out-of-sample predictive ability of the equity market predictor [...] dated around mid-2000.

Since the mid-2000s marked a large increase in investment in commodity markets, ...

... our empirical evidence suggests a decrease in market segmentation at approximately the same time, ...

... and therefore the possibility that shocks in equity markets might have started to spill-over onto commodity markets in that period.

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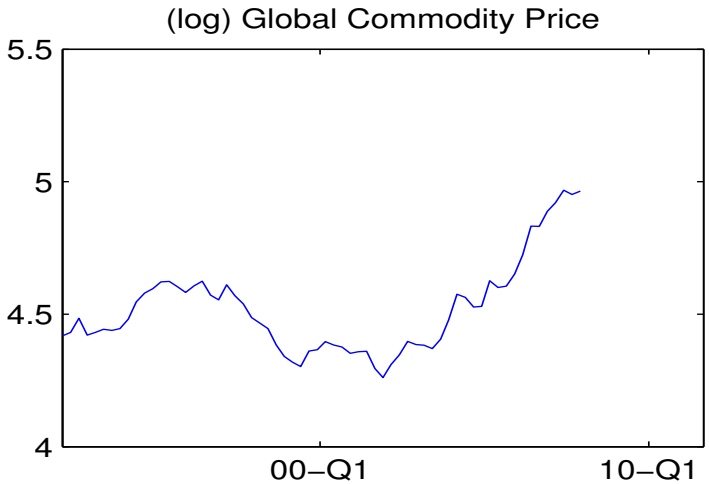
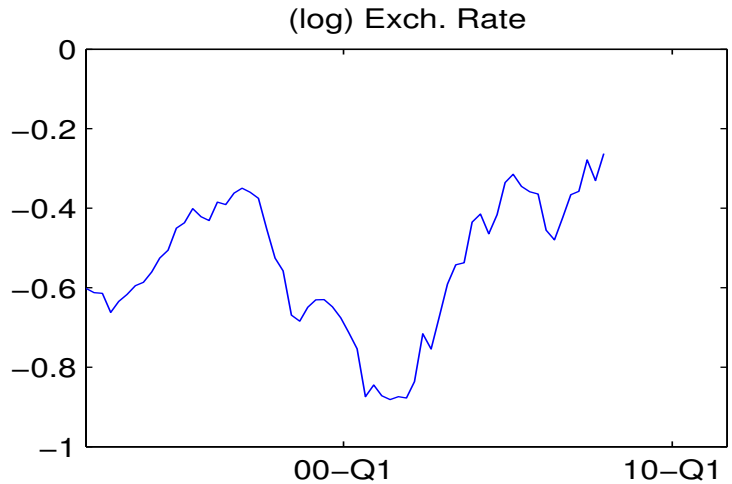
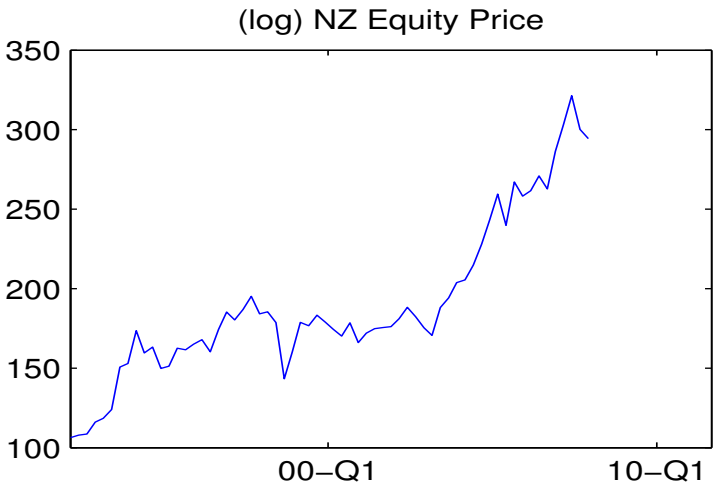
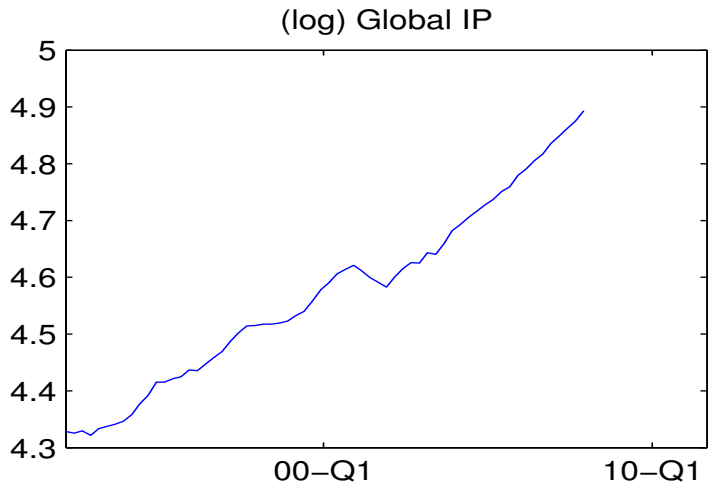
Other Predictors









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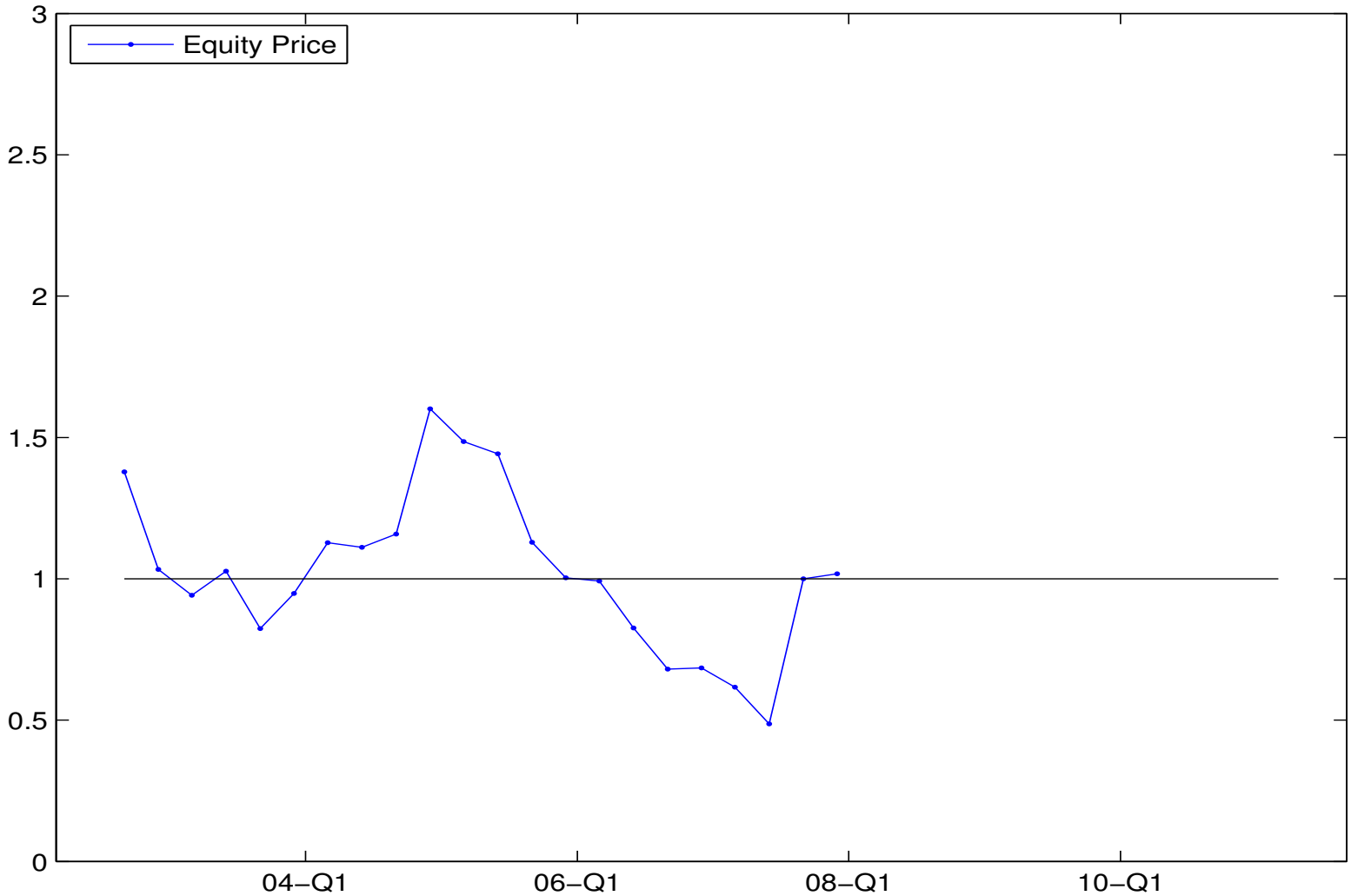

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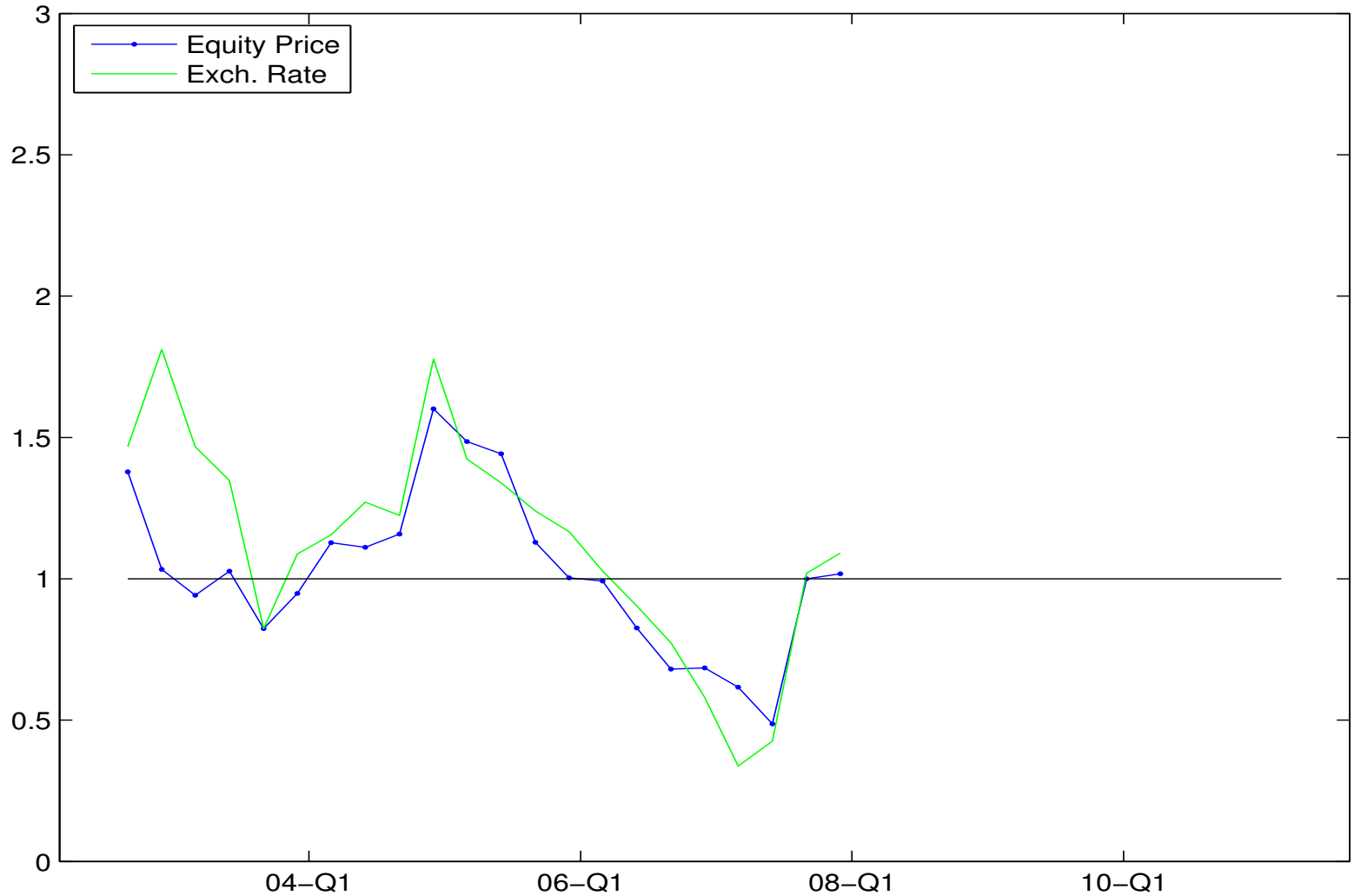

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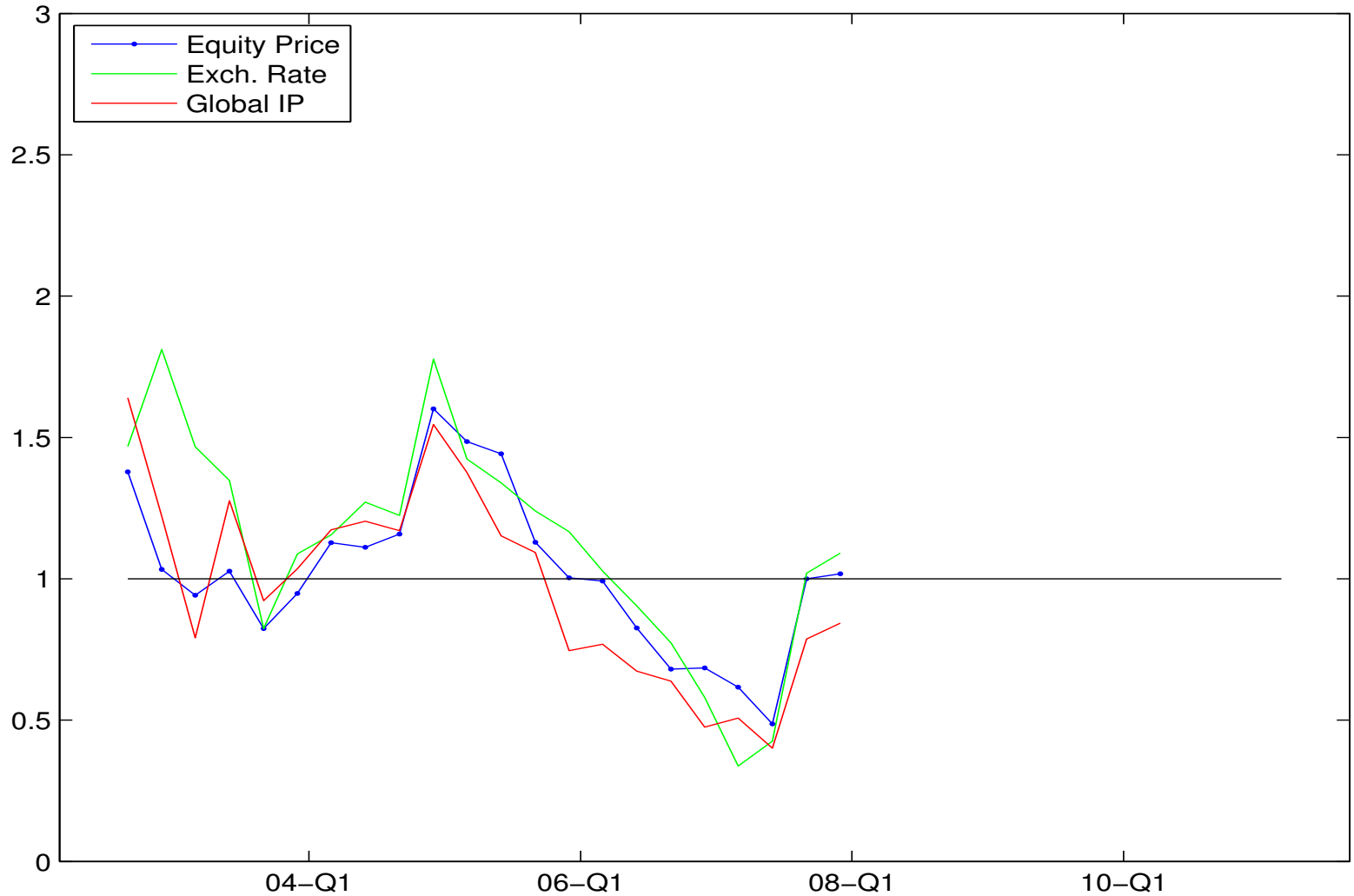

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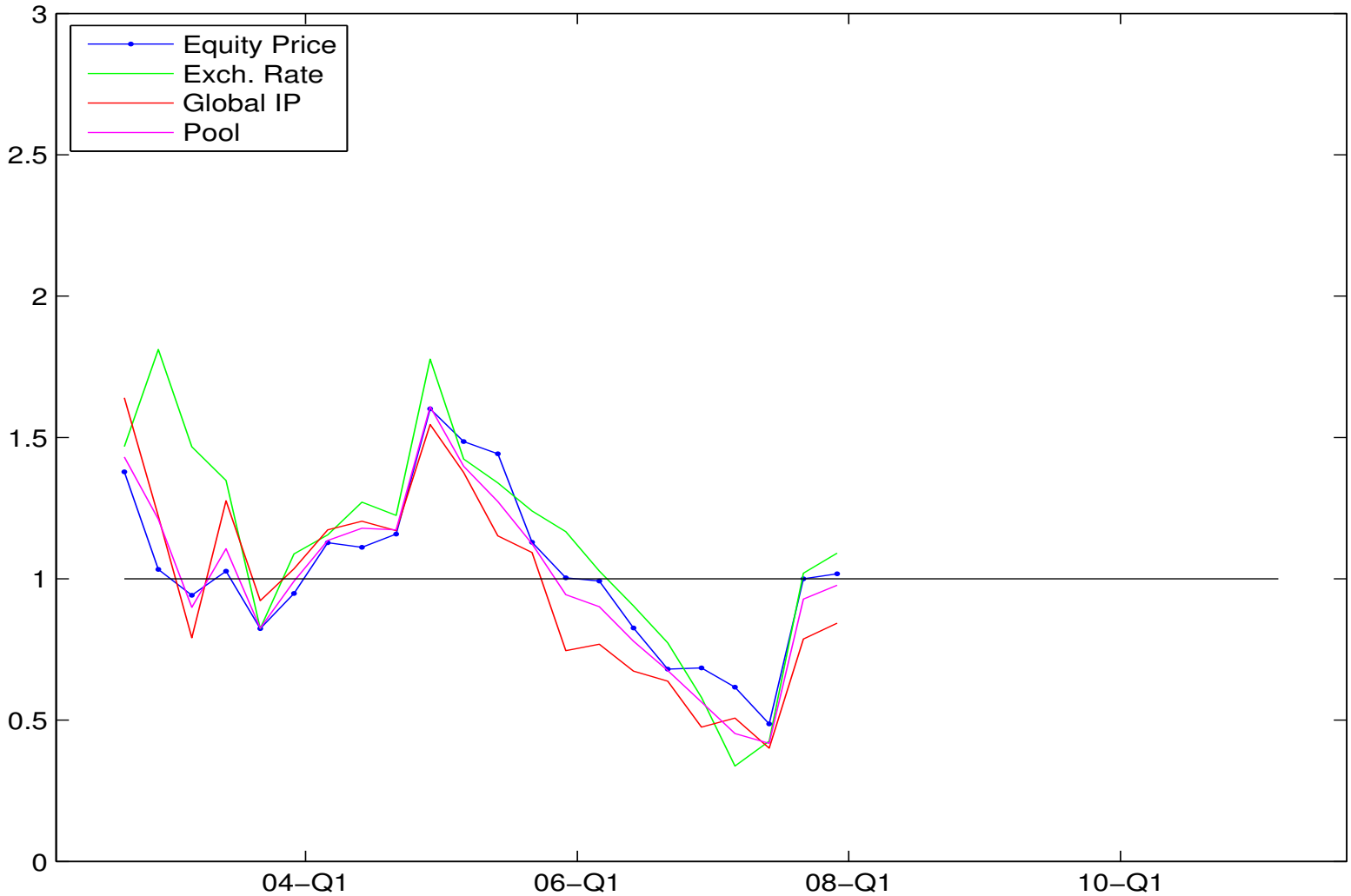
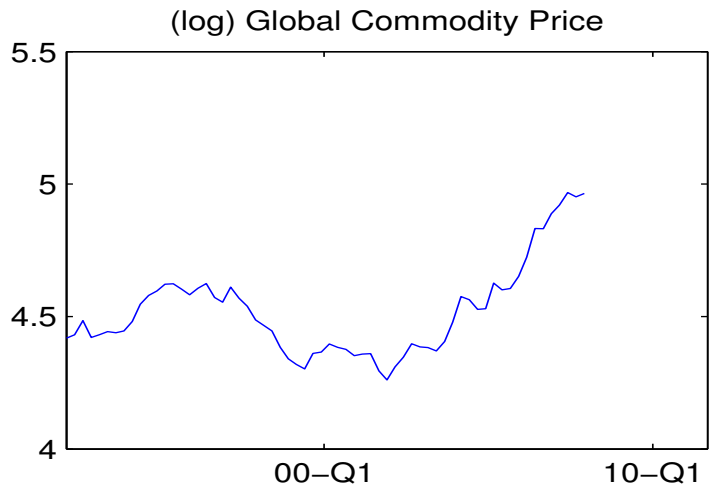


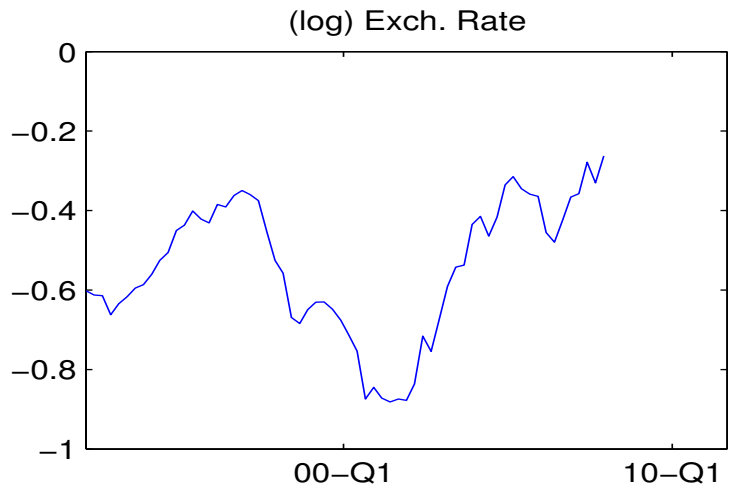
Summing up

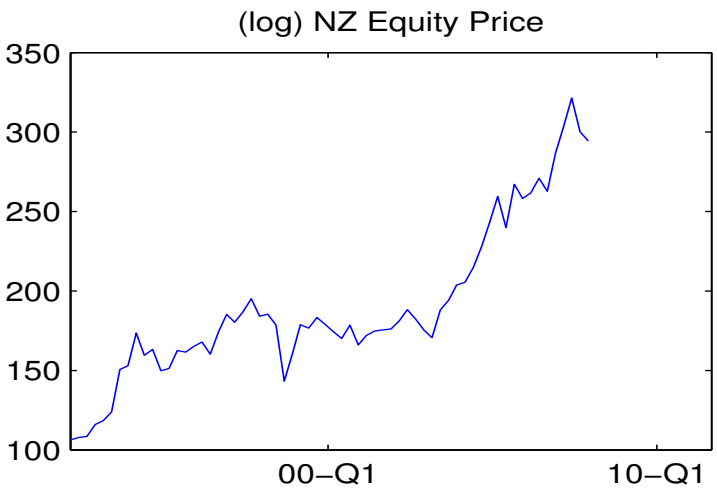
The appearance of predictive ability is not specific to the the equity market predictor!!

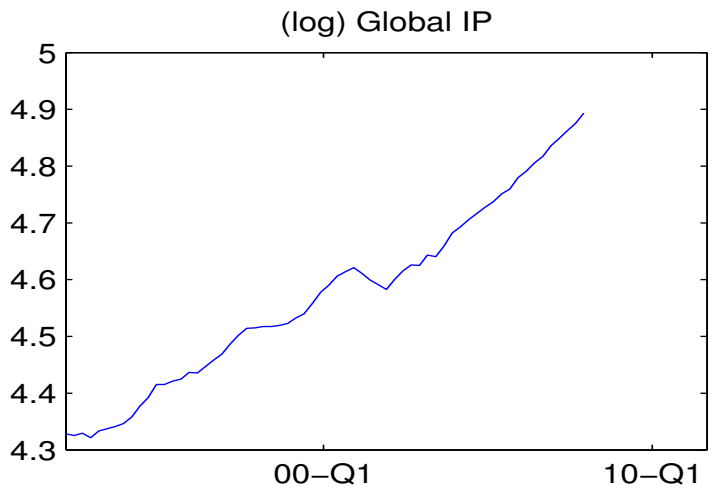
Factors other that the decrease in market segmentation and spillovers from equity markets might have been at work!

Forecasting Commodity Prices at the Time of the Great Recession









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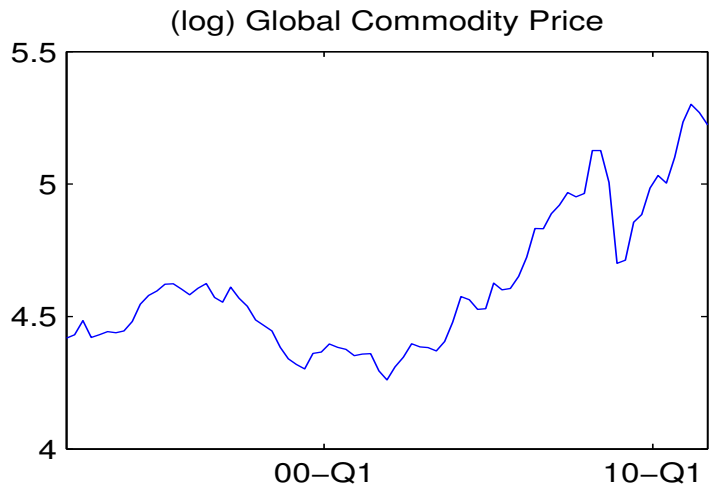
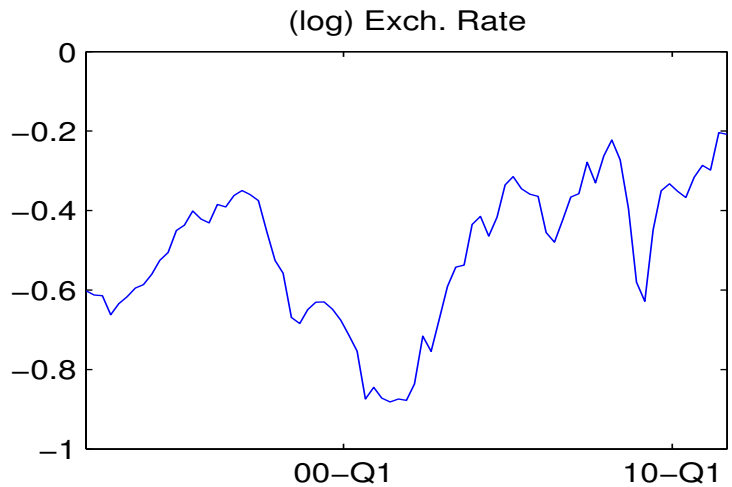
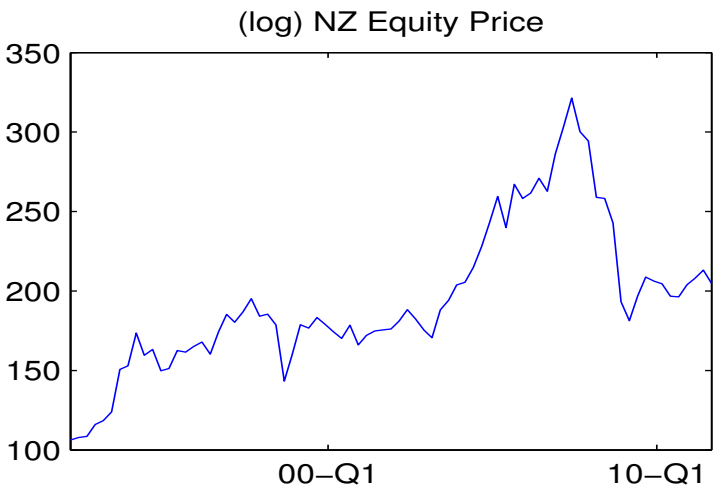
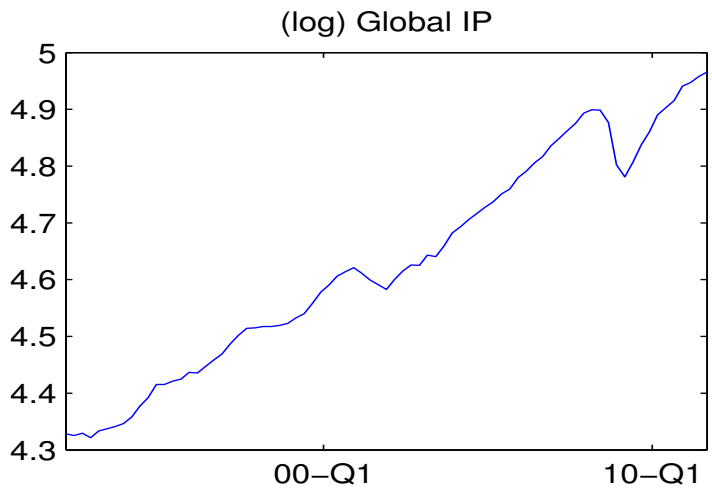
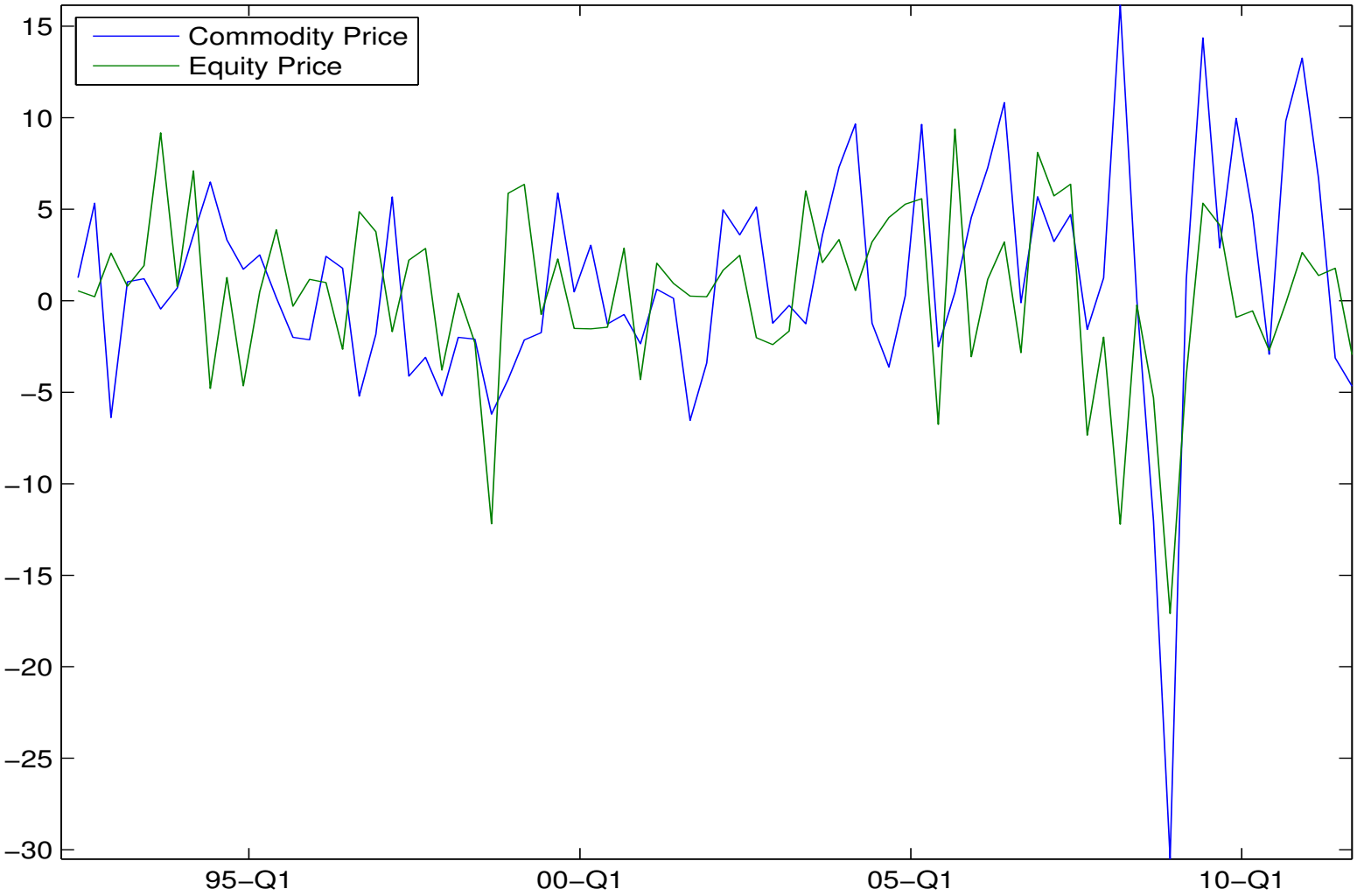








Commodity and Equity Prices at the Time of the Great Recession



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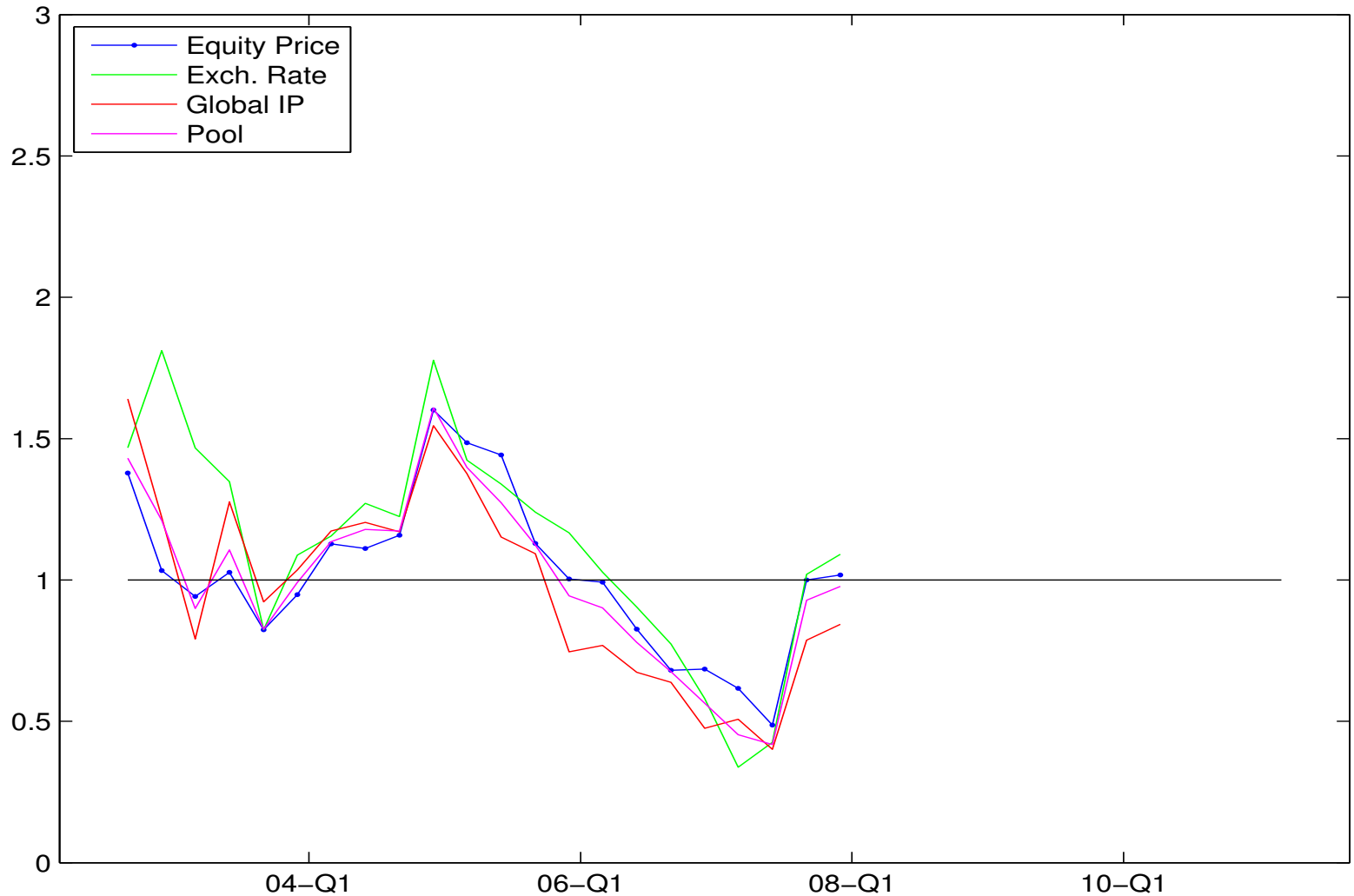

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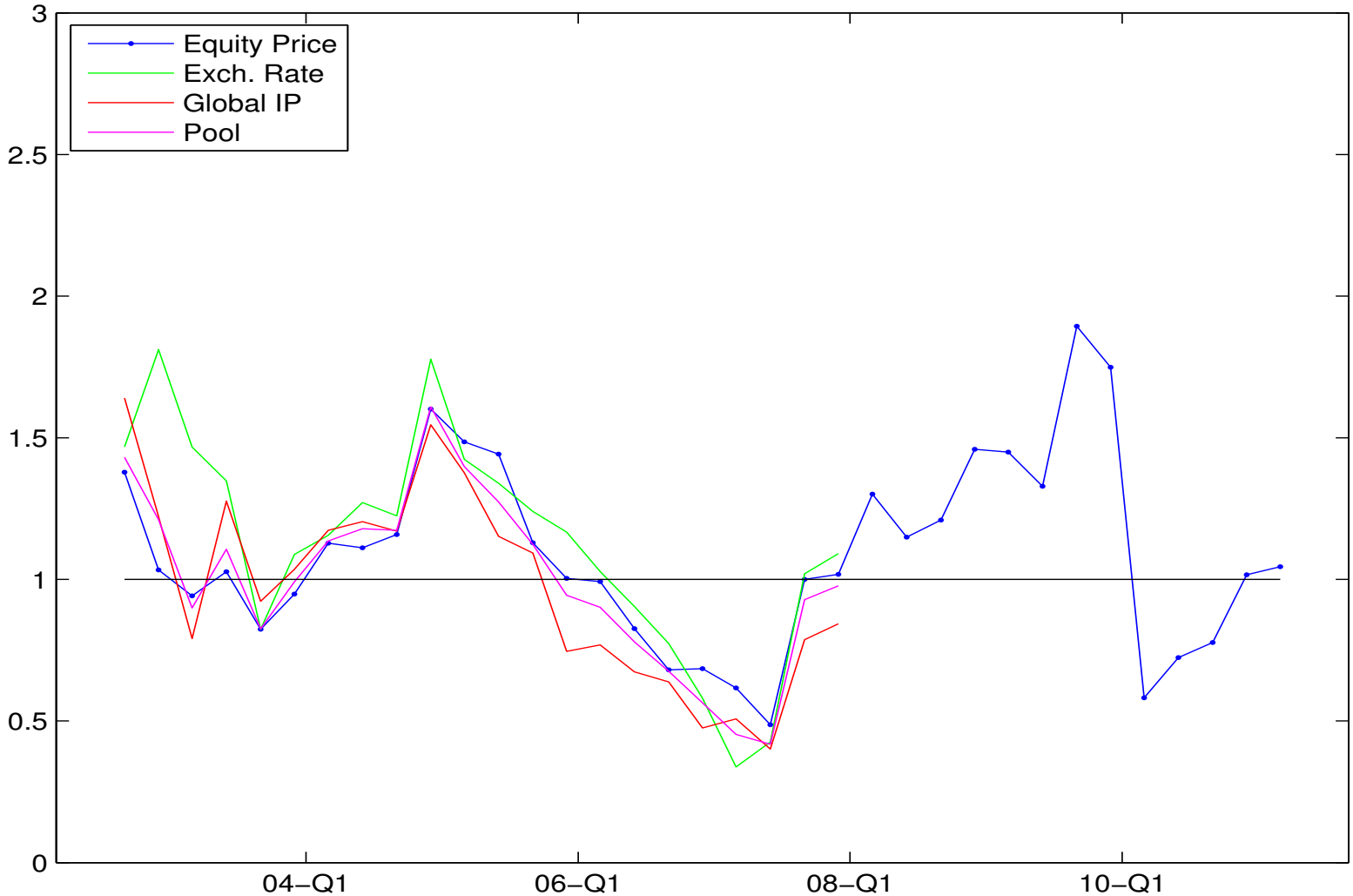

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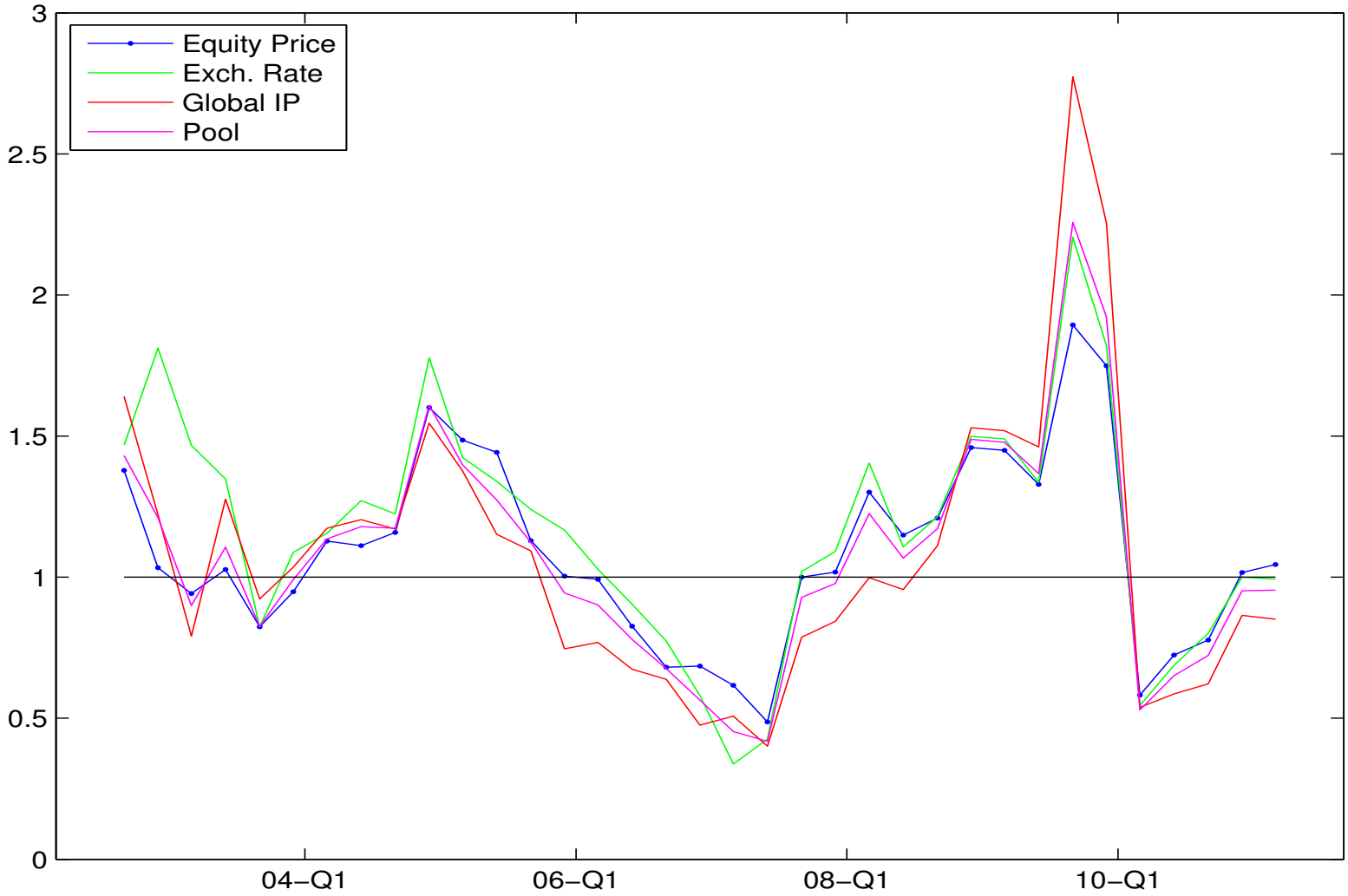

Can we really forecast commodity prices??

An Alternative Look at the Data: Modeling Structural Change

Model: Time-Varying Vector Autoregressions (TV-VAR)

Cogley and Sargent, 2001, 2005, Primiceri, 2006

$$y_t = A_{0,t} + A_{1,t} y_{t-1} + \varepsilon_t, \quad \varepsilon_t \sim N(0, \Sigma_t) \tag{1}$$

Parameters evolve according to

$$\text{Coefficients}: \ \theta_t = \theta_{t-1} + \omega_t, \quad \omega_t \sim N(0, \Omega) \tag{2}$$

$$\text{Variances}: \ \log \sigma_t = \log \sigma_{t-1} + \xi_t, \quad \xi_t \sim N(0, \Xi) \tag{3}$$

$$\text{Autocovariance}: \ \phi_{i,t} = \phi_{i,t-1} + \psi_{i,t}, \quad \psi_{i,t} \sim N(0, \Psi_i) \tag{4}$$

$\psi_{i,t}$, ξ_t, ω_t, ε_t all mutually uncorrelated at all leads and lags.

Reliable Forecasting Tool: D'Agostino, Gambetti and Giannone, 2009.

$\Rightarrow$ Flexible but parsimonious model of structural changes

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An Alternative Look at the Data: Modeling Structural Change

Setting the Prior

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Parameters evolve according to

$$\theta_t \quad = \quad \theta_{t-1} + \omega_t, \quad \omega_t \sim N(0, \Omega) \tag{6}$$

Estimate the model by ML over the training sample: 1992-2001 ($\tilde{\theta}$)

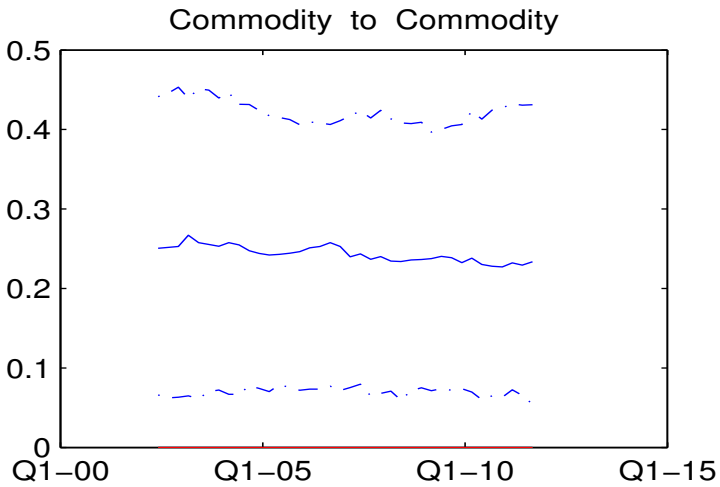
$$\theta_0 = \tilde{\theta} \quad V(\theta_0) = V(\tilde{\theta})$$

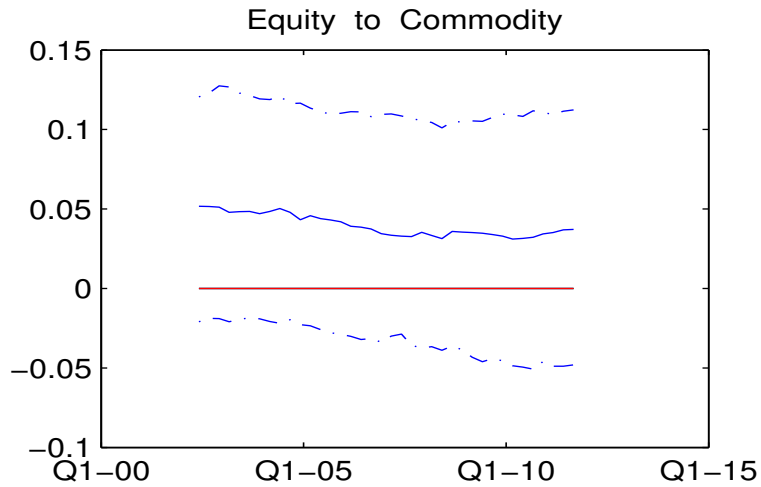
$$\Omega = V(\theta_t - \theta_{t-1}) = V(\tilde{\theta}) \times \lambda^2$$

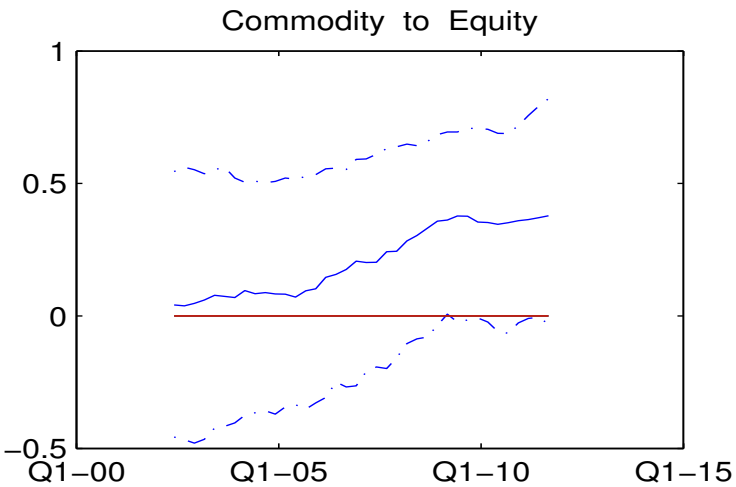
Quite loose prior to favor time variation:
$\lambda^2 = \frac{1}{10}$

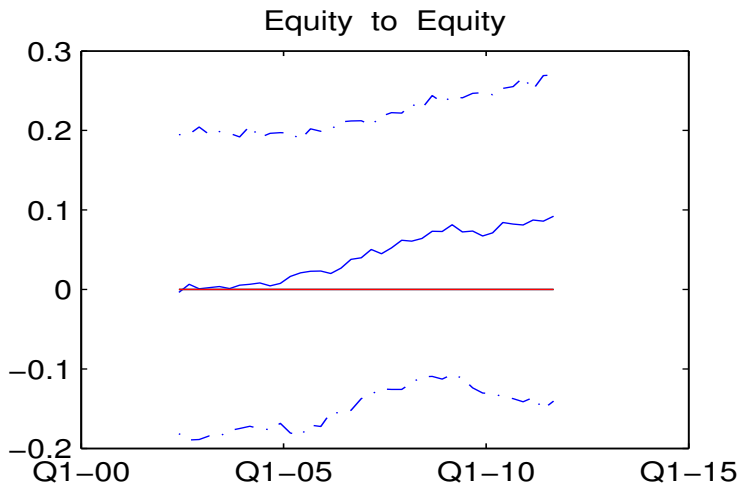
Estimation: Gibbs Sampling on entire sample

An Alternative Look at the Data: Time Varying Coefficients



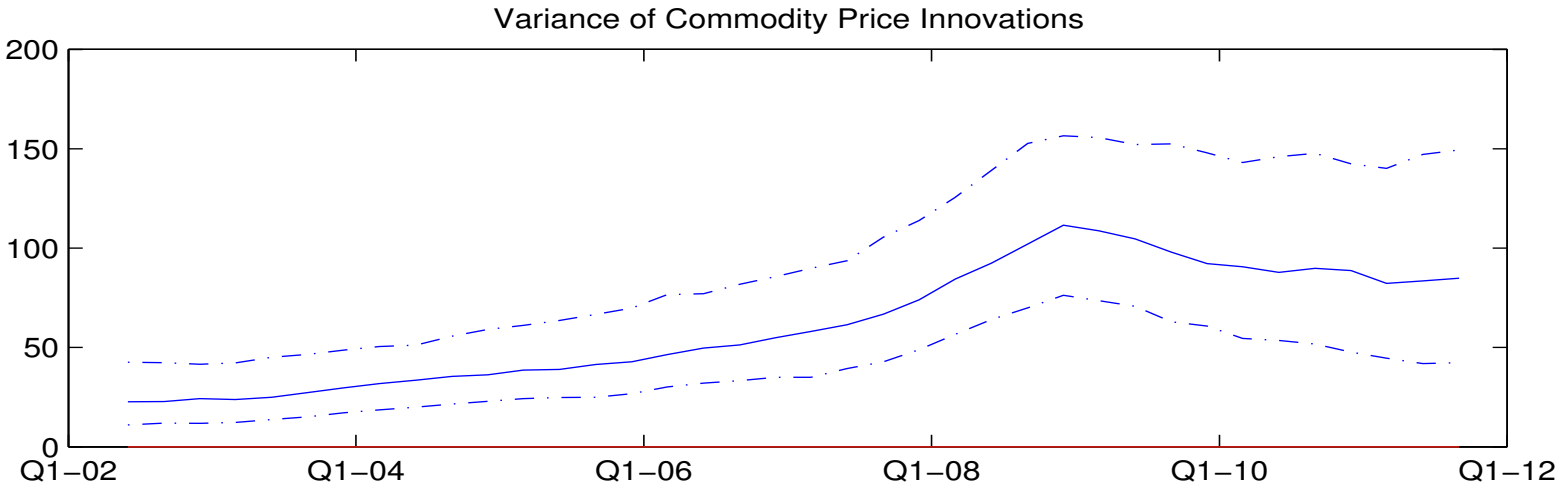


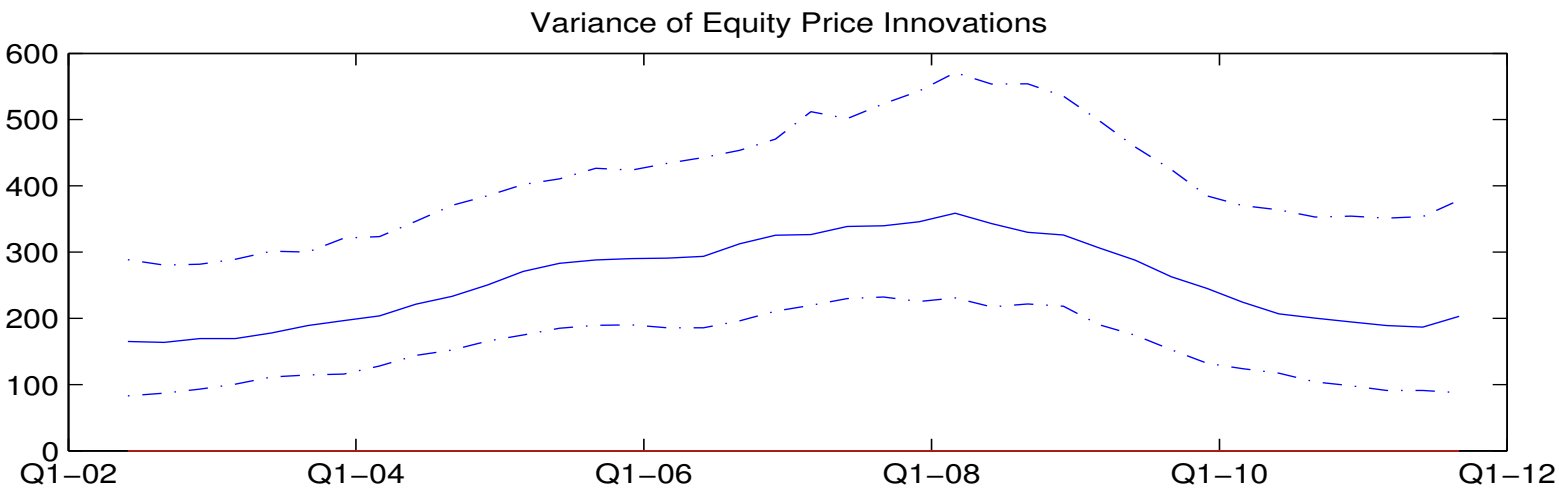




If anything, Commodity Prices are becoming Less Predictable

An Alternative Look at the Data: Stochastic Volatility





Strong comovement in volatility: might be exploited in risk assessment

Conclusions

Fascinating, relevant and innovative research agenda

Vey interesting and well executed paper.

I strongly advice you to read it!!