Evaluating the Validity of the Covered Interest Parity and Estimating Currency Risk Premium for Major Currencies

Advisor: Prof. Jonathan Hoddenbagh

Name: Xiaohan Dong, Haocheng Xu

Abstract

This study rigorously investigates the validity of Covered Interest Parity (CIP) and quantifies the currency risk premium over the past decades. This thesis employing a comprehensive empirical approach, examines deviations from CIP among the Euro (EUR), British Pound (GBP), Japanese Yen (JPY), Chinese Yuan (CNY), and Australian Dollar (AUD). This inquiry not only aims to validate the contemporary relevance of CIP but also seeks to illuminate the nuanced mechanisms through which currency risk premiums manifest. It finds that GBP and AUD exhibit strong, statistically significant correlations across all terms, supporting the CIP hypothesis, particularly in the short term. In contrast, correlations for JPY, EUR, and CNY diminish over longer maturities, suggesting increasing uncertainties and forecasting challenges.

Key word: Covered Interest Parity, currency risk premium, forward exchange rate

1. Introduction

1.1 Background and Importance of Covered Interest Parity in Financial Markets

The effectiveness of CIP, which has always been seen as proof of market efficiency in academic discussions, has been questioned due to observed biases, especially during periods of economic uncertainty or financial crises. Such deviations spark debates on market frictions that impede the seamless execution of arbitrage, a foundational aspect of CIP. Additionally, this research will dissect the concept of currency risk premium, an essential consideration for investors seeking compensation for the potential volatility inherent in holding riskier currencies.

The significance of this study extends beyond academic circles, providing practical insights for investors, financial analysts, and policymakers grappling with the complexities of international finance and currency risk management. By offering a nuanced analysis of CIP's validity and the dynamics of currency risk premiums, this research aspires to bridge theoretical models with real-world market behaviors, enhancing our collective understanding of global financial mechanisms.

1.2 Aims and Objectives of the Research Study

This research aims to scrutinize the validity of Covered Interest Parity (CIP) and quantify the currency risk premium across key currencies, thereby enhancing our comprehension of international finance and risk management frameworks. Central to this investigation is an in-depth literature review designed to trace the evolution of CIP discourse, dissect varying perspectives on its validity, and delve into the nuances of currency risk premiums—analyzing its trends and the factors influencing its fluctuations across different currencies. Additionally, the study examines CIP's resilience in the face of global crises, focusing on its applicability during the COVID-19 pandemic. By critically evaluating CIP's reliability across regular and turbulent times and dissecting the dynamics of currency risk premiums, the study endeavors to augment the current academic discourse.

2. Literature Review

2.1 Previous Studies on Covered Interest Parity

Historically, several studies have investigated the validity of Covered Interest Parity (CIP). CIP theory, first proposed by economists in the early 1900s, argues that the forward exchange rate should reflect the interest rate differential between two currencies. In other words, the theory suggests that the covered interest rate differential should be zero.

Early studies in the 1970s and 1980s, such as Fama (1984) and Hodrick (1987), found empirical evidence supporting the CIP theory. They concluded that deviations from CIP were temporary and relatively small.

However, subsequent research in the 1990s and 2000s has questioned the validity of the CIP. Studies by researchers such as Engel and West (2005) and Burnside et al. (2006) have found persistent violations of CIP, suggesting that it may need to be revised in practice. This has triggered a debate in the literature about the factors that lead to deviations from CIP. One proposed interpretation by researchers to explain this phenomenon is that transaction costs and market frictions prevent the full utilization of arbitrage opportunities. Corsetti et al. (2008) and Lustig et al. (2011) noted that costs and frictions can cause deviations from CIP.

Another factor is the role of risk and uncertainty in the foreign exchange market. Studies by Lustig et al. (2011) and Du et al. (2020) indicate that risk factors, such as volatility and market liquidity, can impact the effectiveness of CIP. These findings suggest that CIP may not hold during financial turmoil or economic crisis.

A historical review of CIP research suggests that its effectiveness is varied and evolving. Early research provided empirical support for the CIP, but subsequent studies have identified biases and questioned its applicability. It is important to continue researching and evaluating empirical evidence to understand better the factors that influence the effectiveness of CIP. This statement will aid in developing more precise models forinternational finance and risk management.

2.2 Analysis of Past Research on Currency Risk Premium validity

The debate on the effectiveness of Covered Interest Parity (CIP) in international finance focuses on its empirical and theoretical foundations. Two opposing views exist: one asserts that CIP represents a resilient, frictionless market, while the other emphasizes empirical biases suggesting it is frequently violated.

Proponents of CIP's effectiveness argue that any deviation from parity is transient and quickly corrected by arbitrageurs pursuing risk-free profits. This perspective is based on the premise that efficient market conditions—characterized by perfect capital mobility and negligible transaction costs—facilitate seamless arbitrage, thereby supporting CIP. However, significant research highlights the persistence of CIP deviations. These deviations are attributed to inherent market frictions such as transaction costs, capital controls, and liquidity constraints. Additionally, various risk factors—including credit risk, liquidity risk, and political risk—complicate CIP models, impeding the arbitrage process and perpetuating deviations from parity.

Financial crises and macroeconomic instability exacerbate deviations from CIP, challenging its effectiveness. These periods expose the limitations of the CIP framework in adapting to heightened risk aversion and liquidity shortages, questioning the traditional understanding of market efficiency. Critics argue that the idealized conditions assumed by CIP, such as risk-free returns and unrestricted capital flows, are unrealistic. Furthermore, the theoretical foundations of CIP have been scrutinized for failing to accurately reflect the complexity of global financial markets.

Empirical research has documented persistent violations of CIP in various foreign exchange markets due to structural market frictions that prevent the full realization of arbitrage opportunities. The choice of risk-free rate and exchange rate proxies also affects the interpretation of empirical results, presenting methodological challenges and fueling the debate over CIP's effectiveness.

The validity of CIP and the currency risk premium is subject to contrasting perspectives, ranging from strong support in efficient markets to critical appraisals of frequent CIP violations. These differing views underscore the complexity of currency markets and highlight the need for further research to reconcile the disparities between theoretical principles and practical realities of CIP. This discussion is expected to evolve with additional empirical analysis and theoretical refinement, enhancing our understanding of CIP's role in international finance.

2.3 The Evolution and Challenges of Covered Interest Parity in the Post-Pandemic World

CIP is a fundamental concept in international finance that explains the relationship between the interest rates of two countries and the dynamics of their currency exchange rates (spot and forward). The principle asserts that the interest rate differential between any two countries should equate to the percentage difference between the forward and spot exchange rates, a condition indicating no arbitrage opportunities for risk-free profits. Historically, CIP has guided efficient market operations, assuming no arbitrage opportunities when risk-adjusted returns are consistent across countries after accounting for exchange rate adjustments.

However, the COVID-19 pandemic, marked by dramatic market turmoil and unprecedented currency interventions by central banks, has put CIP under new scrutiny. These interventions, often in the form of non-traditional monetary policies aimed at stabilizing economies, have led to unexpected differentials in interest and exchange rates. These divergences represent a departure from the established norms of the

Covered Interest Parity, introducing complexities that the conventional framework may not fully cover. These premiums reflect the increased costs or benefits of holding currencies perceived riskier in uncertain times, challenges the long-held belief in the efficiency of financial markets. This suggests that these markets may not always self-correct as quickly or efficiently as predicted by the theory of currency risk premiums.

The anomalies observed during the pandemic highlight the far-reaching impacts of global crises on currency markets and necessitate a comprehensive reassessment of traditional financial paradigms, including CIP. This period of financial turmoil has tested the resilience of international financial principles, demonstrating the dynamic nature of global financial markets and their susceptibility to macroeconomic shocks and policy responses.

3. Data and Sample

3.1 Research Design

The research design for this study is a quantitative analysis based on secondary data. This approach allows for examining a large sample of historical data, which is necessary to evaluate the validity of the Covered Interest Parity (CIP) and estimate currency risk premiums for major currencies. A longitudinal design is employed to analyze the changing trends of currency risk premiums over time.

3.2 Sample Selection

The sample for this study consists of major currencies in the global foreign exchange market. These currencies include the Euro (EUR), British Pound (GBP), Japanese Yen

(JPY), Chinese Yuan (CNY), and Australian Dollar (AUD) against the United States Dollar (USD). Major currencies are selected based on their significant presence in international financial markets and their role as reserve currencies. The dataset encompasses risk-free rates and forward exchange rates for 1-month, 3-month, 6-month, and 12-month tenors, alongside the spot exchange rates, spanning from 2018 to 2024.

3.3 Data Collection Tools

This study utilizes financial databases such as Bloomberg and Wind to collect the necessary data for analysis. These databases provide reliable and comprehensive information on exchange rates, interest rates, and risk-free returns on foreign investments. The data collected includes end-of-day exchange rates, short-term interest rates, and government bond yields for each currency in the sample

4. Methodology

4.1 Method

This equation is a linear regression model to predict the log percent change in the spot price of a currency. The equation describes the difference between the logarithm of the spot price at time t+1 and the logarithm of the spot price at time t, which is the percentage change in the logarithm of the currency. This variation is modeled as a linear function of the difference between the logarithm of the forward price at time t and the logarithm of the spot price, plus an intercept term and a random error term. The difference between the logarithm of the spot price at a future point in time and the logarithm of the spot price at the current point in time (i.e., the logarithmic change in price) can be predicted in this model by the difference between the logarithm of the current forward price and the logarithm of the spot price.

$$\mathbf{Log}(\boldsymbol{Spot_{t+1}}) - \mathbf{Log}\ (\boldsymbol{Spot_t}) = \boldsymbol{\alpha} + \boldsymbol{\beta}[\ \boldsymbol{Log}(\boldsymbol{F_t})\ - \boldsymbol{Log}(\boldsymbol{Spot_t})]\ +\ \boldsymbol{\epsilon}$$

Log($Spot_{t+1}$): The logarithm of the asset price at time t+1.

Log ($Spot_t$): The logarithm of the asset price at time t.

α : The intersection of the regression with the y-axis

β : The coefficient of the independent variable.

$Log(F_t)$: The logarithm of the forward exchange rate at time t.

$\boldsymbol{\epsilon}$: Error term, the part of the model that is unexplained.

According to the paper by Kenneth A. Froot and Jeffrey A. Frankel (1989), if we set β=1 in this model and potentially include α=0, it is then assumed that the realistic spot rate should be equal to the forward rate plus a purely random error term. In short, if the forward market is efficient, the forward rate will be an unbiased predictor of the future spot rate. This formula therefore tests whether the forward exchange rate is an unbiased estimator of the future spot rate. Thus, the null hypothesis of the model should be β=1, if that is true, then the CIP holds.

4.2 Result & Analysis

The same country has forward exchange rates for 1m, 3m, 6m, and 12m. From the outputs in STATA, we could assign these five countries to two categories: strong correlation group and weak correlation group.

<u>Strong correlation: Pound Sterling (GBP) and the Australian Dollar (AUD)</u>

They all show a high correlation between forward rate differences and spot rate changes at different maturities. Specifically, the results for both countries show a significant positive and statistically significant correlation in all terms.

```
. esttab gbpm1 gbpm3 gbpm6 gbpm12, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff1mgb	(2) log_diff3mgb	(3) log_diff6mgb	(4) log_diff12~b
log_diff1m~b	0.795***			
	(0.0899)			
log_diff3m~b		0.187**		
		(0.0733)		
log_diff6m~b			0.0773*	
			(0.0410)	
log_diff12~b				0.495***
				(0.0256)
N	1528	1528	1528	1528
R-sq	0.049	0.004	0.002	0.197

(Table 1: GBP)

As illustrated in Table 1, the coefficient of variation on the one-month horizon was as high as 0.795, indicating that the market's ability to predict short-term movements was relatively strong. In contrast, the coefficient of variation of forward rates on the three-month maturity was 0.187, suggesting that the market's ability to predict movements in the medium term is relatively weak. Longer-term uncertainties, such as macroeconomic trends or adjustments in monetary policy could influence this. Despite the weaker relationship, it is still statistically significant at the 5% significance level, suggesting that some degree of correlation still exists. The coefficients of forward rate differentials at the six-month and twelve-month maturities are 0.0773 and 0.495, respectively. While the relationship at the six-month maturity is weaker, it is nevertheless significant at the

10% significance level. The relationship is even more important at the twelve-month horizon, suggesting that the longer-term forward market may be of greater interest to market participants and may more accurately reflect monetary policy expectations and long-term economic trends.

```
. esttab audm1 audm3 audm6 audm12, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff1mau	(2) log_diff3mau	(3) log_diff6mau	(4) log_dif~2mau
log_di~1mFau	0.640***			
	(0.0489)			
log_di~3mFau		0.572***		
		(0.0449)		
log_di~6mFau			0.425***	
			(0.0414)	
log_di~2mFau				0.273***
				(0.0335)
N	1247	1247	1247	1247
R-sq	0.121	0.115	0.078	0.051

(Table 2: AUD)

In Table 2, at the one-month maturity, the coefficient of variation of forward rates is 0.640, indicating that the market is highly able to predict the currency forward movement of the Australian dollar in the short term. This may reflect a consistent view among market participants about exchange rate fluctuations in the short term or a higher sensitivity of the market to economic and policy factors in the short term.

The coefficients of variation in forward interest rates are 0.572, 0.425, and 0.273 for the three-, six-, and twelve-month maturities, respectively. These values are all significant at the 1% level of significance. This suggests that the market has demonstrated a similarly high level of predictive ability for the Australian dollar currency forward market over the medium to long term. Furthermore, spot and forward rate changes have a significant positive correlation. This relationship may indicate market consensus on the Australian economy and monetary policy in the months and years ahead or expectations of the global economic and trade environment.

Weak Correlation: Japanese Yen (JPY), Euro (EUR) and the Chinese Yuan (CNY)

The relationship between forward rate differences and spot rate changes across maturities is relatively weak. While still significant at some maturities, they may show a lower correlation at others and may not even be substantial at longer maturities.

```
. esttab jpym1 jpym3 jpym6 jpym12, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff1mjp	(2) log_diff3mjp	(3) log_diff6mjp	(4) log_diff12~p
log_diff1m~p	0.187***			
	(0.0718)			
log_diff3m~p		0.0248		
		(0.0298)		
log_diff6m~p			0.00501	
			(0.0151)	
log_diff12~p				0.00210
				(0.00775)
N	1429	1429	1429	1429
R-sq	0.005	0.000	0.000	0.000

(Table 3: JPY)

The results of this set of regression analyses in Table 3 demonstrate that the coefficient of the forward rate differential is highly significant at 0.187 under the one-month maturity, indicating that it significantly predicts the change in spot rates after one month.

However, the coefficients on the forward rate differentials are insignificant at 0.0248, 0.00501, and 0.00210 for the three, six, and 12-month maturities, respectively. This indicates that forward rate differentials under the one-month maturity have greater predictive power for spot rate changes in the sample. In contrast, forward rate differentials under other maturities do not have the same predictive power. Furthermore, the adjusted R-squared values of all four models are shallow, with a maximum of 0.005 (one-month maturity model), indicating that these models cannot explain changes in spot rates.

```
. esttab eurm1 eurm3 eurm6 eurm12, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1)	(2)	(3)	(4)
	log_diff1meu	log_diff3meu	log_diff6meu	log_diff1~eu
log_diff1~eu	0.340***			
	(0.0587)			
log_diff3~eu		0.173***		
		(0.0419)		
log_diff6~eu			0.0750***	
			(0.0254)	
log_diff1~eu				0.0180
				(0.0129)
N	1449	1449	1449	1449
R-sq	0.023	0.012	0.006	0.001

(Table 4: EUR)

In the regression analysis in Table 4, the coefficient on the forward rate spread for the euro is 0.340 for the one-month horizon, which is statistically significant at the 1% significance level. Similarly, the coefficient on the forward rate spread for the three-month horizon is 0.173, which is also statistically significant at the 1% level of significance. The coefficient on the forward rate spread is significant at the 1%

significance level for the one-month horizon, at 0.340. It is also significant at the 1% level of significance for the three-month horizon, at 0.173. However, the coefficient on the six-month horizon is not significant at the 1% level of significance, at 0.0750. Finally, the coefficient on the twelve-month horizon is not significant at the 1% significance level, at 0.0180.

```
. esttab cnym1 cnym3 cnym6 cnym12, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff1mcn	(2) log_diff3mcn	(3) log_diff6mcn	(4) log_diff12~n
log_diff1m~n	0.432***			
	(0.0370)			
log_diff3m~n		0.0755***		
		(0.0153)		
log_diff6m~n			0.0224***	
			(0.00816)	
log_diff12~n				0.00754*
				(0.00404)
N	829	829	829	829
R-sq	0.141	0.029	0.009	0.004

(Table 5: CNY)

With regard to the Chinese Yuan in Table 5, the coefficients on the forward rate differentials are 0.432 at the one-month maturity, 0.0755 at the three-month maturity, and 0.0224 at the six-month maturity, which are all statistically significant at the 1% level. The coefficients on the forward rate differentials are important at the 1% significance level for 1% level implies that these results are highly reliable, with a very low probability that these patterns in the data could be due to random chance.

The high coefficient of 0.432 at one-month indicates that prediction in short term is more reliable rather than the predicted movement in medium and long term which are 0.0755 and 0.0224. These result shows that the efficiency and accuracy among different time series is different as well.

The results indicate a significant positive correlation between the forward interest rate differential between EUR and CNY and the change in spot rates in the short term (one to three months). This is important for predicting the change in spot rates in the short term. However, as the maturity period lengthens (six to twelve months), this relationship gradually weakens and is no longer significant, even at longer maturities (twelve months). This may reflect a higher degree of consistency in the market's expectations of currency movements in the short term but more uncertainty about the impact of factors in the longer term.

The preceding analysis reveals that the significance outcome and beta values differ for the same country when utilizing forward rates for different periods.

Consequently, the subsequent step is to compare the beta values of different countries by fixing the forward rate selection time.

```
. esttab jpym1 gbpm1 eurm1 cnym1 audm1, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff1mjp	(2) log_diff1mgb	(3) log_diff1meu	(4) log_diff1mcn	(5) log_diff1mau
log_diff1m~p	**0.187*****				
	(0.0718)				
log_diff1m~b		**0.795*****			
		(0.0899)			
log_diff1~eu			**0.340*****		
			(0.0587)		
log_diff1m~n				**0.432*****	
				(0.0370)	
log_di~1mFau					**0.640*****
					(0.0489)
N	**1429**	**1528**	**1449**	**829**	**1247**
R-sq	**0.005**	**0.049**	**0.023**	**0.141**	**0.121**

(Table 6: 5 Major Currencies 1 Month Maturity)

At one-month maturity, the regression analysis indicates that the Japanese yen, British pound, euro, and Chinese yuan have significant positive correlations with the independent variables. The beta coefficient for JPY is 0.187, which is statistically significant at the 1% significance level. The beta coefficient for GBP is 0.795 with a standard error of 0.0899, indicating a robust positive correlation and statistical significance at the 1% level of significance. The beta coefficient for the euro is 0.340 with a standard error of 0.0587, indicating a moderate positive correlation with the dependent variable, which is also significant at the 1% significance level. The RMB has a beta coefficient of 0.432 with a standard error of 0.0370, showing a strong positive correlation and is highly significant at the 1% significance level. The Australian dollar has a beta coefficient of 0.640 with a standard error of 0.0489, indicating a solid positive correlation statistically and significant at the 1% significance level. This suggests a strong positive correlation between the currencies of the five countries and the dependent variable at this short-term maturity. This indicates that the impact of market expectations and other relevant economic indicators on currencies is pronounced in the short term. This is consistent with the CIP hypothesis, which posits a strong correlation between exchange rate market expectations and interest rate differentials.

```
. esttab jpym3 gbpm3 eurm3 cnym3 audm3, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff3mjp	(2) log_diff3mgb	(3) log_diff3meu	(4) log_diff3mcn	(5) log_diff3mau
log_diff3m~p	0.0248				
	(0.0298)				
log_diff3m~b		0.187**			
		(0.0733)			
log_diff3~eu			0.173***		
			(0.0419)		
log_diff3m~n				0.0755***	
				(0.0153)	
log_di~3mFau					0.572***
					(0.0449)
N	1429	1528	1449	829	1247
R-sq	0.000	0.004	0.012	0.029	0.115

(Table 7: 5 Major Currencies 3 Month Maturity)

At the three-month maturity, the beta coefficient of GBP is 0.187, which is significant at the 5% significance level, while the beta coefficient of EUR is 0.173, which is significant at the 1% significance level. Similarly, the CNY has a beta coefficient of 0.0755, which is significant at the 1% level of significance. The AUD results also show a strong positive correlation with a high beta coefficient of 0.572, which is significant at the 1% significance level. However, the correlation between the JPY and the independent variables is insignificant. The observed lack of significance in the correlation may be attributed to heightened uncertainty among market participants regarding future economic conditions or the increased influence of non-interest rate-related factors at this horizon. In contrast, the remaining four currencies positively correlate significantly with the dependent variable.

```
. esttab jpym6 gbpm6 eurm6 cnym6 audm6, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff6mjp	(2) log_diff6mgb	(3) log_diff6meu	(4) log_diff6mcn	(5) log_diff6mau
log_diff6m~p	0.00501				
	(0.0151)				
log_diff6m~b		0.0773*			
		(0.0410)			
log_diff6~eu			0.0750***		
			(0.0254)		
log_diff6m~n				0.0224***	
				(0.00816)	
log_di~6mFau					0.425***
					(0.0414)
N	1429	1528	1449	829	1247
R-sq	0.000	0.002	0.006	0.009	0.078

(Table 8: 5 Major Currencies 6 Month Maturity)

The forward rates at six-month maturity indicate that the association of JPY with the dependent variable is insignificant, with a Beta coefficient of 0.00501 and a standard error of 0.0151. Furthermore, the explanatory strength of the model is meager, with an R-squared of 0.000, suggesting that the model barely explains the changes in the Japanese Yen. In contrast, the AUD shows a strong positive correlation with the dependent variable at the six-month horizon, with a Beta coefficient of 0.425, and is statistically significant at the 1% level, with a standard error of 0.0414 and an R-sq of 0.078. This suggests that the model has some explanatory power. In addition, the GBP, EUR, and CNY are also significantly correlated with the dependent variable at the six-month horizon, with Beta coefficients of 0.0773 for the GBP, 0.0750 for the EUR, and 0.0224. For CNY, although the R-squared values are relatively low at 0.002, 0.006, and

0.009, respectively, indicating that the models are only capable of explaining a small portion of the variations in the dependent variable, it is notable that the models do provide some explanatory power.

```
. esttab jpym12 gbpm12 eurm12 cnym12 audm12, se star(* 0.10 ** 0.05 *** 0.01) nocons r2
```

	(1) log_diff12~p	(2) log_diff12~b	(3) log_diff1~eu	(4) log_diff12~n	(5) log_dif~2mau
log_diff12~p	0.00210				
	(0.00775)				
log_diff12~b		0.495***			
		(0.0256)			
log_diff1~eu			0.0180		
			(0.0129)		
log_diff12~n				0.00754*	
				(0.00404)	
log_di~2mFau					0.273***
					(0.0335)
N	1429	1528	1449	829	1247
R-sq	0.000	0.197	0.001	0.004	0.051

(Table 9: 5 Major Currencies 12 Month Maturity)

At the 12-month maturity forward rates, the GBP shows a robust positive correlation with the dependent variable, with a Beta coefficient of 0.495, a standard error of 0.0256, and is statistically significant at the 1% level, with an R squared value of 0.197. This suggests that the model has high explanatory power in explaining changes in the GBP. In contrast, the beta coefficients of JPY and EUR are 0.0210 and 0.0180, respectively, and neither of these has a statistically significant association with the dependent variable at this horizon. Furthermore, the R-squared value is close to zero, suggesting that the model cannot explain the changes. In these currencies, the beta coefficients of AUD and CNY at a twelve-month horizon are 0.273 and 0.00754, respectively, and both are statistically significant. However, their R-squared values of 0.051 and 0.004

are still relatively low.

From Table 6 to Table 9he statistical regression results for the combined five countries (GBP, EUR, CNY, AUD and JPY) at different maturity forward rates are available for examination.

The regression results for short-term forward rates (1-month and 3-month) indicate a significant positive correlation between GBP, EUR, CNY, AUD, and the dependent variable. In the short term, forward rates with higher market depth and liquidity reflect immediate market information and expectations more effectively. The beta coefficients of these currencies are highly statistically significant, indicating that they closely follow market expectations of future interest rate changes. This supports the CIP hypothesis. In particular, the GBP exhibits a statistically significant positive correlation at the one-month horizon, which could indicate on short-term capital flows and interest rate differentials among market participants.

Moving into medium-term forward rates (six months) and long-term forward rates (twelve months), this correlation becomes insignificant for the JPY and EUR, possibly reflecting higher uncertainty about long-term expectations for these currencies or that market participants face more information asymmetry and forecasting difficulties at these maturities. However, the GBP still exhibits a very strong positive correlation with the dependent variable, which reinforces GBP's position as a responsive currency.

In conclusion, the statistical correlation characteristics of currencies from different countries vary concerning forward rates of different maturities. The data indicate that the market exhibits a strong CIP fit in the short term. In contrast, as the maturity lengthens, various risk factors and changes in expectations lead to a decrease in the fit between long-term forward rates and the CIP assumptions.

5. Significance and Limitations

The selected research methodology offers distinct benefits, facilitating an impartial evaluation of extensive historical datasets. This approach yields compelling empirical insights into the accuracy of Covered Interest Parity (CIP) and the quantification of currency risk premiums. Employing quantitative analysis further enhances statistical conclusions' reliability and applicability across various contexts. Nonetheless, addressing the methodological constraints encountered during this study, particularly those related to data collection, is crucial.

One notable limitation is the sporadic availability and consistency of risk-free rate data (typically government bonds) for certain countries. This inconsistency can introduce challenges in maintaining a uniform analytical framework across all examined currencies, potentially influencing the comprehensive assessment of CIP deviations and the subsequent estimation of currency risk premiums.

To address these issues, the study employs a proxy strategy to approximate the risk-free rate in instances where direct data is lacking. This approach ensures the analysis is as comprehensive as possible. For example, in the case of the EUR, GBP, and CNY, government bond yields are used as a proxy for the risk-free rate. However, due to the limited availability of data, the repo rate is employed for the JPY and the bankers' acceptances are utilized as a proxy for government bond yields for the AUD. The repo rate represents the rate at which the central bank lends short-term funds to commercial banks using securities as collateral. Conversely, a banker's acceptance is a short-term credit instrument accepted by a commercial bank for use as a means of payment in commercial transactions. The rationale for selecting these two alternative data sources is that BA is guaranteed by the bank, has lower credit risk, and has good market liquidity. In contrast, the Repo Rate involves high-quality collateral and reflects the level of short-term risk-free interest rate. Nevertheless, both of these are inherently volatile, and their exposure to the credit environment remains high. Consequently, despite these efforts, limitations related to data continuity remain an important consideration when interpreting the results.

6. Conclusion

This paper provides a comprehensive analysis of the effectiveness of the Covered Interest Parity (CIP) and estimates currency risk premiums for major currencies, focusing on the Euro (EUR), the Pound Sterling (GBP), the Japanese Yen (JPY), the Chinese Yuan (CNY) and the Australian Dollar (AUD), aims to link theoretical models with empirical evidence to emphasize the validity of the CIP in the financial markets of the major currencies.

In the short-term (1-month and 3-month maturities), there was a robust positive correlation for the GBP, EUR, CNY, and AUD with the dependent variables. This suggests that forward rates in these periods are highly reflective of immediate market expectations and information, thus supporting the CIP hypothesis. Specifically, the GBP displayed exceptionally strong correlations at these shorter maturities, indicating its acute sensitivity to short-term market dynamics such as capital flows and interest rate differentials.

Conversely, as the maturity period extended to medium-term (6 months) and long-term (12 months), the strength of these correlations diminished, particularly for the JPY and EUR. This reduction in correlation might be attributed to increased uncertainties surrounding long-term economic expectations and a more pronounced effect of information asymmetry on market forecasts. Despite this, the GBP continued to show strong correlations even at these extended maturities, affirming its responsiveness to market conditions over longer horizons.

These findings underscore the complexity inherent in applying the CIP across different currencies and time horizons. While CIP holds well in the short term under certain conditions, its applicability weakens over longer durations due to evolving market expectations and various external economic factors.

The methodology of this paper employs quantitative analysis of an extensive historical dataset, which allows for a nuanced understanding of how CIP deviations and currency risk premiums behave under different economic conditions. The use of alternative risk-free rate proxies ensures the completeness of the analysis in the absence of consistent government bond yield data for certain currencies, although it also highlights the challenge of data inconsistency, which remains a key limitation.

In summary, although Covered Interest Parity (CIP) offers a significant framework for comprehending financial markets, its effectiveness is constrained by varying market conditions, regulatory frameworks, and economic instabilities. This study underscores the intricacies of global financial landscapes and emphasizes the importance of perpetually refining and updating economic models to align with actual market behaviors. As financial markets progress, our methodologies for analyzing and forecasting their dynamics must also advance, ensuring that economic theories stay pertinent and beneficial in addressing current financial challenges.

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