Comments on

Rey & Stavrakeva
Interpreting Turbulent Episodes in International Finance

Menzie D. Chinn
University of Wisconsin, Madison and NBER

12th Asian Monetary Policy Forum
Conrad Hilton, Singapore
May 22-23, 2025

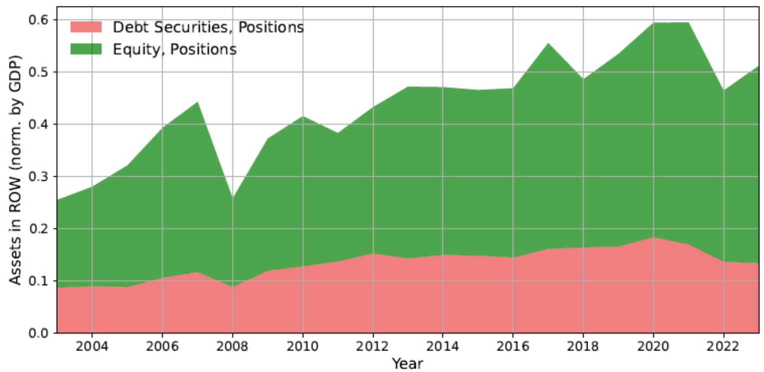
The Messages

- Equities constitute greater amount of cross-border holdings than debt
- Multipolarity is increasing
- Local currency appreciation, stock price rise associated with greater foreign equity holdings
- IV approach confirms greater foreign equity holdings associated with exchange rate appreciation, stock price increase

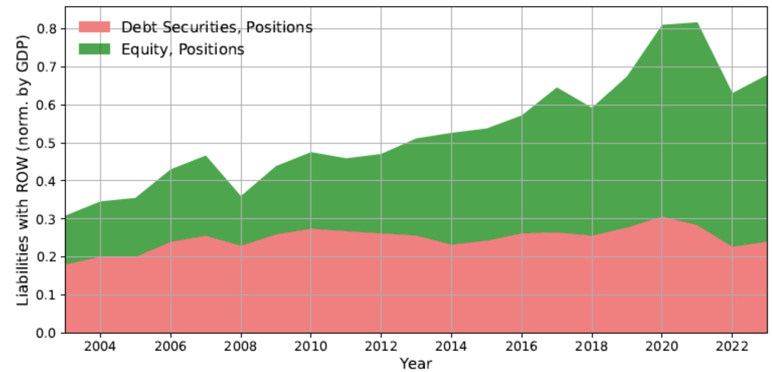
Outline

- The dominance of cross-border equity
- From identity to regressions
- Post-”Liberation Day”

Equity Surpasses Debt



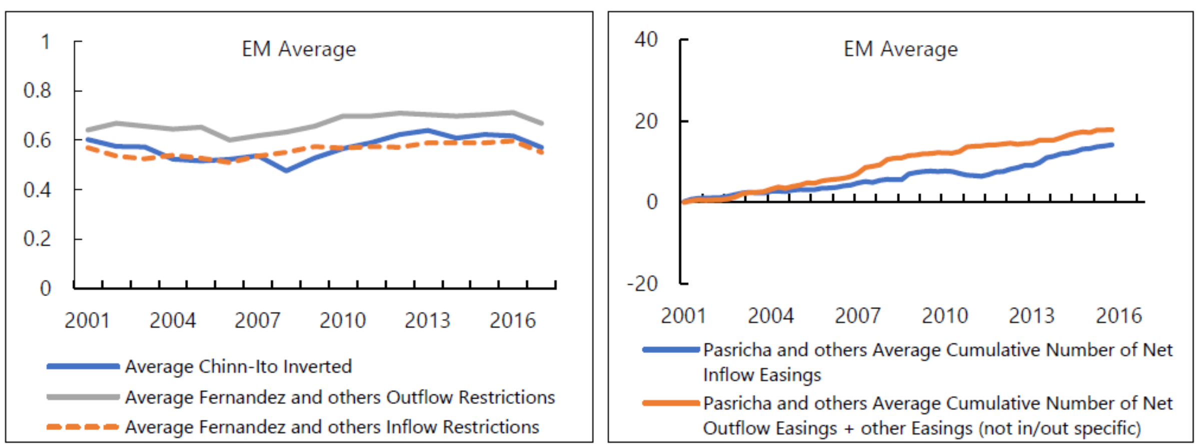
Assets in ROW, USD norm. by GDP



Liabilities from ROW, USD norm. by GDP

Figure 3: United States (incl. CYM, BHS, BMU)

Figure 8. Chinn-Ito vs. Fernandez and Others vs. Pasricha and Others Indexes—EM Average, 2000–17



Source: Chinn-Ito (2017), Fernandez and others, (2016), and Pasricha and others (2018).
Note: The EM sample countries are Argentina, Brazil, Chile, China, Colombia, Egypt, India, Indonesia, Malaysia, Mexico, Morocco, Peru, Philippines, Russia, South Africa, Thailand, and Turkey.

Identity to Regression

Approach: Start w/Identity

$$\underbrace{P_t^{l,E}}_{\text{Price of stock mkt}} \underbrace{Q_t^{l,E}}_{\text{\# of shares}} = \sum_j \underbrace{S_t^{l/j}}_{\text{Exch rate}} \underbrace{D_t^{l,j,E}}_{\substack{\text{Nominal value holdings in} \\ \text{mkt } l \text{ of investors of mkt } j}}$$

Log linearize

$$p_t^{l,E} + q_t^{l,E} = \sum_j \left(\nu^{l,j,E} \left(s_t^{l/j} + d_t^{l,j,E} \right) \right) \tag{2}$$

$$\nu^{l,j,E} = \frac{\overline{S^{l/j} D^{l,j,E}}}{\overline{P^{l,E} Q^{l,E}}}, \tag{3}$$

Obtaining a Testable Equation

First difference:

$$\triangle p_t^{l,E} - \sum_{j \neq l} \nu^{l,j,E} \triangle s_t^{l/j} = \sum_j \nu^{l,j,E} \triangle d_t^{l,j,E} - \triangle q_t^{l,E}. \tag{4}$$

Rewrite:

$$\triangle q_t^{l,E} + \triangle p_t^{l,E} = \sum_{j \in \Omega^l} \nu^{l,j,E} \triangle s_t^{l/j} + \sum_{j \in \Omega^l} \nu^{l,j,E} \triangle d_t^{l,j,E} + \left(\nu^{l,l,E} \triangle d_t^{l,l,E} + \sum_{j \neq l, \Omega^l} \nu^{l,j,E} \left(\triangle d_t^{l,j,E} + \triangle s_t^{l/j} \right) \right)$$

Approximation

Restate

$$\triangle q_t^{l,E}+\triangle p_t^{l,E}=\sum_{j\in\Omega^l}\nu^{l,j,E}\triangle s_t^{l/j}+\sum_{j\in\Omega^l}\nu^{l,j,E}\triangle d_t^{l,j,E}+\left(\nu^{l,l,E}\triangle d_t^{l,l,E}+\sum_{j\neq l,\Omega^l}\nu^{l,j,E}\left(\triangle d_t^{l,j,E}+\triangle s_t^{l/j}\right)\right)$$

$$\underbrace{\triangle p_t^{l,E}-\sum_{j\in\Omega^l}\frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\triangle s_t^{l/j}}_{\triangle\widetilde{H}_t^{l,E}}=\underbrace{\sum_{j\in\Omega^l}\frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\triangle d_t^{l,j,E}}_{\triangle H_t^{l,E}}+resid_t^{l,E} \qquad (6)$$

$$\text{where } resid_t^{l,E}=\sum_{j\neq\Omega^l}\frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\left(\cancel{\triangle d_t^{l,j,E}}+\triangle s_t^{l/j}-\cancel{\triangle p_t^{l,E}}-\cancel{\triangle q_t^{l,E}}\right)-\triangle q_t^{l,E}. \qquad (7)$$

=0

Rewriting the Identity

$$\Delta q_t^{l,E} + \Delta p_t^{l,E} = \boxed{\sum_{j\in\Omega^l} \nu^{l,j,E}\Delta s_t^{l/j}} + \sum_{j\in\Omega^l}\nu^{l,j,E}\Delta d_t^{l,j,E} + \left(\nu^{l,l,E}\Delta d_t^{l,l,E} + \sum_{j\neq l,\Omega^l}\nu^{l,j,E}\left(\Delta d_t^{l,j,E}+\Delta s_t^{l/j}\right)\right)$$

$$\underbrace{\Delta p_t^{l,E} - \sum_{j\in\Omega^l}\frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\Delta s_t^{l/j}}_{\Delta\widetilde{H}_t^{l,E}} = \underbrace{\sum_{j\in\Omega^l}\frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\Delta d_t^{l,j,E}}_{\Delta H_t^{l,E}} + resid_t^{l,E} \qquad (6)$$

$$\text{where } resid_t^{l,E} = \sum_{j\neq\Omega^l}\frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\left(\cancel{\Delta d_t^{l,j,E}} + \Delta s_t^{l/j} - \cancel{\Delta p_t^{l,E}} - \cancel{\Delta q_t^{l,E}}\right) - \Delta q_t^{l,E}. \qquad (7)$$

=0 ≈0

Two Identities

$$\triangle p_t^{l,E} = \sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\triangle d_t^{l,j,E} + resid_t^{l,E} + \sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\triangle s_t^{l/j}$$

$$\sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\triangle s_t^{l/j} = -\sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}}\triangle d_t^{l,j,E} + resid_t^{l,E} - \triangle p_t^{l,E}$$

Two Identities, and Two Regressions

$$\triangle p_t^{l,E} = \sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}} \triangle d_t^{l,j,E} + resid_t^{l,E} + \sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}} \triangle s_t^{l/j}$$

$$\triangle p_t^{l,E} = \beta \sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}} \triangle d_t^{l,j,E} + u_t$$

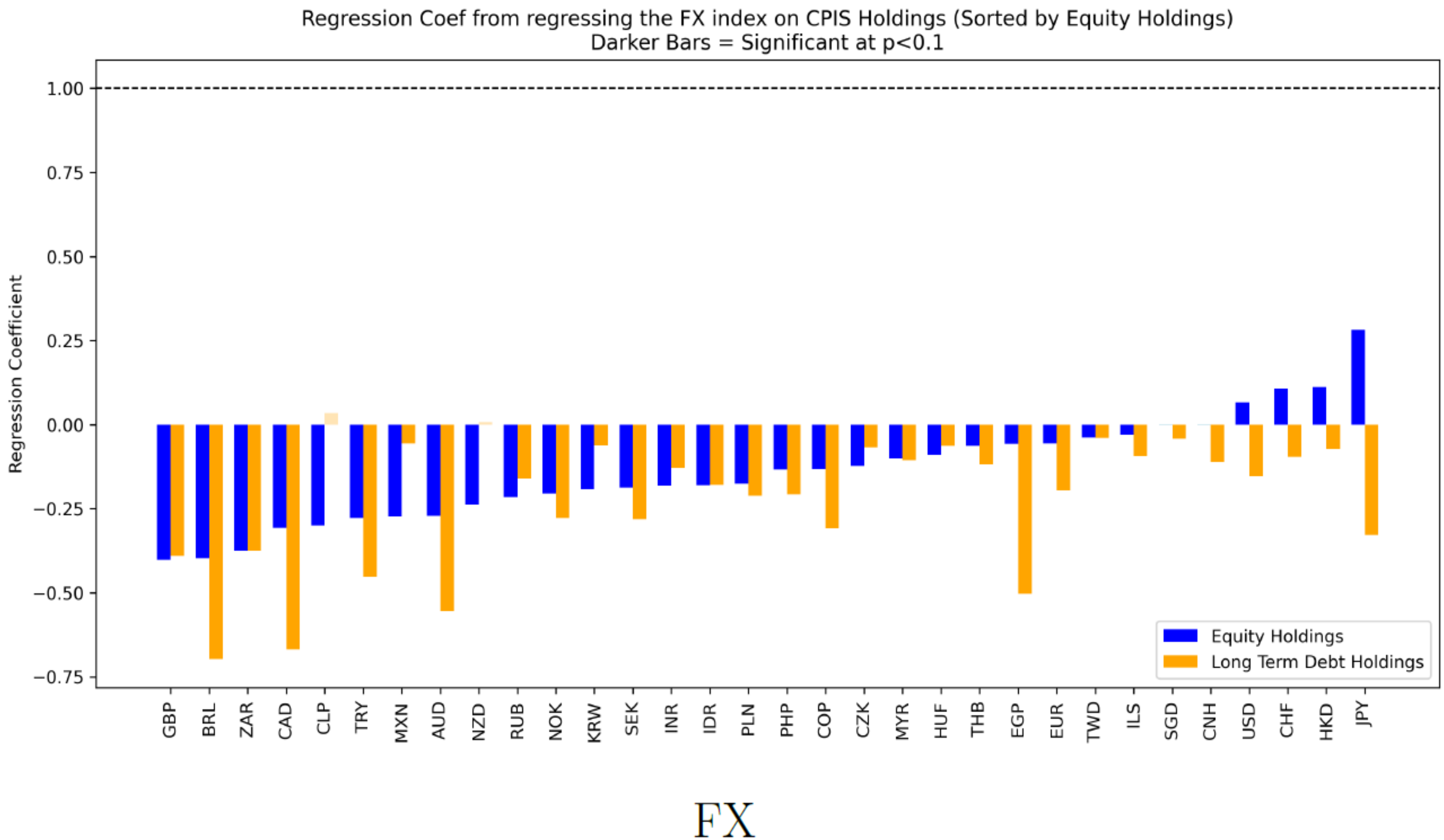
$$\sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}} \triangle s_t^{l/j} = -\sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}} \triangle d_t^{l,j,E} + resid_t^{l,E} - \triangle p_t^{l,E}$$

$$\sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}} \triangle s_t^{l/j} = \theta \sum_{j\in\Omega^l} \frac{\nu^{l,j,E}}{1-\sum_{j\neq\Omega^l}\nu^{l,j,E}} \triangle d_t^{l,j,E} + v_t$$

Estimated β & θ are *Correlations*

- In first regression equation, if approximation residual and change weighted exchange rate were uncorrelated with $\Delta H_t^{l,E}$, then unbiased estimate of β from reduced form equation
- In second regression equation, if approximation residual and change in domestic market price were uncorrelated with $\Delta H_t^{l,E}$, then unbiased estimate of θ from reduced form equation
- This motivates use of high frequency data (30 day changes)

Fig 7: Regress exchange rate changes on $\Delta H_t^{l,E}$



Regression works well by avoiding regressing prices on quantities or vice versa

Fig 8: regress 30 day exchange rate changes on $\Delta \widetilde{H}_t^{l,E}$

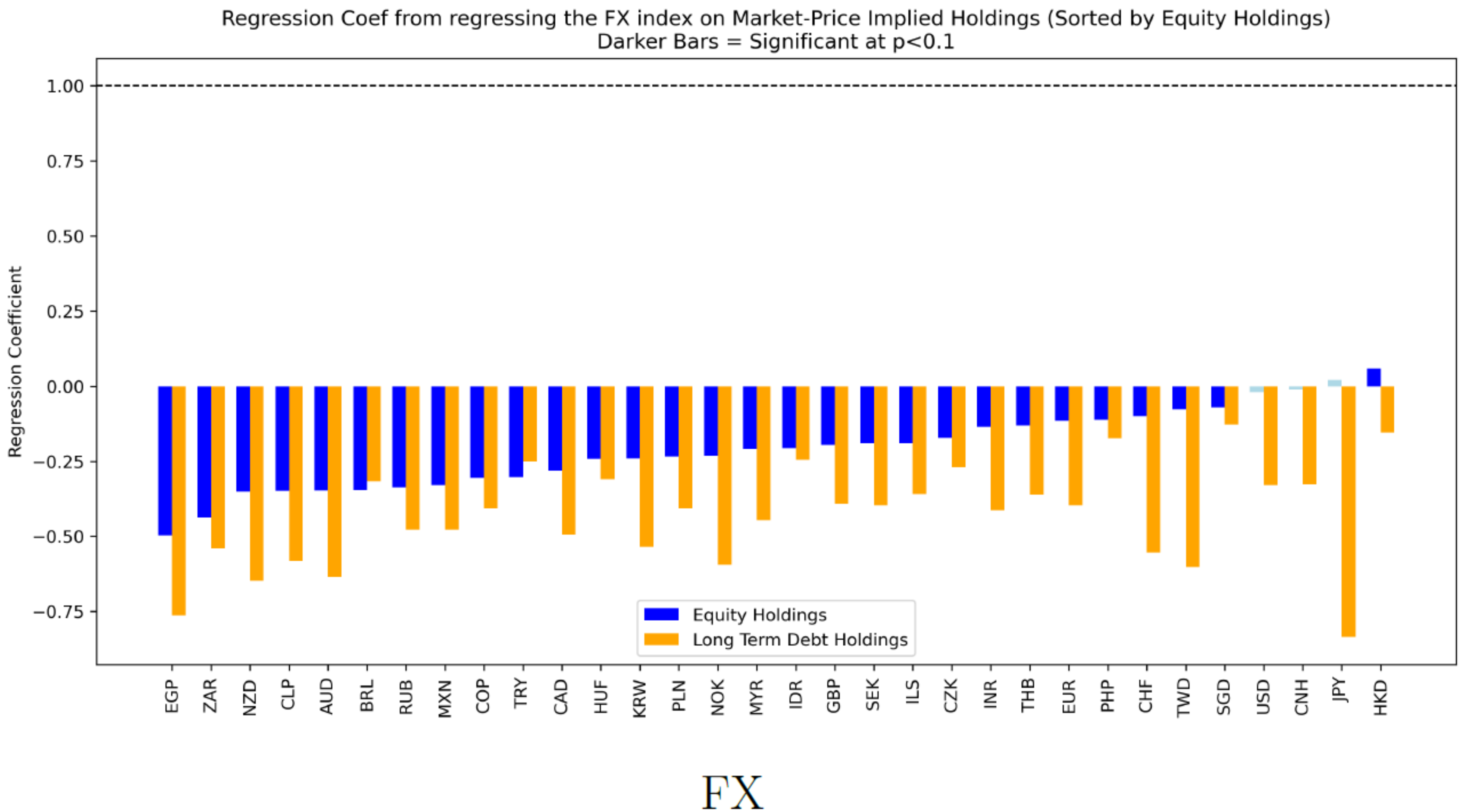
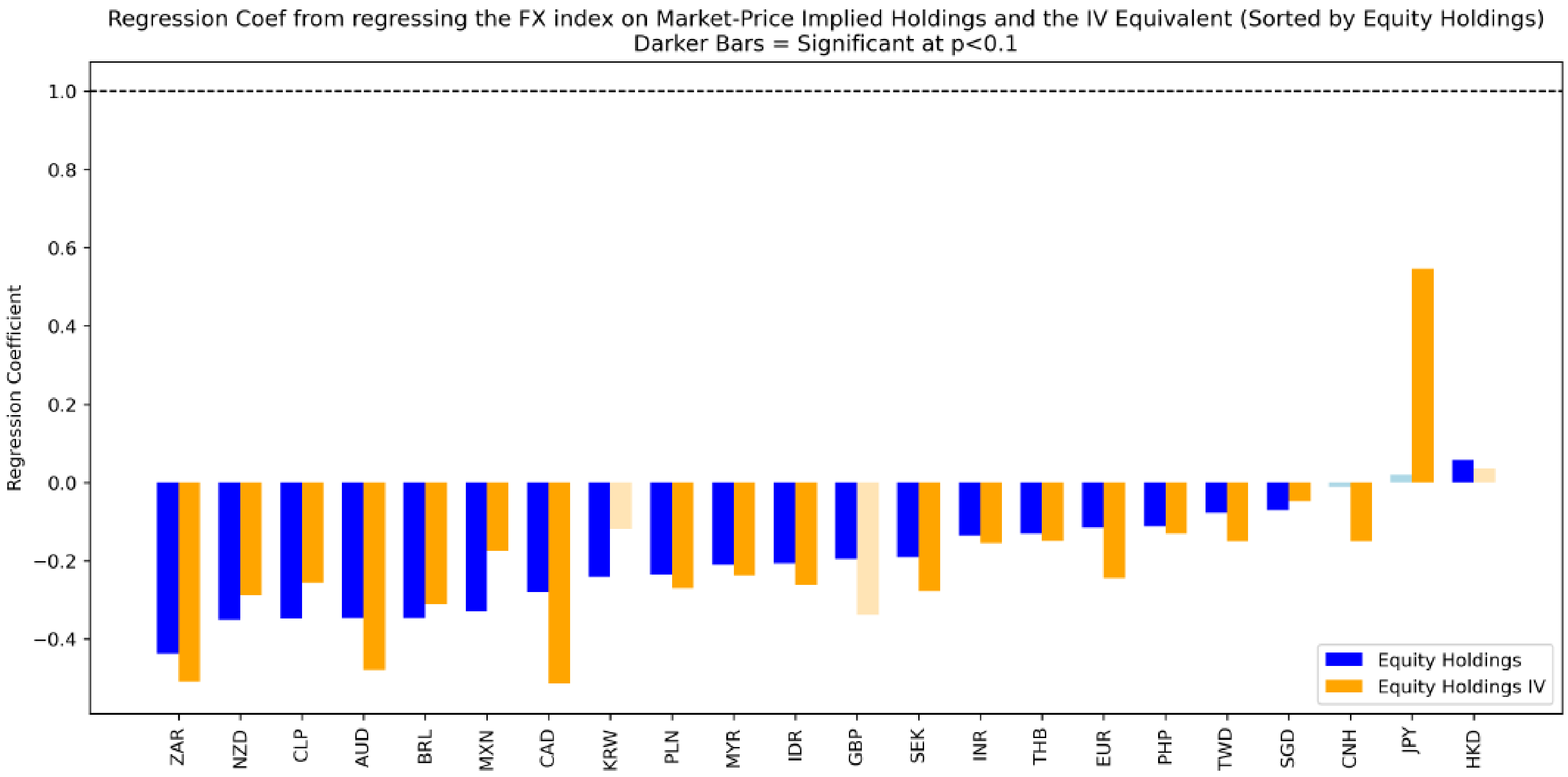


Fig 9: 30 day changes, non-IV vs IV



IV relies on ETF shares purging VIX and past fund performance as demand proxy

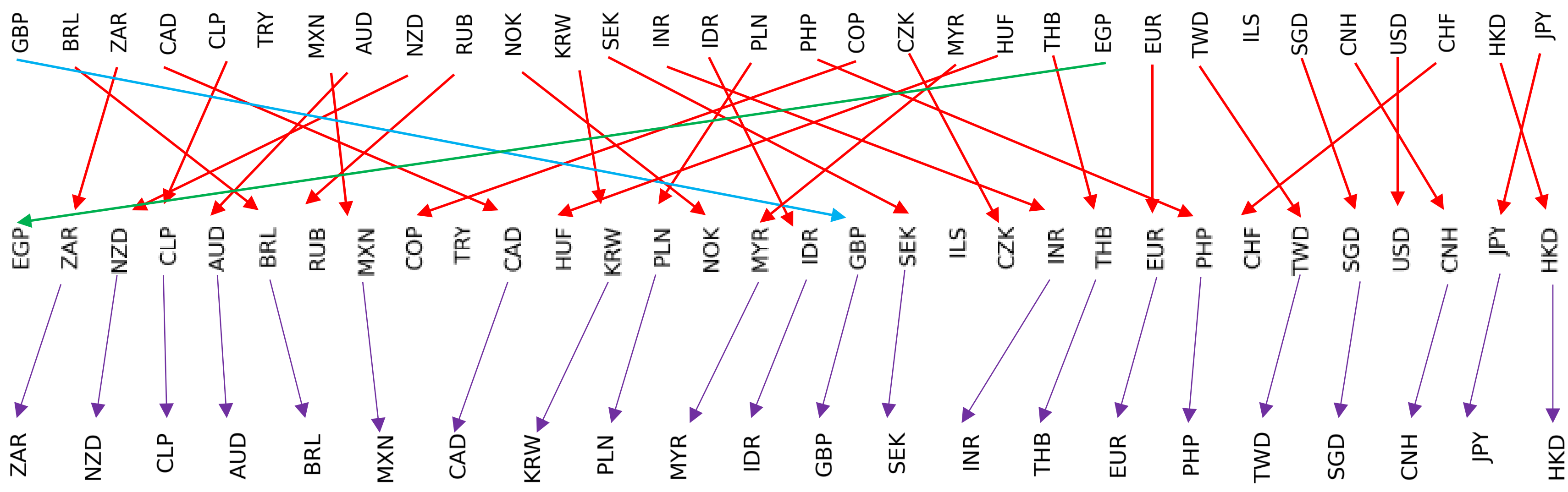
IV Description

- …based on the 30-day growth rate of the BlackRock MSCI iShare ETFs’ outstanding shares …[which] captures the ETF investors’ decision to invest in a given stock market rather than valuation effects …
- The decision of the final ETF investor … is driven by many factors. For example, fluctuations in risk aversion is one of the key drivers. Past performance of the ETF itself, which of course captures the performance of the local stock market, is another driver.

IV Description

- To clean these effects, we regress the 30-day growth rate of outstanding shares of a given ETF on contemporaneous and past VIX growth rates and past fund performance. We treat the residual of these regressions as a proxy for foreign equity demand …. Our preferred interpretation of this instrument is that it captures contemporaneous country-specific news (as lagged stock market performance correlates with passed news, which we clean the effect of) and idiosyncratic demand shocks due to idiosyncratic beliefs…

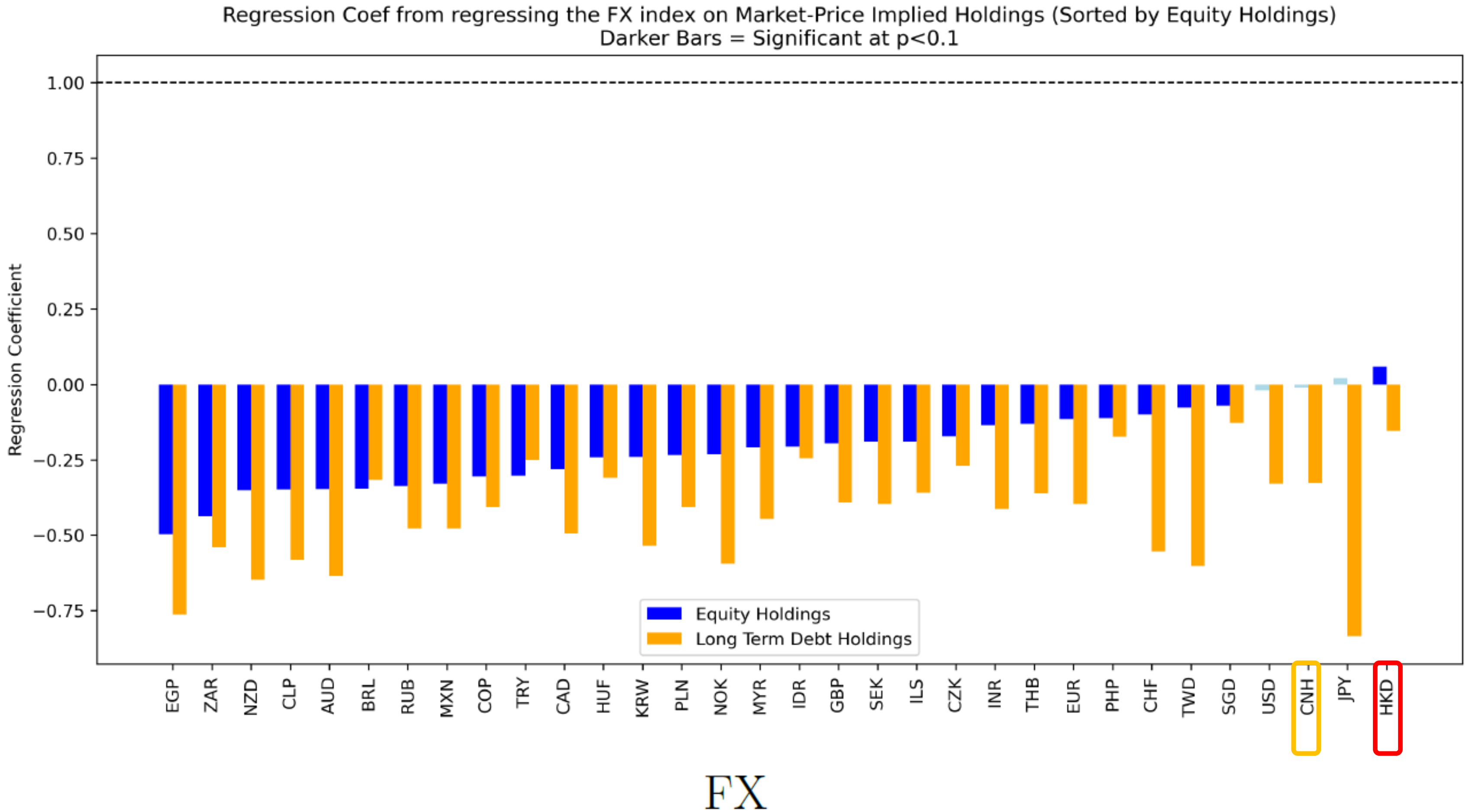
Summary: Annual CPIS vs Daily vs. IV



Annual vs. 30 Day Changes

- Many changes in rankings Annual vs. 30 day
- Fewer changes in magnitudes (GBP, EGP)
- Few changes fm non-IV to IV (CAD, AUD, EUR)
- Can we infer something from the pattern of exchange rate vs. price adjustments?

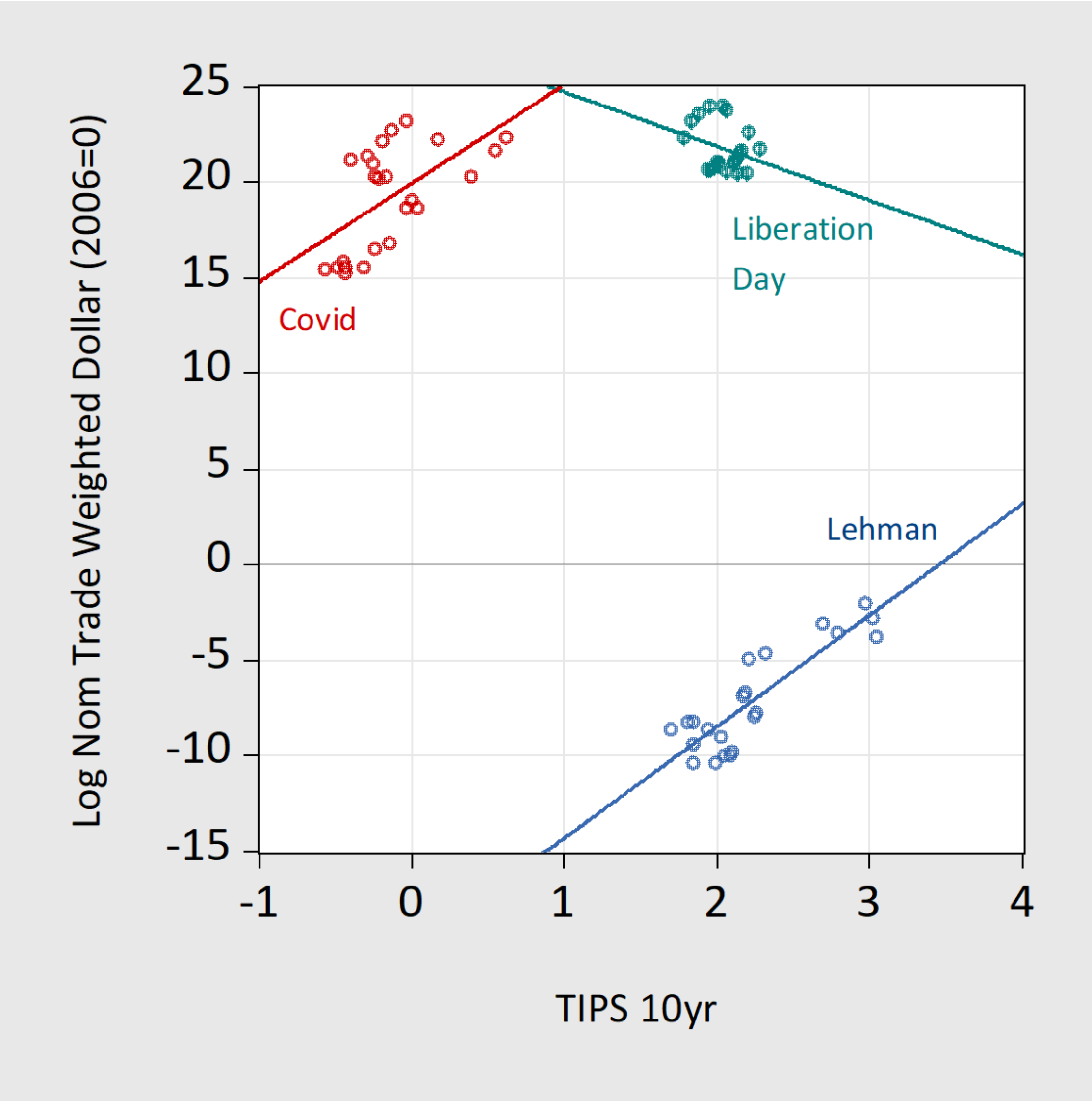
Fig 8: regress 30 day exchange rate changes on $\Delta \widetilde{H}_t^{l,E}$



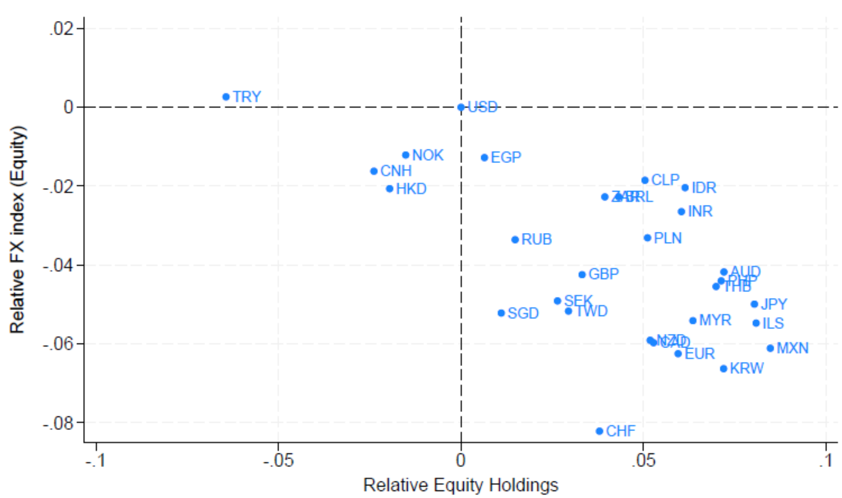
Smallest exchange rate coefficients for pegged rate, managed rate (HKD, CNH)

Liberation Day Aftermath

Ten Year TIPS and Dollar



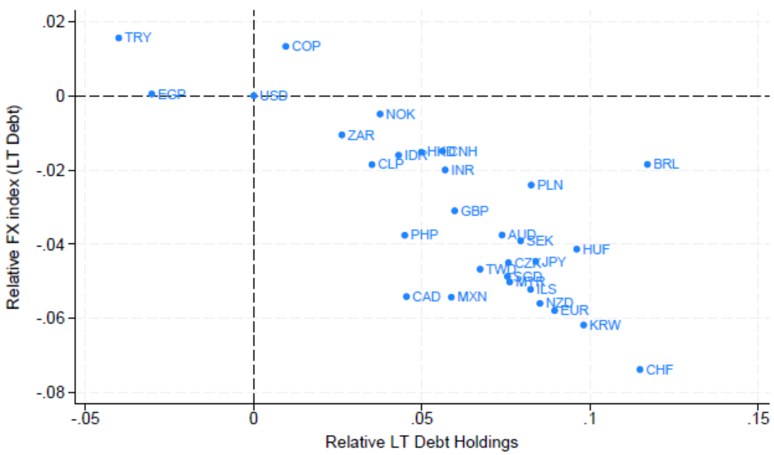
“Liberation Day” vs. Bleach Day



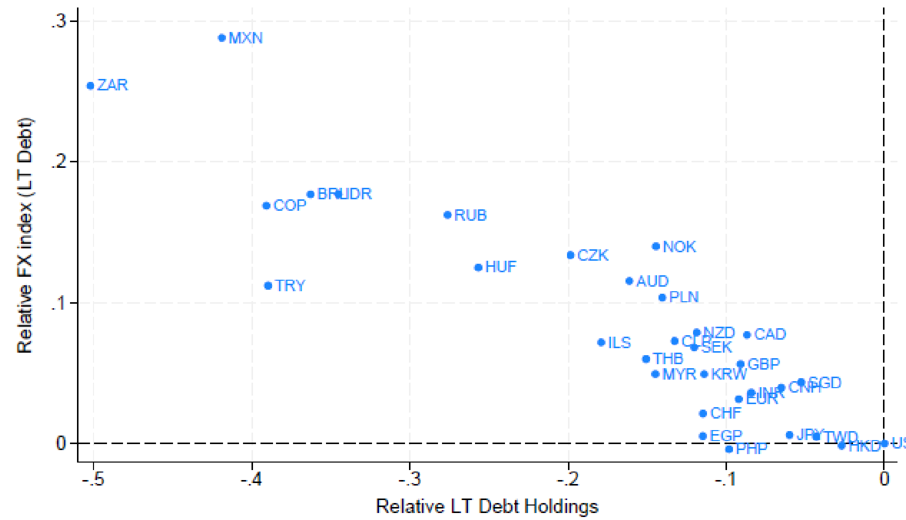
Equities; FX index

Equities; FX index

“Liberation Day” vs. Bleach Day



LT Government Debt; FX index



LT Government Debt; FX index

Final Remarks

- Innovative approach to avoiding use of quantity data
- Relies on growth rate of domestic holdings approximately equal to local stock market price growth
- Interesting results regarding apportionment of price and exchange rate changes and foreign equity holdings
- Looking forward to more economic interpretation of why the pattern of heterogeneity exists