The Flight to Safety and Its Macroeconomic Consequences

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Overview

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2. Measurement.
3. Implications for exchange rates, asset prices, and output;
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- **Punchline**: while analysis is not normative, flight to safe dollar assets is costly, especially for U.S. Role for policy.

Conceptual framework

- $\{i_t, \iota_t, R^k_{t+1}, \frac{E_t}{E_{t+1}}(1 + i^*_t)\}$: return on "safe" dollar bond, other dollar bond, capital, and foreign bond, respectively.
- M_{t+1}: nominal SDF of U.S. investor.
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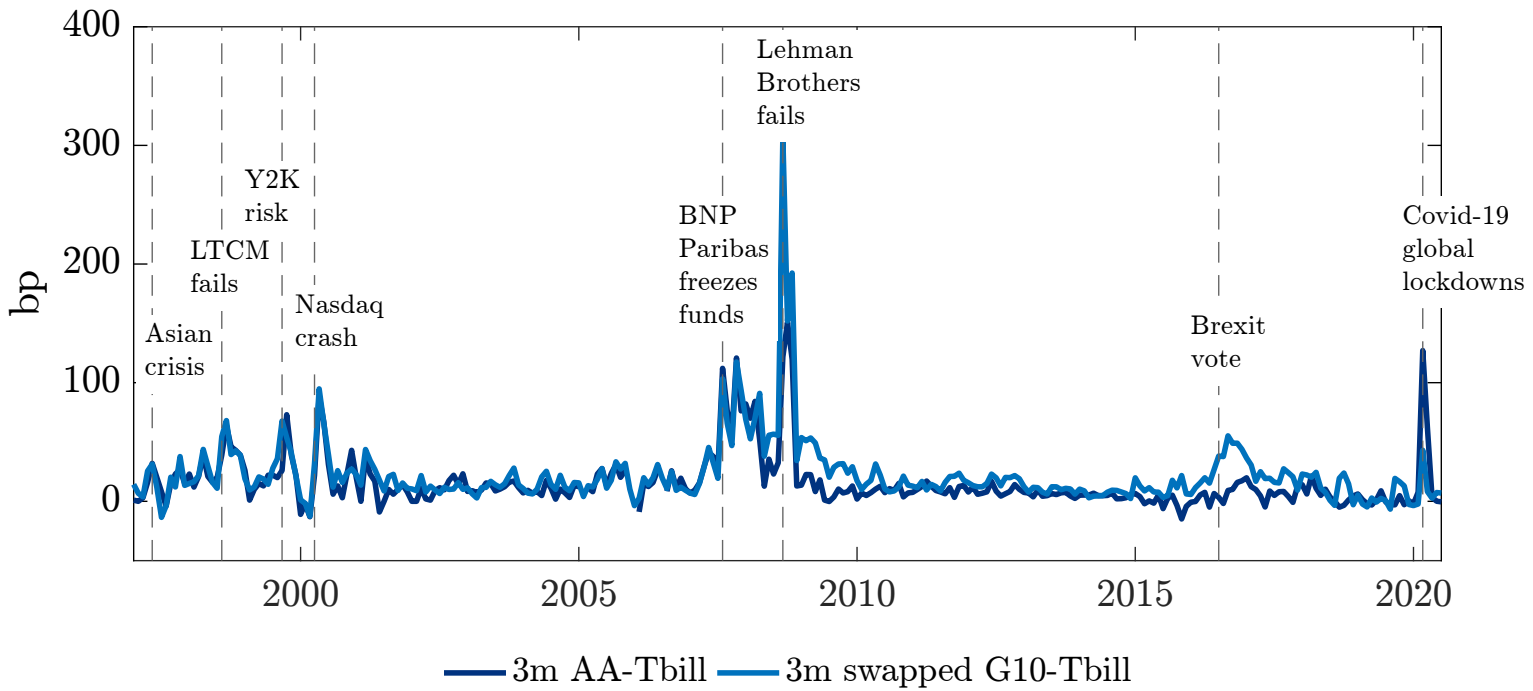
- Then investor optimality requires

$$\begin{aligned}
&\Rightarrow 1+\iota_t = (1+i_t)(1+\omega_t),\\
&\quad \mathbb{E}_t M_{t+1}(1+i_t)(1+\omega_t) = 1,\\
&\quad \mathbb{E}_t M_{t+1}\left[(1+R^k_{t+1}) - (1+i_t)(1+\omega_t)\right] = 0,\\
&\quad \mathbb{E}_t M_{t+1}\left[\frac{E_t}{E_{t+1}}(1+i^*_t) - (1+i_t)(1+\omega_t)\right] = 0,
\end{aligned}$$

and analogously for foreign investor with SDF M^*_{t+1}.

Measurement

- Can measure $\omega_t \approx \iota_t - i_t$ (Krishnamurthy-Vissing-Jorgensen (12), Du-Im-Schreger (18), Jiang-Krishnamurthy-Lustig (21), Engel-Wu (22)).



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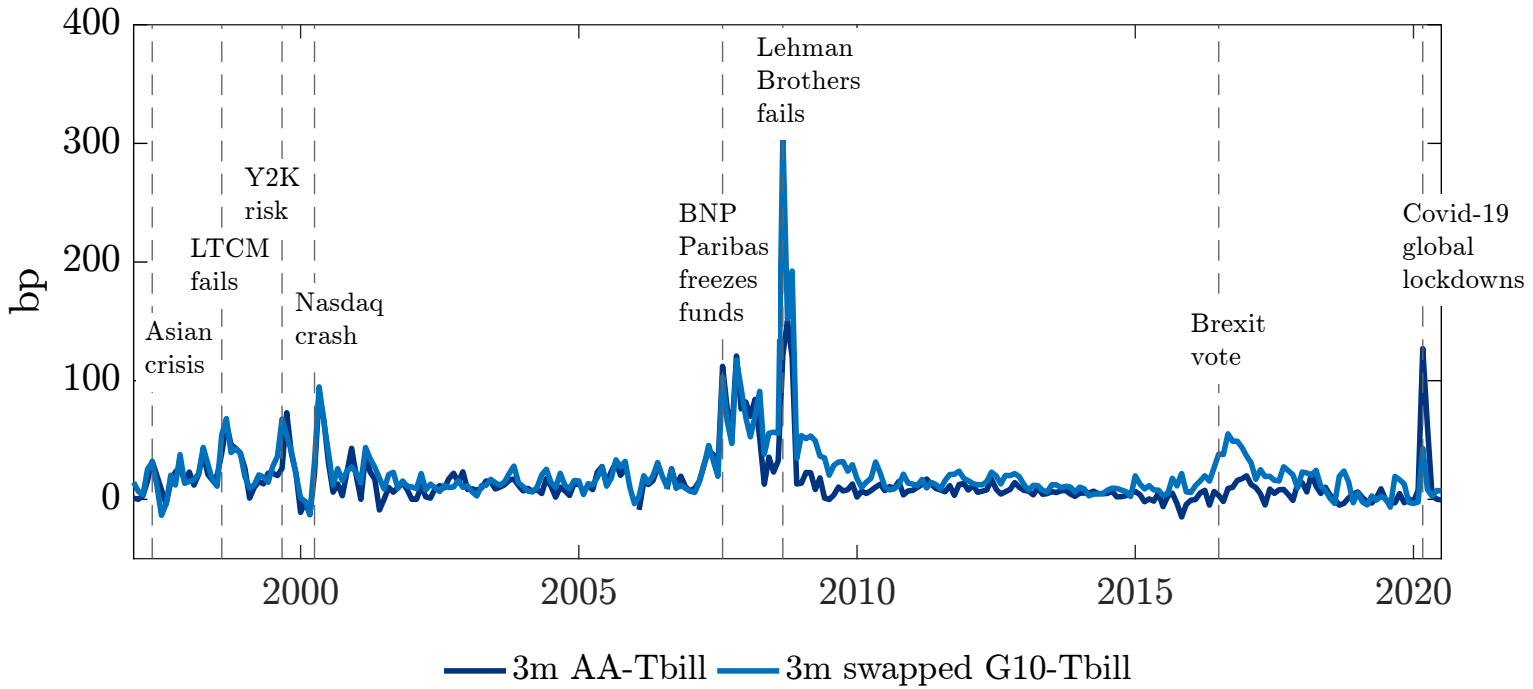

- Understates ω_t if AA or swapped G10 also valued for safety.
- Does flight to safety *exacerbate* bad times? Theory useful.

Implications for exchange rates, asset prices, output (1/2)

- Real terms: $\mathbb{E}_t m_{t+1}(1 + r_{t+1})(1 + \omega_t) = 1,$
  $\mathbb{E}_t m_{t+1}((1 + r^k_{t+1}) - (1 + r_{t+1})(1 + \omega_t)) = 0,$
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- With nom. rigidity and insufficient fall in i_t given higher ω_t:
  - decline in consumption;
  - fall in capital price ($\Rightarrow$ investment) and rise in expected return;
  - dollar appreciation;
  - fall in U.S. output *greater* than abroad.

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- Accounting for negative USD beta otherwise not easy!
  Gourinchas-Rey-Govillot (17), Maggiori (17).

Implications for exchange rates, asset prices, output (2/2)

- Estimates consistent with these predictions.
  - Jiang-Krishnamurthy-Lustig (21), Engel-Wu (22): $1pp$ increase in (1-year) $\omega_t \Rightarrow 6 - 10pp$ USD appreciation on impact.
  - Kekre-Lenel (23): $1pp$ increase in (ann. 3-mo) $\omega_t \Rightarrow 3pp$ fall in MSCI ACWI, $1pp$ fall in U.S. IP on impact.
- Quantitative models imply time-varying ω_t matters.
  - Kekre-Lenel (23): volatility in ω_t:
    - accounts for more than 10% of output volatility in U.S+G10;
    - generates more output volatility in U.S. than G10.

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  - U.S. long equities, short USD (Tille (03), Gourinchas-Rey (07)).
- Kekre-Lenel (23): over 1995-2019,
  - (foreign Tbills + swaps)/GDP = 3.8%.
  - $\Delta \text{NFA}_t/\text{GDP}_t = \text{const} + 0.5(\text{exc. equity})_t + 1.4(\text{exc. foreign})_t$.

$\Rightarrow$ Given $1pp$ increase in ω_t and estimates from last slide,
seignorage gain of 3.8% of GDP,
valuation loss on equity and currency of 9.9%-15.5% of GDP.

- Seignorage on longer maturities closes gap, but smaller fluctuations in long-dated convenience yields and declining foreign ownership (Tabova-Warnock (23)) push other way.

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  1. If bonds and money are substitutes in providing liquidity,

$$\omega_t = \omega(i_t, \ldots) \text{ with } \omega'(\cdot) > 0.$$

     U.S. tightening thus raises convenience yield (Nagel (14), Engel (16), Jiang-Krishnamurthy-Lustig (22)).

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  2. Time-varying $\omega_t \Rightarrow$ risk tolerant short USD.
     - Consistent with USD funding of global banks (Adrian-Etula-Shin (10), Bruno-Shin (15)).

     $\Rightarrow$ U.S. tightening disproportionately lowers their wealth and raises global risk premiums across equity, bond, and FX markets (Kekre-Lenel (22,23), Kekre-Lenel-Mainardi (22)).

Implications for Fed: dollar swap lines

- With diminishing marginal non-pecuniary value of safe assets,

$$\omega_t = \text{demand}_t - \frac{1}{\text{demand elasticity}}\text{supply}_t.$$

- Thus, adjusting supply can directly address the flight to safety without requiring adjustment in i_t.
- Kekre-Lenel (23): quantify effects of \$450bn in swap line usage during March–May 2020.
  - Demand elasticity $= 6$ as implied by response of ω_t to swap line usage from 3/19–4/1.
  - Resulting decline in ω_t raises output by 0.5pp in U.S. and 0.15pp in G10.

Final thoughts

- In theory and data, flight to safe dollar assets:
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  - generates seignorage gains for U.S. but losses on equity, FX;
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  - matters for central bank policy.
- Many additional considerations, including:
  - interactions with dollar pricing (Gopinath (15), Gopinath-Boz-Casas-Diez-Gourinchas-Plagborg-Moller (20), Mukhin (21));
  - debt sustainability and fiscal space (Farhi-Maggiori (18), Jiang-Lustig-Van Nieuwerburgh-Xiolan (19,23));
  - determinants of reserve currency and time-varying demand (He-Krishnamurthy-Milbradt (19), Bianchi-Bigio-Engel (22), Brunnermeier-Merkel-Sannikov (22)).