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Abstract

No, not according to our data. Using a unique data set, we run panel regressions to test whether professional forecasters believe in uncovered interest rate parity (UIP). Specifically, we test whether the interest rate expectations for individual forecasters are in line with their exchange rate expectations using the UIP condition. This new approach allows us to test directly whether forecasters believe in UIP. We find that professional forecasters generally do not believe in UIP across a range of currencies and horizons. Given the prevalence of the UIP condition in our international macro models, these results reiterate the importance of finding the drivers for these deviations.

JEL: F31, F37

Keywords: Focus Economics, Bloomberg Survey, Exchange Rates

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1 Introduction

One fundamental relationship in international macroeconomics and finance is the non-arbitrage condition between interest rates and exchange rate expectations. Specifically, the return earned by investing 100 US Dollar in a US deposit for three months should be the same as the expected return when exchanging the USD into foreign currency today, place the foreign currency into an equivalent foreign deposit account for three months and exchanging the foreign currency back into USD at the end of the three month period using the expected exchange rate. This non-arbitrage condition is uncovered interest rate parity (UIP). More formally,

$$E(s_{t+1}) - s_t = i_{t,X} - i_{t,USD} \tag{1}$$

where $E(s_{t+1})$ is the log of the expected spot exchange rate in three month's from period t denoted as foreign per USD s_t is the log of the current spot exchange rate, $i_{t,X}$ is the (log of the) foreign interest rate earned when depositing money for the next three months and $i_{t,USD}$ is the (log of the) corresponding US deposit interest rate.[1]

The literature has found mixed results when testing whether this condition holds. Fama (1984) famously showed that this condition does not hold ex post. Specifically, when replacing the expected exchange rate with the realized one, he found the coefficient to be negative leading to the forward premium puzzle. More recent estimates find the coefficient to be insignificant in many cases (e.g. Engel et al. (2022) and Zigraiova et al. (2021)) or slightly positive but below unity (e.g. Baillie et al. (2023)). Direct tests of equation 1 using survey expectations are more scarce. The literature using surveys of professional forecasters often found that the unity coefficient cannot be rejected in line with UIP (e.g. Frankel and Froot (1987), Ito (1990), Cuestas et al. (2015)). However, the standard errors are typically so large that a wide range of coefficients including negative ones cannot be rejected either. The direct

[1]This non-arbitrage condition assumes that there are no transaction costs and that the risk of the two investment strategies is identical.

test of this relationship is complicated by the question whether the consensus of professional forecasters reflects the market expectations or not.

Professional forecasters are at the forefront of exchange rate modelling. Hence should UIP hold, their predictions should be in line with UIP. In order to test this, one cannot simply use exchange rate predictions and compare them to the realized interest rates. The reason for this is that professional forecasters are typically assumed to obtain a private signals about the future path of financial variables. This might lead them to predicting different future paths from current market rates. This can be exacerbated by the fact that they tend to overreact to private signals (e.g. see Bürgi and Ortiz (2022), Bordalo et al. (2020)). In addition, due to reputational concerns they might deviate from consensus (e.g. see Ehrbeck and Waldmann (1996)). One way around these issues is to collect both predictions for interest rates and exchange rates for each forecaster and then compare the future path implied by interest rates to the future path implied for exchange rates. If forecasters believe in UIP, their predicted three month interest rates at the end of the year should be in line with the predicted change in the exchange rate for the three month period starting at the end of the year.

Previous research on whether forecasters follow economic theory like the Phillips Curve, Okun's law or the Taylor rule found that the relationships broadly hold (e.g. see Pierdzioch et al. (2011), Ball et al. (2015), Fendel et al. (2011), Casey (2020) and Mitchell and Pearce (2010)) and that following the relationships can improve forecasts An et al. (2019). Following this literature, we next assess whether forecasters can improve their predictions by placing a different weight on their interest rate predictions. This allows us to assess whether forecasters that do not follow/believe UIP could improve their prediction by following UIP.

After running baseline regressions, we conduct a number of robustness checks. These include to ensure our results are not driven by risk premia that cause deviations in covered interest rate parity (e.g. see Avdjiev et al. (2019) and Cerutti et al. (2021)). We employ another data set to validate our results there.

The remainder of the paper is structured as follows: The next section describes our data followed by some traditional tests of UIP. Next we present our main result and check whether forecasters are right at not followign UIP. In the last two sections we have our robustness checks and conclude.

2 Data

We start with a description of our data set. We collected historical data for three month interest rates and exchange rates for the US, Canada, the Euro Area, the UK, Switzerland, Japan, Poland and Turkey from Bloomberg together with the predictions for these variables. The data availability varies by variable but the main data is monthly for the five year period 2012-2016. This means we can test UIP for the currencies EUR/USD, GBP/USD, USD/CAD, USD/CHF, USD/JPY, USD/PLN and USD/TRY. Given the relatively short time frame, we also obtain monthly data from FocusEconomics for the US, Euro Area, the UK, and Thailand for the period 2009-2020 as an additional data source.

In terms of scope, the number of forecasters across currency pairs are shown in Table 1. Given the requirement of predicting both interest rates and bilateral exchange rates simultaneously, it is to be expected that the numbers are much smaller than the number of forecasters for each variable individually.

Table 1: Forecasters Per Currency Pair

Bloomberg Currency	No. of Forecasters	FocusEconomics Currency	No. of Forecasters
EUR	19	EUR	23
GBP	14	GBP	20
JPY	12	THB	7
CHF	9		
CAD	6		
PLN	5		
TRY	5		

3 Traditional Tests of UIP

3.1 Fama-Test For Excess Returns

While not directly testing uncovered interest rate parity, the excess returns test or forward premium test by Fama (1984) is an important starting point. Instead of interest rates matching the expected exchange rate returns, this test checks whether interest rates match the realized exchange rate returns. To this end, we use 3m interest rates and 3m changes in exchange rates at a quarterly frequency. Let s_t and s_{t+1} denote the log exchange rates in terms of currency X per USD, and $i_{t,X}$ be the interest rate on currency X at time t. Then the ex post UIP condition of Fama (1984) is

$$s_{t+1} - s_t = \alpha + \beta(i_{t,X} - i_{t,USD}) + \varepsilon_t, \tag{2}$$

Assuming that $E_t(s_{t+1} - s_t) = s_{t+1} - s_t + \nu_t$ and $cov(\nu_t, (i_{t,X} - i_{t,USD})) = 0$, UIP would imply a coefficient $\beta = 1$ in equation 2. The condition $cov(\nu_t, (i_{t,X} - i_{t,USD})) = 0$ is very important and should be checked as it could lead to biased coefficients.[2] As shown in Table 2, UIP cannot be rejected for six of the seven currency pairs. However, neither can $\beta = 0$

[2]For example, if UIP was not efficient but expectations follow UIP, the estimate will be biased. Similarly if UIP was efficient but expectations deviate from it, there would be a bias as well.

be rejected for any of them. Those estimates are in line with Engel et al. (2022), who found that since the regression by Fama (1984), the coefficients have changed from negative to insignificant.

Table 2: Replicating Fama (1984)

	Coef	SE	CIlow	CIhigh	Obs
CAD	7.165	8.071	-9.276	23.605	34
CHF	3.747	5.698	-7.820	15.314	37
EUR	6.491	4.182	-1.893	14.876	56
GBP	**9.110****	4.028	1.018	17.201	52
JPY	11.900	6.615	-1.441	25.241	45
PLN	0.772	2.621	-4.534	6.079	40
TRY	-0.484	1.930	-4.432	3.463	31

Note: The table shows time-series regressions with Newey-West standard errors in brackets; *p<0.1; **p<0.05; ***p<0.01; bold values are significantly different from 1 at the 95% level.

3.2 Ex-ante Test For UIP

Next, we check whether average predictions by professional forecasters are in line with UIP by estimating equation 1 directly. This means that we replace the 3m (log) change in the exchange rate in equation 2 with the 3m prediction in the exchange rate and estimate

$$E(s_{t+1}) - s_t = \alpha + \beta(i_{t,X} - i_{t,USD}) + \varepsilon_t. \tag{3}$$

Note that in both types of regressions so far, we only include forecasters for which we have both interest rate and exchange rate predictions.

The results are shown in Table 3. Again (and in line with Frankel and Froot (1987)), while the results typically do not reject a coefficient of $\beta = 1$ and hence can be seen as evidence in support of UIP, they cannot reject $\beta = 0$ either. As a result, these regressions have limited usefulness for testing whether forecasters believe in UIP. This problem is exacerbated by the question, whether these predictions by professional forecasters are identical

Table 3: Average forecasters

	Coef	SE	CIlow	CIhigh	Obs
CAD	4.870	4.032	-3.343	13.083	34
CHF	3.465	1.799	-0.188	7.118	37
EUR	**3.258*** **	0.423	2.410	4.105	56
GBP	**5.235*** **	0.293	4.646	5.823	52
JPY	-0.622	1.293	-3.230	1.986	45
PLN	3.164	2.189	-1.267	7.595	40
TRY	0.209	1.204	-2.255	2.672	31

Note: The table shows time-series regressions with Newey-West standard errors in brackets; *p<0.1; **p<0.05; ***p<0.01; bold values are significantly different from 1 at the 95% level.

to market expectations and whether their future interest rate expectations match the market expectations. We will address these issues in the next section. Note that this regression does not have the potentially problematic covariance assumption of equation 2.

4 Do Forecasters Believe in UIP

In order to check whether forecasters believe in UIP, we ignore the current quarter horizon and only look at future quarters. We collect interest rate predictions for each forecaster for both countries in question and check whether the predicted 3m interest rate differential is in line with the predicted change in the exchange rate. If forecasters believe in UIP, their predicted exchange rate change should match the one implied by their interest rates differential. That is

$$E_{t,t+h+3}(s_{t+h+3}) - E_{t,t+h}s_{t+h} = \alpha + \beta(E_{t,t+h}i_{t+h,X} - E_{t,t+h}i_{t+h,USD}) + \varepsilon_t. \tag{4}$$

Where $E_{t,t+h+3}$ is the expectation made in period t for $t+h+3$ months ahead. Since this regressions only relies on predictions made by professional forecasters, $\beta \neq 1$ implies that they are not producing predictions in line with UIP which suggests that they do not believe in UIP. As professional forecasters are at the forefront of the prediction of market variables,

if professional forecasters do not believe in UIP, this implies that UIP is not useful at making predictions. This would then be strong evidence against UIP. A crucial thing to note here is that believing in UIP implies that the interest rate predictions are closely aligned with the exchange rate prediction every period aside from rounding. Hence the standard errors should be very small.[3]

Table 4: Three dimensional panel regressions

	(1) Q1		(2) Q2		(3) Q3	
CAD	0.195	(3.355)	2.632*	(1.527)	2.566**	(1.223)
CHF	1.362	(2.409)	2.596	(3.548)	3.177	(2.143)
EUR	**-2.683**	(1.742)	1.856	(1.536)	1.155	(1.350)
GBP	**-5.828*** **	(2.092)	-1.056	(1.984)	-0.875	(1.186)
JPY	**-1.507**	(1.016)	1.033	(0.794)	1.087	(1.229)
PLN	1.529	(1.763)	-1.465	(1.683)	3.623*	(2.021)
TRY	0.182	(0.785)			0.090	(0.734)

Note: The table shows panel regressions with double clustered standard errors (i and t) in brackets; *p<0.1; **p<0.05; ***p<0.01; bold values are significantly different from 1 at the 95% level.

Table 4 reports the coefficient of interest for all currencies in our sample and different horizons. While a unity coefficient cannot be rejected for most estimates, a coefficient of zero cannot be rejected either. While only some estimates outright reject the unity coefficient (for some of the cases with negative coefficients), none of the estimates shows a coefficient close to unity with tight standard errors. Different from results on Fama specification and average forecaster, tests on individual forecasters show that they deviate from the implications of UIP in terms of magnitudes as well as the direction when forming exchange rate forecasts. Several coefficients are negative though most of them are insignificant. This means that professional forecasters in our sample do not follow UIP closely if at all. We will also follow up on the directional tests in the next section.

[3]Indeed, if forecasters fully believed in UIP and the interest rate predictions are perfectly in line with the exchange rate, the coefficient should be equal to unity with a standard error of zero.

5 Should Forecasters Weight Interest Rates Differently

The regressions in the previous section showed that forecasters deviate from UIP quite often. This raises the question whether this deviation is justified or not. This can be tested by checking whether the interest rate differential can explain the prediction error. That is

$$E_t(\Delta s_{t+h+3}) - \Delta s_{t+h+3} = \alpha + \beta(E_{t,t+h} i_{t+h,X} - E_{t,t+h} i_{t+h,USD}) + \varepsilon_t. \tag{5}$$

So the interest rate differential (known in period t) should not be able to explain the prediction error of the exchange rate if forecasters make efficient predictions.

Table 5 shows the coefficients of interest rate differentials for seven currencies and different leads. In most cases, professional forecasters use the efficient weight on the interest rate differential. Together with not generally following UIP, this efficient weight implies that they should not follow UIP either. In some cases however, professional forecasters should weight the interest rate differential differently, but this again does not generally align with UIP.

Table 5: Optimal weight on interest rates?

	(1) Q1		(2) Q2		(3) Q3	
CAD	0.076	(4.964)	17.502***	(4.510)	10.513***	(3.540)
CHF	-11.165**	(4.508)	-4.088	(9.833)	7.610	(7.872)
EUR	-2.471	(3.981)	-2.807	(3.756)	0.982	(3.364)
GBP	-15.020***	(3.703)	-36.185***	(2.737)	-13.361***	(3.425)
JPY	14.871***	(4.080)	25.803***	(6.083)	7.403	(7.915)
PLN	0.493	(3.650)	4.891	(3.551)	-1.642	(5.020)
TRY	-0.085	(1.201)			3.807**	(1.817)

Note: The table shows panel regressions with double clustered standard errors (i and t) in brackets; *p<0.1; **p<0.05; ***p<0.01.

A very similar regression to the one just reported can test the important assumption for the Fama regression to be valid. It requires that the prediction error is uncorrelated with the

difference in interest rates. In order to test this, one can modify equation 3 by replacing the predicted change in the exchange rate with the prediction error. That is

$$E(s_{t+1}) - s_{t+1} = \alpha + \beta(i_{t,X} - i_{t,USD}) + \varepsilon_t. \tag{6}$$

If the β coefficient is significantly different from zero, then the prediction error is correlated with the interest rate differential and hence the Fama regression will be biased. This regression maintains the caveat that we assume that market expectations are equal to the average expectations of professional forecasters.[4]

Table 6: Biased Fama regression?

	Coef	SE	CIlow	CIhigh	Obs
CAD	2.295	9.910	-17.890	22.480	34
CHF	0.282	5.836	-11.565	12.128	37
EUR	3.234	4.024	-4.834	11.302	56
GBP	3.875	3.915	-3.989	11.739	52
JPY	12.522*	6.250	-0.083	25.127	45
PLN	-2.391	3.791	-10.066	5.283	40
TRY	-0.693	1.364	-3.482	2.096	31

Note: The table shows time-series regressions with Newey-West standard errors in brackets; *p<0.1; **p<0.05; ***p<0.01.

Table 6 shows the regression results. For all currencies except for the Japanese Yen, the coefficient is clearly indistinguishable from zero. This suggests that the Fama regression is unbiased for this specific time period and currencies. However, the borderline significance of the JPY implies that one needs to be careful about biases when running the Fama regression as a test of UIP.

[4]We specifically avoid the use of expectations based on forward rates since these are influenced by covered interest rate parity.

6 Robustness

While our baseline results are indicative that forecasters do not follow UIP, we conduct a number of robustness checks to ensure our results are not driven by a particular assumption made. We look at five specific robustness checks. First whether forecaster level regressions alter the results, second whether deviations form covered interest rate parity matter, then whether knowing the actual interest rates can help prediction, whether following UIP improves forecast and last but not least whether an alternative data set results in the same conclusions.

6.1 Individual Level Results/Direction

So far, we only looked at regressions using the average prediction and a panel. It might be the case that our results are purely driven by the distribution across forecasters and a few outliers are driving the results. We assess this in two ways. First, we run individual level regressions and look at the distribution of coefficients. Next, we look at the proportion of forecasts with the same direction as UIP made by each forecaster. Since for quite a few forecasters, the prediction is always opposite to UIP, we cannot run some of the standard tests like Pesaran and Timmermann (1992), or Anatolyev and Gerko (2005) and have to restrict ourselves to showing the proportions. These tests also allow us to gain some insights into what forecasters believe if their predictions do not follow UIP.

We run regressions for each forecaster separately and look at the distribution of coefficients. In figure 1, we show the distribution for each of the three horizons and pooled across the horizons. Similarly to the average results, most coefficients are not statistically different from 1, seemingly consistent with the UIP condition. However the coefficients are also not significantly different from other values such as -2, 2 or even more extreme values. If all forecasters truly believed in UIP, the regression would be a perfect fit with a coefficient of

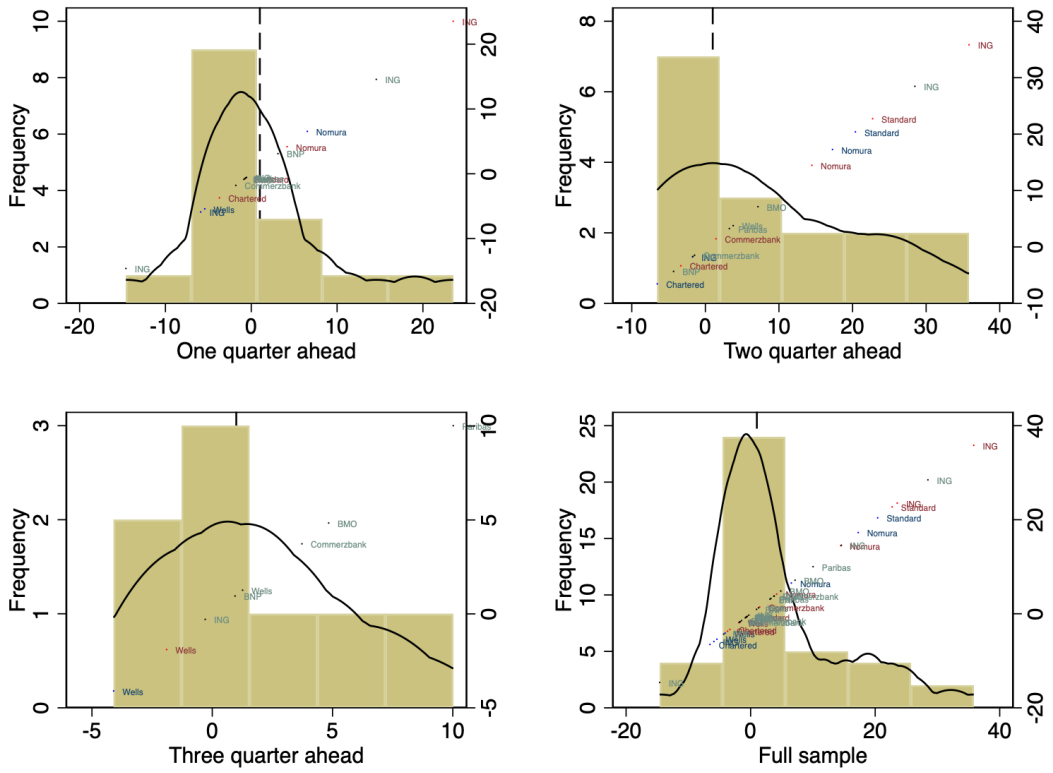


Figure 1: Coefficients of individual forecaster and currency level least squares regressions. Color blue: UK. Color red: Euro. Color Black: others.

The figure plots a histogram and kernel density of the UIP coefficient for individual forecaster OLS regressions for the three horizons separately and pooled across horizons. The exact values for each forecaster are shown on the diagonal.

one and a standard error of zero. This is clearly not the case here.

Next, we look at the directions of the predictions. UIP implies that the currency with the higher interest rate should depreciate. For each forecaster, we check for what share of the predictions the higher interest rate currency is expected to depreciate. We then plot a histogram (and kernel density) of this share in Figure 2. While there are some forecasters that have a reasonably large share of predictions that expect the higher interest rate currency to depreciate, there are many more that think the opposite. Indeed, it appears that the mode of the distribution generally predicts that the higher interest rate currency appreciates, the opposite of UIP. This provides us with an important insight into the thinking of individual forecasters. Predicting that high interest rate currencies appreciate is in line with the assumption of a profitable carry trade and in turn either peso problems (Burnside et al. (2011)) or consumption risk smoothing (Lustig and Verdelhan (2007)). Note that while these theories are in line with the predictive behavior of some forecasters, most forecasters are sometimes in line with UIP and sometimes not suggesting that factors other than UIP and the carry trade are driving their expectations.

6.2 Risk Premium/Covered Interest Rate Parity

Recent research has found that there have been deviations form covered interest rate parity due to risk premia (e.g. Avdjiev et al. (2019) or Cerutti et al. (2021)). This poses a potential issue for our tests for uncovered interest parity. If deviations from covered interest rate parity are large, they could result in deviations from uncovered interest rate parity as well. If the deviations are driven by risk premia, this would not constitute a deviation from UIP as one key assumption for UIP is that both investments must have the same risk.

We can use CIP deviations to correct for (some) of these risk premia. We take an ex post approach, meaning that we calculate the CIP deviations after the fact and correct the predictions by this deviation. An alternative might be to use an ex ante approach

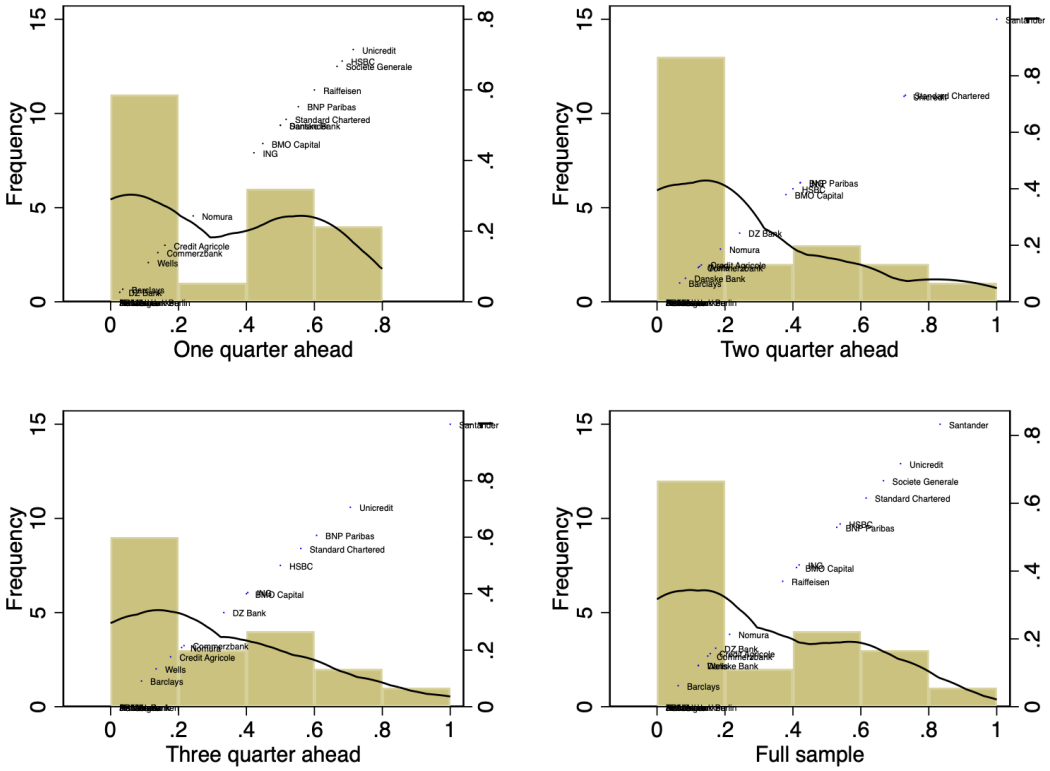


Figure 2: Directional Alignment With UIP

The figure plots a histogram and kernel density of what fraction of predictions is in line with UIP for each forecaster for the three horizons separately and pooled across horizons. The exact values for each forecaster are shown on the diagonal.

where one assumes that today's risk premium is maintained we found the results not to vary substantially across the two correction approaches and thus focus on the former. We define the CIP deviation as

$$CIP_{t,t+h,X} = (f_{t,t+h} - s_t)/s_t - (i_{t,t+h,X} - i_{t,t+h,USD}) \tag{7}$$

where $f_{t,t+h}$ is the price of 3 month forward contract for country X's currency per dollar and s_t is the spot exchange rate. $i_{t,t+h,X}$ and $i_{t,t+h,USD}$ are the price of three-month interest rate index swaps of country X and the benchmark country US respectively. The deviation is the profit from investing in dollar-denominated assets and could be seen as the interest rate risk of investing in other currencies.

To test whether professional forecasters deviate from the UIP conditions because of interest risk concerns, we subtract CIP deviation from interest rate differentials and re-examine the relationship. Table 7 and 8 replicate the previous key results in Tables 3 and 4 with CIP deviation adjusted interest rate differentials. We don't observe extreme values as in Tables 3 and 4, and indeed (almost) all values are positive. This suggests that some professional forecasters might take interest rate risks into consideration when making exchange rate predictions. Significant negative results in 4 could be due to underlying risk premia in that currency and thus forecasters expect the currency to depreciate even if its relative interest rate rises. That being said, we observe more values that are different from unity and differences to UIP remain substantial. These results are still in line with our results without the corrections in Tables 3 and 4, as a wide range of coefficient values is supported by the predictions. Forecasters thus do not generally follow UIP when making predictions.

Table 7: Average forecasters adjusted with CIP deviations

	Coef	SE	CIlow	CIhigh	Obs
CAD	1.437	1.292	-1.195	4.069	34
CHF	1.007	0.586	-0.186	2.201	34
EUR	0.794***	0.292	0.208	1.379	53
GBP	1.413**	0.657	0.092	2.733	50
JPY	1.252	1.536	-1.853	4.357	42
PLN	1.029	0.718	-0.425	2.483	40
TRY	**0.101**	0.398	-0.713	0.916	31

Note: The table shows panel regressions with double clustered standard errors (i and t) in brackets; *p<0.1; **p<0.05; ***p<0.01; bold values are significantly different from 1 at the 95% level.

Table 8: Three dimensional panel regressions adjusted with CIP deviations

	(1) Q1		(2) Q2		(3) Q3	
CAD	0.714	(1.051)	1.210**	(0.603)	1.326**	(0.557)
CHF	**2.800*** **	(0.754)	2.238**	(0.976)	0.952	(1.093)
EUR	1.001*	(0.522)	**1.951*** **	(0.455)	1.444***	(0.491)
GBP	0.803	(1.042)	1.739**	(0.806)	1.389	(1.235)
JPY	0.265	(0.927)	**2.096*** **	(0.450)	1.298	(0.946)
PLN	0.802	(0.660)	**-0.674**	(0.632)	1.420*	(0.703)
TRY	**0.206**	(0.335)			**0.093**	(0.248)

Note: The table shows panel regressions with double clustered standard errors (i and t) in brackets; *p<0.1; **p<0.05; ***p<0.01; bold values are significantly different from 1 at the 95% level.

6.3 Realized Interest Rates

Instead of the real-time interest rates used to assess whether forecasters should weight their interest rates forecasts differently, we can test whether forecasts can be improved with ex post realized interest rates. Since the ex post interest rates are unknown when making the predictions, they should help predict exchange rates if UIP held. We thus rerun equations 3 but replace the expected interest rates with the realized ones below. That is

$$E_t(\Delta s_{t+h+3}) - \Delta s_{t+h+3} = \alpha + \beta(i_{t+h,X} - i_{t+h,USD}) + \varepsilon_t. \tag{8}$$

Table 9: Three dimensional panel regression to test perfect foresight condition

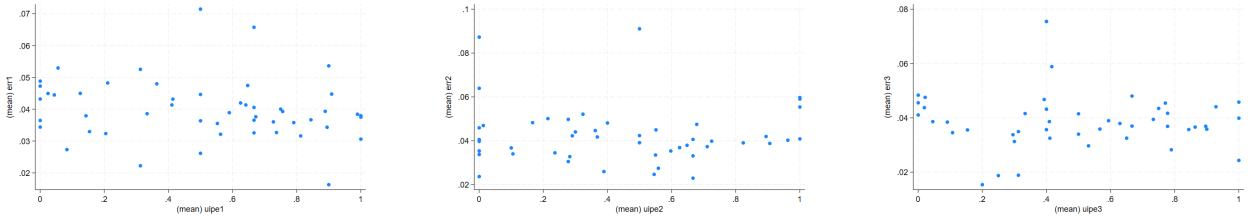
	(1) Q1		(2) Q2		(3) Q3	
CAD	0.462	(6.100)	22.499***	(5.314)	20.143***	(4.773)
CHF	-4.283	(4.055)	-1.422	(4.061)	9.858*	(5.644)
EUR	-0.072	(2.779)	2.002	(2.552)	7.541***	(1.947)
GBP	-2.954	(2.777)	11.051**	(4.920)	0.693	(3.540)
JPY	22.276***	(5.657)	26.004***	(2.801)	15.716	(11.838)
PLN	-1.340	(4.412)	7.804*	(4.152)	-0.672	(7.534)
TRY	-1.395	(0.995)	-0.928	(2.244)		

Note: The table shows panel regressions with double clustered standard errors in brackets; *p<0.1; **p<0.05; ***p<0.01.

As Table 9 shows, realized interest rates do not always help improve the predictions made by the forecasters. For the Japanese Yen and the Canadian Dollar there is some evidence that batter interest rate predictions could improve the exchange rate predictions at multiple horizons, just like the predicted interest rates in Table 5. In contrast to the predicted interest rates, the significant coefficients here are exclusively positive and a higher weight on the unknown realized interest rate would improve the forecasts. In many cases however, even knowing the realized interest rates would not improve the prediction just like the predicted interest rates. This is despite little evidence that forecasters follow UIP when making predictions.

6.4 Are forecasts That Deviate from UIP particularly good/bad?

We next want to assess whether forecasters that are in line with UIP perform better or worse than the ones who do not. To this end, we check for every prediction, whether it is in line with UIP. We deem an exchange rate forecast to be in line with UIP, if its direction is the same as the one implied by the interest rate predictions. We check this for every prediction made and assign a 1 if the forecast is in line and a zero otherwise. Next, we average the



(a) One Quarter Ahead (b) Two Quarter Ahead (c) Three Quarter Ahead

Figure 3: Are Forecasts that Match the UIP Direction Better?

predictions across each forecaster-currency-horizon pair.[5] We then have for each forecaster-currency-horizon pair the fraction of predictions in line with UIP and the ones not in line with UIP. For each pair, we also calculate the mean absolute prediction error of the exchange rate prediction.

Figure 3 shows the scatter plots for each pair the fraction of predictions in line with UIP against the mean absolute prediction error. Similarly to what Casey (2020) finds for other economic relationships, we do not find that there is any relationship between being in line with the UIP more frequently and the predictive accuracy of the forecast. This suggests that following UIP does not improve the prediction. The results are similar for other measures of predictive accuracy like mean squared error and other thresholds that determines whether a prediction is in line with UIP or not.

6.5 Alternative dataset

As mentioned above, we also explore another dataset from FocusEconomics. While the data set provides monthly professional forecasts for a longer period of time from 2009 to 2020, we only have the data for three currency pairs. These are the USD/EUR, USD/GBP and USD/THB. We repeat the regressions explained in equations 2, 3, 4 and 5 for this data set in Table 10.

While the exact coefficients vary when compared with the results in Tables 2, 3, 4 and

[5]We exclude pairs that include fewer than 4 predictions.

Table 10: FocusEconomics

Replicating Fama (1984)						
	Coef	SE	CIlow	CIhigh	Obs	
UK	0.125	0.535	-0.933	1.184	135	
Euro	0.340	0.391	-0.434	1.113	135	
TH	0.469	0.317	-0.158	1.096	138	
Average forecasters						
UK	0.660	0.647	-0.622	1.942	111	
Euro	0.695	0.468	-0.233	1.623	111	
TH	**-0.792****	0.327	-1.44	-0.144	125	
Three dimensional panel regressions						
	Q1		Q2		Q3	
Euro	**2.788*****	(0.316)	**2.226*****	(0.288)	**2.233*****	(0.264)
TH	**-1.271**	(0.815)	0.708**	(0.326)	1.238***	(0.234)
UK	0.886	(0.663)	**2.575*****	(0.411)	**1.799*****	(0.309)
Alternative weights						
Euro	-2.060***	(0.676)	-2.132***	(0.440)	-1.969***	(0.411)
TH	1.475	(1.539)	3.003***	(0.871)	1.641	(1.030)
UK	-1.170	(1.182)	-1.820**	(0.804)	-1.508**	(0.752)

Note: The table shows panel regressions with double clustered standard errors (i and t) in brackets; *p<0.1; **p<0.05; ***p<0.01; bold values are significantly different from 1 at the 95% level.

5, the general picture does not. That is, professional forecasters do not generally follow UIP when making predictions and following UIP does not improve their predictions.

7 Conclusion

We assessed whether professional forecasters follow uncovered interest rate parity when making exchange rate and interest rate predictions. We found strong evidence against this. Indeed, some forecasters predict almost exclusively the opposite from UIP. This immediately raises a number of questions, like what alternative models they use for exchange rate prediction (e.g. carry trade)?; since professional forecasters are at the forefront of exchange rate predictions, whether UIP holds overall?; what implications this has for international finance modelling? While addressing these questions in detail is beyond the scope of this paper, our

results provide some additional insights that can help narrow down some of these questions. For example that realized interest rates are largely irrelevant for prediction errors suggest that they might play a smaller role than suggested by UIP.

References

An, Z., Ball, L., Jalles, J., and Loungani, P. (2019). Do imf forecasts respect okun's law? evidence for advanced and developing economies. *International Journal of Forecasting*, 35(3):1131–1142.

Anatolyev, S. and Gerko, A. (2005). A trading approach to testing for predictability. *Journal of Business & Economic Statistics*, 23(4):455–461.

Avdjiev, S., Du, W., Koch, C., and Shin, H. S. (2019). The dollar, bank leverage, and deviations from covered interest parity. *American Economic Review: Insights*, 1(2):193–208.

Baillie, R. T., Diebold, F. X., Kapetanios, G., and Kim, K. H. (2023). A new test for market efficiency and uncovered interest parity. *Journal of International Money and Finance*, 130:102765.

Ball, L., Jalles, J. T., and Loungani, P. (2015). Do forecasters believe in okun's law? an assessment of unemployment and output forecasts. *International Journal of Forecasting*, 31(1):176–184.

Bordalo, P., Gennaioli, N., Ma, Y., and Shleifer, A. (2020). Overreaction in macroeconomic expectations. *American Economic Review*, 110(9):2748–2782.

Bürgi, C. and Ortiz, J. L. (2022). Overreaction through anchoring. Technical report, CESifo.

Burnside, C., Eichenbaum, M., Kleshchelski, I., and Rebelo, S. (2011). Do peso problems explain the returns to the carry trade? *The Review of Financial Studies*, 24(3):853–891.

Casey, E. (2020). Do macroeconomic forecasters use macroeconomics to forecast? *International Journal of Forecasting*, 36(4):1439–1453.

Cerutti, E. M., Obstfeld, M., and Zhou, H. (2021). Covered interest parity deviations: Macrofinancial determinants. *Journal of International Economics*, 130:103447.

Cuestas, J. C., Filipozzi, F., and Staehr, K. (2015). Do foreign exchange forecasters believe in uncovered interest parity? *Economics Letters*, 133:92–95.

Ehrbeck, T. and Waldmann, R. (1996). Why are professional forecasters biased? agency versus behavioral explanations. *The Quarterly Journal of Economics*, 111(1):21–40.

Engel, C., Kazakova, K., Wang, M., and Xiang, N. (2022). A reconsideration of the failure of uncovered interest parity for the us dollar. *Journal of International Economics*, 136:103602.

Fama, E. F. (1984). Forward and spot exchange rates. *Journal of monetary economics*, 14(3):319–338.

Fendel, R., Lis, E. M., and Rülke, J.-C. (2011). Do professional forecasters believe in the phillips curve? evidence from the g7 countries. *Journal of Forecasting*, 30(2):268–287.

Frankel, J. A. and Froot, K. A. (1987). Using survey data to test standard propositions regarding exchange rate expectations. *The American economic review*, pages 133–153.

Ito, T. (1990). Foreign exchange rate expectations: Micro survey data. *The American Economic Review*, pages 434–449.

Lustig, H. and Verdelhan, A. (2007). The cross section of foreign currency risk premia and consumption growth risk. *American Economic Review*, 97(1):89–117.

Mitchell, K. and Pearce, D. K. (2010). Do wall street economists believe in okun's law and the taylor rule? *Journal of Economics and Finance*, 34:196–217.

Pesaran, M. H. and Timmermann, A. (1992). A simple nonparametric test of predictive performance. *Journal of Business & Economic Statistics*, 10(4):461–465.

Pierdzioch, C., Rülke, J.-C., and Stadtmann, G. (2011). Do professional economists' forecasts reflect okun's law? some evidence for the g7 countries. *Applied Economics*, 43(11):1365–1373.

Zigraiova, D., Havranek, T., Irsova, Z., and Novak, J. (2021). How puzzling is the forward premium puzzle? a meta-analysis. *European Economic Review*, 134:103714.

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