



FEDERAL RESERVE BANK  
OF SAN FRANCISCO

# International Spillover of U.S. Monetary Policy

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## **Remarks prepared for Panel Presentation**

Conference on “Spillovers of Unconventional Monetary Policy”

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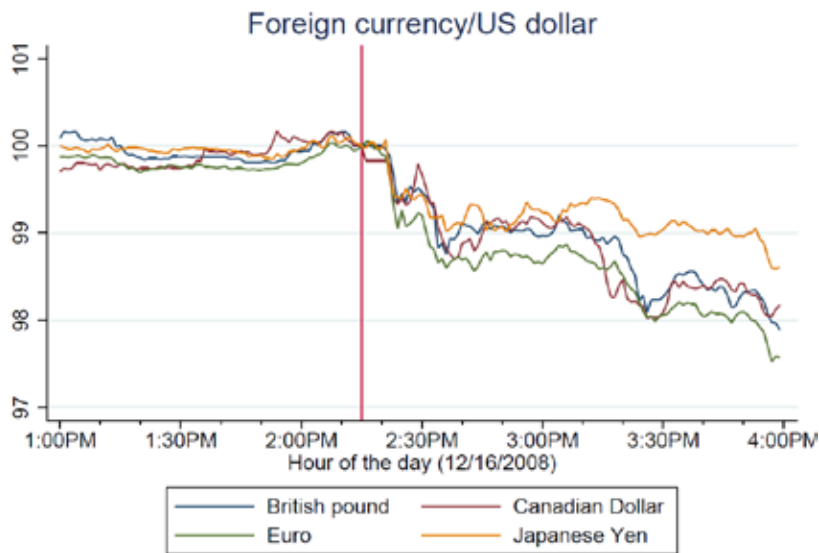
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# Channels of International Transmission of U.S. Monetary Policy

- Interest rate channel
  - Effect of changes in U.S. current and expected short-term policy rate on foreign interest rates
- Risk-taking channel
  - Effect of Fed asset purchases on risk premia and longer-term rates through global portfolio substitution
    - E.g. Chen, Filardo, He, and Zhu (IMF, 2015)
    - Gilchrist, Yue, Zakrajsek (Jackson Hole, 2015)
- International credit channel (e.g. Rey, 2013; Shin et al 2014)
  - Effect on international bank lending and portfolio flows through use of \$ as funding and investing currency.
- **Exchange rate adjustment**
  - **Depends on exchange rate policy and flexibility**

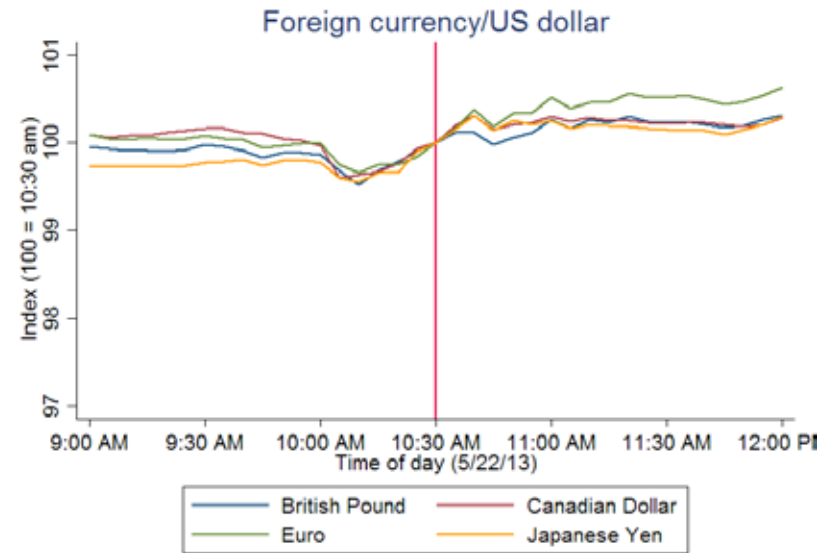
# U.S. monetary policy has spillover effects through the exchange rate

LSAP1 day,  
12/16/2008



US \$ **depreciated** after  
US monetary easing  
“surprise”

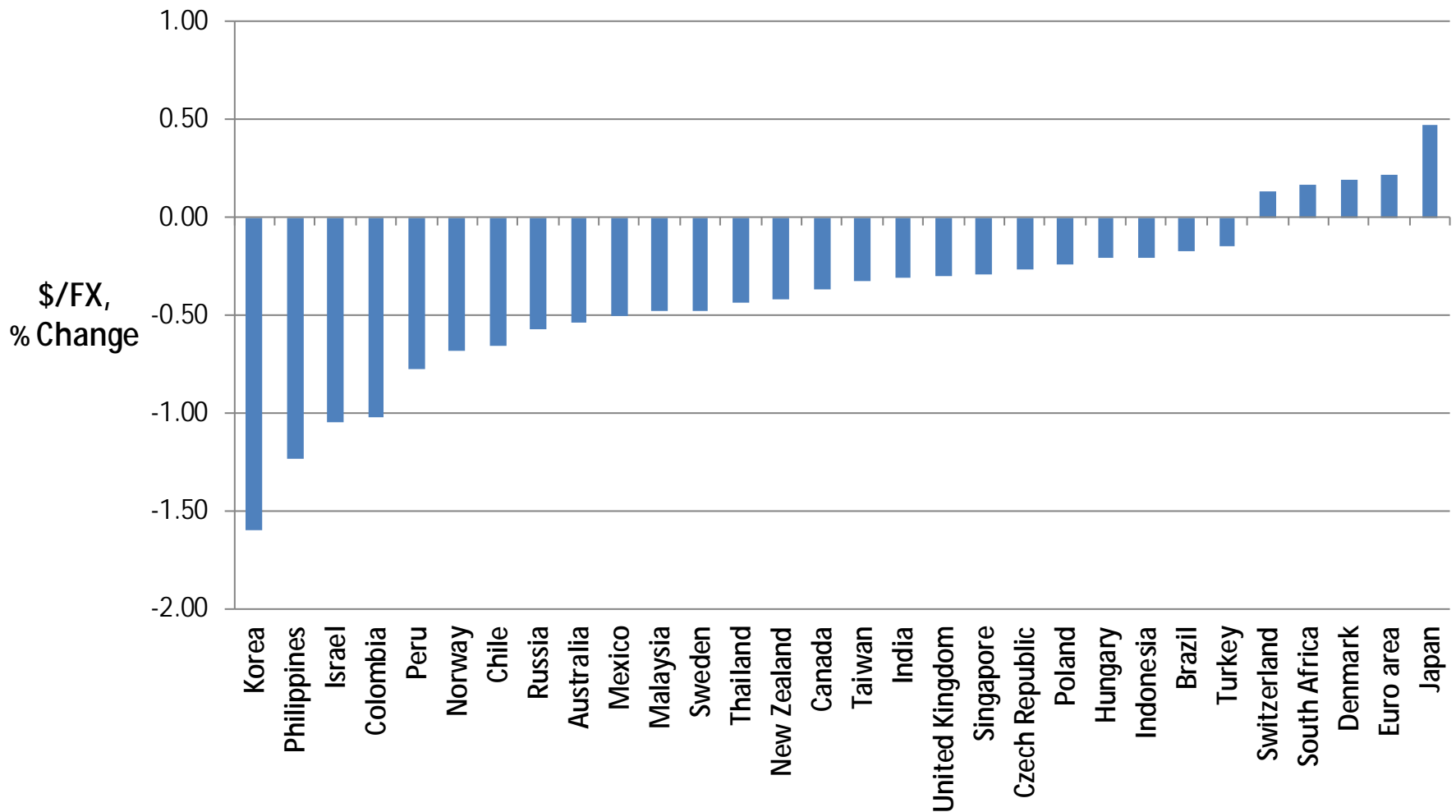
Taper Tantrum Day  
5/22/2013



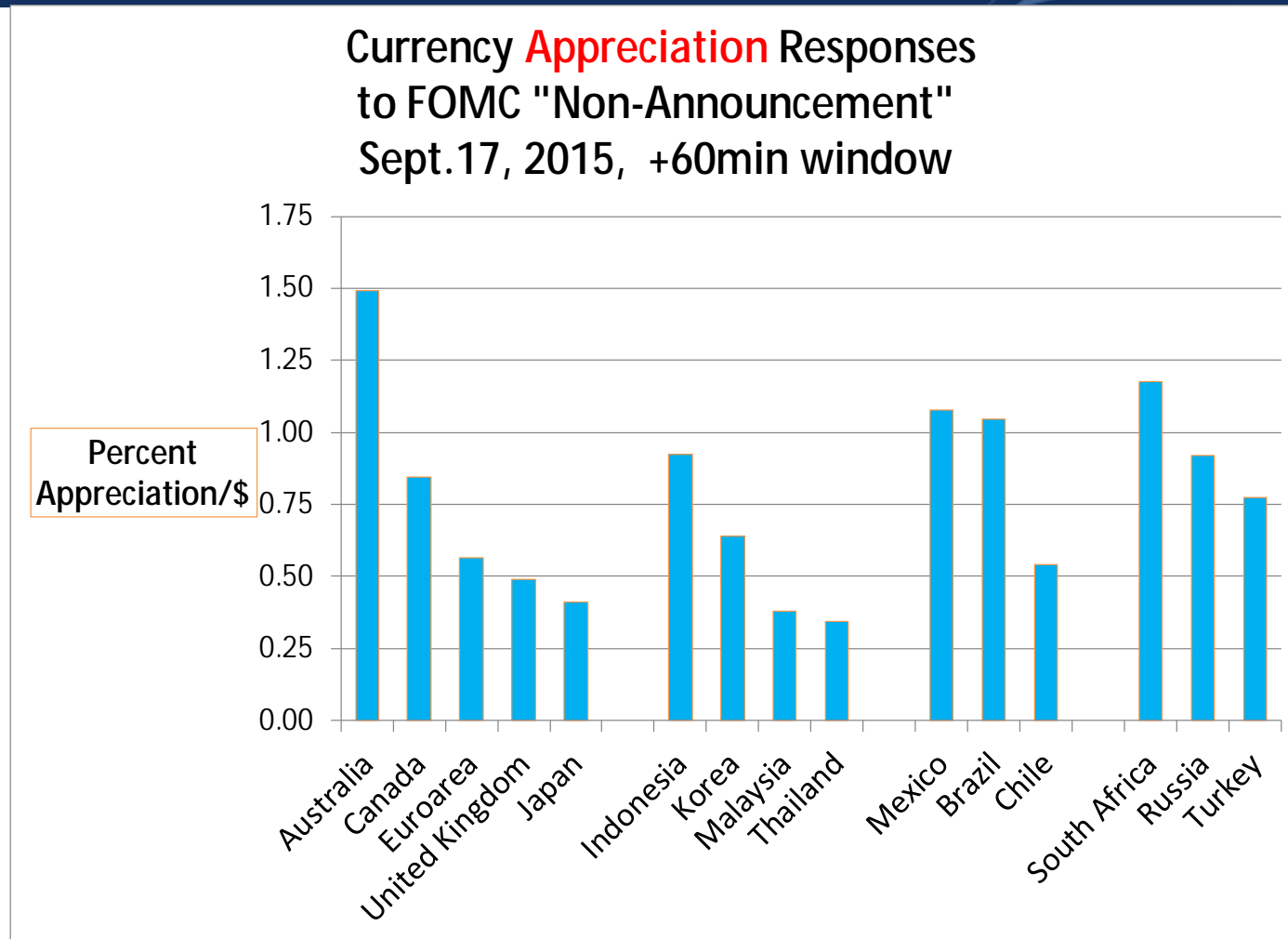
US \$ **appreciated**  
after US monetary  
tightening “surprises”

# EME currencies also depreciated during the taper tantrum

**\$/FX Depreciation** to Taper Tantrum,  
May 22, 2013, 2 day window



# Foreign currencies respond strongly to Fed **in**actions as well



Foreign currencies appreciated after US monetary easing “surprise” when Fed decided not to begin liftoff

# Outline

- Discuss recent research with Sylvan Leduc on effects of US monetary policy on the dollar
- Talk about implications for other countries

# Glick and Leduc (2015): What We Do

1. Examine the effects of U.S. monetary policy “surprises” shocks on U.S. dollar
2. Compare effects following announcements during
  - “conventional,” pre-crisis, policy period when federal funds rate above lower bound, and
  - “unconventional” policy period when federal funds rate at lower bound
3. Use intraday data to better isolate effects of announcements on exchange rates

# Glick and Leduc (2015): What We Find

1. Both conventional and unconventional period surprises about level and path of monetary policy have significant effects on the dollar exchange rate
2. Effects during unconventional period announcements are *much larger* than those of during conventional period



# Empirical Analysis Details

- Use data from January 1994 through December 2014 on days of FOMC announcements and other selected days
  - “Conventional period”: April 1994-Oct. 2008
  - “Unconventional period: Nov. 2008-Dec. 2014
- Use intraday data (+20m) on changes in short- and long-term interest rate futures to measure monetary target and policy path surprises
- Look at intraday (+20m,+60m, +1 day) responses of US\$ rate against pound, Canadian \$, euro, yen to better isolate the reaction to monetary announcements

# Empirical Specification

- Use a simple pooled regression framework:

$$DS_{FX/\$,t} = a_1 TS_t + b_1 PS_t^{ST} + g_1 PS_t^{LT} + D^{Unconv} (b_2 PS_t^{ST} + g_2 PS_t^{LT}) + e_t$$

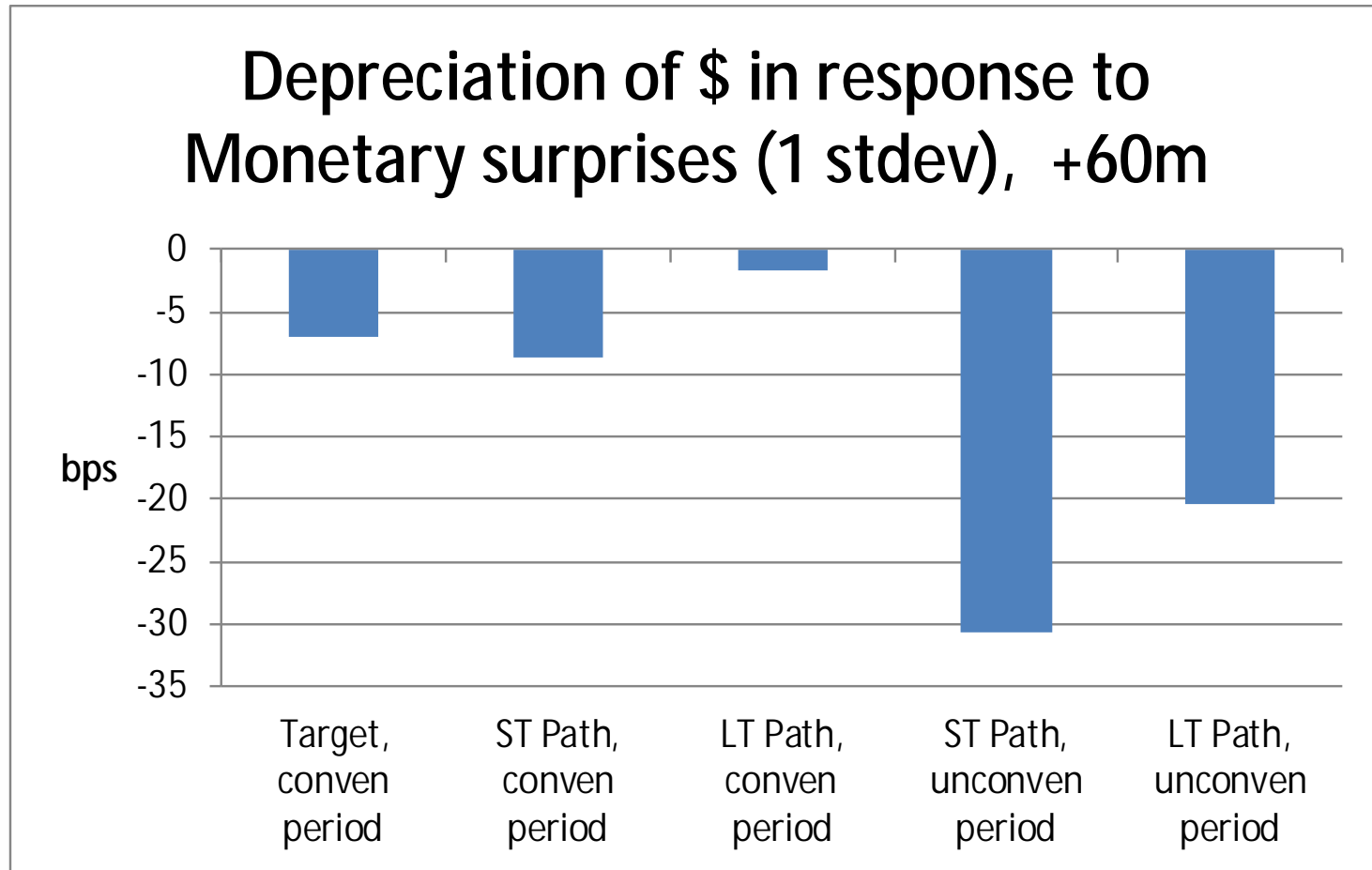
$TS_t$  = Fed funds target surprise, i.e. D in Fed Funds futures  
(e.g. Kuttner, 2002)

$PS_t^{ST}$  = short-term policy path surprise, i.e. D in 1-year Euro\$ rate  
(e.g. Gurkaynak, Sack, Swanson, 2005)

$PS_t^{LT}$  = long-term policy path surprise, i.e. PC of Ds in 2, 5, 10, 30 yr TBs  
(e.g. Wright, 2012)

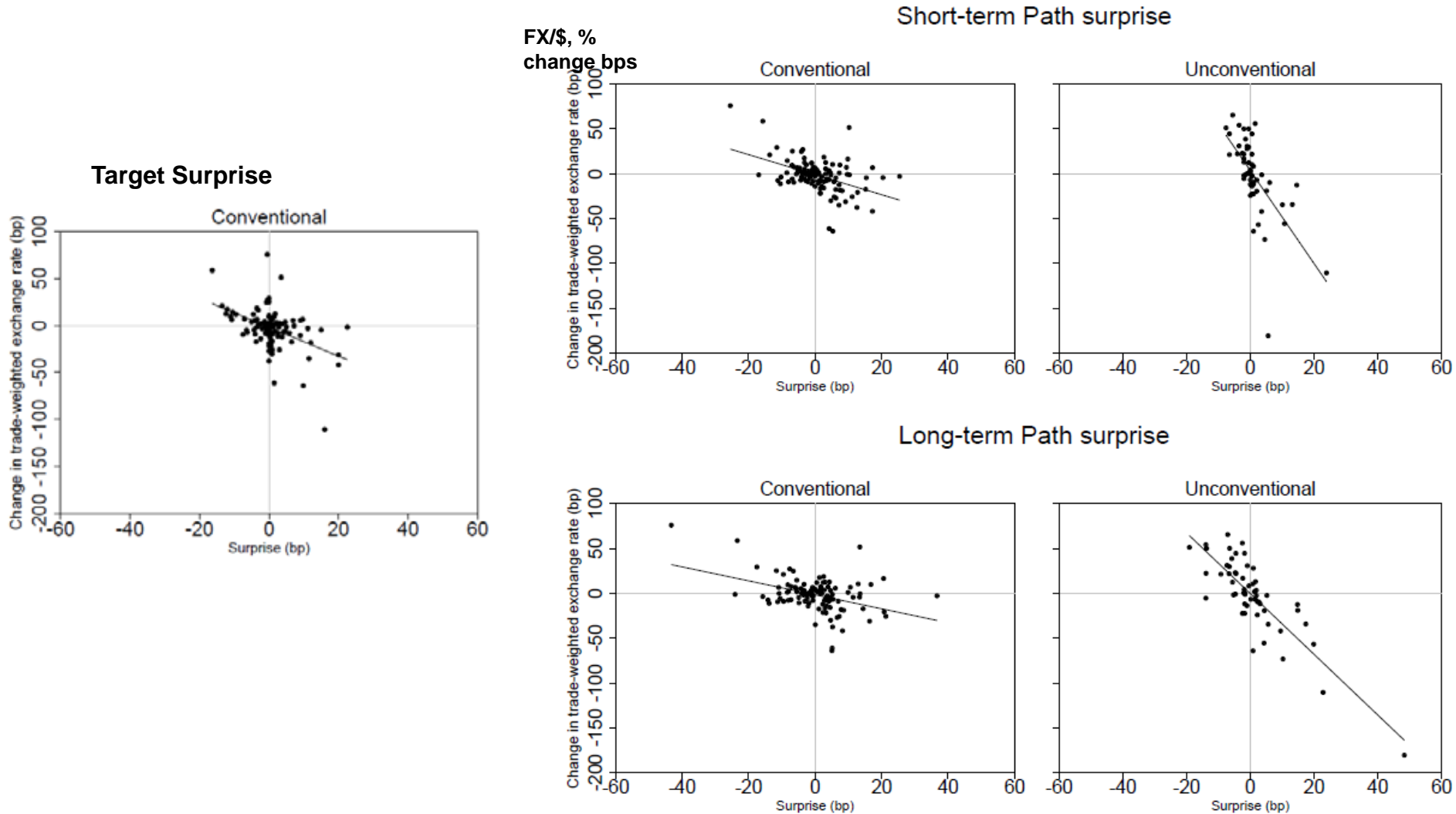
- Estimate regression on 180 announcement days:
  - § Between April 1994 to December 2014
  - § Break dummy in November 2008

# Dollar response to policy surprises larger during unconventional period



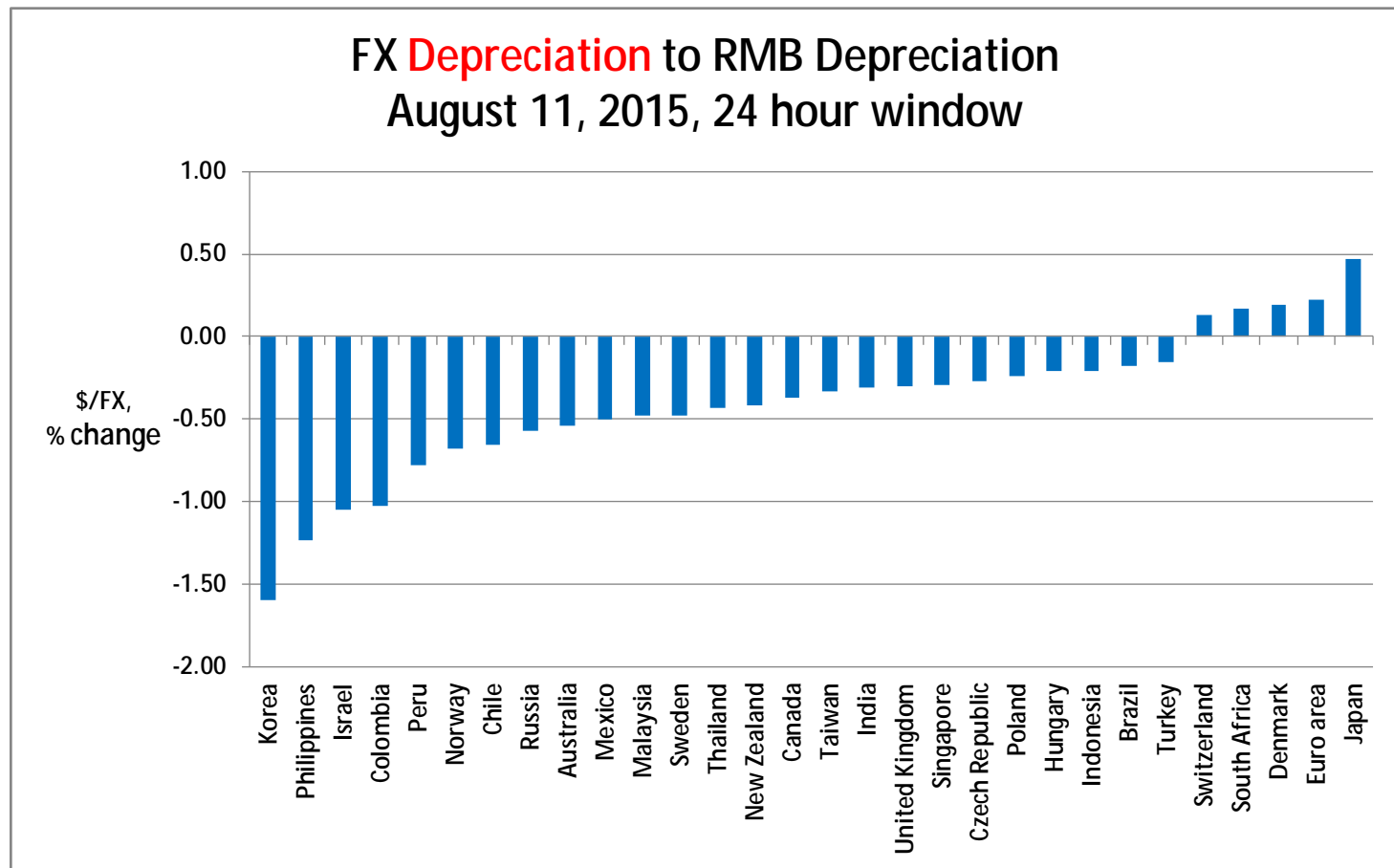
Note: Changes in FX/\$ from pooled regressions for period Jan. 1994-Dec. 2014, with break between periods in Nov. 2008; +60 minute response window after announcements.

# Dollar response to policy surprises larger during unconventional period



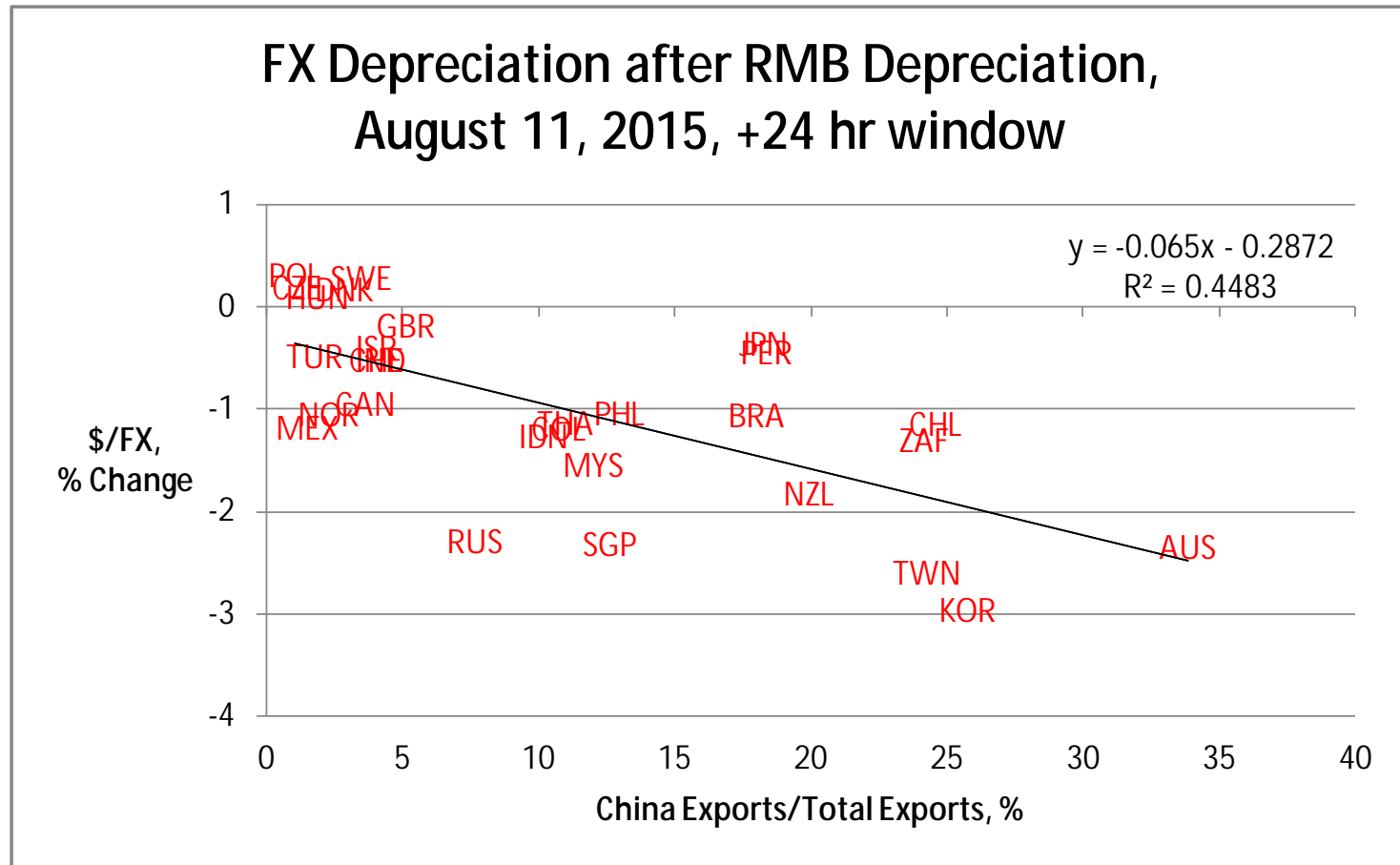
Dollar depreciates in response to monetary easing (+) surprises<sup>2</sup>

# US is not only country with spillover effects on global economy



EME currencies depreciated in response to Rmb depreciation  
Aug. 11, 2015

# Extent of depreciation related to trade linkages with China



Greater share of trade with China  $\Rightarrow$  greater depreciation

# Implications for other countries of higher US rates and appreciating dollar?

1. Price effect of more expensive imports raises domestic inflation
2. Capital outflow effect
3. Balance sheet effect raises foreign currency cost of dollar-denominated debt
4. Relative price effect makes foreign countries' exports more competitive, depending on actions of competitors

Should not forget that tighter US monetary policy is endogenous to positive US growth prospects

5. Income effect of greater US demand on foreign country exports raises foreign output

Net Effect? Is  $4+5 > 1+2+3$ ?

# What Does Empirical Literature Say?

- Net spillover effects are positive or neutral
  - e.g. Powell, Board of Governors, 2014; Arteta, Kose et al, World Bank, 2015
- Net spillover effects are negative, depending on country
  - e.g. Rajan, 2013; Taylor, 2014
- Risks?
  - Balance sheet exposure high because of corporate debt of nonfinancial firms in EMEs (IMF, WEO, Ch. 3, 2015)
  - Risk premia risk sharply



# Lessons for Policymakers as US Normalizes its Monetary Policy