U. s. dollar essay

Economics, Currency

While the uncovered interest rate parity (I-JIB) hypothesizes that the carry gain due to the interest rate differential is offset by a commensurate depreciation of the investment currency, empirically the reverse holds, namely, the investment currency appreciates a little on average, albeit with a low predictive RE (see, e.

G. , Fame 1984). This violation of the Alp-? often referred to as the “ forward premium puzzle”-? is precisely what makes the carry trade profitable on average. Another puzzling feature of currencies is that dramatic exchange rate movements occasionally happen without monumental news announcements, for example, the large depreciation of the U.

S. Dollar against the Japanese yen on October 7 and 8, 1998, depicted in figure 1. 1 This reflects the broader phenomenon that many abrupt asset price movements cannot be attributed to a fundamental news events, as documented by Cutler and Summers (1989) and Fair (2002).

We conjecture that sudden exchange rate moves unrelated to news can be due to the unwinding of carry trades when speculators near funding constraints. This idea is consistent with our findings that (I) investment currencies are subject to crash risk, hat is, positive interest rate differentials are associated with negative conditional keenness of exchange rate movements; (it) the carry, that is, interest rate differential, is associated with positive speculator net positions in investment currencies; (iii) speculators’ positions increase crash risk; (iv) carry trade 2009 by the National Bureau of Economic Research. All rights reserved. 978-0-226-00204-0/2009/2008-0501$10. 00 314 Predetermine, Angel, and Petersen Fig.

1. U. S. Alular/Japanese yen exchange rate from 1996 to 2000 losses increase the price of crash risk but lower speculator positions and the arability of a crash; (v) an increase in global risk or risk aversion as measured by the FIX equity-option implied volatility index coincides with reductions in speculator carry positions (unwind) and carry trade losses; (vi) a higher level of FIX predicts higher returns for investment currencies and lower returns for funding currencies, and controlling for FIX reduces the predictive coefficient for interest rate differentials, thus helping resolve the I-JIB puzzle; (vii) currencies with similar levels of interest rate come with each other, controlling for other effects. (viii) More generally, the crash sis we document in this paper may discourage speculators from taking on large enough positions to enforce I-JIB. Crash risk may thus help explain the empirically well-documented violation of the I-JIB.

Our findings share several features of the “ liquidity spirals” that arise in the model of Predetermine and Petersen (2009). They show theoretically that securities that speculators invest in have a positive average return and a negative keenness. The positive return is a premium for providing liquidity, and the negative keenness arises from an asymmetric response to fundamental shocks: shocks that lead to speculator shoes are amplified when speculators hit funding constraints and unwind their positions, further depressing prices, increasing the funding problems, volatility, and margins, and so on. Conversely, shocks that lead to speculator gains are not amplified. Further, Predetermine and Petersen (2009) show that securities where speculators have long positions will move together, as will securities that they short.

In the currency setting, we can envision a country suddenly increasing its interest rate and thereby attracting foreign capital-? possibly worsening the current account. 2 In a frictionless and risk-neutral economy, this should lead to an immediate appreciation of the currency-? associated with an inflow of capital-? and a future depreciation of the exchange rate such that I-JIB holds. In the presence of liquidity constraints, 315 however, capital only arrives slowly such that the exchange rate only appreciates gradually, occasionally disrupted by sudden depreciations as speculative capital is withdrawn. Mitchell, Petersen, and Pulling (2007) document the effect of slow- moving capital in other markets. In contrast, a crash after a “ currency bubble,” which an emerge when each investor holds on to his carry trade position too long since he does not know when others unwind their position, can be price correcting (Baber and Predetermine 2003). Planting and Shin (2007) show in a dynamic global games framework that carry trades can be destabilize when strategic complementarities arise, which is the case if (I) speculators’ trades occur sequentially in random order and as in Predetermine and Petersen (2009), trading requires capital and margins requirements become more stringent when liquidity is tight. Our empirical findings suggest an initial undercoating due to slow-moving capital subject to equity risk but are also consistent with a long-run overreaction.

Our empirical study uses time-series data on the exchange rates of eight major currencies relative to the U. S. Dollar. For each of these eight currencies, we calculate realized keenness from daily data within (overlapping) quarterly time periods. We show in the cross section and in the time series that high interest rate differentials predict negative keenness, that is, carry trade returns have crash risk.

Our finding is consistent with the saying among traders that “ exchange rates go up by the stairs and down by the elevator. We note that this saying must be understood conditionally: currencies do not have unconditional keenness-? that is, the keenness of a randomly chosen currency pair is zero-? because country Ass positive keenness is country Bi’s negative keenness. Hence, our finding is that the trader saying holds for investment currencies, while the reverse holds for funding currencies. Further, we find that high interest rate differentials predict positive speculator positions, consistent with speculators being long the carry trade on average. The top panel in figure 2 clearly shows a negative allegations between average currency keenness and the average interest rate differential. We see that the countries line up very closely around the downward sloping line, with an RE of 81%.

For example, keenness is positive and highest for Japanese yen (a “ funding currency’), which also has the most negative interest rate differential. At the other end of the keenness spectrum, one finds the the two major “ investment currencies” Australian and New Zealand dollar, which have the second- highest interest rate differentials. Next, we study the risk premium associated with crash risk, that is, the “ price” of crash risk. In particular, we consider the so-called risk reversal, which is the implied volatility of an out-of-the-money call Fig. 2. Cross-section of empirical keenness (top panel) and of risk reversal (bottom panel), reflecting implied (risk-neutral) keenness, for different quarterly interest rate differentials IΓ? Γ? I. 17 option minus the implied volatility of an equally out-of-the-money put.

If the exchange rate is symmetrically distributed under the risk-neutral measure, then the risk reversal is zero since the implied volatilities are the same. This means that the cost of a call can be offset by shorting the put. On the other hand, if the risk-neutral distribution of the exchange rate is negatively (positively) skewed, the price of the risk reversal is negative (positive). Hence, the risk reversal measures the combined effects of expected keenness and a keenness risk premium.

Said differently, it measures the cost of buying protection on a currency position to limit the possible gains and losses. In the cross section, the average implied keenness from risk reversals is also negatively related to the average rate differential (bottom panel of fig. 2), suggesting a close cross-sectional relationship between our physical keenness measure and the sis-neutral implied keenness. The time-series relationship between actual keenness and price of a risk reversal contract is more surprising: a higher risk reversal predicts a lower future keenness, controlling for the interest rate differential. This finding is related to our finding that carry trade losses lead to lower speculator positions, a higher risk reversal, and a lower future keenness, though we must acknowledge the possible peso problem in estimation. Hence, after a crash, speculators are willing to pay more for insurance, the price of insurance increases, and the future crash risk goes down, perhaps because of the smaller speculator positions. This has parallels to the market for catastrophe insurance as documented by Front and

O'Connell (1999) and Front (2001). Funding constraints are likely to be particularly important during financial dislocations when global risk or risk aversion increases, leading to possible redemption's of capital by speculators, losses, increased volatility, and increased margins.

To measure this, we consider the implied volatility of the S&P 500, called the FIX. Note that the FIX, which is traded at the Chicago Board Options Exchange (CUBE), s not mechanically linked to exchange rates since it is derived from equity options. We show that during weeks in which the FIX increases, the carry trade tends to incur losses. We also find that risk-reversal prices and carry trade activity (both contemporaneous and predicted future activity) decline during these times. The decrease in the price of risk reversals could be due to an increase in the price of insurance against a crash risk, or it could simply reflect an objective increase in the probability of a crash.

As another proxy for funding liquidity, we also examine the effect of the TED spread, the difference between the London Interbrain 318 Offered Rate (LABOR) interbrain market interest rate and the risk-free T-Bill rate. An increase in the TED spread has effects similar to an increase in the FIX although with less statistical power. Further, we find that high levels of the TED and the FIX predict higher future returns to the carry trade, that is, relatively higher returns for high interest currencies and low returns to low interest currencies. Importantly, controlling for this effect reduces the predictability of interest rates, that is, this helps o explain the I-JIB violation.

Overall, these findings are consistent with a model in which higher implied volatility or TED spread leads to tighter funding liquidity, forcing a reduction in carry trade positions, thus making the undercoating stronger and returns higher going forward. Finally, we document that currencies with similar interest rate come, controlling for certain fundamentals and country-pair fixed effects. This could be due to common changes in the size of the carry trade that lead to common movements in investment currencies, and common opposite movements in funding currencies. The structure of the paper is the following. Section II provides a brief summary of related papers. Section Ill describes the data sources and provides summary statistics. Our main results are presented in Section ‘ V.

Section V concludes. II. Related Literature There is an extensive literature in macroeconomics and finance on the forward premium puzzle, which focuses implicitly on the mean return of the carry trade. FRR and Thales (1990), Lewis (1995), and Engel (1996) are nice survey articles. The forward premium puzzle is also related to Mess and Rigorous (1983) finding that exchange dates follow a “ near random walk” allowing investors to take advantage of the intern differential without suffering an exchange rate depreciation.

It is only a near random walk since high-interest-bearing currencies even tend to appreciate (albeit with a I forecast RE) and in the long run exchange rates tend to converge to their purchase power parity levels. More recently, Bacteria and van Wincing (2007) attribute the failure of I-JIB to infrequent revisions of investor portfolio decisions. Lusting and Verandah (2007) foci on the cross-sectional variation between the returns of high and low interest rate irenics and make the case that the returns on currencies with high interest rate have higher loading on 319 consumption growth risk.

Burnside (2007) argues, however, that their model leaves unexplained a highly significant excess zero-beta rate (I. E. , intercept term), and Burnside et al. (2006) find that the return of the carry trade portfolio is uncorrelated to standard risk factors, attributing instead the forward premium to market friction (bid-ask spreads, price pressure, and timesharing adverse selection in Burnside, Ichneumon, and Rebel [2007]). JulyΓ, Letting, and Summoned (2008) argue that inflation risk is higher in high interest rate currencies and show a positive relationship between carry trade returns and hedge fund indices. Our analysis is among the first to examine empirically the keenness of exchange RA movements conditional on the interest rate differential, that is, on the crash risk of carry trade strategies.

Affair and Gigabit (2008) develop a model in which the forward premium arises because certain countries are more exposed to rare global fundamental disaster events. Their model is calibrated to also match keenness patterns obtained from FAX (foreign exchange) option prices. Instead of focusing on exogenous extreme productivity shocks, we provide evidence consistent with a thee that currency crashes are often the result of endogenous unwinding of carry trade activity caused by liquidity spirals.

Banish (2007) argues that carry trades are essentially short volatility and documents that option- based carry trades yield exec returns. Jerk (2007) finds that the return to the carry over the period 1999-2007 WI downside protection from put options of various moneys is positive. Further, he finds that the more protection one buys on the carry trade, the smaller is the aver turn and Sharpe ratio. Ronald and SΓ¶dirndl's (2007) finding that safe-haven currencies appreciate when stock market volatility increases can be related to our third set of findings that unwinding of carry trades is correlated with the volatility index, FIX.

Agony and Chapbook (2007) focus primarily on the U. S. Dollar to Japanese yen exchange rate and link the crashes to balance sheet data of the official sector, the Japanese banking sector and households. Galatia, Heath, and McGuire (2007) poi to additional data sources and net bank flows between countries that are useful for capturing carry trade activity. Egalitarian and Weir (2004) make use of weekly net position data on futures traded on the CAME-? as we do-? and document a contemporaneous (but not predictive) relationship between weekly changes in speculators' net positions and exchange rate moves.

Finally, there are numerous papers that study crash risk and keenness in the stock market.