Analysis of the Effect of Global Uncertainty and Financial Development on Foreign Direct Investment in Indonesia

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ABSTRAK

Dunia saat ini menghadapi ketidakpastian yang belum pernah terjadi sebelumnya dalam bidang sosial, politik, dan ekonomi, yang terus berkembang setiap tahun akibat peristiwa luar biasa yang sangat mempengaruhi negara-negara di dunia. Namun demikian, *Foreign Direct Investment* (FDI) berperan penting dan menjadi strategi andalan dalam pembangunan suatu negara, terutama bagi Indonesia. Fluktuasi investasi asing yang masuk ke Indonesia mengindikasikan bahwa para investor asing juga mempertimbangkan ketidakpastian global yang semakin meningkat sejalan dengan perkembangan sektor keuangan Indonesia. Penelitian ini menganalisis dampak ketidakpastian global dan perkembangan keuangan terhadap *Foreign Direct Investment* (FDI) di Indonesia dari tahun 1997 hingga 2020 dengan menggunakan pendekatan *Autoregressive Distributed Lag* (ARDL). Temuan penelitian menunjukkan bahwa ketidakpastian global secara signifikan berdampak negatif terhadap investasi langsung asing (FDI) Indonesia pada jangka pendek dan panjang. Hal ini membuktikan bahwa kondisi global yang bergejolak dan peristiwa yang tak terduga telah membuat para investor asing menjadi lebih berhati-hati dan enggan untuk berinvestasi di Indonesia. Namun demikian, ketidakpastian kebijakan ekonomi global memiliki pengaruh positif terhadap investasi langsung asing (FDI) Indonesia dalam jangka panjang. Hal ini menunjukkan bahwa selama periode ketidakpastian kebijakan ekonomi global, Indonesia telah menjadi negara pilihan bagi para sebagian investor asing yang mencari stabilitas dan peluang investasi yang menguntungkan. Selain itu, penelitian ini juga mengungkapkan bahwa tingkat perkembangan keuangan, terutama jumlah kredit yang disediakan oleh sektor perbankan domestik kepada sektor swasta di Indonesia, memiliki dampak positif terhadap investasi langsung asing (FDI) baik dalam jangka pendek atau panjang. Dengan demikian, dipahami bahwa betapa pentingnya kondisi keuangan dan infrastruktur Indonesia dalam membentuk keputusan investor asing untuk berinvestasi di negara ini.

Katakunci : ketidakpastian dunia, ketidakpastian kebijakan ekonomi global, *financial development, Foreign Direct Investment*

ABSTRACT

The world is currently facing unprecedented uncertainty in social, political, and economic aspects, which continuously evolve every year owing to extraordinary events that impact countries worldwide. In contrast, The growth strategy of a country organizes must include Foreign Direct Investment (FDI), especially in Indonesia. The fluctuation in foreign investment in Indonesia indicates that foreign investors also consider growing global uncertainty alongside the development of Indonesia's financial sector. This study examines the relationship between global uncertainty and financial development on FDI in Indonesia from 1997 to 2020 using the Autoregressive Distributed Lag (ARDL) method. The results indicate that global uncertainty significantly negatively impacts Indonesia's FDI in the short and long terms. However, global economic policy uncertainty positively influences Indonesia's FDI in the long term. This indicates that Indonesia has become an attractive alternative for foreign investors during global economic policy uncertainty. Regarding financial development, the amount of credit provided by the domestic banking sector to the private sector in Indonesia positively influences Indonesia's FDI in both the short and long terms. This demonstrates that Indonesia's financial condition and infrastructure can determine foreign investors' decisions to invest in Indonesia.

Keywords: World uncertainty, Economic policy uncertainty, Financial development, Foreign Direct Investment (FDI)
JEL classification: E00, E02, E19, F21

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INTRODUCTION

In recent years, many researchers have viewed Foreign Direct Investment (FDI) as a breath of fresh air for a country's economy, especially with the massive development of technology (Carkovic and Levine 2002; Iamsiraroj 2016; Majeed 2021). Foreign direct investment is essential to a country's development strategy, especially in Indonesia. Drawing on information provided by the *Investment Coordinating Board* and *World Bank*, Indonesia's Foreign Direct Investment (FDI) has fluctuated. The fluctuation in foreign investment in Indonesia indicates that foreign investors also consider growing global uncertainty alongside the progress of Indonesia's financial sector.

Over the past decade, Indonesia's FDI conditions have seen a corresponding pattern of growth and decline when measured on a ratio basis. Indonesia's FDI fluctuated, with a yearly rise from 2010 to 2014, a decrease in 2015, a sharp drop in 2016, a rise again in 2017, a slight dip in 2018, rises again in 2019, and drops again in 2020 and 2021 (Fathia et al., 2021). Nevertheless, compared to the actual amount of Indonesia's FDI, the decrease in 2016 did not match the ratio's value, which was 28.964 million USD.

There are many possibilities for the decline in the FDI ratio in 2016, including the fact that during that particular moment, there was a great deal of uncertainty in both the world and Indonesia. Donald Trump's victory as president of the United States in the 2017 U.S. election caused global financial market turmoil and implied major changes in U.S. economic and political policy (Indonesia Investment 2017). In addition, domestic conditions experienced an increase in ethnic and religious tensions during the DKI Jakarta gubernatorial election that year (Indonesia Investment 2017). This caused foreign investors to question the stability of Indonesia's conditions and became their consideration in making foreign investments in Indonesia.

In the era of volatility, uncertainty, complexity, and ambiguity (VUCA), numerous extraordinary global events have impacted economic, social, and political policy uncertainty worldwide (Al-Thaqeb and Algharabali 2019). This uncertainty has made the world "*hyper-connected*," where an event in one country can influence other countries (French and Li, 2022). Shreds of evidence from literature reveal that the 2008 financial crisis, the 2010 European debt crisis, the Arab Spring in 2012, and other extraordinary events are major causes of increased economic, political, and policy uncertainty worldwide (Ahir et al., 2018; Baker et al., 2016). Suppose a closer look was taken at the World Uncertainty Index (W.U.) (Ahir et al., 2018) and Economic Policy Uncertainty Index (EPU) (Baker et al., 2016). In this case, it can be observed that the world experiences an increase in uncertainty every year, which is unfavourable for the sustainability of foreign investment in a country.
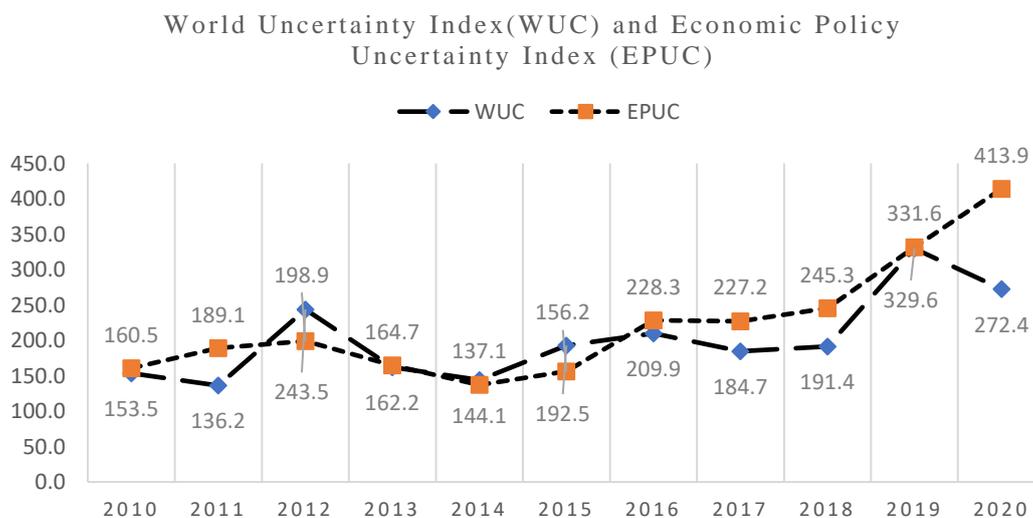
Source: www.worlduncertaintyindex.com and www.policyuncertainty.com (processed data)

Figure 1. Annual average of global uncertainty index (WUC-EPUC) period 2010-2020

The line graph illustrates that world and global economic policy uncertainty increased between 2010 and 2021, marked by extraordinary events such as the European debt crisis in the U.S. Presidential elections in the U.K. Brexit referendum, the Covid-19 pandemic, and the Russia-Ukraine war. These events have led countries worldwide to respond to and adjust their political, social, and economic policies. This poses a major challenge as multinational companies weigh the investment risks in their target countries amidst the growing uncertainty that has recently emerged. Therefore, many researchers have begun to delve deeper into and explore the impact of such uncertainty on macroeconomics, particularly the impact of global economic policy uncertainty on a country's foreign investment conditions.

Previous studies have demonstrated that global and economic policy uncertainty can harm a nation's Foreign Direct Investment (FDI) (Lutfi et al., 2022; Nguyen and Lee, 2021). However, evidence shows that economic policy uncertainty can positively influence FDI inflows in the host country, as multinational companies utilize such conditions to avoid risks that may arise from investing in their home country.

In Indonesia, the Covid-19 pandemic at the end of 2019 was an extraordinary global event. This significantly affected Indonesia's Foreign Direct Investment (FDI), which decreased from $24.99 billion in 2019 to $19.18 billion in 2020. Additionally Donald Trump's victory in the U.S. 2016 presidential election altered the course of economic and foreign policy, and Indonesia's FDI value dropped dramatically to $4.54 billion. On the other hand, Indonesia's financial development has stagnated and lagged behind neighbouring countries such as Vietnam, Malaysia, and Thailand. Several studies have shown that financial development positively affects a country's foreign investment inflows (Camarero et al., 2021; Haque et al., 2022). Therefore, further research on the effects of global unrest on the financial growth of Foreign Direct Investment (FDI) in Indonesia is necessary. Although simultaneous effects have been demonstrated by Lutfi et al. (2022), showing that uncertainty has a negative influence on foreign capital inflows, and financial development has an advantageous effect on the influx of foreign capital to Pakistan, and by global evidence from panel data by Nguyen and Lee (2021), the urgency of further investigation in the case of Indonesia remains, considering the urgency of Foreign Direct Investment for Indonesia.

Uncertainty can be understood as the probability distribution of a series of known events or occurrences that subsequently give rise to risk (Bloom, 2014). At least two measurement indices were constructed to detect existing uncertainties worldwide. The first index is the World Uncertainty Index (WUC), which refers to the concept presented by Ahir et al. (2018), who constructed the World Uncertainty Index (WUC) calculation for 143 countries every three months from 1996 onwards. The WUC calculation utilizes *Economist Intelligence Unit* (EIU) reports for developed and developing countries, considered the first endeavour to construct a large-scale panel uncertainty index. The index captures short- and long-term economic and political uncertainty (Ahir, Bloom, and Furceri, 2018). Few studies have used WUC, except for a few teams. The World Uncertainty Index (WUC) is generated based on three types of indicators: (1) the frequency with which words about uncertainty and economic factors appear in newspaper articles, (2) the number of sections of the federal tax code that will expire in the next few years, and (3) the measurement of dispersion (variation or heterogeneity) of analysts' earnings forecasts for companies listed in the S&P 500 index. The WUC was calculated as the weighted average of these three indicators (Ahir, Bloom, and Furceri 2018).

The Economic Policy Uncertainty (EPUC) index is another metric that assesses the economic risk caused by ambiguous future regulatory and governmental actions. Due to the unstable economy, companies and individuals are more likely to delay their purchases and capital investments (Al-Thaqeb and Algharabali, 2019). Based on the work of Baker et al. (2016), After the 2008 global financial crisis, policy-related uncertainty reached its highest point, leaving businesses and households uncertain about what the future holds regarding government regulations, expenditures, taxes, monetary policies, and health care. They hypothesized that the likelihood of recovery from the recession would be delayed and would impact decisions on investment and consumption expenditure (Baker, Bloom, and Davis 2016). The EPU index is constructed using the following indicators: (1) newspaper coverage frequency (12,000 newspaper articles) as a stand-in measure for economic policy-related uncertainty

fluctuations, (2) Data at the firm level reveals that policy uncertainty causes fluctuation of stock prices to increase, investment to decline, and hiring to decline in policy-sensitive sectors like banking, defence, healthcare, and the construction of infrastructure, and 3) policy uncertainty developments predicting investment, output, and employment decline in 28 countries (Baker, Bloom, and Davis 2016). Among the researchers studying economic policy uncertainty, Dai et al. (2021), Ghirelli et al. (2021), Huang and Luk (2020), Phan et al. (2021), and Yen and Cheng (2021).

In addition to uncertainty, another factor believed to influence Indonesia's FDI internally is financial development, which describes the improvement or expansion of financial services, products, markets, and institutions. It involves increasing access to credit for companies or individuals to create a favourable investment climate (Levine, 2004). Moreover, financial development includes strengthening regulations and rules to protect consumers from fraud or abuse by lenders and other financial service providers. According to Zhuang (2009), economists contend that the financial sector significantly decreases or streamlines information, policies, and transaction costs (Zhuang et al. 2009).

Similar to macroeconomic variables, such as The scope of the market, labour costs, freedom of trade, and investment exchange rate, which affect a country's FDI (Dewi and Hutomo, 2021), the condition of financial development can also influence the growth of incoming FDI in a country (Desbordes and Wei, 2017). Particularly, in terms of the quality of financial institutions in a country, it can be said that if the condition of a country's financial institutions is good, foreign investors will be more attracted to investing in that country (Lutfi et al. 2022). Other metrics, such as domestic bank credit to the private sector (% of GDP), which quantifies the amount of credit given to the private sector in an economy as a share of its GDP, can also be used to gauge a nation's financial development. The following can be seen if we compare Indonesia's data on domestic loans to the private sector to that of its counterparts:
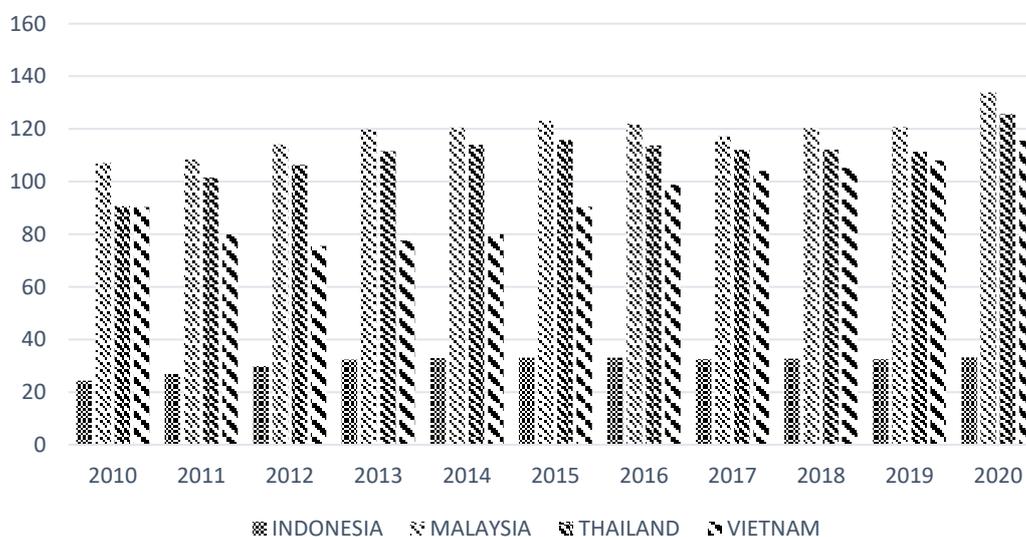
Source: World Bank (processed data)

Figure 2. Domestic credit to the private sector by bank period 2010-2020

From 2010 to 2020, Indonesia's domestic credit to the private sector was below 40%, which is comparatively lower than that of other countries such as Vietnam, Thailand, and Malaysia. The data indicate a considerable gap in the amount of domestic credit given to the private sector between Indonesia and these countries over the specified period. One of Thailand's reasons for its higher financial development compared to Indonesia is the government's policies promoting credit growth, such as the first-vehicle ownership credit program and the availability of larger credit cards (Riani and Sugema 2019). Indonesia tends to stagnate in the development of its financial sector, both in terms of financial

institutions and financial markets, as it has been unable to surpass its neighbouring countries. This concerns financial development, where developing countries will always strive to improve indicators that represent their financial development as the best and attract more investors to invest in their country.

A prior study by Canh Phuc Nguyen & Gabriel S. Lee (2021) helped to recognize the effects of uncertainty and the growth of the financial sector on foreign direct investment (FDI). Thirty-six low-income nations, 33 upper-middle-income countries, and 37 high-income countries comprised the worldwide sample of 116 countries utilized by the study, which looked at the impact of uncertainty and financial development on FDI inflows. This study monitored these countries over the period 1996-2017. The findings suggest that countries with higher levels of economic policy uncertainty (EPU) experience lower foreign direct investment (FDI) inflows, indicating a negative correlation between uncertainty and FDI inflows. Additionally, they contend that countries with more developed financial systems can draw in more FDI inflows, but domestic uncertainty can still impede them. Another finding reveals that uncertainty increases, which means that when there is greater uncertainty risk due to political, social, and other disturbances, investors prefer to invest in relatively safe countries, a phenomenon referred to as a '*safe haven*' (Nguyen and Lee 2021).

A study by Chen et al. (2019) assessed the influence of policy uncertainty on Foreign Direct Investment (FDI) in 126 countries from 1996 to 2015. This research uses national elections to indicate policy uncertainty in a country, and the election data are taken from the World Bank's Database of Policy Institutions (DPI). The results suggest increased policy uncertainty due to election years, negatively affecting FDI inflows in the observed countries (Chen, Nie, and Ge 2019). Furthermore, the study also finds that the level of democratization and political systems play a significant role, with countries that embrace a democratic system (including elections) having a more negative influence on the inflow of Foreign Direct Investment (FDI) to those countries.

On a national scale, a study conducted by Lutfi et al. (2022) suggests that global uncertainty negatively impacts foreign investment, while financial development positively influences foreign investment in Pakistan, both in the long and short term. Similarly,

Chi-Wei et al. (2022) find that, in general, higher levels of economic policy uncertainty lead to lower levels of foreign investment in China. In other words, economic policy uncertainty has a negative effect on foreign investment inflows to China. However, there is an exception where global economic policy uncertainty also has a positive impact on foreign investment in China during certain periods, such as during the U.S. subprime crisis, when investors seek safe havens outside their economies due to domestic uncertainty (Chi-Wei, Muhammad, and Hsu-Ling 2022). Meanwhile, studies by Asamoah et al. (2016) and Haque et al. (2022) suggest that a country's financial development level significantly influences its foreign investment inflows. From the studies mentioned above, it can be emphasized that foreign investment in a country can be influenced by global uncertainty and the state of financial development in that country. Therefore, to understand the condition of Foreign Direct Investment (FDI) in Indonesia, an analysis of the long- and short-term connections between global apprehension and financial development is important.

Based on the above issues, this study considers it important to explore and analyze the impact of World Uncertainty and financial development on Indonesia's Foreign Direct Investment (FDI), considering the increased global uncertainty in economic policy and other aspects, such as social and political conditions. Indonesia has experienced significant impacts from global crises, the Covid-19 pandemic, and others. This study uses Indonesia as the observed country for these factors by utilizing data from 1997 to 2020.

The foundation of this research lies in the theory of international business, specifically the ownership, location, and internationalization (OLI) paradigm introduced by John H. Dunning (1973). According to this paradigm, multinational companies consider their business activities and how they make direct investments (FDI) in countries with stable economic and financial conditions and minimal risks that could harm their companies. Foreign Direct Investment (FDI) is an investment that multinational companies closely observe, but various conditions and situations can influence fluctuations in FDI. The fundamental question is how global uncertainty and financial development positively or negatively affect Indonesia's attractiveness for increasing FDI, which needs to be examined and studied. If this is the case,

Indonesia should be more cautious in responding to the dynamics and fluctuations of global uncertainty, which may directly or indirectly affect the country. Therefore, investigating the influence of global uncertainty (WUC), global economic policy uncertainty (EPUC), and financial sector development (FNDP) on Foreign Direct Investment (FDI) inflows in Indonesia, based on the literature discussed above, becomes crucial and urgent for understanding the extent to which global uncertainty and the financial sector's condition affect foreign investment growth in Indonesia.

METHOD

Data and Variable

This study analyzed with the main objective of assessing the influence of global uncertainty on Foreign Direct Investment (FDI) in Indonesia in both the short and long terms, utilizing a wide variety of secondary data from multiple sources. This study examined multiple aspects of global uncertainty, including world uncertainty, global economic policy uncertainty, and financial development, and aimed to determine their impacts on FDI in Indonesia. This study sought to gain insight into the dynamic connection between global uncertainty and FDI inflows in Indonesia by examining data from 1997 to 2020, thereby illuminating both immediate and long-term effects. In other words, this study attempts to uncover how the value of foreign investment can be explained and influenced by Indonesia's external and internal factors. External factors include world uncertainty and global economic policy uncertainty, while internal factors include financial development with an indicator of domestic credit to the private sector by Bank Indonesia. Although there are various constructs for measuring worldwide uncertainty, this study focuses on the world uncertainty indexation formulated by Ahir, Bloom, and Furceri (2018) and the global economic policy uncertainty formulated by Baker, Bloom, and Davis (2016). This is because only these two indexations provide real-time and periodic uncertainty data

Table 1. Data and variables

Variable	Annotation	Measurement	Source
Independent			
World uncertainty (X1)	WUC	Index (annual, average)	World Uncertainty by (Ahir, Bloom, and Furceri 2018)
Economic policy uncertainty (X2)	EPUC	Index (annual, average)	Policy uncertainty by (Baker, Bloom, and Davis 2016)
Financial development; Domestic credit to the private sector by a bank (X3)	FNDP	Per cent (annual)	World bank
Dependent			
The value of Foreign Direct Investment in Indonesia (Y)	FDI	Million USD (annual)	Investment Coordinating Board Indonesia

Autoregressive distributed lag (ARDL)

To examine the interaction between the research variables, this research investigation employs the autoregressive distributed lag (ARDL) technique as a dependable alternative to the error correction model (ECM) and vector autoregression (VAR) model to capture both the short- and long-term connections. The ARDL methodology is chosen for this study because of its capacity to analyze the relationships between nonstationary variables, that is, variables that contain trend or momentum components, which is especially pertinent in this context. Since the variables being studied in this research are macroeconomic, namely world uncertainty, financial development, and Indonesia's foreign direct investment, the ARDL approach is deemed appropriate and well-suited to offer a thorough

understanding of the dynamic connections between these variables.

The ARDL method has several advantages: it can be used on short-series data and does not require variable pre-estimation classification, so it can be performed on I(0), I(1), or a combination of both variables. The cointegration test in this method is conducted by comparing the F-statistic value with the F-table value compiled by Pesaran and Shin (1997). The F-statistic is obtained by estimating the first step taken in the ARDL Bound test approach. The F-statistic obtained will explain whether or not there is a long-term relationship between the variables. The hypothesis of this F-test is as follows:

$H_0 = \alpha_1 = \alpha_2 = \alpha_n = 0$; there is no long-term relationship in a model
$H_0 \neq \alpha_1 \neq \alpha_2 \neq \alpha_n \neq 0$; there is long-term relationship in a model

If the calculated F-statistic value from the bound test is higher than the upper critical value I(1), we should reject the null hypothesis (H0). This suggests that the model exhibits a long-term relationship or cointegration. On the other hand, if the F-statistic value falls below the lower critical value I(0), we should not reject the null hypothesis. This implies that the model lacks a long-term relationship or cointegration. If the F-statistic value falls between the upper and lower critical values, we cannot draw any conclusive results from the analysis.

It is generally known that the ARDL (p,q,r,s) model in the long-term equation is as follows:

$$Y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^{p} \alpha_2 Y_{t-i} + \sum_{i=0}^{q} \alpha_3 X_{1t-i} + \sum_{i=0}^{r} \alpha_4 X_{2t-i} + \sum_{i=0}^{s} \alpha_5 X_{3t-i} + e \ldots\ldots\ldots\ldots\ldots (1)$$

As seen in the above equation, lags must be maintained for the ARDL model procedure. Juanda (2009) defined lag as the amount of time needed for a response (Y) to occur as a result of an impact (activity or decision). The Schwarz-Bayesian Criteria (SBC), Akaike Information Criteria (AIC), or any additional data criteria can pick the appropriate lag for the model; a successful model has the smallest value of whatever information criteria.

Furthermore, we estimate the parameters in the short run or short term. This can be done by estimating the model with the error correction model (ECM). The estimation with the error correction

model based on the long-term equation above is as follows:

$$\Delta Y_t = \alpha_0 + \alpha_1 t + \sum_{i=1}^{p} \beta_i \Delta Y_{t-i} + \sum_{i=0}^{q} \gamma_i \Delta X_{1t-i} + \sum_{i=0}^{r} \delta_i \Delta X_{2t-i} + \sum_{i=0}^{s} \theta_i \Delta X_{3t-i} + \vartheta ECM_{t-1} + et \ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Where ECTt is an error-correction term that can be formulated as follows:

$$ECM_t = Y - \alpha_0 - \alpha_1 t - \sum_{i=1}^{p} \alpha_2 Y_{t-i} - \sum_{i=0}^{q} \alpha_3 X_{1t-i} - \sum_{i=0}^{r} \alpha_4 X_{2t-i} - \sum_{i=0}^{s} \alpha_5 X_{3t-i} \ldots\ldots\ldots\ldots\ldots\ldots (3)$$

The error correction term (ECT), which must be negative to show that the estimated model is valid, is crucial in estimating the ECM model. All of the coefficients in the aforementioned short-run equation connect the dynamic model's short-run convergence to equilibrium, and the variable denotes the transition rate from short-run to long-run equilibrium. This demonstrates how the shock imbalance from the prior year is changed to the long-run equilibrium for the current year.

Tests for stationarity, stability, and residual diagnostics were conducted, including normality, autocorrelation, and heteroscedasticity tests. In this study, stability testing is performed using the *Cumulative Sum of Recursive Residuals* (CUSUM) test and t*he Cumulative Sum of Squares of Recursive Residuals* (CUSUM of Square) test to determine whether the existing model in the study is stable, thereby enabling the testing of structural model stability. The normality test was conducted using the Jarque-Bera test of normality, which is an asymptotic test based on OLS residuals. This test calculates the skewness and kurtosis measures of the OLS residuals (Gujarati and Porter, 2009). The autocorrelation test in this study employs the Breusch-Godfrey serial correlation L.M. test, which aims to evaluate the validity of several underlying assumptions when applying regression models to observed data series. In this study, the heteroscedasticity test uses the Breusch-Pagan-Godfrey test, which aims to identify whether the study data exhibit homoscedasticity, where the residual values at each predicted value vary, and the variation is relatively constant, or heteroscedasticity, where there is a specific pattern in the relationship between the predictions and residuals.

The subsequent step was to choose the ideal latency and carry out integration testing utilizing the bound test approach after completing the residual diagnostics. The time one variable impacted the other was calculated using the optimum lag test. The *Akaike Information Criterion* (AIC) value was the foundation for this study's optimal lag test (Firdaus, 2019). Meanwhile, cointegration testing examines the presence or absence of cointegration (*long-term relationships*) among study variables (Enders, 2015). This study conducted cointegration testing using The F-statistic result can be compared against Pesaran and Shin's (1997) crucial values using the Bound Test method to determine cointegration. We may evaluate the model's cointegration with the aid of these crucial values. The asymptotic critical bounds are one of the two critical values in this cointegration test. When testing cointegration with independent variables that have various levels of integration (ranging from I(0) to I(1)), these boundaries are especially useful. The independent variables are assumed to be integrated at I(0) in the lower and upper bound and I(1) in the upper bound. If the F-statistic value is less than the lower bound, cointegration is not existent, we infer.

However, cointegration can be assumed to exist if the F-statistic is higher than the upper bound. The findings are inconclusive if the F-statistic value is between the lower and higher boundaries. The ARDL model must be estimated to look at the long- and short-term coefficients after establishing cointegration.

Model specification

The ARDL model in this study can be expressed using the following equation:

(1) ARDL model for the long term

$$LnFDI_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 LnFDI_{t-i} +$$
$$\sum_{i=0}^{q} \alpha_2 LnWUC_{t-1} +$$
$$\sum_{i=0}^{r} \alpha_3 LnEPUC_{t-1} +$$
$$\sum_{i=0}^{s} \alpha_4 FNDP_{t-1} + e_t \ldots\ldots\ldots\ldots (4)$$

(2) Model for short-term:

$$\Delta LnFDI_t = \alpha_0 + \sum_{i=1}^{p} \alpha_1 \Delta LnFDI_{t-i} +$$
$$\sum_{i=0}^{q} \alpha_2 \Delta LnWUC_{t-1} +$$
$$\sum_{i=0}^{r} \alpha_3 \Delta LnEPUC_{t-1} +$$
$$\sum_{i=0}^{s} \alpha_4 \Delta FNDP_{t-1} + \vartheta ECT_{t-1} + e_t$$
$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(5)$$

Where:

$LnFDI_t$	=	FDI for year t;
$LnFDI_{t-i}$	=	lag FDI for the previous year; $\Delta LnFDI_t$ = change in FDI for year t;
$\Delta LnFDI_{t-1}$	=	change in the lag of FDI for the previous year;
$LnWUC_{t-1}$	=	lag of WUC for the previous year;
$\Delta LnWUC_{t-1}$	=	change in the lag of WUC for the previous year;
$LnEPUC_{t-1}$	=	lag of EPUC for the previous year;
$\Delta LnEPUC_{t-1}$	=	change in the lag of EPUC for the previous year;
$FNDP_{t-1}$	=	lag of financial development for the previous year;
$\Delta FNDP_{t-1}$	=	change in the lag of financial development for the previous year;
α_0	=	intercept;
ϑ	=	coefficient of *error correction term* (ECT);
e	=	error;
t	=	period (year)

The main hypotheses are as follows:

H1: Global uncertainty and financial development have long-term effects on Foreign Direct Investment in Indonesia.

H2: Global uncertainty and financial development have short-term effects on Foreign Direct Investment in Indonesia.

RESULT

Descriptive statistic analysis

This study employs data on the dependent variable, Indonesia's Foreign Direct Investment (FDI), expressed as a million-dollar figure. Indicators of a country's financial development in Indonesia include the amount of credit provided by banks to the private sector in the form of loans and credits, expressed as a percentage of the total GDP of a country. These independent variables are the world uncertainty index on a scale of 0-100, the global economic policy uncertainty index on a scale of 0-100, and the amount of credit banks in a country provide to the private sector in the form of loans and credits.

Some variables are transformed into logarithmic values (log) owing to different data scales, namely

Foreign Direct Investment (FDI), global uncertainty (WUC), and global economic policy uncertainty (EPUC). However, the financial development variable is not transformed into a logarithmic value because it is expressed as a percentage. The statistical descriptions of these variables are as follows.

Table 2. Descriptive Statistic

VARIABLES	FDI	WUC	EPUC	FNDP
Mean	19358.42	157.5375	163.7875	29.44013
Median	18518.00	151.9500	144.6400	26,58749
Maximum	35266.00	329.6000	413.9000	60.81624
Minimum	3149.000	70.70000	81.10000	18.15570
Std. Dev.	10673.91	64.28122	80.52032	9.928894
Skewness	-0.045767	0.812288	1.586883	1.778397
Kurtosis	1.480276	3.513854	5.385476	6.257184
Jarque-Bera	2.317939	2.903293	15.76328	23.26003
Probability	0.313809	0.234184	0.000378	0.000009
Sum	464602.0	3780.900	3930.900	706.5631
Sum Sq. Dev.	2.620009	95037.72	149121.0	2267.408
Observations	24	24	24	24

Source: Processed data

From the above table (Table 2), it can be observed that the dependent variable, Foreign Direct Investment (FDI), has an average value of 19358.42, with a maximum value of 35266.00 and a minimum value of 3149.000. The standard deviation for FDI was 10673.91. For the independent variable, the global uncertainty (WUC) had an average value of 157.5375, with a maximum value of 329.6000 and a minimum value of 70.70000. The standard deviation for the WUC was 64.28122. Global economic policy uncertainty (EPUC) had an average value of 163.7875, with a maximum value of 413.9000 and a minimum value of 81.10000. The standard deviation for EPUC was 80.52032. The financial development variable (FNDP) has an average value of 29.44013, with a maximum value of 60.81624 and a minimum value of 18.15570. The standard deviation for FNDP was 9.928894.

In the existing indices, uncertainty can be divided into global uncertainty (WUC) and global economic policy uncertainty (EPUC). Both are indicative of extraordinary social, political and economic events. The WUC depicts more general uncertainty, whereas the EPUC represents the uncertainty that impacts a country's economic policies. It is known that during 1997-2000, economic policy uncertainty was higher than global uncertainty in the same direction. This is because of the uncertainty related to the 1997 Asian financial crisis (Thangavelu et al., 2009), which has led various countries to respond to economic policies to sustain their economies. However, during 2001-2007, the global uncertainty index was higher than the global economic policy uncertainty index in the same direction. This is because extraordinary events described by the WUC included uncertainty in the social and political order, such as the 9/11 attacks on the WTC, the U.S. invasion of Iraq, and the SARS virus, which did not significantly impact political policy dynamics, keeping the EPUC index lower than the WUC.

In 2007, however, the WUC index depicted more uncertainty related to the 2008 global financial crisis, eventually leading to the global financial crisis that year, causing the EPUC index to surpass the WUC. From 2008 to 2011, the EPUC index remained higher than the WUC index due to the high level of government policies implemented worldwide in response to the 2008 crisis without triggering significant social turmoil, considered an extraordinary event in the WUC index. With the emergence of the European sovereign debt crisis in 2012, both the WUC and EPUC indices experienced turbulence. The peak was reached in 2016 with the election of Donald Trump, which altered U.S. economic policies, leading to the US-China trade war and Brexit from the European Union, causing the EPUC index to surpass the WUC index as it directly affected policies adopted by countries worldwide.

Even though the WUC index indicates the emergence of Covid-19, one year later, the social order began adapting to the "new normal" term. However, regarding policies, the emergence of Covid-19 created higher uncertainty than in previous years, and even in 2020, countries worldwide could not fully respond to the dynamics of the new normal. From this, it can be understood that although the WUC and EPUC uncertainty indices show similarities in their increases, the focus and indicators considered in their construction differ.

Suppose a closer look is taken at the dynamics of the amount of credit provided by the domestic banking sector to the private sector in Indonesia, which is one indicator of the condition of Indonesia's financial sector development and its relationship with the value of Foreign Direct Investment in Indonesia. In this case, we find the following, as shown in Figure 3.

Domestic Credit to Private Sector and FDI Indonesia 2000-2020
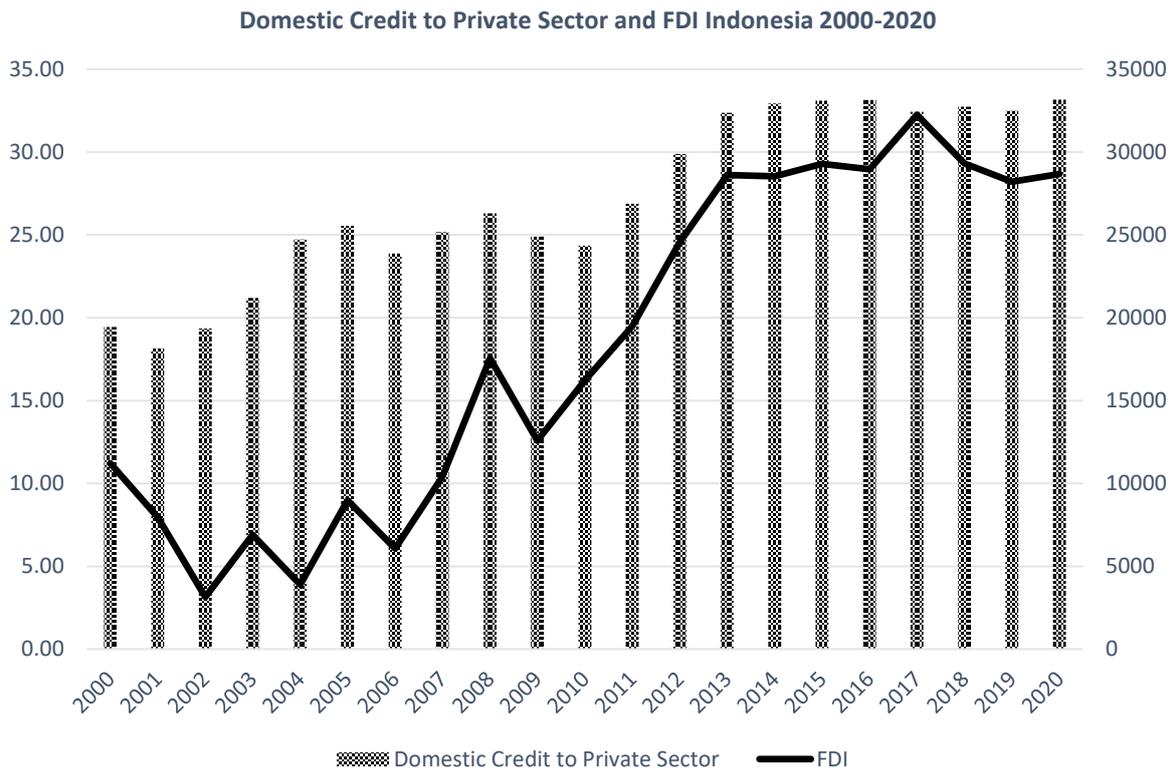
Source: Worldbank and Indonesia Investment Coordinating Board/BKPM (processed data)

Figure 3. Domestic credit to the private sector and FDI Indonesia period 2000-2020

The above figure shows that the amount of credit provided by the domestic banking sector to the private sector in Indonesia generally increased during the period–2000-2020. This increase is closely related to the accommodative monetary policies implemented by Bank Indonesia, such as lowering interest rates or increasing liquidity. These measures encourage banks to provide credit to the private sector.

Indonesia has consistently implemented legal and economic policy reforms to create a friendly investment climate. These efforts have been considered successful in enhancing financial stability and attracting foreign investment in Indonesia (Sutrisno and Poerana, 2020). Looking at Indonesia's investment (FDI) value growth, as depicted in the graph above, a significant increase can be observed from 2010 to 2020. During this period, the percentage of domestic credit provided by the domestic banking sector to the private sector (as a % of GDP) reached its highest level of 33.16% in 2020. Meanwhile, FDI value peaked in 2017, amounting to 32,239.75 million USD, with a high percentage of domestic credit to the private sector in Indonesia at 32.42%.

Looking at 2010-2014, the development of domestic credit to the private sector by banks in Indonesia has increased significantly. In 2010, the amount of credit extended to the private sector remained relatively low. However, as the economy recovered from the 2008 global financial crisis, Bank Indonesia began to increase its provision of credit to

the private sector to boost its growth. One of the factors behind the increase in domestic credit is the policy that supports expanding access to credit for the private sector. Bank Indonesia has made various policy reforms to facilitate the acquisition of credit for businesses in the private sector, including reducing costs and improving credit procedures. This boosted Indonesia's economic activity and created a conducive investment climate that attracted foreign investors' attention.

Stationarity test and residual diagnostics

The stationarity test is an important task, as it aims to determine whether the data used in this study have a unit root, which can result in nonstationary data. The impact of nonstationary data has the potential to produce unreliable regression results. The stationarity testing in this study employs the Augmented Dickey-Fuller (ADF) test proposed by Dickey and Fuller. Stationary data tend to approach their mean values (Gujarati, 2011). The results of the stationarity test are presented in the following table.

Table 3. Stationarity test (*Trend and Intercept*)

| Variables	ADF (Level)	Critical Value	ADF (first difference)	Critical Value
FDI	-3.887859*** (0.0297)	1%: -4.416345 5%: -3.622033 10% : -3.248592	-10.44515*** (0.0000)	1%: -4.440739 5%: -3.632896 10% : -3.254671
WUC	-3.619442* (0.0502)	1% : -4.416345 5%: -3.622033 10% : -3.248592	-4.403397** (0.0114)	1% : -4.467895 5%: -3.644963 10% : -3.261452
EPUC	-0.047083 (0.9926)	1% : -4.416345 5%: -3.622033 10% : -3.248592	-3.895785** (0.0301)	1% : 4.440739 5%: -3.632896 10% : -3.254671
FNDP	-2.942400 (0.1735)	1% : -4.571559 5%: -3.690814 10%: -3.286909	-13.94405*** (0.0000)	1% : -4.467895 5%: -3.644963 10%: 3.261452

***) stationary at the 1%, **) stationary at the 5%, and *) Stationary at the 10%
Source: Processed data

The table depicts the results of testing data stationarity using the ADF test (Trend and Intercept) method. At this level, the FDI variable is stationary at the one per cent, five per cent, and ten per cent confidence levels. In comparison, the world uncertainty variable (WUC) was stationary at the ten per cent confidence level. However, the remaining variables are nonstationary at this level. Considering the first difference, the FDI variable has a p-value of 0.0000, lower than the critical levels of 10%, 5%, and 1%. The global uncertainty variable (WUC) has a p-value of 0.0114, and the global economic policy uncertainty variable (EPUC) has a p-value of 0.0301, smaller than the critical levels of 10% and 5%, respectively.

Meanwhile, the financial development variable (FNDP) has a p-value of 0.0000, smaller than the critical levels of 10%, 5%, and 1%. Therefore, it can be concluded that at the first difference level with a 5% confidence level, the data of the variables (FDI, WUC, EPUC, and FNDP) in this study tend to revert to their mean values within a certain time frame and are stationary (lack of unit root). This means that, statistically, these variables do not change significantly over time. Thus, the variables in this study had different degrees of integration. This was the basis for using the ARDL approach in this study.

The stability test results are shown in the figure. 4, are as follows:
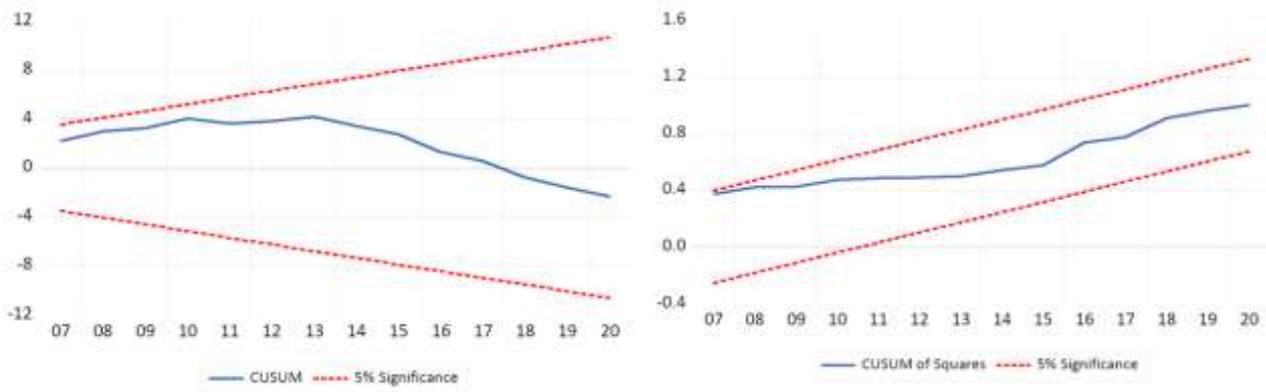
Figure 4. Stability test (CUSUM & CUSUM of Square)

Determining whether the variables in the study can be said to be stable can be seen from the Weighted Residuals (W.R.) and Standardized Residuals (S.R.) quantity plots. Suppose the plot forms a linear line and is within the boundaries of the red line. In that case, the distribution is considered normal and stable because it meets the significance requirements provided that it does not cross the plot of the degree of significance (red line). However, suppose the CUSUM and CUSUM of square lines are outside the significance line marked with a red line. In that case,

the variables in the study are not normally distributed, and the model structure is said to be unstable (Gujarati & Porter, 2009).

Based on the figures above, both the plot of *Weighted Residuals* (W.R.) and the plot of *Standardized Residuals* (S.R.) form a linear line and do not fall outside the 5% significance boundary (red line). Thus, it can be concluded that the variables in this study were normally distributed and stable. The results of the residual diagnostics are presented in Table 4. are as follows:

Table 4. Result of residual diagnostics

Test	Hypotheses	Result	Conclusion
Jarque-Bera test of normality	If the p-value is more than 0.05, then the data is considered to be normally distributed.	0.504803 > 0.05	Data is normally distributed
Breusch-Godfrey Serial Correlation LM test	If the p-value is greater than 0.05, then there is no autocorrelation in the data	0.4626 > 0.05	There is no autocorrelation in the data
Breusch-Pagan-Godfrey heteroscedasticity test	If the p-value is greater than 0.05, Then the data is not heteroskedastic (homoskedastic)	0.2000 > 0.05	The data is not heteroscedastic (homoscedastic)

The data in this study were tested using *the Jarque-Bera normality test,* an asymptotic test based on OLS residuals. This test calculates the skewness and kurtosis measures of the OLS residuals (Gujarati and Porter, 2009). The null hypothesis (H0) for the normality test states that if the p-value is less than 0.05, the data are not normally distributed. In contrast, the alternative hypothesis (Ha) states that the data are normally distributed if the p-value is > 0.05. Based on

the results of the normality test, the Jarque-Bera probability value was 0.504803, which was greater than the significance level of 5 per cent (0.504803 > 0.05). Therefore, it can be concluded that the data in this study were normally distributed.

Autocorrelation testing in this study utilized the *Breusch-Godfrey serial correlation L.M. test*. *The Breusch-Godfrey test* evaluates the validity of certain underlying assumptions when applying regression

models to the observed data series. Specifically, this test examined serial correlations not incorporated into the proposed model structure. If a serial correlation exists, incorrect conclusions may be drawn from other tests, or suboptimal parameter estimates may be obtained. According to Gujarati and Porter (2009), *the Breusch-Godfrey test* is used to avoid the pitfalls often encountered with *the Durbin-Watson autocorrelation test*, thus making it more general. This test's null hypothesis (H0) posits no autocorrelation in the data, whereas the alternative hypothesis (Ha) suggests autocorrelation. If the p-value exceeds 0.05, the null hypothesis (H_0) is accepted, and the alternative hypothesis (H_a) is rejected. The autocorrelation test yielded a probability value of 0.4626, higher than the 5% significance level (0.4626 > 0.05). Thus, it can be concluded that the data are not autocorrelated, and the assumption of non-autocorrelation is fulfilled in the model.

The heteroscedasticity test aims to identify whether the study data exhibit homoscedasticity, which is a condition where the residuals vary and tend to be constant for each predicted value, or heteroscedasticity, which is a condition in which the relationship between the predictions and residuals forms a specific pattern. The Breusch-Pagan-Godfrey heteroskedasticity test was applied in this investigation. This investigation's null hypothesis (H0) was that the data would not be heteroscedastic.

If the p-value is higher than 0.05, H0 is accepted, and Ha is rejected because the alternative hypothesis (Ha) states that the data are heteroscedastic. The test's probability value is 0.2000, greater than the significance level of 5% (0.2000 > 0.05). Consequently, it can be deduced that the data are not heteroscedastic, and the assumption of homoscedasticity is fulfilled. In other words, the study data showed homoscedasticity, meaning that there was no correlation between the predicted values and the residuals, and they were not the same variables, thus allowing for the use of regression analysis on the data.

Based on the residual diagnostics above, it was found that the study data were normally distributed, there was no autocorrelation, and it was homoscedastic. Therefore, we proceed to the next step of the model estimation.

Lag optimum and Cointegration test (Bound test)

The Akaike Information Criterion (AIC) was used to determine the optimal lag selection in this study, and it was determined that Model 17 with lag values (2, 1, 0, 1) was the best fit. Therefore, the maximum lag is 2 for the Foreign Direct Investment variable (FDI), the maximum lag is 1 for the world uncertainty variable (WUC), the maximum lag is 0 for the global economic policy uncertainty variable (EPUC), and the maximum lag is 1 for the Indonesian financial development variable (FNDP).
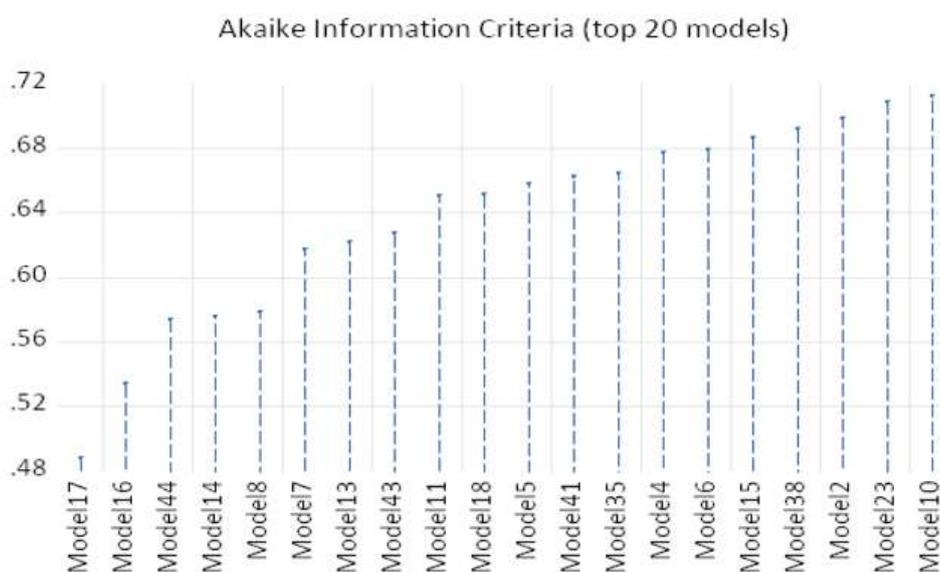
Source: Processed data

Figure 5. Optimum Lag

Table 5. Bound test

F-Bound Test				
Test Statistic	Value	Signif.	I(0)	I(1)
F-statistic	8.020171	10%	2.37	3.2
k	3	5%	2.79	3.67
		2.5%	3.15	4.08
		1%	3.65	4.66

Source: Processed data

The results of the cointegration test using the *bound-test approach are* presented in Table 6. As depicted in Table 4.3, the analysis reveals that the F-statistic value stands at 8.020171, surpassing the critical upper bound value of 4.66 at a 99% confidence level. This finding demonstrates the cointegration of the variables in the tested model, demonstrating the existence of a long-term equilibrium relationship between the variables under investigation. When the F-statistic value exceeds the upper threshold, cointegration between the variables contained in the model under consideration is said to be present, according to Walter Enders (2015). As a result, this suggests an equilibrium between these variables spanning short and long terms.

The Long-Term and Short-Term coefficients (ARDL estimation)

The impacts of world uncertainty, global economic policy uncertainty, and domestic credit on foreign direct investment (FDI) in Indonesia's private sector can be estimated using an ARDL model. The ARDL estimation results obtained in this study show that, in the long run, world uncertainty, global economic policy uncertainty, and domestic credit to the private sector significantly influence FDI in Indonesia. The estimated model has an *R-squared* value of 0.909491, indicating that world uncertainty, global economic policy uncertainty, and domestic credit to the private sector collectively account for 86.4236% of the variation in FDI in Indonesia. In contrast, other variables outside the scope of this study's model influence the remaining percentage.

Table 6. Selected model ARDL (2,1,0,1)

Variable	Coefficient		Std. Error	t-Statistic	prob.*
LOG(FDI(-1))	-0.132412		0.185897	-0.712288	0.488
LOG(FDl(-2))	0.318529		0.193898	1.642765	0.1227
LOG(WUC)	-0.842570		0.454525	-1.853737	0.0850
LOG(WUC(-1))	-0.685735		0.283240	-2.421036	0.0296
LOG(EPUC)	0.989563		0.411352	2.405632	0.0305
FNDP	0.091339		0.024453	3.735230	0.0022
FNDP(-1)	0.027791		0.013816	2.011476	0.0639
C	7.300900		1.700432	4.293555	0.0007
R-squared	0.909491	Mean dependent var	9.643348		
Adjusted R-squared	0.864236	S.D. dependent var	0.730512		
S.E. of regression	0.269166	Akaike info criterion	0.488307		
Sum squared resid	1.014301	Schwarz criterion	0.885050		
Log-likelihood	2.628621	Hannan-Quinn criter.	0.581768		
F-statistic	20.09718	Durbin-Watson stat	1.622664		
Prob(F-statistic)	0.000003				

Source: Processed data

To determine the coefficient values for estimating long-term effects, the analysis used the long-run and bound test coefficients to assess the degree of connection between variables over an extended period. Examining the results of the bound test used to investigate cointegration, it is clear that there is a long-term equilibrium between unpredictable global circumstances, volatility in global economic policy, and financial development and how they affect FDI in Indonesia. Table 8 displays the long-term relationship findings from the ARDL model estimation, whereas Table 9 displays the short-term relationship findings results presented in Table 9.

Table 7. Long run coefficients

Long Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
Ln(WUC)	-1.877795	0.666169	-2.818799	0.0137***
Ln(EPUC)	1.215854	0.417176	2.914490	0.0113***
FNDP	0.146371	0.028790	5.084098	0.0002***
C	8.970460	1.658446	5.408955	0,0001

***) stationary at the 1%, **) stationary at the 5%, and *) Stationary at the 10%
Source: Processed data

The Association between WUC and FDI Indonesia

Foreign Direct Investment (FDI) refers to capital invested in a country by companies or individuals to conduct business elsewhere. This typically involves a long-term partnership between the two parties and can take various forms, including joint ventures, acquiring shares of foreign companies, and establishing factories abroad. FDI aims to gain access to resources and markets that may not be available domestically, making it increasingly popular in recent years (Moosa, 2002). The primary objectives of FDI are to enter new markets for goods and services produced domestically or to enhance efficiency by reducing the production costs of the same goods or services abroad (Dunning and Lundan 2008). However, according to the OLI Paradigm, Multinational Enterprises (MNEs) have motivations for foreign investment based on three main advantages: ownership, location, and internalization (Dunning and Lundan, 2008). In the OLI Paradigm, ownership and internalization advantages are internal firm-specific issues.

Table 8. Short run coefficient

Short Run Coefficients				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
ΔLn(FDI (-1))	-0.318529	0.116381	-2.736952	0.0161***
ΔLn(WUC)	-0.842570	0.194085	-4.341245	0.0007***
Δ(FNDP)	0.091339	0.016194	5.640304	0.0001***
CointEq (-1)	-0.813883	0.113348	-7.180407	0.0000***

***) stationary at the 1%, **) stationary at the 5%, and *) Stationary at the 10%
Source: Processed data

In contrast, location advantage is a specific characteristic of the host country, which can be directly influenced by the host country (Putri 2018). The internalization advantage is related to the dynamics of global conditions, in general, whether they support an investment-friendly climate. The barriers to realizing an internalization advantage for multinational companies are the volatility and dynamics of global uncertainty.

An analytical model is required to understand Indonesia's FDI, encompassing external and domestic factors. This study analyzes the inflow of FDI into Indonesia based on global uncertainty using indicators of the amount of credit given by domestic banks to the private sector as a measure of financial development, the world uncertainty index, and the global economic policy uncertainty index.

Referring to the above findings, 90.95% of Indonesia's FDI is explainded by global uncertainty,

global economic policy uncertainty, and the amount of credit domestic banks provide to the private sector. These results align with those of Lutfi et al. (2022), who also looked at uncertainty and financial development as factors that could predict FDI in Pakistan. The difference lies in the uncertainty factor; the study by Lutfi et al. (2022) only focused on economic policy uncertainty for Pakistan, so the uncertainty that arises tends to be domestic and not global. By contrast, the uncertainty that serves as a predictor in the model in this study is global, as it uses an index of global uncertainty and global economic policy uncertainty.

Overall, Nguyen and Lee (2021), who use panel data to examine the impact of uncertainty and financial development on FDI in 116 countries classified as low- and lower-middle-income economies, upper-middle-income economies, and high-income economies, are generally supported by the results of the model analysis in this study. Their main finding is that global FDI consistently moves from countries with less stable economies to more stable ones when global uncertainty increases (Nguyen and Lee, 2021). Similarly, the findings of this study also support the study conducted by Ogbonna et al. (2022), using African countries as their observation data. Their findings suggest that global uncertainty strongly weakens FDI inflows to African countries, supported by institutional governance in Africa, which has not been fully utilized to attract more foreign investment in the face of global conditions (Ogbonna et al., 2022). The findings of Nguyen and Lee (2021) and Ogbonna et al. (2022) provide empirical evidence that global uncertainty negatively impacts countries worldwide. Thus, the findings of this study are relevant for understanding the inflow of FDI into Indonesia by considering global uncertainty as a predictor.

Regarding the internal factor of Indonesia's financial development, which has a positive and significant influence along with global uncertainty, several researchers provide empirical evidence, such as the studies by Lutfi et al. (2022) and Nguyen and Lee (2021). Haque et al. (2022) examined the impact of financial development on FDI in countries with middle-income economies. Their findings suggest that financial development positively affects foreign direct investment (FDI). However, they still recommend further studies using the ARDL method, focusing on a specific country. This is important for

providing deeper evidence regarding the role of financial development in a particular country (Haque, Biqiong, & Arshad, 2022). Neither global uncertainty nor financial development can be ignored when understanding the inflow of FDI into Indonesia.

Although the ARDL model in this study meets the criteria and can be considered a good model, it is worth noting that if 90.95% of Indonesia's FDI can be explained by global uncertainty as an external factor and financial development as an internal factor, another 13.58% of the factors influence the inflow of FDI into Indonesia. These factors are beyond the scope of this study; hence, further exploration is needed to analyze other factors that affect FDI in Indonesia.

Furthermore, the analysis results show that the variable representing long-term world uncertainty (WUC) has a major and negative impact on the amount of FDI (Foreign Direct Investment) in Indonesia. This impact is regarded as statistically significant at different degrees of confidence, notably at the 10%, 5%, and 1% significance levels. The estimated coefficient value for this variable is -1.877795, which further confirms the idea that there is a negative correlation between long-term global uncertainty and FDI inflows in Indonesia. Similarly, the results in the short term show that the global uncertainty variable (WUC) has a significant and negative effect on FDI in Indonesia at the same percentage as in the long term but has a different coefficient value of -0.842570. These results align with the initial hypothesis that global uncertainty negatively impacts Foreign Direct Investment in Indonesia in the long and short terms. They also support the study by Nguyen and Lee (2021), which suggests that global uncertainty can have a negative impact on Foreign Direct Investment in a country, as foreign investors consider global conditions when determining where to invest. However, their study did not explicitly emphasize world uncertainty but focused on global economic policy uncertainty.

Additionally, these results are in line with the research conducted by Noria and Fernández (2018), which states that global uncertainty has a negative and significant effect on Foreign Direct Investment in Mexico by emphasizing that uncertainty causing global shocks also reduces FDI in the manufacturing sector in Mexico (Noria and Fernández 2018), as well as the study by Lutfi et al. (2022) in the context of Pakistan, which found that global uncertainty

influences Foreign Direct Investment in Pakistan in both the long and short terms.

World uncertainty understood as an extraordinary event that significantly impacts countries worldwide, is a major macroeconomic issue and is often intertwined with global politics, making uncertainty tricky and challenging (Bloom, 2014). Generally, there are at least three ways to observe uncertainty: stock market volatility, newspapers, and surveys. The measurement of global uncertainty conducted by Ahir, Bloom, and Furceri (2018) is an indexing method that utilizes machine learning and text-mining techniques to capture uncertainty-related words and their variations in reports from the Economist Intelligence Unit (EIU). Although survey methods are used to construct uncertainty indices, they can be costly, making the approach employed by

Ahir, Bloom, and Furceri (2018) highly promising and advantageous. It offers several benefits, such as the ability to produce indices quickly (monthly) and in real-time, construct long-time series indices (e.g., U.S. news back to 1900), and provide flexibility for researchers to adapt it to specific objectives and topics (Ahir, Bloom, and Furceri 2018).

Upon closer examination, the value of Indonesia's FDI consistently declines when global uncertainty increases. This was evident in 2001, as indicated by the 9/11 attacks in the U.S., followed by the U.S. invasion of Iraq in 2002, as well as the outbreak of the SARS virus until 2003. Similarly, during the crisis in 2008, with its impact felt in 2009 and the emergence of the Covid-19 pandemic in 2019, the value of Indonesia's FDI also declined for two consecutive years (2019-2020).

World uncertainty index & FDI Indonesia 2000-2020
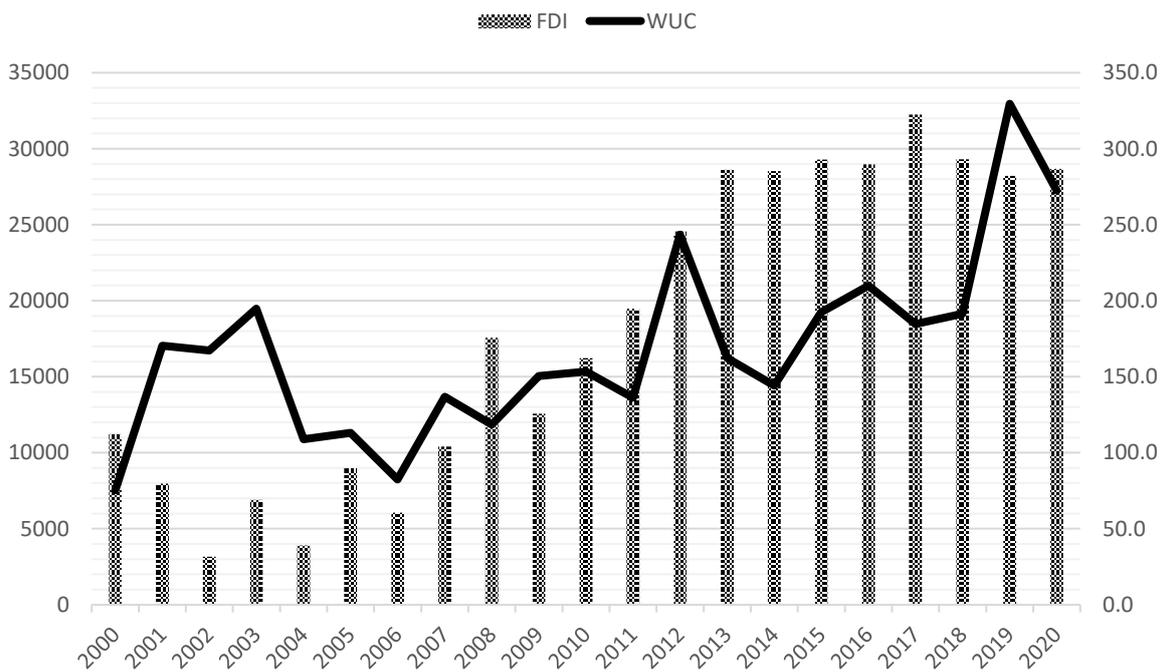
Source: World Uncertainty Index and Indonesia Investment Coordinating Board/BKPM (processed data)

Figure 6. World uncertainty index & FDI Indonesia 2000-2020.

The finding that there is a negative relationship between world unrest and the inflow of foreign direct investment (FDI) into Indonesia adds to our understanding of how external variables significantly affect the Indonesian economy. This finding highlights how FDI inflows to Indonesia are negatively impacted by global uncertainty emphasizing the need to effectively manage and

reduce these external factors to create a more stable and inviting investment climate. Although many researchers outside Indonesia have used the global uncertainty index data constructed by Ahir, Bloom, and Furceri (2018), relatively few studies have applied it within the context of Indonesia. Although some studies have used it, they have focused on areas other than FDI in Indonesia, such as the trade credit

policies of Indonesian companies (Febrianto and Juliana 2021).

From this finding, the concern is that world uncertainty is proven to be a factor that can affect foreign investment decisions in Indonesia. As world uncertainty increases, foreign investors become more cautious and may delay or reduce their investment in Indonesia.

In addition, world uncertainty is also an investment risk in which foreign investors may experience financial losses due to sharp currency fluctuations, global political instability, and events that cause changes in the regulation of countries in the world. These risks make foreign investors reluctant to invest in Indonesia. Finally, global uncertainty can also reduce investor confidence in the stability and prospects of investments in Indonesia. Therefore, it is important for Indonesia always to pay attention to the turmoil of world uncertainty to maintain its stability and increase foreign investors' confidence in Indonesia.

The Association between EPUC and FDI Indonesia.

Additionally, In contrast to the influence of global uncertainty on foreign direct investment (FDI) in Indonesia, the global Economic Policy Uncertainty variable (EPUC) results reveal an interesting pattern. This variable has a statistically significant and favourable impact on FDI inflows to Indonesia over a longer period, as indicated by the 10%, 5%, and 1% significance levels. The estimated coefficient value for the global Economic Policy Uncertainty variable is 1.215854, confirming the positive correlation between this variable and FDI inflows in the long run. This empirical evidence highlights the importance of economic policy stability and predictability in encouraging and facilitating foreign investment in Indonesia. These findings align with those of Jardet et al. (2022), who proposed that global economic policy uncertainty clearly and significantly affects Foreign Direct Investment in a country. However, based on these results, Foreign Direct Investment in Indonesia has become an alternative for foreign investors when global economic policy uncertainty (EPUC) increases, as suggested by Nguyen and Lee (2021), who states that if global economic conditions and policies are unstable, investors tend to seek countries with clear policies to secure their investments. These results also indicate that Indonesia can be considered a "*safe haven*"

(borrowing the term from Nguyen and Lee 2021) and a target for foreign investors to allocate their investments when there is turmoil in global economic policy uncertainty (EPUC). However, it is worth noting that the global economic policy uncertainty variable (EPUC), an index, does not include Indonesia in its calculation, unlike the global uncertainty variable (WUC), which includes Indonesia. The test results may differ if Indonesia follows Baker's (2016) indexing of global economic policy uncertainty (EPUC).

Similarly, Looking at Roring and Juliana's study from 2022 on the effect of uncertainty variability (EPUC) on the investment decisions and cash holding of companies in five member nations of ASEAN, they show that when economic conditions are uncertain, businesses invest in reducing asymmetry in information issues by signalling to external investors, ultimately leading to a decrease in firm cash holdings. Furthermore, they find that uncertainty variability has a greater economic impact than the economic policy uncertainty index. This measure of uncertainty variability is better at capturing true economic conditions (Roring and Juliana, 2022). This aligns with the findings of Goodell, McGee, and McGroarty (2020), who argue that uncertainty variability (uncertainty volatility) is economically more significant than EPUC itself (Goodell, McGee, and McGroarty 2020).

Considering FDI in Indonesia compared to other ASEAN countries over the past ten years, based on data released by the World Bank, the following graph can be seen at Figure 7.

The value of FDI inflows into Indonesia is higher than that of its five neighbouring countries. Although Vietnam and Malaysia showed stable inflows, they remained below Indonesia's. Thailand has experienced dynamic fluctuations from year to year. However, the Philippines and Myanmar showed stagnant increases. In Indonesia, it is not unusual for global economic policy uncertainty to impact long-term FDI inflows. By examining the macroeconomic effects of shocks to global economic policy uncertainty on small open economies, Setiastuti (2017) supports this finding. Her study established that shocks to global economic policy uncertainty lower prices, interest rates, and trade balances in all estimated global occurrences. The impact on the output, however, differs significantly between these events. Around the 2008 global financial crisis,

output was negatively impacted by an unexpected shift in global economic policy uncertainty. However, after the 2016 U.S. presidential election, output responded favourably to the shock. Although there are considerable discrepancies in the output reactions, the proportion of forecast error variance in the output caused by these shocks is very small. It decreases quickly over time, suggesting that shocks have a minimal impact on output (Setiastuti, 2017).
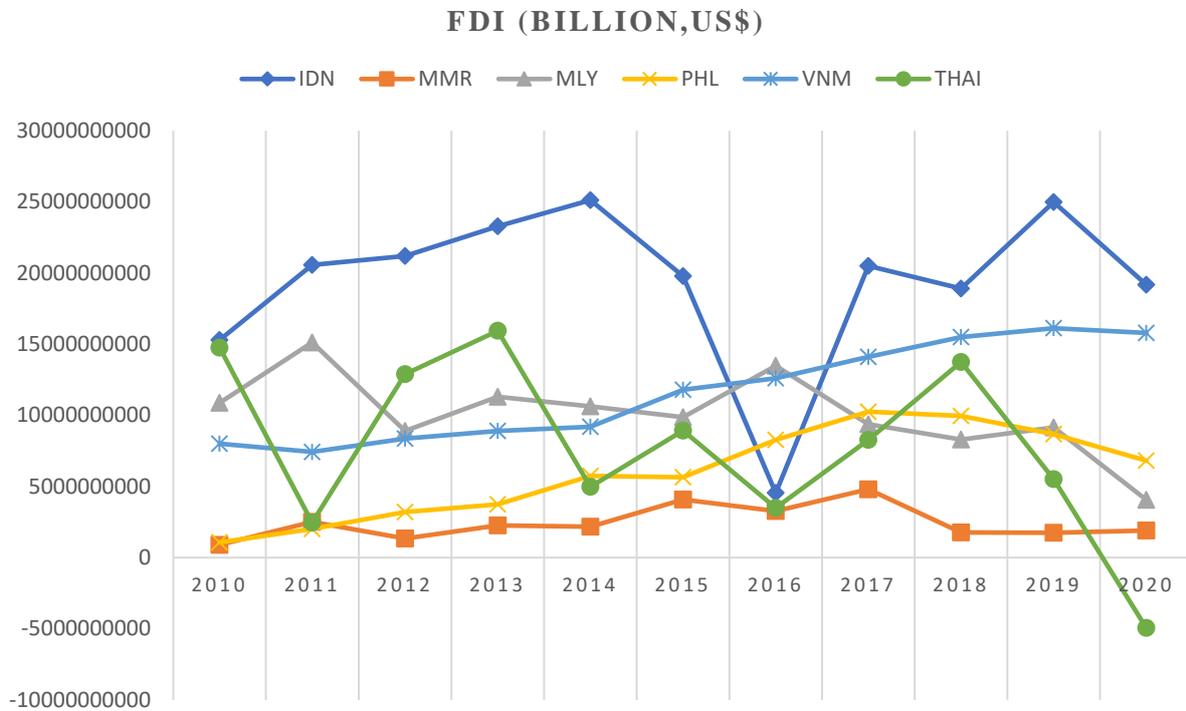
FDI (BILLION, US$)

Source: World Bank (processed data)

Figure 7. FDI (Billion, US$) for Indonesia, Myanmar, Malaysia, Philippines, Vietnam and Thailand.

In other words, when global economic policy uncertainty increased in 2016, marked by Donald Trump's election as the U.S. President and a change in U.S. policy direction, Indonesia became an alternative country, attracting foreign investors. This is evidenced by the year FDI inflows to Indonesia reached their highest value in 2017.

This finding indicates that some government policies on increasing foreign investment have proven effective in the long run. Among these policies, especially in the 2010-2020 period, were the simplification of licensing launched by the government in 2010 and the provision of fiscal incentives such as tax reduction, tax relief, or other tax facilities aimed at priority sectors such as the manufacturing industry, renewable energy, tourism, and investment in eastern Indonesia. Furthermore, there is also bilateral cooperation, during which period Indonesia signed several bilateral investment agreements with various countries such as Japan, China, Singapore, and the United States, which

provide legal protection and incentives for foreign investors from these countries.

Another policy is the provision of infrastructure to increase attractiveness, as evidenced by the launch of various infrastructure projects involving foreign investment participation, including the construction of toll roads, ports, airports, and power plants. Finally, in 2013, Indonesia established the Investment Coordinating Board (BKPM) as an institution responsible for facilitating and coordinating foreign investment, which includes simplifying the licensing process, providing integrated services, and improving the foreign investment climate in Indonesia.

The Association between Financial Development and Foreign Direct Investment Indonesia

Analyzing the internal factors of financial development within the Indonesian context yields noteworthy results. Specifically, the analysis indicates that the amount of credit extended by the domestic banking sector to the private sector in Indonesia (FNDP) has a strong and favourable long-

term impact on foreign direct investment (FDI). With a calculated coefficient value of 0.146371, this effect was statistically significant at the 10%, 5%, and 1% confidence levels. Furthermore, Economic growth significantly and favourably affects FDI inflows to Indonesia in the short run. With a coefficient of 0.091338, this short-term effect is statistically significant at the 10%, 5%, and 1% levels. These empirical findings illustrate the critical function of a strong domestic banking system in promoting FDI inflows in Indonesia, highlighting the significance of a robust financial system in attracting and sustaining international investment in the short and long term. These results align with the initial hypothesis, which states that financial development in the form of the amount of credit provided by the domestic banking sector to the private sector in Indonesia has a positive and significant impact on Foreign Direct Investment (FDI) in Indonesia.

Additionally, these findings support those of Haque et al. (2022), who suggest that the financial condition of a country, as reflected in financial development, is the most significant factor influencing Foreign Direct Investment in that country. Similarly, Camarero et al. (2021) suggest that Foreign Direct Investment in Japan can be explained by various variables, including financial sector development (financial development). Consistent with these findings, Lutfi et al. (2022) found that financial development in the Long-term and short-term Pakistan has a large and favourable impact on foreign direct investment.

This study used the Domestic Credit to the Private Sector by Bank Indonesia indicator, which measures the amount of credit Indonesian banks give to the private sector, including enterprises and individuals, to measure the economy's growth.

In the short term, the research findings demonstrate that when Indonesian banks increase domestic credit to the private sector, there is a corresponding rise in the value of foreign capital entering the country. This is largely because the credit extended by domestic banks can supply private firms with additional funds to finance their investment projects. Foreign investment often requires adequate funding to implement investment plans, and domestic credit can help meet this requirement.

Nevertheless, the advantages of domestic credit to the private sector from Indonesian banks are not restricted to the short term. Research indicates that, in the long run, sufficient and reliable credit from the domestic banking sector can positively affect foreign investment. If Indonesian banks can offer sufficient and reasonably priced credit to the private sector, they can create a favourable atmosphere for long-term foreign investment. Foreign investors are more likely to invest long-term when they observe adequate financial backing in the domestic banking system.

Domestic credit can also be viewed as enhancing long-term economic growth, which is important for foreign investments. Allowing private sector entities to access credit can help stimulate Indonesia's business sector expansion. Expanding the private sector leads to job creation, increased buying power, and overall economic growth. This makes the nation more desirable to international investors with a larger market potential and brighter economic prospects. This is consistent with research by Nezakati, Fakhreddin, and Vaighan (2011) in the Malaysian context, demonstrating that domestic credit provided to the private sector had a major impact on raising investment in Malaysia between 1974-2009.

Furthermore, sufficient domestic credit can enhance Indonesia's appeal as a destination for foreign investors. A solid, secure, and dependable banking sector demonstrates the robustness of a nation's financial system. Foreign investors seek countries with robust banking systems to minimize their investment risks. Consequently, if Indonesian banks can provide sufficient credit to the private sector, this can bolster foreign investor trust and increase foreign investment in the long term.

Overall, the research findings demonstrate that the volume of domestic credit provided by Indonesian banks to the private sector significantly impacts foreign investment over the long and short terms. Domestic credit can give the private sector more money to finance investment projects., create a conducive environment for long-term foreign investment, promote long-term economic growth, and strengthen Indonesia's attractiveness as an investment destination. By maintaining stability and adequate domestic credit availability, Indonesia can continue to increase its attractiveness to foreign investors worldwide.

CONCLUSION

Drawing upon the aforementioned findings and discussions elucidated earlier in this analysis, It can

be established that global uncertainty and uncertainty in economic policy can be used to explain the dynamics of foreign direct investment (FDI) in Indonesia between 1997 and 2020 and financial sector development in the form of the amount of credit provided by the domestic banking sector to the private sector in Indonesia. World uncertainty significantly negatively impacts Indonesia's Foreign Direct Investment (FDI) in the long and short terms. However, long-term global economic policy uncertainty positively influences Indonesian investment (FDI). This indicates that Indonesia has become an attractive alternative for foreign investors during global economic policy uncertainty periods.

Conversely, regarding financial sector development, the amount of credit provided by the domestic banking sector to the private sector in Indonesia positively impacts Foreign Direct Investment (FDI) in Indonesia in both the short and long term. This indicates that Indonesia's financial condition and infrastructure can be decisive factors for foreign investors in deciding whether to invest in Indonesia.

Based on the research mentioned earlier and the comprehensive elucidation provided, several recommendations and suggestions can be made in light of the study's implications. On a national scale, the government should always monitor the development of world uncertainty and global economic policy uncertainty to take initiatives to maintain or attract foreign investors to Indonesia if global uncertainty increases and worsens world conditions. In addition, it is necessary to measure uncertainty on both a socio-economic and policy scale within the scope of Indonesia by following the indicators and measurements of existing world uncertainty. Therefore, it will be very useful for further research to examine uncertainty in the country itself.

Additionally, further indicators of uncertainty can be created, such as domestic uncertainty, election conditions, and other social, political, and economic factors that indirectly influence domestic uncertainty, so that future research can be more comprehensive. Additionally, it looks into more specific policies set by the Indonesian government, such as the Omnibus Law on the investment climate in Indonesia, and further research into foreign investment in Indonesia and its influence on domestic labour absorption and a reduction in unemployment. Furthermore,

investigating factors influencing Indonesia's foreign direct investment (FDI) can be extended by examining aspects of financial sector development. This study is anticipated to be an initial step in examining how Indonesia's FDI is affected by global uncertainty and financial sector development so that it can be further explored and expanded upon.

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