Is the US economy vulnerable to a volatility shock?

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DISCLOSURES AND ANALYST CERTIFICATIONS ARE LOCATED IN APPENDIX 1. MCI(P) 148/04/2014
Vulnerability of US Economy to Volatility Shock

• Possible near-term shocks: Fed liftoff and Grexit most likely.
• How financial conditions and the economy have reacted to previous crises/tantrums.
• Could reduced market liquidity exacerbate a tantrum/crisis?
• Why economy may be relatively resilient to vol shocks in the near term.

Source: DB Global Markets Research
What could spark a crisis in the next year

Possible near-term volatility shocks:

- Fed liftoff: high probability, low-medium vol
- Euro crisis—Grexit: medium-low, probability, high vol
- China crash: low probability, high vol
- EM crisis: Brazil
- Geopolitical:
  - Middle East
  - Russia/Ukraine
  - N. Korea
- Unknown

Source: DB Global Markets Research
“The Committee anticipates that it will be appropriate to raise the target range for the federal funds rate when it has seen further improvement in the labor market and is reasonably confident that inflation will move back to its 2 percent objective over the medium term.”

-- FOMC Press Release March 18, 2015

Source: DB Global Markets Research
Employment growing robustly

Monthly change in total nonfarm employment

3 month MA 6 month MA 12 month MA

Monthly change in labor force (24 mo. Avg.)

Source: BLS, Deutsche Bank Research
Labor market tightening

Sources: FOMC, BLS, Haver Analytics, DB Global Markets Research
Wage inflation rises as unemployment nears NAIRU

Unemployment rate (ls)
- - NAIRU (ls)
ECI compensation of civilian workers (rs)

Sources: BLS, CBO, Haver Analytics, DB Global Markets Research
Core consumer price inflation turning up already?

Sources: BEA, BLS, Haver Analytics, DB Global Markets Research
Fed-Market expectations gap: exit tantrum risk

Fed funds rate

Fed-Market gap

Historical average based on Taylor Rule

FOMC median

Dec

Mar

Market Expectations
(FF futures April 22)

Sources: Bloomberg Finance LP, FOMC, Haver Analytics, Deutsche Bank Research
Prospects for another euro crisis

• **Grexit: Neither Greece nor the EA/Troika wants it**
  o Greece: Funding cut off, huge drop in currency and standard of living
  o EA: Sets precedent that turns common currency into fixed exchange rate regime; redenomination risk spreads widen; geopolitical risks rise

• **Greece/Syriza wants a new deal**
  o Radical new government with mandate to end austerity, reject “failed” Troika policies, gain more autonomy

• **Rest of Europe sees things very differently.**
  o No sympathy for Greece/Syriza in core.
  o No sympathy in periphery either
  o Giving in to Greek demands sets dangerous precedent

*Source: DB Global Markets Research*
Greek bank deposits are being drained

Source: FT, Haver Analytics, DB Global Markets Research
Private funds are flowing out of the country

Greek private financial account, cumulative flows since Jan 2011, seasonally adjusted, EUR bn

Source: FT, Haver Analytics, DB Global Markets Research
Greek bond spreads widening

10 year government bond yield

- Greece
- Portugal
- Spain
- Germany

Source: FT, Haver Analytics, DB Global Markets Research
Other periphery premiums beginning to rise

10 year government bond yield

- Greece
- Portugal
- Spain
- Germany

Source: FT, Haver Analytics, DB Global Markets Research
The likely way(s) forward for Greece

• More market pressure needed to bring the two parties together
  o Greek government and parliament must commit to a program with reforms. Will most likely require either:
    — Restructuring of current government, and/or
    — Referendum, or
    — New elections.
  o This will take time and pressure from the markets

• Funding issues will come to a head by end-June if not sooner
  o Greek government default could be a vol shock

• ECB could cap emergency liquidity assistance (ELA) for Greek banks
  o Closing Greek banks and reopening with capital controls also a shock

• Grexit not a tail event

Source: DB Global Markets Research
How financial conditions and the economy have moved around previous crisis events
FCIs around previous liftoffs and euro crises

Sources: USMPF (2010), Bloomberg Finance LP, Deutsche Bank Research
FCIs around previous euro crises and taper tantrum

Index

DB FCI-high frequency  USMPF FCI  Bloomberg FCI

Sources: USMPF (2010), Bloomberg Finance LP, Deutsche Bank Research
Impact on employment growth mixed

Employment growth

Sources: BLS, Haver Analytics, Deutsche Bank Research
Could reduced market liquidity exacerbate a crisis?

“There already is far less liquidity in the general marketplace...Recent activity in the /Treasury markets and the currency markets is a warning shot across the bow.”

-- Jamie Dimon, April 2015

“Markets could be increasingly susceptible to episodes in which liquidity suddenly vanishes and volatility spikes”

-- IMF Global Financial Stability Report, April 2015

“…sharp intraday price moves (may) become more common”

-- Simon Potter, head of the Markets Group FRBNY, April 2015

Source: DB Global Markets Research
Factors reducing liquidity

Supply and demand shifts
• US budget deficit has dropped
• Fed and other “price insensitive” investors holding larger share of Treasuries

Regulatory changes:
• Heightened capital and liquidity requirements have encouraged balance sheet contraction

Structural changes in the market
• Increases in electronic and automated trading by firms that do not carry balance sheet with its shock absorbing capacity.

Source: DB Global Markets Research
Share of Treasury securities held on balance sheets of broker dealers has dropped.

Source: FRB, U.S. Treasury, Haver Analytics, DB Global Markets Research

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Primary dealer inventories of corporate bonds have dropped as bond market volume has risen.

![Graph showing the relationship between total stock of US corporate bonds outstanding and primary dealer inventory of corporate bonds over time.](image-url)

*Source: FRB, Haver Analytics, DB Global Markets Research*
Fixed income volatility back to tantrum levels

MOVE Index

1994 liftoff
2004 liftoff
Euro crises
Taper tantrum

Note: 1-month MOVE, monthly data

Sources: Haver Analytics, BoAML, Deutsche Bank Research

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Approaching Fed liftoff may be pushing vol up

Source: Bloomberg Finance LP, DB Global Markets Research
Why the US economy should be relatively resilient to vol shocks this year
It’s been an unusually long and slow recovery

Source: BEA, Haver Analytics, DB Global Markets Research
Ample time to strengthen balance sheets

Source: FRB, Haver Analytics, DB Global Markets Research
Spending on durables and structures still cyclically low

Ratio

(PCE durables + fixed investment)/nominal GDP

Average level at onset of recession

Source: BEA, Haver Analytics, DB Global Markets Research
Home building running well below norm

Index

Share of GDP

Residential Investment (rs)

Homebuilder sentiment (Is)

Historical norm (Resi.)

Sources: NAHB, BEA, Haver Analytics, DB Global Markets Research
Housing market tightening: vacancies well below trend

*Includes homes for sale, homes for rent, and homes held off the market for other reasons; excludes seasonal homes and second homes not used as primary residence.

Source: NAHB, BEA, Haver Analytics, DB Global Markets Research
Business capital stock growth still depressed

Source: BEA, Haver Analytics, Deutsche Bank Research
Capacity utilization near historical norm

Manufacturing capacity utilization

% of capacity

Historical norm

Source: FRB, Haver Analytics, Deutsche Bank Research
US fiscal drag gone for now

Change in Federal structural budget deficit % of GDP

Source: CBO, Haver Analytics, DB Global Markets Research
Conclusions

Of the many potential triggers for volatility shocks this year, two stand out as relatively likely—Fed liftoff (very likely) and a euro shock (moderately likely).

In the past, euro crises have had a larger negative effect on US financial conditions and real activity, not surprising since Fed liftoff is associated with a soundly recovering US economy.

Market liquidity conditions may have shifted in a direction that could exacerbate vol shocks ahead, though more convincing empirical evidence of this effect is needed.

The vulnerability of the US economy to a volatility shock is not high at this juncture because the current recovery is still relatively “young”—capital stock overhang has not yet developed, in fact, more investment is needed.

Source: DB Global Markets Research
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- **Peter Hooper** joined Deutsche Bank Securities in 1999 as Chief US Economist. He became Chief Economist and co-head of global economics in 2006. Prior to joining Deutsche Bank, Hooper enjoyed a distinguished 26-year career at the Federal Reserve Board in Washington, D.C. While rising to senior levels of the Fed staff, he held numerous positions, including as an economist on the FOMC. Hooper and his team produce weekly and quarterly publications for Deutsche Bank with a focus on US and global economic developments and Fed policy; he also comments on US and global economic and financial developments in the news media.

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