

# Discussion: Dollar Beta and Stock Returns (Bruno, Shim and Shin)

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- The study is an empirical analysis of the relationship between FX and equity returns
- The authors aim to address the following questions:
  - ① In the context of EMEs, are high equity returns (in local currency) associated with an appreciation of the local currency?
  - ② If so, what is the sensitivity of equity returns to (US dollar) exchange rate changes?
  - ③ Is there any common/global driver governing such sensitivity?
  - ④ What are the implication for the pricing of EMEs equities?

# Key Findings

- ① High equity returns are associated with an appreciation of the local currency → **US dollar returns are amplified (for a US/global investor)**
- ② The “Dollar return multiplier” is **larger than one** for EMEs → **US dollar-denominated equity returns > local-currency equity returns**
- ③ A **broad US dollar index** plays an important role in explaining the cross-section of EMEs’ equity returns
- ④ The broad US dollar index **beta (i.e. quantity of risk)** is found to explain a sizeable fraction of the cross-sectional variability of EMEs’ equity returns

# Theory: International Equity and FX Returns (Cenedese et al., 2015)

- Standard no-arbitrage asset pricing with a US risk-averse investor:

$$\begin{aligned} 1 &= E_t \left( R_{r,t+1}^h m_{t+1}^h \right) = E_t \left( R_{r,t+1}^h \right) \frac{1}{R_{f,t}^h} + \text{cov}_t \left( m_{t+1}^h, R_{r,t+1}^h \right) \\ 1 &= E_t \left( R_{r,t+1}^j \right) E_t \left( \frac{S_{t+1}}{S_t} \right) \frac{1}{R_{f,t}^h} + \text{cov}_t \left( m_{t+1}^h, \frac{R_{r,t+1}^j S_{t+1}}{S_t} \right) + \\ &\quad \text{cov}_t \left( R_{r,t+1}^j, \frac{S_{t+1}}{S_t} \right) \frac{1}{R_{f,t}^h}. \end{aligned}$$

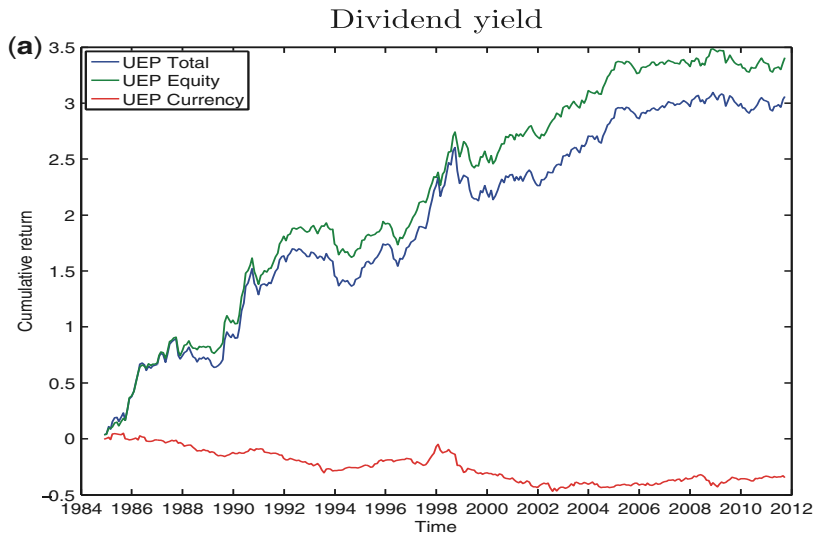
- Assuming log-returns and rearranging leads to

$$E_t \left( r_{r,t+1}^j \right) = -E_t \left( \Delta s_{t+1} \right) + E_t \left( r_{r,t+1}^h \right) + rp_{r,t+1}^j - rp_{r,t+1}^h + \eta_{t+1}$$

- The asset pricing derivation suggests that the relationship between international equity returns and FX returns is affected by a set of risk premia in both equity and FX markets (Cenedese et al., 2015).
- The Uncovered Equity Parity condition (Hau and Rey, 2006) states **FX risk premia should offset the equity premia differential in local currency** (perfect negative correlation)
- However, such high negative correlation does not usually materialise, as **the size of the correlation between LC equity and FX returns depends on the variance and covariance properties of the risk premia terms**

- **Bruno et al:** 1% depreciation of the US dollar results in increased LC equity returns of 0.22% per week
- **Hau and Rey (2006):** The correlation between daily FX returns and equity return differentials is between -5% and -7% (17 OECD countries, 1980-2001)
- **Cenedese et al (2015):** The returns from the UEP strategy (i.e. long high expected LC equity returns, short low expected LC equity returns) originate from the equity component. The FX component is negligible. (42 countries, 1983-2011)

# Decomposing UEP Deviations





# Economic Significance?

- The FX returns seem to have a small correlation (either positive or negative) with LC equity returns
- ① What is the impact of the the missing variables (risk premia and domestic equity returns) in the framework tested in the paper?
- ② Is the result due to the specific EME focus?

# Empirics: Expected vs Actual Returns?

- The theory suggests a relationship between **expected** equity and FX returns
- The empirical exercise however looks at the relationship between **actual** equity and FX returns

$$r_{r,t+1}^j = -\Delta s_{t+1} + r_{r,t+1}^h + rp_{r,t+1}^j - rp_{r,t+1}^h + \eta_{t+1} + \rho_{t+1}$$

- This either assumes the validity of the Rational Expectations Hypothesis (i.e.  $E(\rho_{t+1}) = 0$ ) or the empirics should take into account for potential biases
- In addition, rational expectation errors may also affect the sign and size of the correlation between international equity and FX returns.

# Monetary and FX Policies in EMEs: Do They Play A Role?

- Equity and currency returns are computed without the explicit consideration of the risk-free rates (i.e. are not **excess returns**).
- **Short-term interest rates** (moving closely with policy rates) can be volatile in EMEs → i) affecting the variability of excess returns/risk premia ii) co-move with exchange rates (Mohanty, 2004)
- **Bilateral USD exchange rates** are found to play a minor role for the pricing the cross section of EMEs equity returns → i) What are the implications of the results for exchange rate policies (US dollar vs idiosyncratic bilateral effects) (Verdelhan, *JF* 2018)? ii) what is unique about Asian EMEs (bilateral exchange rate shocks are significant)

- A **single factor analysis** may benefit from benchmarking against other options (single or multi factors)
- **Which factors?:** International asset pricing models suggest various alternatives: Carry trade factors (Lustig et al., *RFS* 2011), global FX volatility (Menkhoff et al., *JF* 2012), international liquidity (Mancini et al., *JF* 2013), Business cycle and global imbalances (Colacito et al., *JFE* 2020; Della Corte et al., *RFS* 2016)...
- **Methods?:** Pricing errors explanations (RMSEs), HJ (1997) distance measure, A more critical assessment in the spirit of Lewellen et al. (*JFE* 2010) or Harvey et al. (*RFS* 2015)...

- The paper is motivated in the spirit of the literature on the analysis of “risk-on risk-off” episodes
- Theory: An asset pricing framework aiming to include “risk-on risk-off” episodes should consider **time-variation in the price of risk (hence time-variation in the investor’s risk aversion)** (Cochrane, 2005)
- Empirics: **Conditional asset-pricing models** should be then estimated to ascertain the magnitude and dynamics of time-varying prices and quantities of risk (Ferson, 2012; Nagel and Singleton, *JF* 2011; Adrian et al, *IMF SR* 2019)