Housing Cycles and Exchange Rates
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Objective

► Construct a residential-to-nonresidential investment ratio

► Show that this macroeconomic variable is a strong predictor for (1) changes in dollar, and (2) dollar excess returns

Motivation

- It is well known that exchange rate fluctuations are very difficult to predict using economic models, and that a random walk forecasts exchange rates better than any economic model (the Meese and Rogoff (1983) puzzle)

- A series of fundamental predictors and methodologies (single equation, multiple equation, panel, VAR, linear, nonlinear, MLE...) in combination of different sample periods and country sets were proposed:

TABLE 1
LITERATURE REVIEW: PREDICTORS AND ECONOMIC MODELS

Predictors (f_t)	Economic fundamentals	Mnemonics
$i_t - i_t^*$	Interest rate differentials	i
$F_t - s_t$	Forward discount	F
$p_t - p_t^*$	(log) price differentials	p
$\pi_t - \pi_t^*$	Inflation differentials	π
$y_t - y_t^*$	(log) Output differentials	y
$m_t - m_t^*$	(log) Money differentials	m
z_t	Productivity differentials	z
$b_t - b_t^*$	Asset differentials	b
$y_t^{gap} - y_t^{gap*}$	Output gap differentials	y^{gap}
nxa_t	Net foreign assets	nxa
CP_t	Commodity prices	CP

(see a detailed summary in Rossi, 2013, JEL)

- This paper fits in this literature

Main findings

- **The "relative price adjustment channel":**
  The price of nontradables are more determined by domestic supply and demand, whereas the price of tradables in an open economy are determined globally
  ⇒
  The effects of domestic nontradable output shocks on the price of nontradables >
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▸ **Hypothesis:**
The ratio of Residential investment (proxy for nontradable goods) to NonResidential investment (proxy for tradable goods) ↑

⇒ Dollar depreciates or the relative state price of ROW to U.S. increases, "because the residential investment share indicates the relative future supply of nontradables." (p. 9)

Main findings

- ▸ **Main empirical layout:**

    Cumulative Changes in Log Dollar Index$(t, h) = \alpha + \beta \times x(t) + \varepsilon(t, h)$ (1)

    - Sample period: 1971Q1–2016Q4
    - Dollar index: equal-weighted U.S. dollar index against a basket of currencies
      (↑, dollar appreciates)
    - $x(t)$: standardized R/NR ratio
      (↑, higher share of domestic residential investment)
    - β: coefficient of interest
      (found to be negative)
    - Robustness: alternative R/NR measures, subsamples, multiple predictors

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▸ **Extension 1:** Negative β coefficient in predicting currency risk premium

▸ **Extension 2:** Negative β coefficient in predicting other country currency's index
changes using their domestic housing cycle data

Comments:

A potentially nice contribution trying to understand:

1. The relationship between asset tradability and asset prices
   (which has been studied and linked to equity prices)

2. The relationship between macro fundamentals and currency pricing
   (which is typically found to be weak in empirical work)

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1. Economic interpretation — Is the evidence predicting exchange rates or
   predicting business cycles?

2. Several comments about the execution

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  ⇒ An alternative aggregate story: R/NR (housing cycle proxy) in the U.S. is strongly procyclical; hence, it could be simply indicating a good global economic environment and/or a lax global policy environment. Dollar depreciates when global economy is doing well. This story will be consistent with the literature on global risk – home bias – and exchange rate (e.g., Brunnermeier, Nagel and Pedersen (2008))

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▸ **Marrying two cyclical endogenous variables:**
Is your evidence predicting exchange rate or the global business cycle?

Main Comment: Economic Interpretation

▸ **This is a valid concern, given the international evidence in Table 6 (e.g., JPN R/NR ratio predicting the Yen index):**

Table 6: **International Evidence**

			Panel A: Exchange Rates		
h	1	2	4	8	12
AUS	0.83	0.01	0.33	0.48	0.52
	(0.31)	(0.00)	(0.18)	(0.35)	(0.48)
CAN	−2.05	−1.99	−2.12	−2.35	−1.08
	(−0.89)	(−1.10)	(−1.50)	(−2.16)	(−1.23)
EUR	−0.23	0.14	0.09	−0.20	−0.38
	(−0.22)	(0.18)	(0.14)	(−0.39)	(−1.02)
GBR	−5.90	−5.29	−4.56	−5.29	−4.66
	(−1.68)	(−1.81)	(−1.67)	(−2.10)	(−1.95)
JPN	−3.28	−3.54	−2.87	−2.42	−4.06
	(−1.24)	(−1.75)	(−3.28)	(−3.49)	(−1.66)
NOR	−0.90	−0.45	−0.65	−1.21	−1.15
	(−0.72)	(−0.48)	(−0.92)	(−2.46)	(−2.94)
NZL	0.03	0.20	0.12	−0.11	0.01
	(0.01)	(0.10)	(0.07)	(−0.08)	(0.01)
SWE	−1.23	−1.67	−2.45	−2.10	−1.62
	(−0.93)	(−1.43)	(−2.34)	(−2.49)	(−2.35)
USA	−4.75	−4.18	−4.61	−3.69	−3.04
	(−2.80)	(−2.80)	(−4.53)	(−3.99)	(−1.96)

1. We typically find safe-haven currencies (or those considered to be relatively safe in a physical or trading region) depreciate during global booms
2. Hence, one should expect the negative relationship is the strongest among these currencies.

Main Comment: Economic Interpretation

Two Suggestions:

1. The authors do explore a good range of predictors as controls, for instance, current IP growth. However, it might be helpful to include contemporaneous U.S. or business cycle indicators too. (There will be collinearity problems.)

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   - Under your theoretical motivation/nontradable supply, Canada's R/NR ratio will likely positively predict the USD (given the depreciating CAD)

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   ▸ Figure 4 shows different detrended patterns of country R/NR ratio → Very useful plot but was not discussed enough

Other Comments

1. Need to motivate why using R/NR, rather than R/(NR+R)? (I don't think the results will change much but R/(NR+R) can help the statistical interpretation.) Comparison (source: FRED):
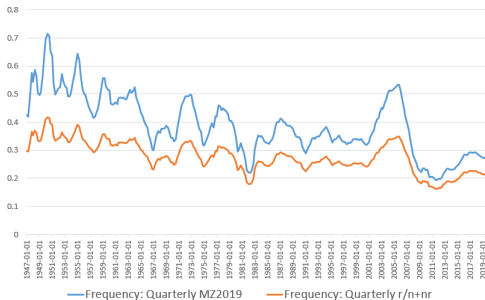
2. Which currency-US exchange rate is driving the result? It will be helpful to also report results using direct country-pair exchange rates, rather than a composite dollar index; perhaps by region, to conserve space. There, one can inspect whether there is anything specific about the dollars as well (the safe-haven story)

3. The abstract can be a little misleading; in theory, "limited international risk sharing" will not be a competing reason, rather more of an outcome variable of the three alternative explanations the paper explores ("aggregate risk", "capital flows", "market segmentation")

4. I feel the "risk premium" line of analysis might belong to another paper; or the paper will need a parsimonious theoretical framework that predicts the risk premium and dollar changes simultaneously

Conclusion

- ► I highly recommend it!

- ► To make it more convincing:

    1. Economic interpretations — Is your story predicting exchange rates, or predicting business cycles? What does the cross-predictive regression say?

    2. Several comments on the execution — Why choosing ratio over proportion? Does the risk premium line of analysis fit into the current paper?

Thank You!
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