Carry Trade, Uncovered Interest Parity and Monetary Policy

Felcser Dániel - Vonnák Balázs

April 27, 2012

Motivation

„(…) a tightening of monetary policy is supposed to lead to a quick appreciation followed by a depreciation. Nice and logical. But, empirically, it does not happen. How, then, does monetary policy influence exchange rates? A good question. And until it gets a good answer, central bankers are operating in a dense fog. So this issue also ranks high on the research agenda."

Alan S. Blinder: Monetary Policy Today: Sixteen Questions and about Twelve Answers (2006)

Motivation

- What happens after a contractionary monetary policy shock when uncovered interest parity (UIP) holds?

- According to Dornbush (1976):
  - Interest rate jumps, then decreases gradually to its original level
  - Exchange rate appreciates on impact, then gradually depreciates
  - There is an interest rate sensitive (carry trade) inflow on impact, then these long positions expire
    - Since the depreciation of the currency perfectly offsets interest rate differential, excess return is zero, no incentive for more inflow
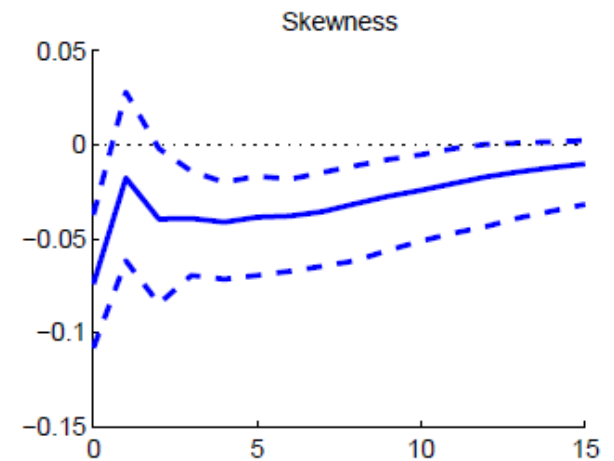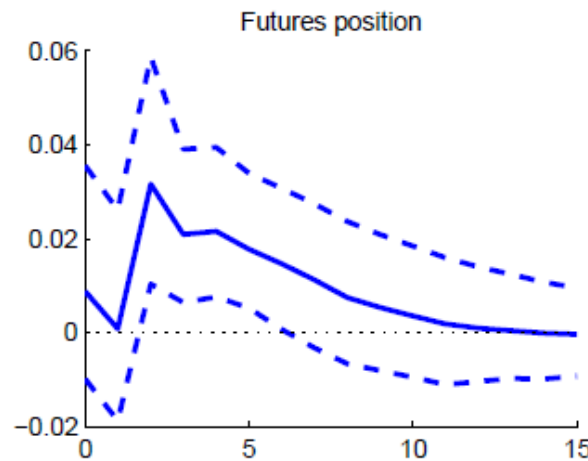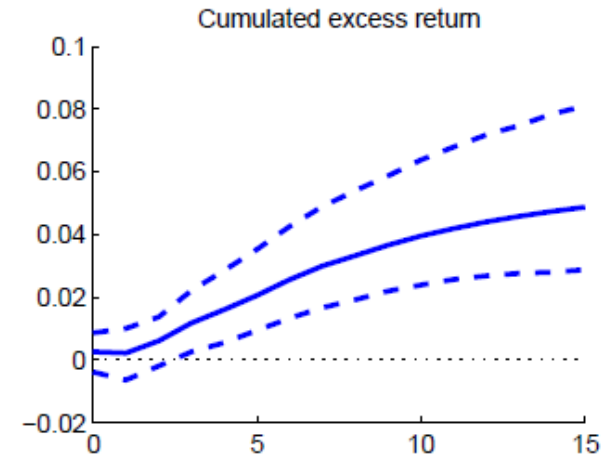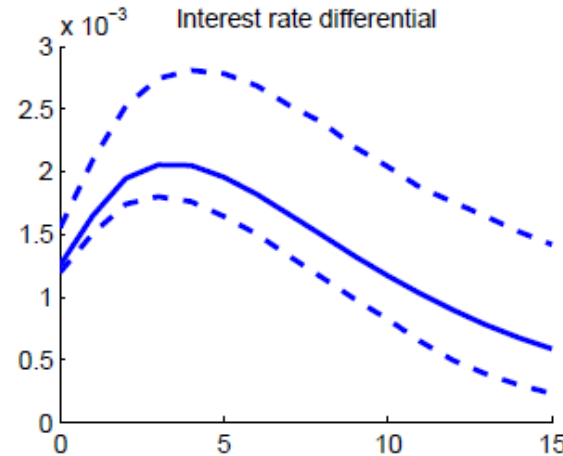
Motivation

- Delayed overshooting (DOS) puzzle: protracted appreciation after a a contractionary monetary policy shock
  - often found in SVARs
  - violation of the UIP
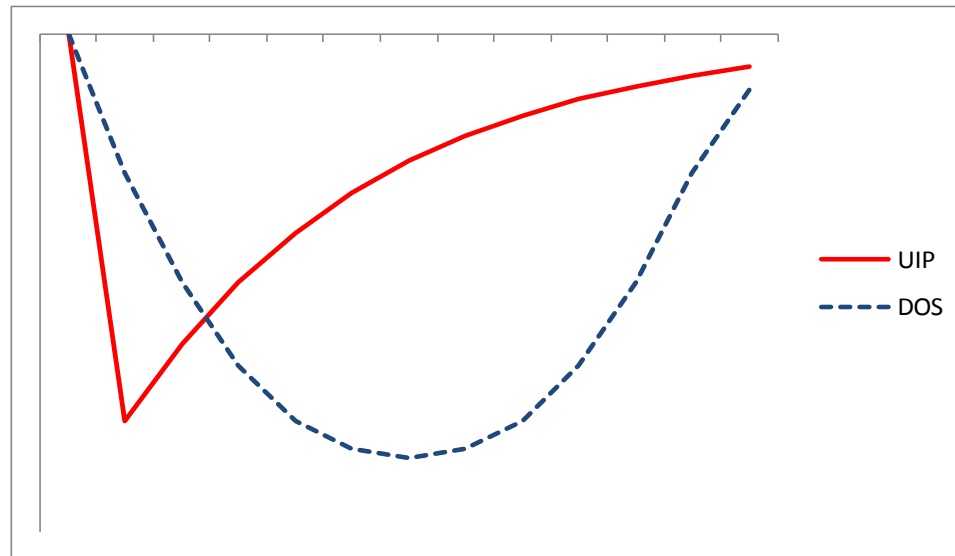
 - carry trade can be profitable as long as the currency appreciates

Motivation

Brunnermeier, Nagel and Pedersen (2009):

- Delayed reaction of carry traders to an „interest rate shock"
- Permanent excess return

Interest rate differential

Cumulated excess return

Futures position

Skewness

Motivation

- An even more worrying story: vicious circle of Plantin and Shin (2011)
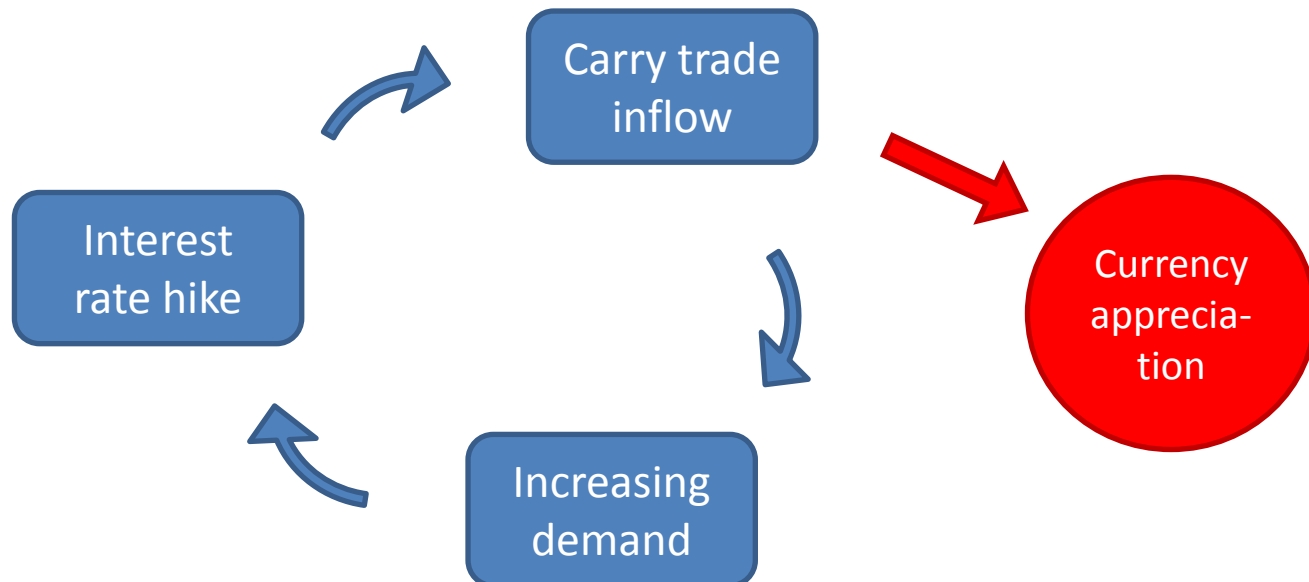
Motivation

- The questions we would like to answer:
  - What happens to the exchange rate after a monetary policy action?
    - Is there a delayed overshooting?
  - How does monetary policy influence carry trade?
  - What drives carry trade?
  - Is carry trade
    - stabilizing (pushing the exchange rate towards its fundamental equilibrium)
    - or destabilizing (causing misalignments, bubbles)?

Outline

- Literature

- Estimation

- Results
  - Impulse responses: what is the effect of a monetary policy shock?
  - Variance decomposition: what drives carry trade?

- Conclusions

ESTIMATION

How to measure carry trade?

- Following Brunnermeier et al. (2009) we use futures position of non-commercial traders from the Commodity Futures Trading Commission
  - pure speculative position
- Does not cover the total open fx-position
  - but carry traders can eliminate excess return quickly

Data

- 3 countries with long enough carry trade data:
  - Australia
  - Canada
  - U.K.
- Variables other than carry trade from IFS:
  - GDP
  - CPI
  - money market rate
  - NEER
- Foreign country (with the same variables): U.S.
- Sample: 1992Q2-2007Q4

SVAR Identification

- Contemporaneous restrictions, similarly to several other studies at the MNB:

	GDP	CPI	interest rate	exchange rate	carry trade
demand	+	+	+		
supply	+	-			
monetary policy	o	o	+	-	+
risk premium	o	o	+	+	-

Why not Cholesky?

- Recursive identification typically assumes:
  - monetary policy shock affects both interest rate and exchange rate instantaneously
  - interest rate reacts to exchange rate (or risk premium) shock only with delay
- In the case of small open economies this may not be a good assumption (Cushman and Zha 1997, Bjørnland 2010):
  - exchange rate is an observable variable influencing inflation and output
  - exchange rate smoothing

Specification

- Panel VAR
  - 4 lags
  - country-specific constants

- Variables in log levels
  - except interest rate ($\log(1+r)$)
  - and carry trade ((Long – Short) / Open Interest)

- Exogenous (U.S.) variables
  - contemporaneous and 1 lag

Estimation

- Bayesian estimation
  - sign restriction is easy to implement in a Bayesian framework
  - like having a prior on impulse responses

- Normal-wishart prior, following Uhlig (2005)

- Random draws generated by the QR-algorithm
  - 2000 successful draws

RESULTS

What is the effect of a monetary policy shock?

Results: impulse responses

- Most of our impulse responses are intuitive
  - even the unrestricted ones
- There is no delayed overshooting after a monetary policy shock
  - only one period, due to time averaging
- Carry traders react to monetary policy within the same period
- No significant excess return after the shock
- Our results are in favour of Dornbush's model, UIP holds conditionally
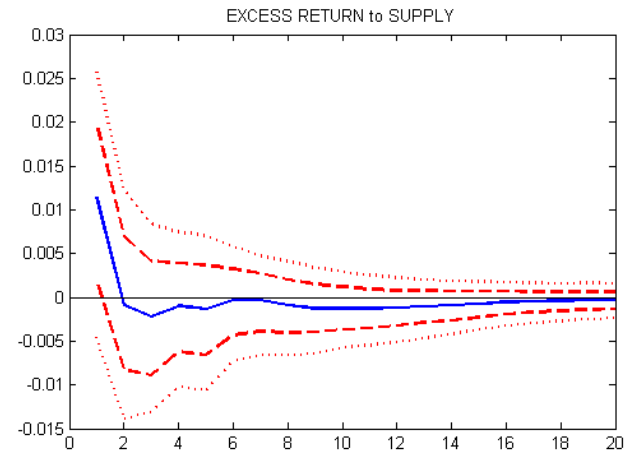
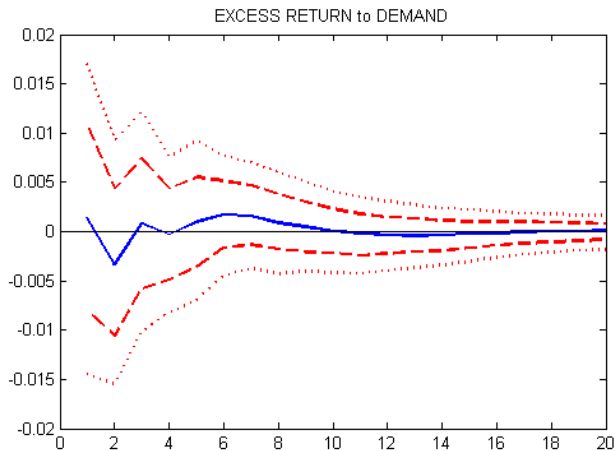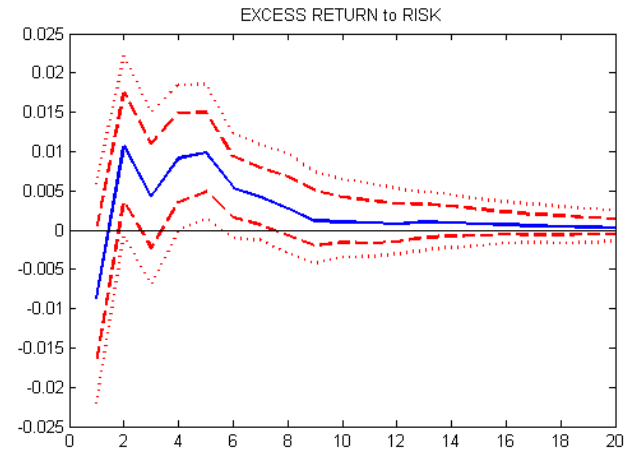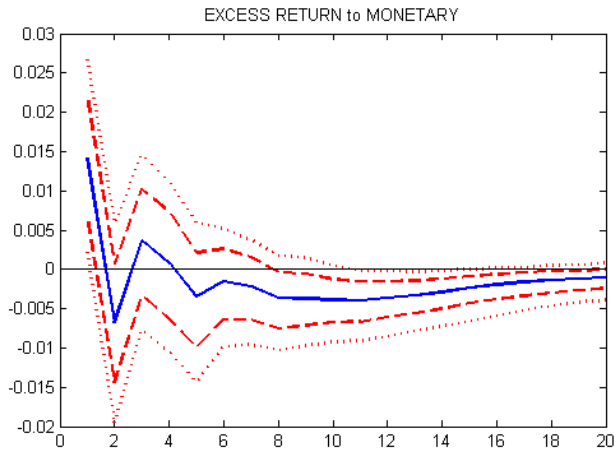# Results: monetary policy and risk premium shocks
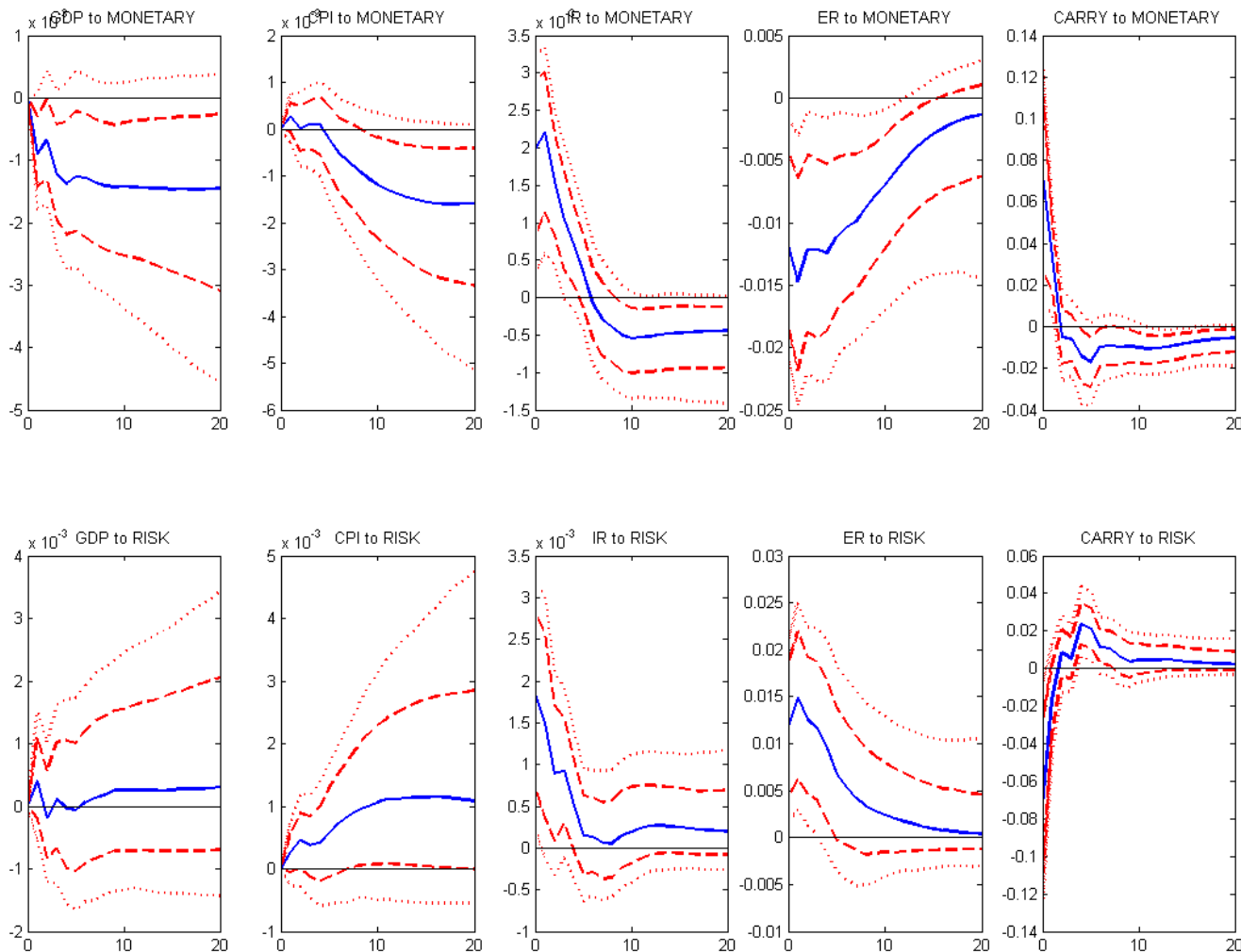
Results: location of the peak of the response
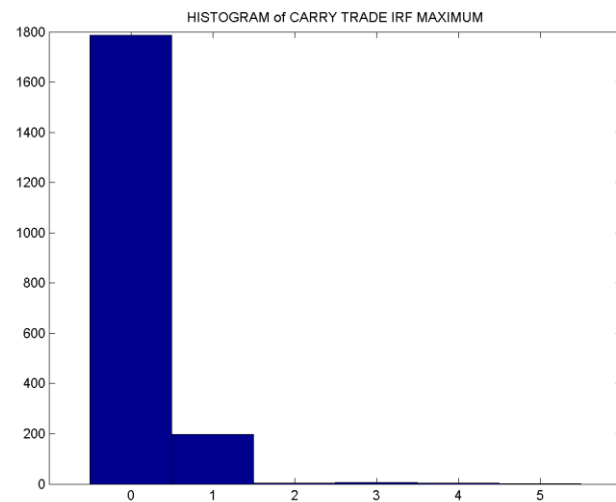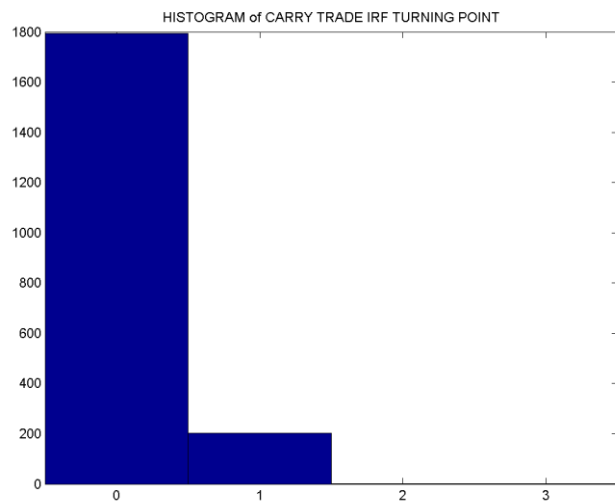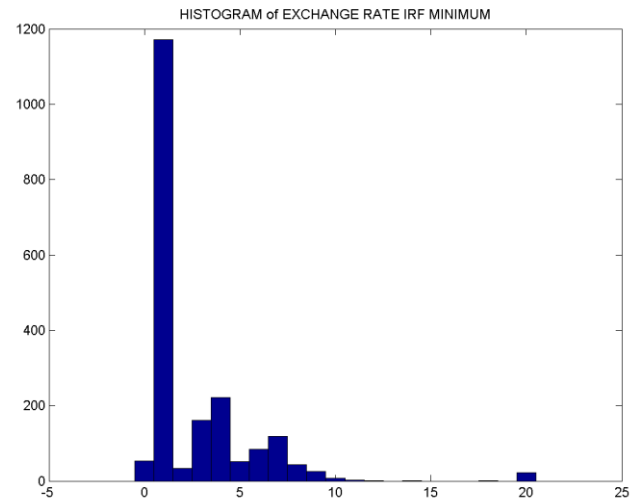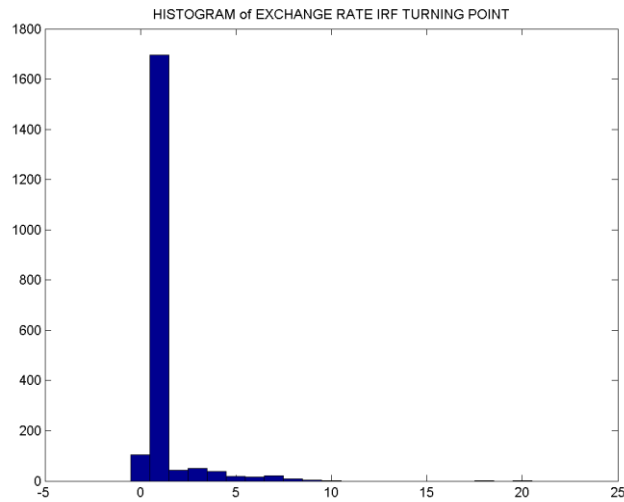
Results: excess return

# RESULTS

What drives carry trade?

Results: drivers of carry trade

- Domestic monetary policy and risk premium shocks explains almost half of carry trade activity

- Foreign (U.S.) shocks seem to be less important
  - contrary to anecdotal evidence

Identification of foreign (U.S.) shocks

- For full variance decomposition we need to identify U.S. shocks as well
- We estimate a SVAR separately for U.S. variables
  - 4 variables, the same that used in panel VAR
  - 4 lags
  - Sample: 1992Q2-2007Q4
  - Sign and zero restrictions like in the panel case, except for we do not have carry trade
- We exploit the IRFs of the estimated U.S. SVAR to calculate the impulse responses of panel variables to U.S. shocks

Variance decomposition of carry trade
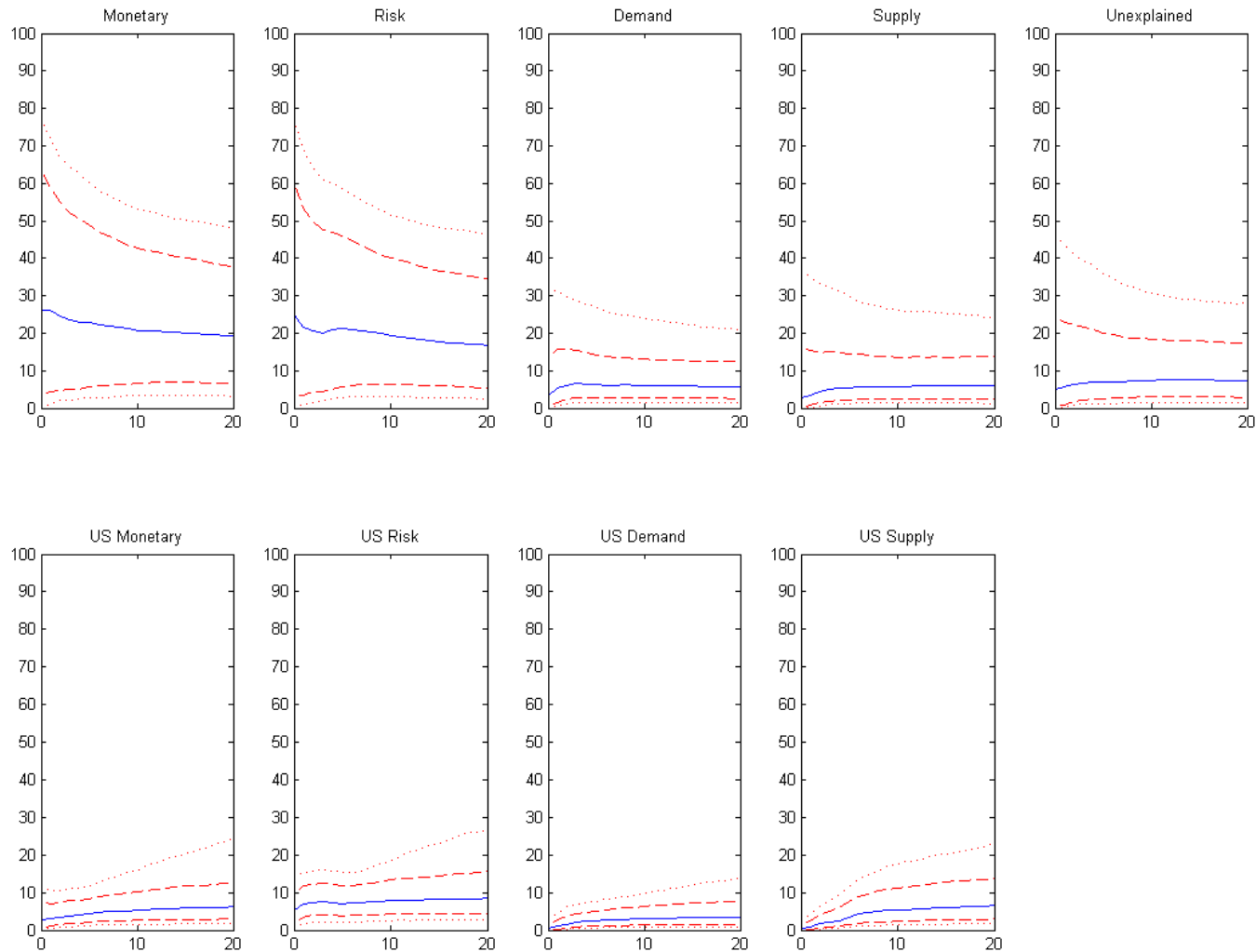
Is carry trade destabilizing?

- Monetary policy shocks explain 20-25 percent of carry trade variance

- Its role in the exchange rate channel seems to be beneficial

  - speculative position taking eliminates excess return quickly

  - exchange rate reacts promptly to monetary policy

  - no sign of speculative bubble, self-reinforcing inflow

# Is carry trade destabilizing?

- The high share of risk premium shocks in carry trade and exchange rate variance may raise concerns.
  - These shocks can be
    - either idiosyncratic shocks to risk appetite
    - or shocks to risk outlook (future fundamentals)
- In the first case speculative position-taking is a source of shocks
- In the second case the role of carry trade can be either beneficial or harmful
  - depending on whether they react efficiently to the change of perceived risks
- Unfortunately our framework does not allow for further decomposition of risk premium shocks

Conclusions

- Under our robust identification strategy exchange rate and carry trade reacts to monetary policy as implied by UIP.

- After a monetary policy shock
  - exchange rate jumps,
  - excess return disappears quickly,
  - carry trade takes place immediately.

- In the transmission of monetary policy carry trade plays a beneficial role.

- Significant share of speculative position-taking may be unrelated to fundamentals, incurring welfare losses.
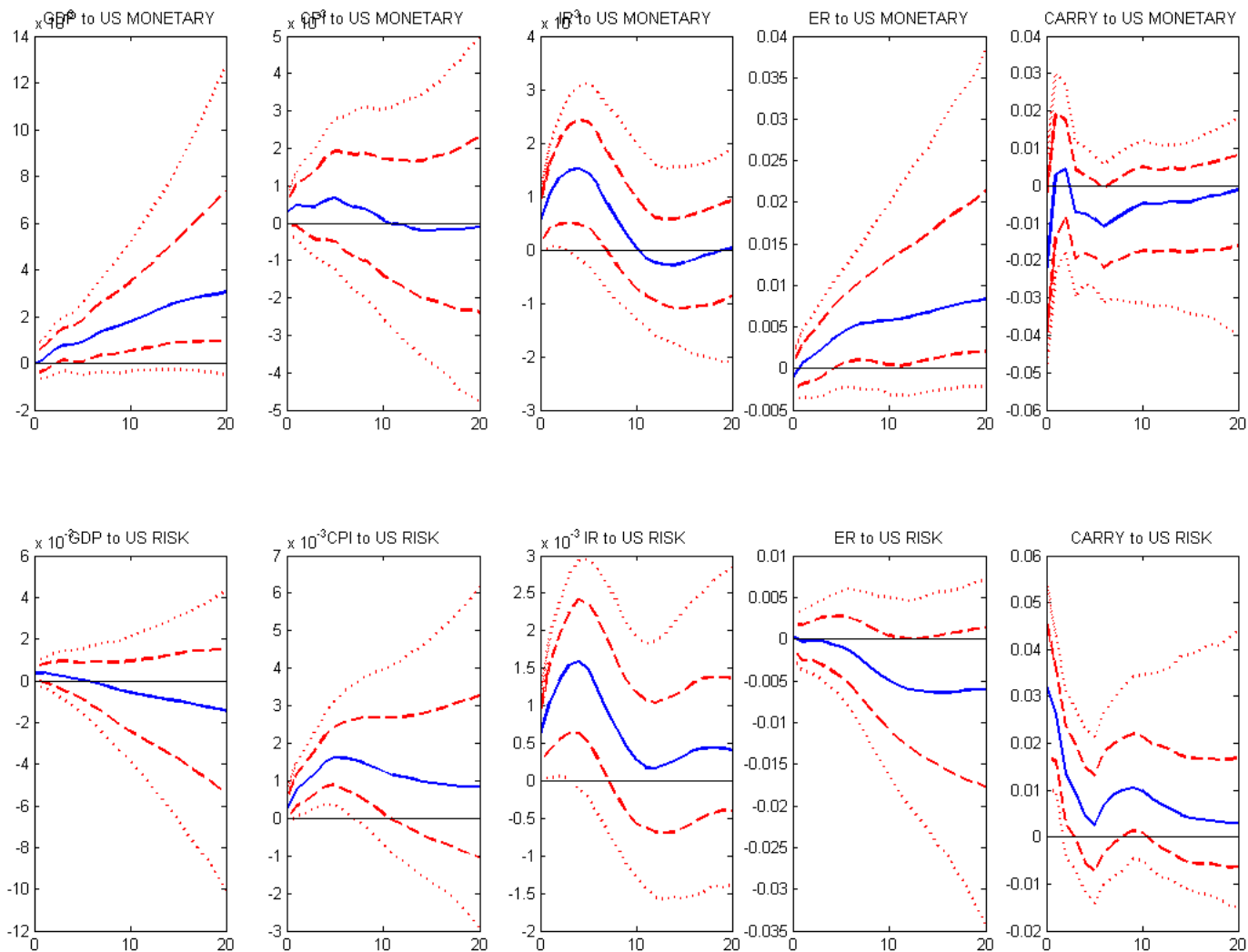
Q&A session
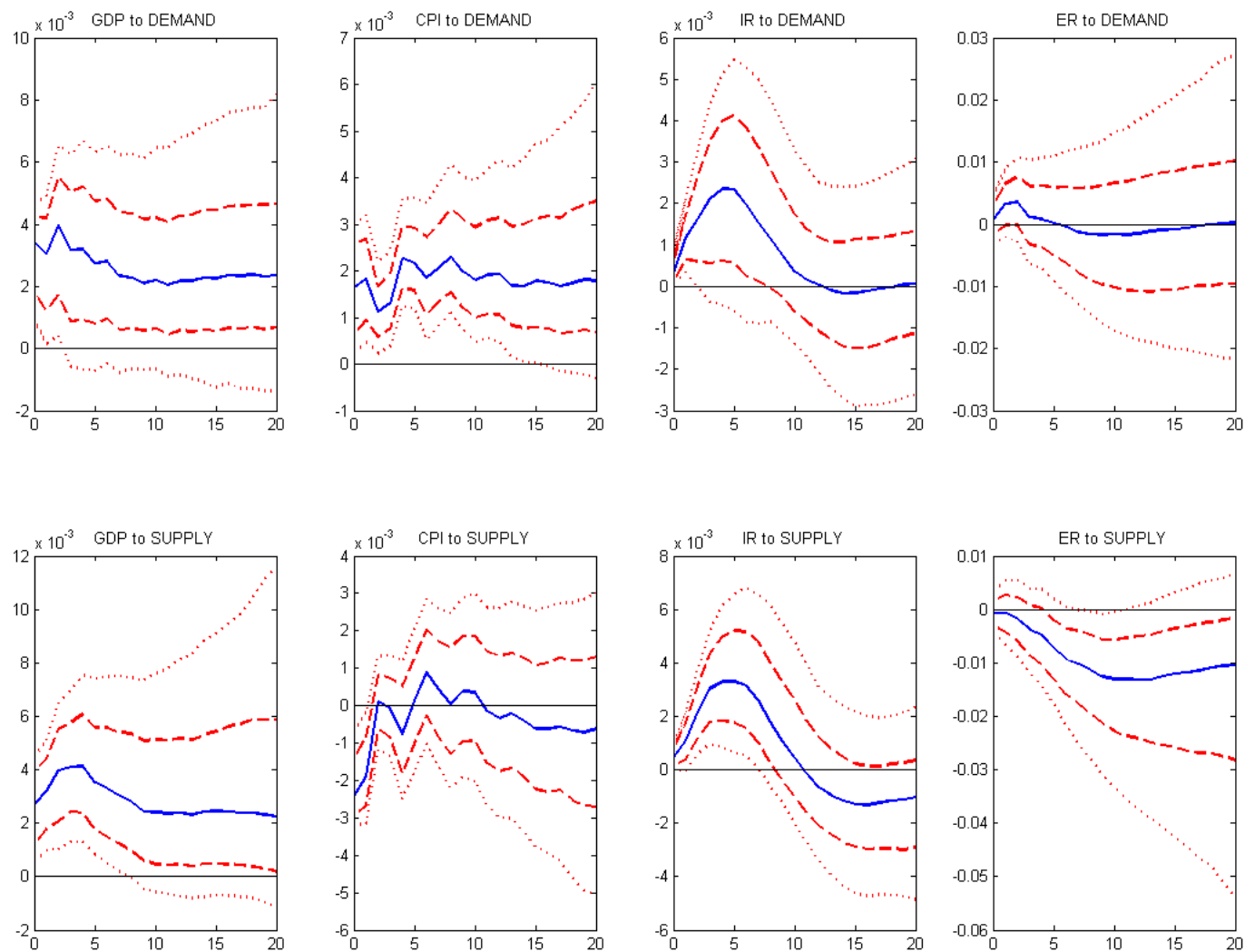
Demand and supply shocks
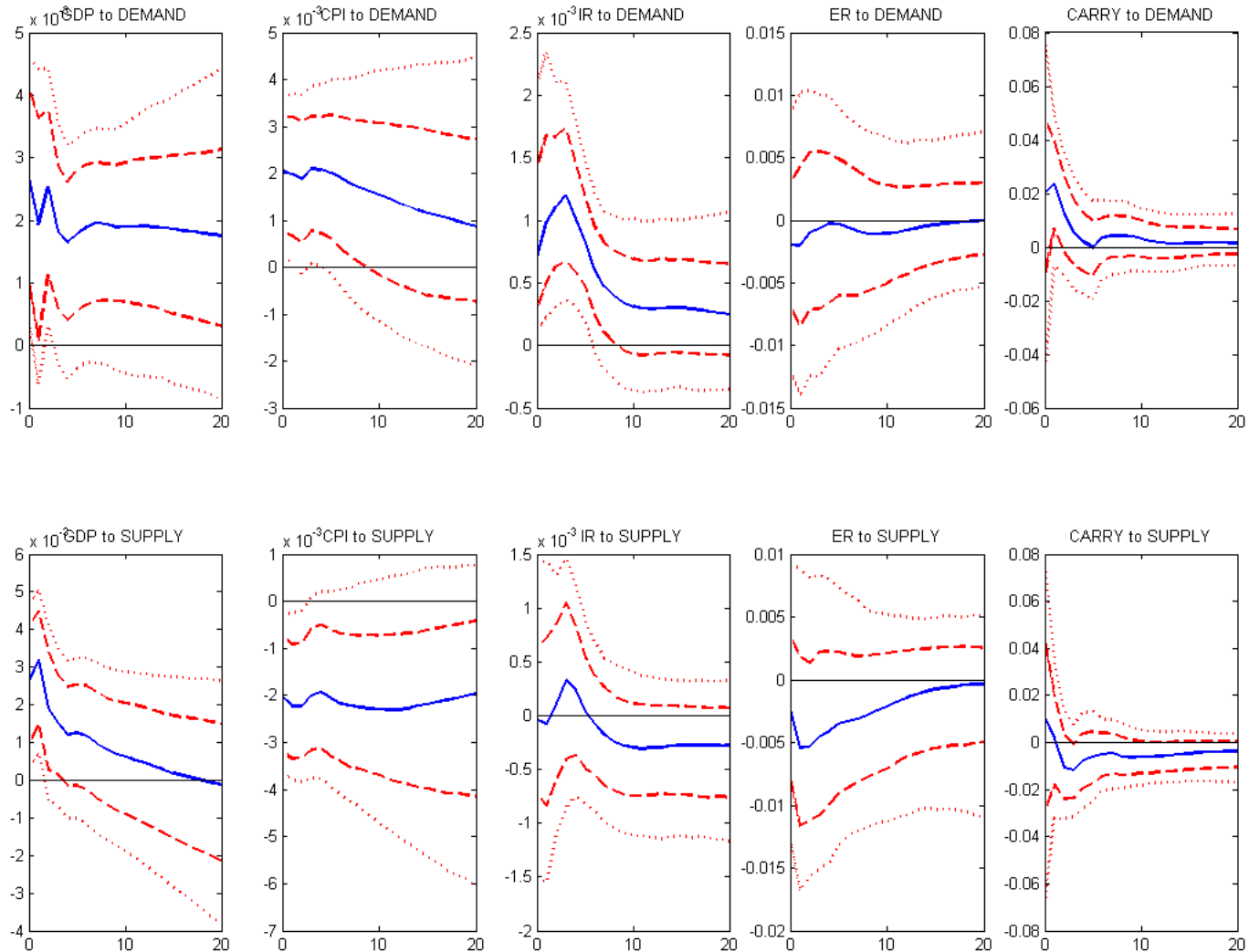
U.S. demand and supply shocks
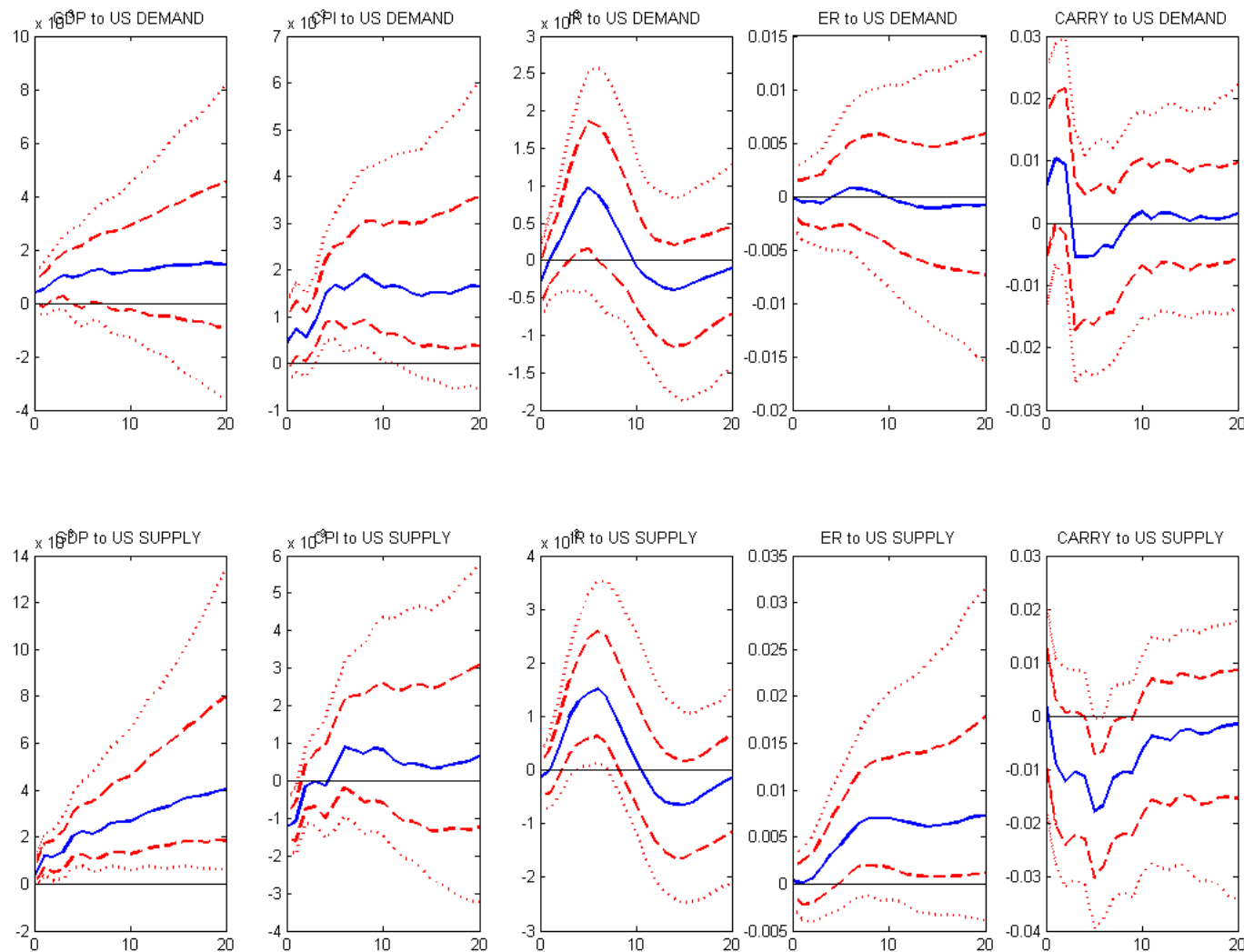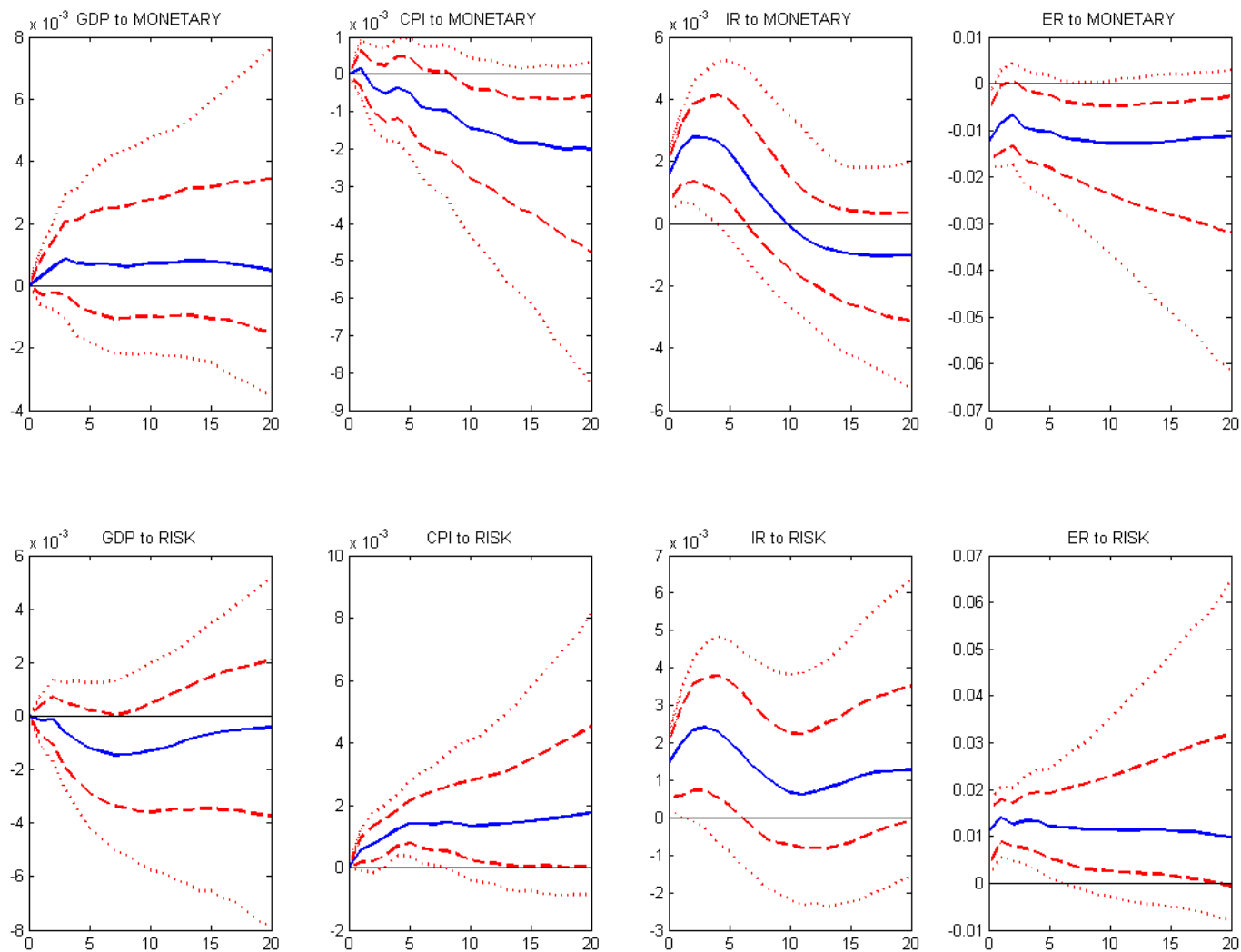
U.S. monetary and risk shocks

US variables to US shocks 1.

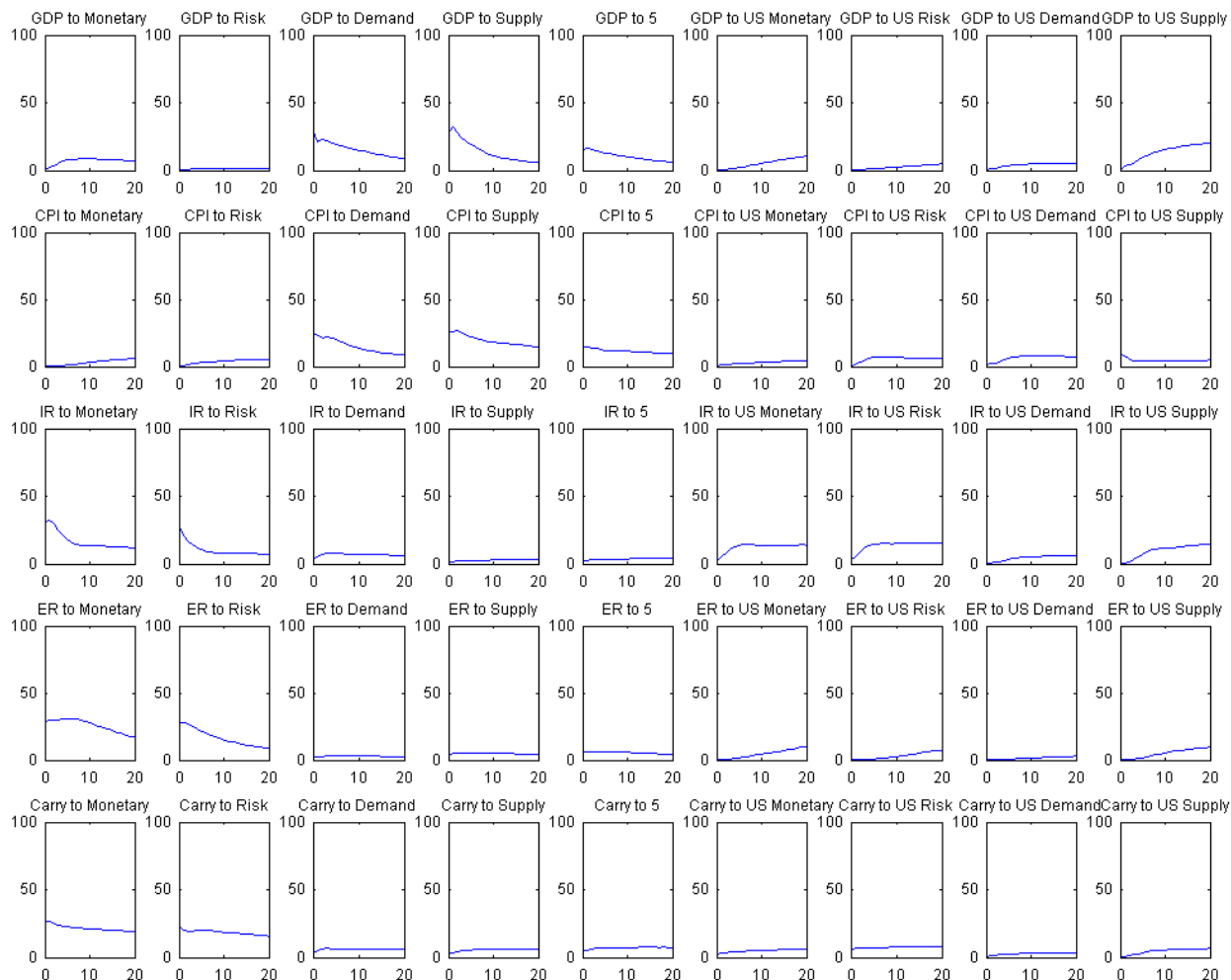Felcser-Vonnák: Carry trade, UIP and
monetary policy

US variables to US shocks 2.

Felcser-Vonnák: Carry trade, UIP and
monetary policy

Variance decomposition of domestic variables