“Concealed Carry”

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Discussed by:

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WFA, June 17 2021

Motivation: Currency risk & Carry

- **Growing literature exploring equilibrium models of currency risk, relations to country size, fiscal policy, habit formation, and trade network:** Hassan (2013), Hassan et al. (2015, 2016), Heyerdahl-Larsen (2015), Jiang (2019), Stathopoulos (2017), Richmond (2019), and Richmond and Jiang (2020) [...and so on]

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- **A less examined question: How do the performances of traditional carry and slope carry strategies evolve over time?**
- **This paper: Jointly explain the changing performances of several key carry strategies using an equilibrium model (EZ preferences, N complete financial markets, inflation dynamics, real consumption)**

What does this paper do? (1) Empirical

- Performances changed pre- and post-2008:

Sample	**Traditional carry excess returns (3-1)**	**Slope carry excess returns (3-1)**
Whole sample (1995-2018)	4.93 [2.36]	2.62 [1.17]
Pre-08/2008	8.12 [3.25]	-0.13 [-0.04]
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- **Traditional carry:** the disappearing premium post-2008 is intuitive, given the world-wide compression of short-term interest rates
- **Slope carry:** Concealed turned revealed! This is puzzling as LT government bonds should yield a null excess return (Lustig et al. 2019)

What does this paper do? (2) Suggestive evidence

The paper then makes a prediction given some suggestive evidence:

- **Country exposures to expected global real growth and inflation are associated with the traditional and slope carry risk premiums, respectively**

$$E_t\left[\Delta y_{i,t+1}\right] = \mu_{i,y} + \beta_{i,y} \cdot E_t\left[\Delta y_{G10,t+1}\right] + \varepsilon_{i,t}$$
$$E_t\left[\pi_{i,t+1}\right] = \mu_{i,\pi} + \beta_{i,\pi} \cdot E_t\left[\pi_{G10,t+1}\right] + \varepsilon_{i,t},$$

- High $\beta_{i,y}$: CAN, GER JPN
- High $\beta_{i,\pi}$: UK, SWI, SWE

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- Observation 2: Country composition in the interest rate-sorted portfolios remains unchanged before and after 2008 → Traditional carry premium remains positive
- **Observation 3: Due to major drops in global inflation expectation post 2008 (– shock), high $\beta_{i,\pi}$ countries receive a negative shock in their interest rate**
  $\longrightarrow$
  Generating steeper yield curve, joining the high-slope portfolio
  $\longleftrightarrow$
  Countries with high inflation risk (high risk premium) joining the steeper slope-sorted portfolio, earning a positive slope carry risk premium

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What does this paper do? (3) Model formalization

- Explain the the connection between these estimated exposures to expected GDP growth and inflation and the risk-premia on the traditional and slope carries
  - ⇒ EZ preferences
  - ⇒ Global expectation state variables dynamics

$$\underbrace{\begin{bmatrix} x_{\pi,t} \\ x_{c,t} \end{bmatrix}}_{x_t} = \underbrace{\begin{bmatrix} \rho_\pi & 0 \\ \rho_{c\pi} & \rho_c \end{bmatrix}}_{K} \cdot \begin{bmatrix} x_{\pi,t-1} \\ x_{c,t-1} \end{bmatrix} + \underbrace{\begin{bmatrix} \sigma_{x,\pi} & 0 \\ 0 & \sigma_{x,c} \end{bmatrix}}_{\Sigma} \begin{bmatrix} \varepsilon_{\pi,t} \\ \varepsilon_{c,t} \end{bmatrix},$$

  - ⇒ Local state variable dynamics

$$\begin{aligned} \Delta c_{i,t+1} &= \mu_c^i + \beta_i^c x_{c,t} + \sigma_c \eta_{i,t+1}^c \\ \pi_{i,t+1} &= \mu_\pi^i + \beta_i^\pi x_{\pi,t} + \sigma_\pi \eta_{i,t+1}^\pi, \end{aligned}$$

  - ⇒ Complete, frictionless financial markets
  - ⇒ Real SDF: global real growth expectation; global growth expectation shock; global inflation expectation shock; idiosyncratic consumption growth shock

What does this paper do? (4) Model solution

$$\log E_t\left[RX^{\infty}_{i,t+1}\right] = \log E_t\left[RX^{1}_{i,t+1}\right] - \beta^c_i\left[\frac{k_{\varepsilon c}\sigma^2_{xc}}{1-\rho_c} - \frac{\rho_{c\pi}k_{\varepsilon\pi}\sigma^2_{x\pi}}{(1-\rho_c)(1-\rho_\pi)}\right] + \beta^\pi_i\frac{k_{\varepsilon\pi}\sigma^2_{x\pi}}{1-\rho_\pi}.$$

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- **Intuition 3 / heterogeneity:** higher exposure to global inflation expectation (high β^{π}_i), higher inflation risk premium

What I like about this paper:

1. Research question is quite novel and relevant
   - Jointly explain more than one important carries in one framework
   - Time variation of performance
2. The writing is very clear and easy to follow

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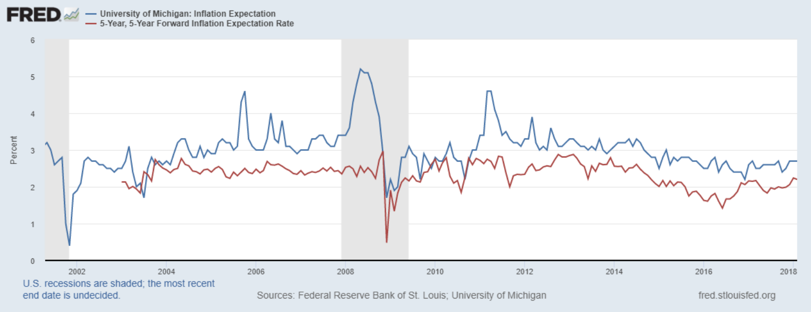

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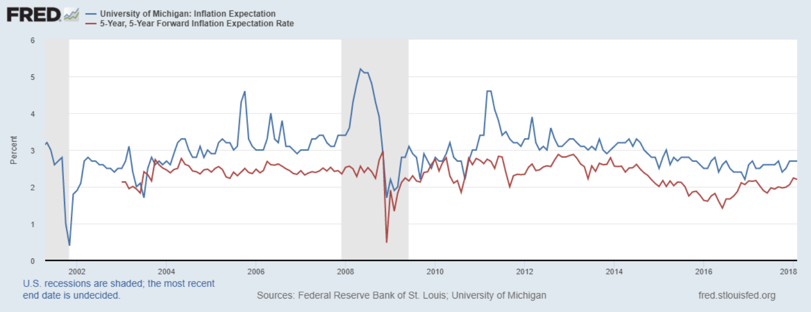

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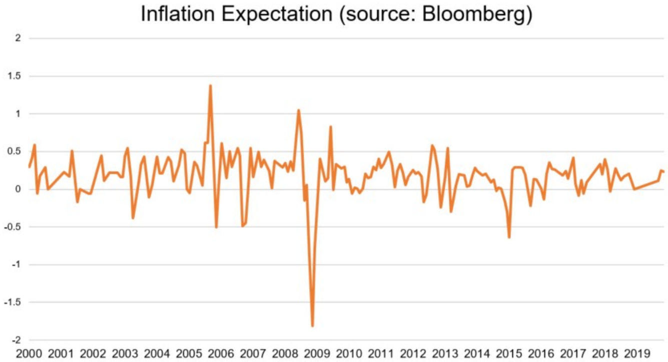
- Suggestion: A more statistical test for this core “regime” claim?

Digression: short-term inflation forecast? (1m)



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  1. Does country composition change even within the post-2008 sample?
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  3. Suggestion: A rolling-window demonstration of 1 and 2
- **In summary, Comments #1 and #2 so far suggest using 2 different approach to prove the regime claim**

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  2. Yield comovement literature (Jotikasthira, Le & Lundblad, 2015; higher (lower) long-term (short-term) bond comovement)
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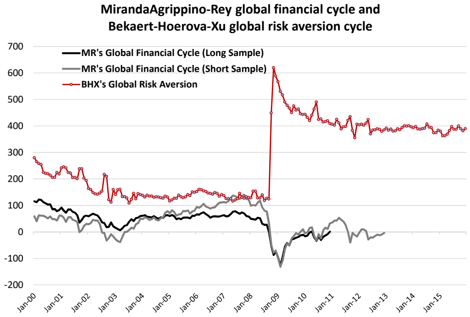

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- **One alternative hypothesis:**

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  $\longleftrightarrow$

  Steeper-slope country bucket

- Suggestion: **How to address this concern?**

  It will be really hard to incorporate this channel into the natural EZ-LRR framework (I must sympathize :)); perhaps acknowledging other potential channels that are not directly testable in the present framework would be helpful to help broaden the discussion and the impact

Conclusion

- I highly recommend this paper! It is very insightful and well written.
- Potential places to improve:
  1. Provide more direct evidence on the pre-/post-2008 regime switch (which is at the core of the sorting and the story) Comments #1 & #2
  2. International risk compensation + global financial cycle channel should be acknowledged to broaden the discussion Comments #3

Thank You!

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