Global Dimensions of U.S. Monetary Policy

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Goal of the paper

• To explore the literature on main mechanisms through which global factors affect the Fed’s policy tradeoffs

• I focus on three channels:
  o Global influences on the domestic inflation process.
  o Global financial markets and asset returns (including $r*$)
  o Spillbacks from the impact of U.S. monetary policy abroad

• Tentative conclusions on:
  o The price Phillips curve and wages
  o The natural rate $r^*$, the U.S. current account, and the global determination of overall financial conditions
  o U.S. monetary policy's uniquely influential global role
1. U.S. openness: Quantity indicators
U.S. size depends on how you measure it

**US and EMDE Shares of World GDP**

- **Market Exchange Rates**
- **International Dollars**
Trade openness has grown, remains moderate

U.S. Exports and Imports (GDP shares, percent)

Import Content of Exports (percent of value)

Source: OECD
But financial openness has surged
2. Global aspects of the inflation process
Role of global competition

- In many advanced economies: Flatter Phillips curves
- Consistent with slow pickup in inflation during recovery
- Can greater international competition explain a weaker reaction of (CPI) inflation to domestic slack?
- Dornbusch and Fischer (1984):

  *Theory suggests and empirical evidence supports the notion that under flexible exchange rates, the Phillips curve is much steeper.*

- But they were talking about something else: the response of inflation to a monetary shock, taking account of the exchange rate’s impact on import prices – not the partial effect of slack
- (Problematic to identify this parameter econometrically – e.g., depends on the policy reaction function)
Price competition

• Some evidence that globalization has lowered markup *levels* (e.g., Feenstra and Weinstein 2017)
• But: that is not the same as a weaker price response to slack
• Models with *strategic complementarity in price-setting* can illuminate (e.g., Sbordone 2009, Erceg et al. 2009)
• If $P = \mu MC$, more globalization may well lower $\mu$
• The adjustment to lower $\mu$ may well display transitorily low $\pi$
• Not the same as saying that, given a new lower markup, $P$ will adjust more slowly to changes in $MC$ – it could adjust more *quickly* if frequency of price adjustment rises with globalization
• We cannot conclude that more globalization (by itself) implies a flatter Phillips curve
Wage Phillips curve

• Wage response to slack is a major way for slack to feed into real marginal cost, and thence into product price inflation

• Big structural changes in the world economy – e.g. entry of China and the ex-Soviet bloc, movement of manufacturing to emerging markets, technological change – have affected wages and labor’s bargaining power

• Once again: showing that globalization reduces either (real) wages or bargaining power implies a level effect, but does not show that the sensitivity of wage growth to slack has changed

• On the whole, the evidence for a flatter wage Phillips curve is weaker than for the price Phillips curve

• The Stock-Watson (2018) correlations suggest little change
Foreign prices

• Dollar import prices directly affect producer and consumer prices
• While dollar pricing will ultimately reflect U.S. conditions, U.S. import prices (at least 90%) tend to be set in USD, subject to pricing-to-market, and adjust slowly (Gopinath 2015)
• “Long and variable lags” for monetary policy to affect import-price inflation
• Role of imports in production (more intermediate imports) and consumption (more consumption imports) have risen over time for the United States
• So potentially this channel of globalization can complicate the transmission of monetary policy to the economy
A regression exercise

• Abstracting non-labor sources of domestic value added, one can write the following consumer inflation equation, based on the definitions of the CPI and marginal cost:

\[ \pi_C = \kappa_1 \hat{w} + \kappa_2 \hat{p}_{PM} + \kappa_3 \hat{p}_{CM} - \theta g + \theta \hat{\mu} \]

• Above:
  • “Hats” denote percent changes and \( \theta \) is the CPI share of home products
  • \( \hat{\mu} \) is a catch-all residual capturing competitive returns to non-labor factors as well as rents
  • \( g \) is labor productivity growth
  • \( \kappa_1 + \kappa_2 + \kappa_3 = 1 \)

• In an OLS regression, how do the partial correlates of CPI inflation change over time?
## Findings (1)

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<thead>
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<tbody>
<tr>
<td><strong>Wage growth</strong></td>
<td>64Q1-18Q4</td>
<td>64Q1-92Q1</td>
<td>64Q1-73Q1</td>
<td>73Q1-92Q1</td>
<td>92Q1-18Q4</td>
<td>92Q1-08Q1</td>
<td>08Q1-18Q4</td>
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<tr>
<td></td>
<td>0.856***</td>
<td>0.792***</td>
<td>0.444</td>
<td>0.940***</td>
<td>0.399***</td>
<td>0.118</td>
<td>0.245*</td>
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<td>(0.118)</td>
<td>(0.154)</td>
<td>(0.291)</td>
<td>(0.127)</td>
<td>(0.114)</td>
<td>(0.141)</td>
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<tr>
<td><strong>Import price growth</strong></td>
<td>0.128***</td>
<td>0.099***</td>
<td>0.111</td>
<td>0.080***</td>
<td>0.140***</td>
<td>0.109***</td>
<td>0.144***</td>
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<td>(0.021)</td>
<td>(0.030)</td>
<td>(0.139)</td>
<td>(0.028)</td>
<td>(0.012)</td>
<td>(0.012)</td>
<td>(0.007)</td>
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<tr>
<td><strong>Productivity growth</strong></td>
<td>-0.255***</td>
<td>-0.454***</td>
<td>-0.347***</td>
<td>-0.328**</td>
<td>-0.045</td>
<td>-0.088*</td>
<td>-0.199***</td>
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<tr>
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<td>(0.088)</td>
<td>(0.133)</td>
<td>(0.112)</td>
<td>(0.132)</td>
<td>(0.066)</td>
<td>(0.051)</td>
<td>(0.033)</td>
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<tr>
<td><strong>Constant</strong></td>
<td>0.001</td>
<td>0.004***</td>
<td>0.005</td>
<td>0.003**</td>
<td>0.003***</td>
<td>0.006***</td>
<td>0.003***</td>
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<td>(0.001)</td>
<td>(0.002)</td>
<td>(0.004)</td>
<td>(0.001)</td>
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<td><strong>Observations</strong></td>
<td>216</td>
<td>108</td>
<td>32</td>
<td>76</td>
<td>108</td>
<td>64</td>
<td>44</td>
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<tr>
<td><strong>R²</strong></td>
<td>0.822</td>
<td>0.766</td>
<td>0.536</td>
<td>0.856</td>
<td>0.766</td>
<td>0.610</td>
<td>0.923</td>
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### Findings (2)

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<td>92Q1-18Q4</td>
<td>92Q1-08Q1</td>
<td>08Q1-18Q4</td>
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<tr>
<td>Wage growth</td>
<td>0.419***</td>
<td>0.251**</td>
<td>0.231</td>
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<tr>
<td></td>
<td>(0.116)</td>
<td>(0.113)</td>
<td>(0.164)</td>
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<tr>
<td>Consumer import price growth</td>
<td>0.006 (0.033)</td>
<td>0.004 (0.040)</td>
<td>0.082** (0.034)</td>
</tr>
<tr>
<td>Producer import price growth</td>
<td>0.051*** (0.008)</td>
<td>0.046*** (0.014)</td>
<td>0.065*** (0.008)</td>
</tr>
<tr>
<td>Productivity growth</td>
<td>-0.111**</td>
<td>-0.139***</td>
<td>-0.226***</td>
</tr>
<tr>
<td></td>
<td>(0.049)</td>
<td>(0.035)</td>
<td>(0.041)</td>
</tr>
<tr>
<td>Constant</td>
<td>0.003***</td>
<td>0.005***</td>
<td>0.004***</td>
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<td>104</td>
<td>60</td>
<td>44</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.805</td>
<td>0.698</td>
<td>0.902</td>
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</table>
Comments and questions

• Results are robust to wage measure
• Import-price growth has relatively constant effect; seems more important for producer goods
• Regressions indicate role of wages (and possibly also labor productivity) declining over time
• Consistent with earlier work on falling roles of wages, u.l.c.
• This may have longer-run structural drivers – e.g., technological and global developments driving fall in labor’s GDP share
• A smaller labor share could indeed flatten the price Phillips curve, to the extent wages are more domestic slack-sensitive than other cost components – could owe to globalization
• Role of global slack? Inflation low globally now despite recovery
3. International financial linkages
Coherence of long-term real interest rates

Selected Real Long-Term Interest Rates

USA
DEU
JPN
GBR
Determining $r^*$ has to be explicitly global

- This is the basic model of Metzler (1968) and Bernanke (2005)
Role of the real exchange rate, $q$

- That model assumes a single good-world wide; no goods-market frictions
- Assume a fall in aggregate demand leads to real depreciation (rise in $q$)
- But then, $q$ is expected to revert over time (that is, $E\Delta q < 0$)
- We can modify the picture using the interest parity relation:
  \[ r_H^* = r_F^* + E\Delta q \]
- The bottom line is that real exchange rate changes likely dampen, but do not eliminate, the effects of shocks on global imbalances and autarky natural rates
$r^*$ rises with the deficit if investment rises
Other financial forces are at work

- In a world of multiple risky assets, \( r^* \) may not be a sufficient statistic for setting the policy rate (no “divine separability”)
- The exchange rate may not provide much insulation from two-way capital flows, as actors alter gross positions
- Such flows may not set up any ex ante imbalance in the FX market, and not have much exchange rate impact
- Example: U.S. MMF flows to European banks, recycled back into the market for subprime loans; fueled U.S. housing investment (Bernanke et al. 2011)
- In general FCI and monetary policy can diverge – and more likely so in a financially open economy
- Example: U.S. dollar “liquidity premium”
Monetary policy versus overall FCIs

Source: BIS, *Quarterly Review*, December 2018, box A; and Federal Reserve historical data.
4. Implications of the dollar’s global role
The dollar’s global role is unique

• Several factors explain the U.S. dollar’s liquidity premium and confer on U.S. monetary policy a uniquely powerful role:
  o 66 percent of global FX reserves ($6.6 trillion) are dollars
  o 88 percent (out of 200) of FX turnover involves dollars
  o The dollar is the premier invoicing currency (Goldberg and Tille 2006, 2008; Gopinath 2015)
  o The dollar is the premier funding currency
• These roles are not independent – on the contrary, they reinforce each other (Gopinath and Stein 2018)
• For example, an international firm that invoices its exports in dollars will find it prudent and cheaper to borrow in dollars
Invoicing example: Euro area extra-EU trade

- EU's trade shares with the United States in 2017 were 20 percent of exports and only 13.8 percent of imports
- EU energy imports (mainly dollar invoiced) were 16% of 2018 imports
How does a U.S. hike affect world trade?

• Outside of major industrial countries, many countries face imports priced in dollars and invoice their exports in dollars.
• A dollar appreciation raises import prices
• But it does not make exports more competitive (though each unit sold is more profitable in domestic-currency terms)
• On the other hand, exports are less competitive against countries that price in non-dollars or domestic goods
• This part is contractionary
• Boz, Gopinath, and Plagborg-Møller (2017): empirically, a U.S. dollar appreciation leads within a year to a contraction in the volume of global trade between other countries, even conditional on the world business cycle
U.S. policy and the global financial cycle

- Research points to a global financial cycle in asset prices, bank leverage, and cross-border dollar lending related to the dollar's foreign exchange value and Fed policy (Rey 2013 and others)
- U.S. monetary policy and dollar exchange rate changes can work through both the supply and demand for offshore credit
- For borrowers with dollar liabilities, a dollar depreciation can enhance net worth, easing informational frictions that impede the flow of credit
- Changes in borrowers' financial strength also affects banks' willingness to lend through a risk-taking channel, perhaps driven by VaR considerations (e.g., Bruno and Shin 2015)
- A powerful multiplier amplifying U.S. monetary shocks globally, on top of any effects related to dollar invoicing
Dollar dominance in international banking

Cross-Border Dollar and Euro Bank Positions
(USD trillions, all BIS reporting banks)

Source: BIS Locational Banking Statistics
Financial stability implications

• U.S. monetary accommodation can also have financial stability implications, especially for EMDEs
• The macro-prudential tools countries deploy increasingly to handle such effects are imperfect
• Dollar funding has an implication for Federal Reserve balance-sheet policy: only the Fed can act as a true global LOLR in dollars
• In a new global crisis, politically-motivated constraints on swaps, so useful during the global crisis, would be damaging
• Even pure self-interest mandates a concern for the global impact of U.S. monetary policy and of the dollar’s dominant role in world financial markets
5. Conclusion
Closing thoughts

• Global linkages complicate a world that is already complex
• Economic openness can affect the tradeoff between the “dual mandate” goals of price stability and high employment
• This is so even leaving aside the risk of financial instability – which has big potential price and output effects
• Macro-prudential instruments can be helpful
• An important agenda is to understand their interaction with interest-rate policy and to distance them from political forces
• The effectiveness of such tools can be enhanced through multilateral regulatory cooperation
Thank you