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Review Article

Does the Theory of Uncovered Interest Rate Parity Hold in Practice Between China and USA?

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ABSTRACT: ***This research study examined the viability of the premise of uncovered interest rate parity (UIP) between the two nations using the United States of America (USA) as the anchor nation. The effect of the UIP theory on investment in the United States of America was also examined in the study. Data for the years 1980 to 2018 were compiled using annualized time series data and the World Bank Development Indicators. Data analysis pre and post estimate approaches included the Augmented Dickey-Fuller (ADF), Autoregressive-Distributed Lag (ARDL), and Toda-Yamamoto Causality Test (YCT). According to the ARDL research, there was little historical ties between China and the United States. As a result, there is empirical dispute regarding whether the UIP Theory applies to the relationship between China and the United States. The UIP hypothesis had no impact on investment in the United States, according to the Toda-Yamamoto test. It was suggested, among other things, based on the specific findings that the US dollar be devalued in relation to the Chinese Yuan and major trading partners' currencies in order to lessen interest rate differences and encourage trade, investment, and economic growth between China and the US and other significant trading partners.***

KEYWORDS: Uncovered Interest-Rate Parity (UIP), ARDL, YCT, Investment, USA, China.

INTRODUCTION

Regarding bilateral commerce between the United States and China, a number of issues remain. The amount of Chinese imports has exceeded US exports to China, widening the trade disparity between the two countries. Politicians, scholars, financial experts, economists, and others have expressed worry over the large deficit. Some claim that China's unfair trade tactics are to blame for the difference, while others blame the country's robust economy and significantly altered industrial processes. Others attribute it to exchange rate parity, which gives rise to the idea that interest rate parity has not been fully realized. To address trade imbalances, the Trump administration has issued a series of tariffs. The deliberate devaluation of China's currency over time has made its currency policy a contentious issue. China, however, has changed to a more market-based exchange rate, despite the fact that its monetary policy is still under investigation.

Other issues affecting bilateral commerce include China's support for state-owned enterprises, conflicts over China's obligations in the WTO, and a disregard for US intellectual property rights. These issues could be the reason why the two countries' exchange rates are equal (Mary, 2009). An equilibrium situation in which investors are unconcerned with the interest rates on bank deposits in two countries is described by the no-arbitrage condition known as "Uncovered

Interest Rate Parity." The option of making risk-free gains is provided by covered interest arbitrage because this stipulation is not always true. Uncovered Interest Rate Parity (UIP) is a parity requirement that specifies that differences in interest rates between two countries must equal the anticipated change in the exchange rates between their respective currencies. The growth of open economies has relied heavily on the idea of "uncovered interest rate parity." The key indicators of capital mobility, the ability to perfectly substitute one asset for another, and the promotion of international investment are covered interest rate parity (CIP) and universal interest rate parity (UIP). They are also employed to assess trade advancements and address issues relating to balance-of-payments imbalances. The mechanism of financial intermediation allows capital to migrate from a country with a capital surplus to one with a capital shortage in response to demand and supply on the international financial market in the absence of restrictions on foreign capital movements.

In the end, the interest rate of the capital exporting country increases while that of the capital importing country decreases. Therefore, validating UIP in global financial markets would include a joint evaluation of capital mobility and the effectiveness of the foreign exchange rate market globally (Karahan, 2012). Due to rising globalization, the range of commercial activity has shrunk, having an impact on the volume of international trade, cost distribution, and benefit distribution among various economic units in the global economic system. Inequalities in power and income have also widened. According to Raffiee (2003), problems with wealth and power inequality are made worse by interest rate and exchange rate differences (theory of uncovered interest rate parity) between countries. Due to the difference in exchange rates between the US and China, China's currency reached a high of 8.35 Yuan per USD in 1995. However, China had the lowest exchange rate in 1980 (World Bank), with 1.49 Yuan to 1 USD (2018).

Unfavorable terms of trade between China and the United States may be caused by differences in interest rates and currency rates. These differences may have an effect on investment choices, which could ultimately slow down economic growth. In a few African, American, and Asian nations, researchers including Orji A, Orji O, and Ani G (2013), Lily and Kogid (2011), Nyugen (2013), and Deebii (2016) examined the hypothesis of uncovered interest rate parity. Depending on the results, the UIP hypothesis may hold between Nigeria, Kenya, and Egypt but not between Botswana and Ghana or between Nigeria and the United States of America. However, research on China and the United States was scant or non-existent. Their investigation produced conflicting results. Some of the results confirmed the theory's application in some developing countries, while others raised questions about it in others. Due to the aforementioned, it is essential to present additional empirical evidence with new data points in order to evaluate the veracity of the idea of uncovered interest rate parity between China and the United States and to look at how the theory may affect investment in the United States. In line with the investigation, the study set out to answer the following specific questions: I Is the uncovered interest rate parity (UIP) theory valid for the relationship between China and the USA? (ii) How has the Uncovered Interest Rate Parity theory affected capital investment in the US economy?

LITERATURE REVIEW AND THEORETICAL ISSUES

Ferreira (2015) used a single equation framework to examine the economies of Brazil and the United States of America, and the results showed strong support for the UIP hypothesis. This shows that the UIP theory applies to the two countries in practice. Ordinary Least Squares was employed by Orji, Orji, and Ani (2013) to examine whether Nigerian and American practices support the UIP hypothesis. The results showed that the UIP theory did not apply to trade relations between the United States and Nigeria. The UIP issue is examined by Aggarwal

(2013) in the global market exchange. In order to examine UIP theory from 1992 to 2005 in the United Kingdom and the United States, the study used the GARCH model. The outcome supports the UIP theory. In addition, Omer (2013) evaluated uncovered interest rate parity using LIBOR rates for the main foreign currencies in the US from 2001 to 2008. The results demonstrate the need to take into account the cross section between the interest rate and the exchange rate. Ray (2012) also investigated whether the UIP hypothesis is true in India, and the findings indicate that it is not. Karahan (2012) uses GACH and Ordinary Least Squares to analyze UIP for Turkey and Tunisia using monthly data from 2002 to 2011. The findings show that between Turkey and Tunisia, the idea is invalid.

To examine the Uncovered Interest Rate Parity between a few industrialized countries, Lily and Kogid (2011) employed ARDL. The results demonstrate that this idea is false in all of the countries under investigation. The current literature demonstrates that several authors (Orji, Orji and Ani, 2013, Lily and Kogid, 2011, Karahan, 2012, Omar, 2013, and Aggarwal, 2013) have conducted research on uncovered interest rate parity. Contradictory results, though, have emerged. Instead of studying the theory's applicability in developing countries, most UIP research has concentrated on wealthy nations. The validity of the idea of uncovered interest rate parity throughout Africa, Asia, and Latin America was assessed using extremely small sample sizes of 10 or 20 years by Lily and Kogid (2011), Karahan (2012), Omar (2013), and Aggarwal (2013). This study is unique in that it includes data spanning 37 years (1980-2017). Furthermore, the real interest rates used in this research are different from those used in a previous study by Orji, Orji, and Ani (2013), which used nominal interest rates. The effect of the notion of uncovered interest rate parity (UIP) on investment would also be examined in this study.

According to Chi-Wei, Kai-Hua, Ran, and Oana-Ram (2019), China should adopt covered interest rate parity. By examining the dynamic link between the nominal interest rate differential (N.I.R.D.) and the nominal exchange rate, the purpose of this study is to determine if the covered interest rate parity (C.I.P.) holds in China (N.E.R.). The study showed that, in the face of structural and economic changes, the C.I.P. criterion using full-sample data does not always hold. The study then re-examines the dynamic causal link using a time-varying rolling-window methodology. The results show that N.I.R.D. has both positive and negative impacts on N.E.R. in various sub-periods, and that N.E.R. has the same effects on N.I.R.D. for China. In an effort to explain variations in particular subsample periods, the exchange rate framework reform, currency-specific market risk, and capital controls are taken into consideration. The identification of factors that contribute to C.I.P. aberrations and the formulation of policy recommendations for the Chinese monetary authority depend critically on empirical data. On the other side, Ronald, Ramfrez, and Marco (2018) examined Uncovered Interest Rate Parity and Economic Uncertainty. The research uses a threshold estimation approach to provide support for the UIP under low global uncertainty regimes. The results show that UIP has a higher probability of holding in low uncertainty times than in high uncertainty times. In essence, arbitrage opportunities are more trustworthy in stable periods, and as a result, their effects on exchange rate swings are more predictable.

A study by Dmitry, Vladimir, and Sergey (2017) sought to measure and comprehend interest parity in Russia. The study demonstrates that the UIP equation holds in Russia more reliably than in other developing market nations when a continuous risk premium is taken into consideration. As a result, there is no forward premium problem for Russian data from 2001 to 2014. Using seemingly unrelated regressions and panel data analysis, we estimate UIP first for Russia and then for advanced and developing market economies. We then identify the findings for Russia and contrast them with the findings for other countries. By contrasting the profitability of static and dynamic carry trading approaches, we further demonstrate that risk

premiums are typically stable in emerging market nations but almost invariably fluctuate in advanced ones. This may help to explain why UIP is more common in developing economies. It also enables us to test the hypothesis that risk premiums are stabilized by emerging market countries' macroeconomic policies, such as the accumulation of sizeable foreign exchange reserves.

The theory of capital flow movement, the classical theory of interest rate determination, and the accelerator theory of investment serve as the main theoretical foundations for this study. The idea of the capital Flow movement was first put forth by the neoclassical school of thought in 1917. The theory states that in a two-country environment with a domestic economy and a foreign economy, or a developing country and a developed country, an increase in the domestic interest rate relative to the foreign interest rate would cause the domestic economy to benefit from higher returns differentials between the two countries. As a result, capital movements make local interest rates more significant while making international interest rates less significant. According to the Classical Theory of Interest Rate Determination, investment is a function of interest rates (Clark, 1917). This shows that investment is high when interest rates are low and vice versa. Interest rates and investment have an inverse relationship. I stands for investment, f for function, and r for interest rate, so I=f(r) is the equation. Economists like Alfred Marshall, Irvin Fisher, and J.B. Clark have various perspectives on how interest rates are set. Marshall and Fisher view interest rates from the capital supply side, or saving, whereas Clark views interest rates from the demand side, or investing. According to the Accelerator Theory of Investment (Clark 1917), investment will increase as income and consumption do. As a result, income and consumption determine investment.

PROPOSED MODEL AND RELEVANT DATA

Real interest rate differentials, exchange rate differentials, and consumer price index differences between China and the United States of America are the variables employed in the models for this study. For the analysis, the study used the ARDL and Toda and Yamamoto Granger Causality techniques. This study's model (1), which is based on the theory of interest rate parity and empirical research by Redeckaite and Sokolovska (2004), and model (2), which is based on the traditional theory of interest rate determination, each have this as their foundation. The functional specifications for the study's model one (1) for the USA and China are as follows:

$$USCHID=f\ (USCHEXD, USCHCPID) \quad \ldots (1)$$

Where:

USCHID = USA and CHINA Interest rate differential (a measure of UIP)

USCHEXD = United States of America and China Exchange rate differential

USCHCPID = United State of America and China Consumer Price Index differentials

The above model can be transformed into the econometric form given as follows:

$$\Delta Ln(USCHID)_t = \beta_o + \beta_1 Ln(USCHID)_{t-1} + \beta_2 Ln(USCHEXD)_{t-1} + \beta_3 Ln(USCHCPID)_{t-11} + \sum_{i-1}^{m} \gamma 1\ \Delta \ln USCHID_{t-I} + \sum_{i-1}^{m} \theta 2\ \Delta LnUSCHEXD_{t-I} + \sum_{i-1}^{m} \eta 3\ \Delta LnUSCHCPID_{t-1} + \varphi_1 ECM_{1t-1} + \mu_t \quad \ldots (2)$$

Where:

β_o = the intercept,

$\beta_1, \beta_2, \beta_3, =$ the long-run coefficient United State and China interest rate differential, United State and China exchange rate differential, United State and China consumers price index differential, and United State investment respectively.
$\gamma, \theta, \eta, =$ the short run coefficients of United States and China interest rate differentials, United States and China exchange rate differentials and United States and China consumer price index differentials respectively.
Δ = difference operator,
m = lag length of the variables
$\varphi 1$ = the Speed of adjustment
$ECM1_{t-i}$
μ_t
H_0: $\beta_0 = \beta_1 = \beta_2 = \beta_3 = \gamma 1 = \theta 2 = \eta 3$ = (No long run relationship exists)

Toda and Yamamoto Causality and the ARDL Bound Test, collectively known as the Modified Wald Test (MWALD) technique, were employed to carry out the study's objective. To determine if the variables under examination are cointegrated, the ARDL Bound test is utilized. The United States and China exchange rate differential (measured as the differences between the US exchange rate and the China exchange rate for the period of study), the United States and China interest rate differential (measured as the differences between the United States of America and China interest rate for the period under investigation), and the gross fixed capital formation were all included in this study's quadra-variate VAR (k+d max) model (UIP). The investment model, which is the second model, is based on how interest rates are determined according to the classical school of thinking. This theory contends that interest rates have an impact on investment. Investment and interest rates are inversely related. The functional form of the model is described in Models 3 and 4 for America and China, respectively.

USINV = f(USCHID, USCHEXD, USCHCPID) … (3)

Where:

USINV = USA Investment (measured by gross fixed capital formation) in millions of Dollar

USCHID = United State of America and China Interest rate differentials

USCHEXD = United State and China exchange rate differential

USCHCPID = United States of America and China consumer price index differentials.

The equations are transformed into econometrics form for econometric analysis.

$$\Delta \ln(\mathrm{INV})t = \partial_0 + \partial_1 \ln(\mathrm{USINV})_{t-1} + \delta_2 \ln(\mathrm{USCHID})_{t-1} + \delta_3 \ln(\mathrm{USCHEXD})_{t-1} + \delta_4 \ln(\mathrm{USCHCPID})_{t-1} + \sum_{i-1}^{m} \omega_1 \Delta \ln \mathrm{US\,INV}_{t-1} + \sum_{i-1}^{m} \omega_2 \Delta \ln \mathrm{USCHID}_{t-1} + \sum_{i-1}^{m} \omega_3 \Delta \ln \mathrm{USCHEXD}_{t-1} + \sum_{i-1}^{m} \omega_4 \Delta \ln \mathrm{USCHCPID}_{t-1} + \gamma \mathrm{ECM5}_{t-1} + \varphi_t \quad \ldots 3.1$$

Where:
∂_0 = the intercept
$\partial_1, \delta_2, \delta_3, \delta_4$ = coefficients of USINV, USCHID, USCHEXD and USCHCPID in the long run respectively.

$\omega_1, \omega_2, \omega_3, \omega_4$ =coefficients of USINV, USCHID, USCHEXD and USCHCPID in the short run respectively.
Δ = the difference operator,
m = the lag length of the variables
γ = the Speed of adjustment
$ECM5_{t-i}$
$\varphi_{t=}$ uncorrelated white noise residuals

Toda and Yamamoto Granger Causality model specification for the investment equation which is used to estimate the impact of UIP between US and China on investment in United State of America is:

$$USINV = \alpha + \sum_{i=1}^{q} \gamma i\, USINV_{(t-1)} + \sum_{j=q+1}^{q+dmax} \gamma j\, USINV_{(t-j)} + \sum_{i=1}^{q} \rho i\, USCHID_{(t-i)} + \sum_{j=q+1}^{q+dmax} \rho j\, USCHID_{(t-j)} + \sum_{i=1}^{q} \emptyset i\, Y_{(t-i)} + \sum_{j=q+1}^{q+dmax} \emptyset j\, Y_{(t-j)} + \sum_{i=1}^{q} \psi i\, USCHEXD_{(t-i)} + \sum_{j=q+1}^{q+dmax} \psi j\, USCHEXD_{(t-j)} + \sum_{i=1}^{q} \eta i\, USCHCPID_{(t-i)} + \sum_{j=q+1}^{q+dmax} \eta j\, USCHCPID_{(t-j)} \varepsilon_{t1} \quad \ldots 3.2a$$

$$USCHID = \beta + \sum_{i=1}^{q} \mu i\, USCHID_{(t-1)} + \sum_{j=q+1}^{q+dmax} \mu j\, USCHID_{(t-j)} + \sum_{i=1}^{q} \sigma i\, USINV_{(t-i)} + \sum_{j=q+1}^{q+dmax} \sigma j US\, INV_{(t-j)} + \sum_{i=1}^{q} \varphi i\, Y_{(t-i)} + \sum_{j=q+1}^{q+dmax} \varphi j\, Y_{(t-j)} + \sum_{i=1}^{q} \lambda i\, USCHEXD_{(t-i)} + \sum_{j=q+1}^{q+dmax} \lambda j\, USCHEXD_{(t-j)} + \sum_{i=1}^{q} \delta i\, USCHCPID_{(t-i)} + \sum_{j=q+1}^{q+dmax} \delta j\, USCHCPID_{(t-j)} + \varepsilon_{t2} \quad \ldots 3.2b$$

$$USCHEXD = \Phi + \sum_{i=1}^{q} £i\, USCHEXD_{(t-1)} + \sum_{j=q+1}^{q+dmax} £j\, USCHEXD_{(t-j)} + \sum_{i=1}^{q} \eta i US\, INV_{(t-i)} + \sum_{j=q+1}^{q+dmax} \eta j\, USINV_{(t-j)} + \sum_{i=1}^{q} \text{ɖ}i\, USCHID_{(t-i)} + \sum_{j=q+1}^{q+dmax} \text{ɖ}j\, USCHID_{(t-j)} + \sum_{i=1}^{q} \Psi i\, USCHCPID_{(t-i)} + \sum_{j=q+1}^{q+dmax} \Psi j\, USCHCPID_{(t-j)} + \varepsilon_{t4} \quad \ldots 3.2c$$

$$USCHCPID = \text{ɓ} + \sum_{i=1}^{q} \text{þ}i\, USCHCPID_{(t-1)} + \sum_{j=q+1}^{q+dmax} \text{þ}j\, USCHCPID_{(t-j)} + \sum_{i=1}^{q} \varrho i\, USINV_{(t-i)} + \sum_{j=q+1}^{q+dmax} \varrho j\, USINV_{(t-j)} + \sum_{i=1}^{q} \Theta i\, USCHID_{(t-i)} + \sum_{j=q+1}^{q+dmax} \Theta j\, USCHID_{(t-j)} + \sum_{i=1}^{q} \varpi i\, USCHEXD_{(t-i)} + \sum_{j=q+1}^{q+dmax} \varpi j\, EXDUSCH_{(t-j)} + \varepsilon_{t4} \quad \ldots 3.2d$$

The objectives of this study can be achieved based on the following two econometric techniques which include: ARDL bound test. The ARDL bound test is used to analyze model (1) while both ARDL bound test and Toda-Yamamoto causality is used to analyze model (2) with E-views software.

PRESENTATION AND DISCUSSION OF FINDINGS

This study started with a unit root test using the Augmented Dickey-Fuller (ADF) method, then many residual tests, including serial correlation, heteroskedasticity, and normality tests, to prevent erroneous results. Cointegration between variables is sought for by the Autoregressive Distributed Lag (ARDL) approach for studying log run correlations. Toda-Yamamoto causation examined the effects of interest rate differentials on investment in the United States of America, which served as the study's Anchored Country.

Results of Stationary Tests

The outcomes of the unit root test for the variables under inquiry are shown in Table I. The results of the ADF in Table I demonstrate that variables such as the interest rate differential

between the United States and China (USCHID), exchange rate differential between the United States and China (USCHEXD), consumer price index differential between the United States and China (USCHCPID), and consumer price index differential between the United States and China (CHNCPID) are stationary at first difference, while the United States investment (USINV) is stationary. By contrast, USINV is integrated of order zero, or I(0), as opposed to the majority of variables, including USCHID, USCHEXD, and USCHCPID (0).

Table I. Augmented Dickey-Fuller Unit Root Test Results

	LEVEL		1st DIFF.		
		5% critical		5% critical	
Variables	ADF Test	Values	ADF Test	Values	Remarks
USCHID	-2.592038	-2.941145	-6.793712	-2.943427	I(I)
USCHEXD	-2.164841	-2.941145	-5.217428	-2.943427	I(I)
USCHCPID	-2.702800	-2.941145	-5.372460	-2.943427	I(I)
USINV	-2.900597	-2.943427	-4.165901	-2.945842	I(0)

[Source: Computed by the Authors, 2022]

Autoregressive distributed lag (ARDL) bound testing analysis for Nigeria and USA

Table II: Lag Length Selection Criteria for the models

Lags	AIC	SBC	HQC
3 1	14.10085 13.77946*	16.38816 14.65920*	14.89918 14.08652*

[Source: Computed by the Authors, 2022]

The lag length selection criterion table is taken from table II above. This indicates that the model's lag length is lag 1. (1). As a result, lag one is chosen as the ideal maximum lag for the model since the minimum values of AIC, SBC, and HQC at lag one are lower than the maximum values at lag three (3).

ARDL Estimated result for USA and China.

Variables	Coefficient	Std. Error	t-Statistic	Prob.
USCHID(-1)	1.020686	0.169143	6.034450	0.0000
USCHEXD	-5.561594	1.732846	-3.209514	0.0030
USCHEXD(-1)	4.717156	1.444234	3.266198	0.0025
USCHCPID	0.006314	0.170871	0.036949	0.9707
C	-5.369211	1.876058	-2.861964	0.0073

R-Squared 74%, Adjusted R-squared 71%, DW 1.999 Prob(F-statistic) 0.0000

ARDL Bound Test Estimated result for USA and China

According to the results of the bounds-testing, there is no long-term correlation between USCHID, USCHEXD, and USCHCPID. The "K" in the outcome refers to two explanatory factors.

Table III ARDL Bounds Test Results

Test Statistic	Value	K
F-Statistic	2.271569	2
CRITICAL VALUE BOUNDS		
Significance	I0 Bound	I1Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.14	5.52
1%	5.15	6.36

[Source: Computed by the Authors, 2022]

The USCHID, USCHEXD, and USCHCPID do not have a long-term relationship, according to the results of the ARDL bound test. As a result of this discovery, the idea of uncovered interest rate parity between the United States and China does not hold true in reality. Covered interest rate arbitrage presents certain potentially risk-free profit opportunities because the idea of uncovered interest rates does not hold in actuality. What might account for the failure of the uncovered interest rate parity hypothesis between the US and China? This may be due to the small differences in interest rates and currency rates between the US and China over the research period. The efficiency of the capital market and the little value difference between the US dollar and the Chinese yen may also play a role. Capital market efficiency can be shown in how asset prices consistently and properly reflect their underlying worth. As opposed to developing nations with strong capital markets (such Nigeria, Ghana, and Kenya), where stock prices fully reflect all publicly available information.

The hypothesis is invalid since the F-statistics of 2.27 is less than both the upper and lower bounds at the 5 percent critical levels. The notion of uncovered interest rate parity between the two countries is supported when the F-Statistic values are larger than both the lower and upper bounds. This is because it shows that the variables under study have a long-term relationship.

Table IV: The Short- Run Result for USA and CHINA

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(USCHEXD)	-5.561594	1.732846	-3.209514	0.0030
D(USCHCPID)	0.006314	0.170871	0.036949	0.9707
ECM(-1)	0.020686	0.169143	0.122298	0.9034

R-square = 0.741381, F-statistics = 23.65016, prob (f-statistic) = 0.0000

Adjusted-R-square = 0.710033 D.W. = 1.999939

Source: Computed by the Authors, 2022

The USA-China consumer price index differentials (USCHCPID) and the USA-China exchange rate differentials (USCHEXD) both had a significant short-run impact on uncovered interest rate parity (USCHID), but only the USA-China exchange rate differentials

(USCHCPID) had a negative and significant short-run impact (USCHID). The difference between the consumer pricing indices for the US and China (USCHEXD) over the study period had a marginally favorable impact on uncovered interest rate parity (USCHID).

Table VI showed that the short-term relationship between uncovered interest rate parity and the United States-China exchange rate differentials (USCHEXD) was negative and substantial (USCHID). Accordingly, a 1% rise in USCHEXD causes a 5.56 % decrease in USCHID in the short term, but a 1% increase in USCHCPID causes a 0.006 % increase in USCHID in the same time frame. The US-China idea is false, as evidenced by the short-term negative relationship between USCHID and USCHEXD, which also suggests that long-term convergence of the variables may not occur.

Table IX: Granger Causality Results for UIP (USA and China) on Investment in the United States of America by Toda and Yamamoto.

Dependent variable: log (USCHCPID)

Regressors	Chi-sq	Df	P.Value
USCHEXRD	5.606847	2	0.0606
USCHID	12.77414	2	0.0017
USINV	0.827336	2	0.6612
ALL	**17.09284**	6	**0.0089**
Dependent Variable:USCHEXD			
Regressor	Chi-sq	Df	P.Values
USCHCPID	0.197060	2	0.9062
USCHID	27.98755	2	0.0000
USINV	7.142114	2	0.0281
ALL	**35.86170**	6	**0.0000**
Dependent Variable:USCHID			
Regressors	Chi-sq	Df	P.values
USCHCPID	0.145296	2	0.9299
USCHEXD	0.620844	2	0.7331
USINV	2.450121	2	0.2937
ALL	**2.830660**	6	**0.8298**
Dependent variable: USINV			
Regressors	Chi-sq	Df	P.values
USCHCPID	1.409206	2	0.4943
USCHEXD	2.709197	2	0.2581
USCHID	1.857172	2	0.3951
ALL	**4.550965**	6	**0.6026**

[Source: Computed by the Authors, 2022]

Table IX demonstrates that there is no major influence on investment in the United States of America from the theory of uncovered interest rate parity (USCHID), inflation rate, or the difference in exchange rates between the United States and China (USCHEXRD). Additionally, when USCHID is the dependent variable, USINV, USCHCPID, and USCHEXD do not each independently cause USCHID, but when all of the explanatory factors are combined and assessed on USNID, the result suggests a possible but unreliable level of

causation. The last part of table IX showed that, according to causality from explanatory factors to the dependent variable USCHEXD, USINV and USCHID both had a significant and positive influence on the difference between the US and Chinese currency rates, whereas USCHCPID did not. However, the causality of the explanatory variables was detected when the explanatory variables were observed together on the exchange rate difference between the United States and China.

DISCUSSION OF FINDINGS

The idea of uncovered interest rate parity (UIP) between the United States of America and China is supported by the absence of a long-term relationship between USCHID, USCHEXD, and USCHCPID. This indicates that in practice, neither China nor the USA are consistent with the UIP theory. This implies that currency arbitrage or foreign exchange trading can be employed to produce a profit without taking any risks. This is so that investors can profit on the high value of the dollar by using currency arbitrage or foreign exchange arbitrage to generate a risk-free return. It is a sort of interest rate parity (IRP) that is occasionally used in conjunction with covered interest rate parity since the uncovered interest rate parity (UIP) theory predicts that the difference in interest rates between two nations will equal the relative change in their economies. And despite the fact that the theory called for the potential of obtaining a risk-free return through currency arbitrage or foreign exchange trading, the empirical results show that the idea does not hold between the United States and China. The higher yielding currency, the US dollar, is not different from the Chinese yen because the UIP hypothesis does not hold in Nigerian and American activities. This suggests that due to the significant value disparity between the dollar and the yen, as well as the different interest rates between the USA and China, China will not ultimately benefit from trading with the US dollar.

Additionally, as developed nations, the issues with power struggles about who should be the dominant force among the USA and China in the social, political, and economic spheres should be some of the reasons why the theory between them does not hold. The capital market's excessive efficiency, however, might be another factor undermining the validity of the UIP theory between the USA and China. However, there are also factors that can deter investors from making investments in a nation with experience Political unrest, inconsistent government action, and security issues, etc. Unlike the study by Orji et al. (2013), which used conventional OLS to test the validity of the theory of UIP between Nigeria and the USA, this result examines the validity of the theory of uncovered interest rate parity between two developed countries; they found that the theory of UIP does not hold between Nigeria and the USA. This study, however, found that the idea did not hold between the USA and China over the study period.

The results of this analysis further showed that there is no indication of a long-term association between United States investment (USINV), interest rate differences between the United States and China (USCHID), or United States and China inflation rate (USCHCPID). In contrast to USINV, which has a positive and significant influence on investment in the USA in the short run-on lag one, the impact of the UIP theory on investment in the USA shows that it has a positive but no significant impact on investment in the short run. The ECM is correctly signed, indicating that the pace of adjustment to equilibrium for any shocks or disequilibrium in USA investment (USINV) is 23.4 % annually. This indicates that any disequilibrium in USINV will take roughly four (4) years and three (3) months to adjust because the pace of adjustment is slow. The a priori expectation, which states that there is an inverse relationship between investment and interest rates and is consistent with economic theory, is not supported by this conclusion. The economics, political unrest, social unrest, and other disputes in the race to become the global economic powerhouse may be to blame for this anomaly.

The Toda-Yamamoto causality result demonstrates that interest rate and consumer pricing differentials between the United States and China (CHCHID, USCHCPID) have little to no impact on foreign direct investment into the United States of America both singly and collectively. According to (Peter & Ishaku, 2019) examined Uncovered Interest Rate Parity and Investment: A Tripartite Analysis of USA, China, and Nigeria, it can be concluded from the results that the theory of UIP between the United States and China has a smaller impact on investment in the United States than the impact of the theory of UIP on investment between the United States and Nigeria. Their research demonstrates that the UIP between Nigeria and the US has a greater impact on investment in Nigeria than the theory between the US and China.

The outcome indicated a high and significant level of causality for (USCHEXD). Additionally, when USCHCPID is the dependent variable, only USINV does not significantly contribute to inflation differences between the USA and China, whereas USCHID and USCHEX each individually contribute to USCHCPID in a positive and significant manner. However, when taken together, the explanatory variables contribute to inflation in a positive and significant manner (USNCPID).

CONCLUSION

In order to analyze the short- and long-term relationships between United States investment (USINV) and UIP for the USA and China, exchange rate differentials for the USA and China, and inflation rate differentials for the USA and China, the study used the ARDL approach and the Toda Yamamoto causality test. The results reveal that the UIP hypothesis does not apply to the USA and China. This might be explained by the high and low differential in exchange rates between the currencies of the various nations, market inefficiencies, etc. The analysis also demonstrates that there is no long-term association between the USA and China and the UIP theory. The UIP theory has little to no effect on American investment, if any at all. The study suggests that the United States should adopt a policy of pegging its currency (the dollar) with the Chinese yuan in order to enable an equilibrium state in which investors will be unconcerned with the interest rates available on bank deposits in the two countries. This is because the theory of UIP does not hold between the USA and China due to their high exchange rate parity. For instance, China's yuan is pegged to the dollar as part of its monetary strategy. The American economy is likely to experience both benefits and costs if the yuan is undervalued relative to the dollar. It would imply that Chinese imports are less expensive than they would be if the yuan were determined by the market. This reduces costs for American consumers and lessens inflationary pressures.

Additionally, it decreases the costs for American businesses that employ imported inputs (such parts) in their manufacturing, increasing their ability to compete. Due to the aforementioned factors, if the USA adopted the policy of pegging their currency to other nations' currencies, US imports would be less expensive than they would be if the dollar were to be determined by the market. Additionally, this will cut the price of consumer items and completely eliminate inflationary pressures. Additionally, it will reduce the costs for Chinese businesses that employ imported inputs (such parts) in their manufacturing, enhancing their competitiveness. The UIP principle does not apply between the USA and China in practice, hence it has little to no effect on investment in the USA. This suggests that in the long run, investors from China won't want to invest in the United States due to their different interest rates. Because interest rate discrepancy is no longer as great, the US government's undervaluation of the dollar relative to the yuan will support the veracity of the argument and encourage investment between the nations.

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