Discussion: International Liquidity, Market Making Frictions, and Exchange Rate Dynamics (Jakree Koosakul)

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Importance of FX Markets

Could frictions affecting FX market-making have important price effects?
Constraints on Market-Makers Seem Pervasive (Duffie, 2020)

Figure 1. In blue are shown year-end total outstanding amounts of marketable Treasuries, 1998-2019 (data: FRED)

Lessons from this paper could apply to other markets as well (?)
This paper

- Uses transaction-level FX data to estimate the role of market makers in driving the exchange rate effects of capital flow (price-flow)
  - 2 key data features: information on (i) identifies of traders (and dealers) are observable, and on (ii) end-of-day open positions of dealers
  - isolating the role of dealer inventory from the role of informed trading in driving the capital flow – exchange rate relationship

- Proposes a theory that combines macro-features (Gabaix-Maggiori, 2015) with adverse selection (Kyle [1985]) and dealer inventory (Stoll [1978]) that can explain the higher-frequency variation in exchange rates

- Main results: both inventory and information effects seem important in explaining exchange rate fluctuations

- **Overall reaction**: great paper, fantastic dataset, rich model!
Overview of the Empirical Design

- microstructure exchange rate effects of capital flow through time-series regressions:

\[ \Delta E_t^h = \beta_1 \times \text{OrderFlow}_t + \beta_2 \times \text{OrderFlow}_{t-1} + \ldots + \varepsilon_t \]  

(1.1)

where focusing on (i) the effects of the various lags and (ii) horizon \( h \) (i.e. persistence profile) could possibly reveal the relative role of information vs inventory effects.

- More complicated variant of is 1.1 to add interactions

\[ \Delta E_t^h = \ldots \gamma_2 \times \text{OrderFlow}_{t-1} \times \text{RiskBearing}_{t-1} \ldots + \varepsilon_t \]  

(1.2)

- Results suggest 30-40% of exchange rate movements reverse (i.e. inventory friction) and the remaining persist (i.e. informational effects)
Overview of the Theoretical Model

- The model set up to fundamental and microstructure effects:
  - Households: Consumption / international trade / portfolio decisions
  - Day 0 day 1 day 2 … … day D day D+1
  - Informed foreign traders choose a sequence of optimal daily positions
  - Uninformed foreign traders' positions exogenously given
  - Market makers choose a sequence of FX quotes
  - All financial agents unwind positions

- The end points are pinned down by macro/household decisions (relatively passive role in the model)
- The intermediate points coincide with the gradual arrival of information (main focus of the model)
  - Dynamic discrete time (Kyle [1985]) with risk averse dealer (Subrahmanyam [1991]) to capture inventory effects (Stoll [1978])
  - relatively standard Bayesian equilibrium solution with a recursive structure
  - nice twist to link the model solution for the (non-fundamental) exchange rate dynamics in form of regression 1.1
Comment 1: Client Heterogeneity in the Data

- Most of the empirical tests are time-series regressions
  - this typically makes it difficult to isolate informational effects from inventory channels
  - especially that the inventory cycles seem too long/persistent to distinguish from information using Hasbrouck [1991]-type approach
- Explore client heterogeneity to identify informed trading:
  - given you observe the identities, you could construct various proxies for informed trading, sort clients based on
    - estimated P&L measures (given you have sufficient time-series)
    - client types (e.g. identify hedge funds / active asset managers vs. pension funds) (Czech et al. [2021])
    - identify clients with unusually high dealer connections (Kondor and Pinter, 2021)
  - Construct various order flow measures, i.e.
    \[
    OrderFlow_{t}^{Total} = OrderFlow_{t}^{HedgeFunds} + OrderFlow_{t}^{Rest}
    \]
Comment 2: Dealer Heterogeneity in the Data

- Explore dealer heterogeneity more:
  - dealer size as a proxy for inventory constraints?
  - could you move away from time-series model to panel?

\[ \Delta P_{i,t}^h = \beta_1 \times \text{OrderFlow}_{i,t} + \beta_2 \times \text{OrderFlow}_{i,t-1} + \ldots + \varepsilon_t \]

where \( \Delta P_{i,t}^h \) could be dealer specific exchange rates quotes or various price dispersion measures (Jankowitsch et al., 2011, Friewald et al., 2012)

- you could then compare 2 dealers that would have the same order flow, but one dealer’s order flow would consist of hedge fund orders

- Given the market is OTC/non-anonymous, adverse selection may be dominated by dealers’ desire to learn from informed clients? (Pinter et al. [2021])
  - could you check whether informed clients actually get worse pricing in this market?
Comment 3: Model

Given the market is OTC, is Kyle [1985] the most suitable framework?
- dealers see the identity/type of the traders they trade with (in Kyle [1985] they do not)
- price dispersion may be non-negligible (in Kyle [1985] there is one price)
- perhaps Malamud and Rostek [2017], Babus and Kondor [2018]-style OTC variant of Kyle [1989] would be more suitable?!

The macro-side of the model is rather passive:
- would be interesting to make the micro-structure side of the model feed back more actively to the macro / fundamentals
- An exciting metric the model derives is the non-fundamental exchange rate volatility:
\[
\nabla = \text{Var} [\tilde{s}_d | F_1, \ldots F_d]
\]
- could you try to make this matter for fundamentals?
  - e.g. some fraction of (risk averse) households would need to consume in intermittent period, and their choice is affected by \(\nabla\)?!
Smaller Comments

- Used measures of PIN (Easley et al. [1996]) is problematic, because it may capture both information and inventory/liquidity effects (Duarte and Young, 2009, Duarte et al., 2020)

- For exposition purposes, you could start by presenting a smaller/stylised/static variant of the model, and then gradually build it up?! e.g.
  - focus on the inventory-information effects in a static setting
  - then go to dynamics
  - only then go to macro/GE
Conclusion

- Wonderfully rich paper!

- Great effort to use novel trade-level data to highlight the role of intermediation frictions in international finance.
References


Gabor Pinter, Chaojun Wang, and Junyuan Zou. Information Chasing versus Adverse Selection. mimeo, 2021.
