THE EFFECT OF ECONOMIC GROWTH AND INFLATION ON VALUE ADDED TAX REVENUE IN ASEAN COUNTRIES WITH FOREIGN DIRECT INVESTMENT AS A MODERATION

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Abstract
Goods and Services Tax or also known as Value Added Tax is one of the taxation systems implemented by many countries around the world. The VAT system has been implemented in most ASEAN member countries with various rates. This study aims to analyze the effect of economic growth and inflation on VAT revenue in ASEAN countries in the period 2012 to 2019. In addition, this study will also examine the effect of foreign investment as a moderating variable. The analysis method used is panel data multiple linear regression analysis. The results showed that the GDP and FDI variables had a positive and significant effect on VAT revenue and the CPI variable had a negative and significant effect on VAT revenue. Furthermore, FDI weakens the relationship between economic growth and VAT revenue and FDI does not affect the relationship between inflation and VAT revenue. Due to the limited availability of data, it is expected that future research can use more comprehensive and up-to-date data so that it can be more accurate and relevant in analyzing the factors that affect VAT revenue in ASEAN countries.

Keywords: ASEAN, Economic Growth, FDI, VAT

INTRODUCTION
Goods and Services Tax (GST), also known as Value Added Tax (VAT), is one of the taxation systems implemented by many countries around the world. Value Added Tax (VAT) is a consumption tax imposed on the value added at each stage of the production of goods or services (Tax Foundation, 2023). VAT is an indirect tax because it is charged on final consumption. VAT is one of the main sources of revenue for governments around the world. According to (OECD, 2017), around 165 countries have implemented a VAT mechanism in 2016.

The VAT system has been implemented in most of the ASEAN (Association of Southeast Asian Nations) member countries. Although the name and implementation details may differ in each country, the general concept is similar, which is to impose taxes at every stage of production and distribution of goods and services. The VAT rates applied by countries in ASEAN are quite varied. The Philippines has the highest VAT rate in ASEAN at 12 percent, followed by Indonesia at 11 percent. In Timor Leste, the application of tax on goods is differentiated from tax on services at 2.5 percent for goods and 5 percent for services. Meanwhile, Brunei Darussalam has not yet implemented a VAT system or the like. Therefore, differences in the imposition of VAT rates in each ASEAN country certainly take into account various economic factors and other complex considerations in each country. When viewed from the global average VAT rate of 15.4 percent (Purwowindu, 2022), VAT rates in countries in ASEAN are still below average and even quite far apart. The low tax rate is partly due to the fact that most ASEAN member countries are still in the category of developing countries where their economic sectors are still dependent on developed countries outside ASEAN (Ardiansyah, 2020).
VAT revenue is closely related to the country's economic growth. Good economic growth will increase a country's national income. Therefore, to increase VAT revenue, the government must be able to maintain the stability of economic growth indicators (Puspitha & Supadmi, 2018). According to (Damayanti, 2016), economic growth is positively related to tax revenue because people's income will increase along with the economic growth of a country so that tax revenue will also increase. Research conducted by Maganya (2020) also states that taxes on domestic goods and services are positively related to GDP growth. On the other hand, Godin & Hindriks (2015) actually state that GDP per capita is not significant to taxes on goods and services.

VAT revenue is also affected by the inflation rate. According to Kalalo (2016), the inflation rate will be in line with fluctuations in the prices of goods and services and people's purchasing power so that it has an impact on VAT revenue. Inflation can have a positive or negative impact on VAT revenue. According to (Ananda, 2020), mild inflation provides an increase in consumption prices that triggers market reactions from both consumers and producers. Thus, an increase in inflation at a sufficient level will spur the national economy to be better so that it can increase government revenue from the tax sector. Isingoma (2018) also stated that inflation has a significant influence on the VAT rate so that the government must consider the inflation rate when projecting VAT collection. On the other hand, rising inflation requires the government to raise interest rates to maintain overall macroeconomic stability. As a result, the purchasing power of consumption of goods and services will decrease, thus affecting VAT revenue (Warnita et al., 2016). Research by Simarmata (2020) also states that inflation shows a negative effect on VAT revenue. Another case with research by Sinambela & Rahmawati (2019) which states that inflation has no significant effect on VAT revenue.

Another macroeconomic factor that affects VAT revenue is Foreign Direct Investment (FDI). High FDI can increase a country's VAT revenue. This is as stated by Eiya & Okaiwele (2019) who stated that the effect of FDI shows a positive and significant response to VAT. In addition, FDI also contributes to increasing the production of domestic goods and services so as to increase economic growth (Kambono & Marpaung, 2020). Production growth of goods and services as measured by GDP growth will ultimately reduce the inflation rate (Ginting, 2016).

Seeing the diversity of VAT rates in ASEAN countries and paying attention to several studies on factors that affect VAT revenues, including economic growth, inflation, and foreign

<table>
<thead>
<tr>
<th>Country</th>
<th>Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filipina</td>
<td>12</td>
</tr>
<tr>
<td>Indonesia</td>
<td>11</td>
</tr>
<tr>
<td>Malaysia</td>
<td>10</td>
</tr>
<tr>
<td>Vietnam</td>
<td>10</td>
</tr>
<tr>
<td>Kamboja</td>
<td>10</td>
</tr>
<tr>
<td>Singapura</td>
<td>7</td>
</tr>
<tr>
<td>Laos</td>
<td>7</td>
</tr>
<tr>
<td>Thailand</td>
<td>7</td>
</tr>
<tr>
<td>Myanmar</td>
<td>5</td>
</tr>
<tr>
<td>Timor Leste</td>
<td>2,5 (goods) dan 5 (services)</td>
</tr>
<tr>
<td>Brunei Darussalam</td>
<td>0</td>
</tr>
</tbody>
</table>

Source: processed from Ahdiat (2022) and TradeInvest Timor-Leste (2019)
investment, which provide different results, the author wants to examine more deeply these factors in influencing VAT revenues in ASEAN countries. This study aims to analyze the effect of economic growth and inflation on VAT revenue in ASEAN countries in the period 2012 to 2019. In addition, this study will also examine the effect of foreign investment as a moderating variable. The effect of foreign investment is used as a moderating variable because foreign investment in addition to having an impact on VAT revenue also affects economic growth and a decrease in the inflation rate, both of which have an influence on VAT revenue.

LITERATURE REVIEW
Value Added Tax
VAT is a consumption tax levied on value added at each stage of production of goods or services (Tax Foundation, 2023). The OECD (2023) defines VAT as a Goods and Services Tax (GST), which is a tax levied on the production, extraction, sale, transfer, lease or delivery of goods, and the delivery of services, or on the use of goods or permission to use goods or to perform activities. VAT is an indirect tax as it is charged on final consumption. According to the IMF (2023), VAT is an ad-valorem tax because the tax payable is calculated by multiplying the rate by the net value of the transaction.

GDP
An indicator of a country's economic growth can be measured by the amount of GDP. GDP is a standardized measure of the added value created through the production of goods and services in a country over a given period (OECD, 2023). GDP measures the monetary value of final goods and services produced in a country within a certain period of time (Callen, 2023). In GDP, there are terms such as nominal GDP and real GDP. Nominal GDP is the value of a country's economy based on current prices, without taking into account the effects of inflation or changes in price levels while real GDP is a measure of the value of a country's economy adjusted for inflation or changes in price levels (OECD, 2023). Joseph Schumpeter's economic growth theory states that the role of entrepreneurs in making innovations in the economy will increase the production of goods and services so as to increase economic growth (Puspitha & Supadmi, 2018). Good economic growth can also increase people's income and purchasing power (Damayanti, 2016).

Inflation
According to the Central Bureau of Statistics, inflation is an upward trend in the prices of goods and services that continues. Inflation can be measured by the Consumer Price Index (CPI), which is defined as the change in the prices of goods and services typically purchased by a particular group of households (OECD, 2023). According to Warnita et al. (2016), inflation can have an impact on reducing people's purchasing power for the consumption of goods and services.

FDI
FDI refers to investment in the form of business establishment or acquisition of business assets by individuals or companies in countries other than the investor's home country (John, 2016). According to (OECD, 2023), FDI is a category of cross-border investment where investors take a long-term interest in investing in the destination country so that it can have a significant effect on economic growth in the country. FDI plays an important role in technology transfer between countries, promoting international trade through access to foreign markets, and driving economic development.

Based on the background and literature review, the following hypothesis can be formulated:

Hₐ₁ : Gross Domestic Product has a positive effect on VAT revenue
Hₐ₂ : Consumer Price Index has a negative effect on VAT revenue
Ha₃ : Foreign Direct Investment has a positive effect on VAT revenue
Ha₄ : Foreign Direct Investment strengthens the effect of Gross Domestic Product on VAT revenue
Ha₅ : Foreign Direct Investment strengthens the effect of Consumer Price Index on VAT revenue

METHODS

In this study, a quantitative research model with an associative approach was used. This approach aims to identify the relationship or influence between two or more variables. The data used in this research is secondary data, which is data obtained from sources that have previously collected primary data. The secondary data used in this study are data on Value Added Tax, Consumer Price Index, and Foreign Direct Investment (FDI) in eight Southeast Asian countries including: Philippines, Indonesia, Cambodia, Malaysia, Myanmar, Singapore, Thailand, and Timor Leste from 2012 to 2019. All data were obtained from data provided by the World Bank (data.worldbank.org). Due to the limited data obtained, the author does not include the other three ASEAN member countries. 

Table 2 Research Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unit</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value Added Tax Revenue</td>
<td>Persen</td>
<td>Dependent Variable</td>
</tr>
<tr>
<td>Gross Domestic Product</td>
<td>Ln USD</td>
<td>Independent Variable</td>
</tr>
<tr>
<td>Consumer Price Index</td>
<td>Persen</td>
<td>Independent Variable</td>
</tr>
<tr>
<td>Foreign Direct Investment</td>
<td>Persen</td>
<td>Moderating Variable</td>
</tr>
</tbody>
</table>

Source: By Author

In this study, multiple linear regression analysis method was used with panel data type. From the variables used, the regression equation is obtained as follows:

\[ \text{VAT} = \alpha + \beta_1 \ln \text{GDP} + \beta_2 \text{CPI} + \beta_3 \ln \text{GDP.FDI} + \beta_4 \text{CPI.FDI} + \beta_5 \text{FDI} + \varepsilon \]

Description:
\( \text{VAT} \) = Value Added Tax
\( \alpha \) = Constanta
\( \beta \) = Coefficient
\( \ln \text{GDP} \) = Logarithmized Gross Domestic Product
\( \text{CPI} \) = Customer Price Index
\( \text{FDI} \) = Foreign Direct Investment
\( \varepsilon \) = Residual

From the variables used in this study, it can be poured into the following framework:

Before the regression analysis, a classical assumption test is carried out first in the form of normality test, heteroscedasticity test, multicollinearity test, and autocorrelation test. After ensuring that the model has met the classical assumptions tested, the next step is to conduct a goodness-of-fit (GOF) test. This GOF test aims to assess the extent to which the model fits the existing observational data (Alberto & Forero, 2010). GOF testing is carried out with a significance level (\( \alpha \)) of 5% as in Table 3 below.

Table 3 Goodness of Fit Test

<table>
<thead>
<tr>
<th>Uji GOF</th>
<th>H₀</th>
<th>H₁</th>
</tr>
</thead>
<tbody>
<tr>
<td>Partial Test</td>
<td>Independent variables</td>
<td>Partially have no effect</td>
</tr>
<tr>
<td></td>
<td>Independent variables</td>
<td>Partially affect</td>
</tr>
</tbody>
</table>
RESULTS AND DISCUSSION

Descriptive Statistic

In this study, the authors conducted data testing using the StataMP 17 application. The initial stage of this test is to conduct descriptive statistical analysis. This analysis can describe the data to be studied, including a frequency distribution that presents information about the mean, standard deviation, minimum value, and maximum value of the data.

Table 4 Descriptive Statistical Analysis

<table>
<thead>
<tr>
<th>Variabel</th>
<th>Obs</th>
<th>Mean</th>
<th>Std. dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>PPN</td>
<td>64</td>
<td>6.341865</td>
<td>3.151765</td>
<td>2.370862</td>
<td>17.10339</td>
</tr>
<tr>
<td>Ln PDB</td>
<td>64</td>
<td>25.44999</td>
<td>2.009</td>
<td>20.87202</td>
<td>27.74355</td>
</tr>
<tr>
<td>IHK</td>
<td>64</td>
<td>2.955109</td>
<td>2.717538</td>
<td>-1.469843</td>
<td>11.80031</td>
</tr>
<tr>
<td>FDI</td>
<td>64</td>
<td>6.549221</td>
<td>7.548673</td>
<td>0.331918</td>
<td>32.16984</td>
</tr>
</tbody>
</table>

Source : By Author

Based on table 4, it can be seen that the average VAT is 6.34, the average amount of GDP that is logarithmized is 25.45, the average CPI is 2.95, and the average FDI is 6.55. The lowest tax revenue occurred in Myanmar in 2018 at 2.37. Meanwhile, the highest tax revenue occurred in Cambodia in 2019 at 17.10. Furthermore, the highest amount of GDP occurred in Indonesia and the lowest in Timor-Leste. Then, the lowest and highest inflation rates occurred in Timor-Leste, namely -1.45 in 2016 and 11.80 in 2012. Finally, the highest FDI is dominated by Singapore as a developed country by reaching 32.17 in 2019. Meanwhile, the lowest FDI occurred in Timor Leste in 2016 which amounted to 0.33.

Classical Assumption Test

The purpose of the classical assumption test in this study is to ensure that the parameter values obtained are not biased, do not have a linear relationship, and do not have minimal variance compared to other estimators (Sihombing, 2021). A model is considered to meet the classical assumption test if the probability value is greater than the alpha value ($\alpha = 5\%$) in the Skewness and Kurtosis tests, which are used to test data normality, Breusch-Pagan / Cook-Weisberg test to test heteroscedasticity, and Wooldridge test to test autocorrelation. To test for multicollinearity, the Variance Inflation Factor test is conducted with an expected value of less than 10. If the model meets all of these classical assumption tests, it is considered suitable for further analysis.

Table 5 Classical Assumption Test

<table>
<thead>
<tr>
<th>Classical Assumption Test</th>
<th>Test</th>
<th>Prob</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normality</td>
<td>Skewness and Kurtosis Tests</td>
<td>0.4820</td>
</tr>
<tr>
<td>Multicollinearity</td>
<td>Variance Inflation Factor</td>
<td>247.76</td>
</tr>
<tr>
<td>Heteroscedasticity</td>
<td>Breusch–Pagan/Cook–Weisberg Test</td>
<td>0.0045</td>
</tr>
<tr>
<td>Autocorrelation</td>
<td>Breusch–Godfrey LM test</td>
<td>0.0996</td>
</tr>
</tbody>
</table>

Source : By Author
The test results in table 5 show that in the normality test, the prob value is 0.4820 (greater than α), meaning that the data is normally distributed. The autocorrelation test shows a result of 0.0996 (greater than α), meaning that there is no autocorrelation in the data to be studied. The multicollinearity test results show a result of 247.76 (greater than 10), so it does not pass the classical assumption test. However, according to Gujarati (2003), research using panel data models can ignore multicollinearity because panel data models combine cross section and time series data which is a rule of thumb. Furthermore, the heteroscedasticity test shows a value of 0.0045 (smaller than α), meaning that there is inequality of variance of the residuals. To overcome this, it can be done by weighing the variance value using the Generalized Least Square (GLS) model (Sihombing, 2021).

Hypothesis Test

From the results of testing the Pooled Least Square (PLS), Fixed Effects (FE), and Random Effect (RE) models, the FE model was chosen. However, because the data is heteroscedasticity, the model used is the GLS model. Based on the regression test results in table 6, the independent variables jointly (simultaneously) affect the dependent variable. This is indicated by the Prob> chi2 value smaller than the α value (0.0000 <0.05).

**Table 6 Regression Test**

| Variabel       | Coefficient | z     | P>|z| |
|----------------|-------------|-------|-----|
| Cons           | -10.13371    | -2.33 | 0.010 |
| lnPDB          | 0.630239     | 3.78  | 0.000 |
| IHK            | -0.2760967   | -2.04 | 0.020 |
| FDI            | 6.830272     | 8.50  | 0.000 |
| lnGDP.FDI      | -0.2603782   | -8.59 | 0.000 |
| IHK.FDI        | 0.0005812    | 0.02  | 0.490 |
| Prob > chi2    | 0.0000       |       |      |

*Source: By Author*

Furthermore, the t statistical test is used to evaluate the effect of the independent and moderating variables on the dependent variable partially. The coefficient value in this statistical test is used to determine whether the effect on the dependent variable is positive or negative. In addition, the P>|t| value is used to see the level of significance.

In this study, the coefficient value for the lnPDB variable is 0.630239. This shows that the lnPDB variable has a positive correlation with VAT revenue. In addition, the P>|t| value is below the significance level (0.010 <0.05), indicating that the lnPDB variable has a significant influence on tax revenue.

Furthermore, the CPI variable obtained a coefficient value of -0.2760967. The negative coefficient value indicates that the CPI variable has a negative correlation with VAT revenue. The significance test results with a P>|t| value that is smaller than the significance level (0.000 <0.05) indicate that the CPI variable also has a significant effect on tax revenue.

Then, on the FDI variable, a coefficient value of 6.830272 is obtained. This positive coefficient value indicates that the FDI variable has a positive correlation with VAT revenue. Furthermore, the significance test results with a P>|t| value that is smaller than the significance level (0.000 <0.05) state that the FDI variable has a significant effect on tax revenue. Furthermore, moderation testing was conducted, where the FDI variable was multiplied by the lnGDP variable. The test results show the significance of moderation (0.000 < 0.05) with a coefficient value of -
0.2603782. This means that the moderating variable (FDI) is related to the GDP variable and has a weakening influence on the VAT revenue variable. However, the moderation test results of the FDI variable multiplied by the CPI variable show that there is no significant effect on the VAT revenue variable, because the significance value is (0.490> 0.05).

**Effect of GDP on VAT Revenue**

The logarithmized GDP regression coefficient is 0.630239, meaning that if GDP increases by one percent, VAT revenue will increase by 0.630239 percent with other independent variables held constant. This variable has a significant positive effect on tax revenue. GDP is a measure of all production and income in a country's economy. An increase in GDP indicates economic growth, which tends to increase people's income. The higher people's income, the more consumers will spend their money on goods and services. This means more transactions are subject to VAT, which ultimately increases tax revenue. This is supported by research by Damayanti et al. (2016) which also states that economic growth affects tax revenue in Asian countries. According to Damayanti, people's income will increase along with a country's economic growth so that tax revenue will also increase. In addition, Puspitha & Supadmi (2018) in their research also stated that economic growth has a positive and significant effect on VAT revenue. According to him, this result is in line with Joseph Schumpeter's economic growth theory that the role of entrepreneurs in making innovations in the economy will increase the production of goods and services so as to increase economic activity. This will have an impact on increasing people's consumption and purchasing power.

**Effect of CPI on VAT Revenue**

The CPI regression coefficient is -0.2760967, meaning that if inflation as measured by the consumer price index increases by one percent, VAT revenue will decrease by -0.2760967 percent with other independent variables held constant. This variable has a significant negative effect on VAT revenue. This means that inflation will cause the quantity of goods produced to decrease even though the price of goods increases. In addition, an increase in inflation will reduce a person's real income so that the level of consumption and purchasing power will also decrease. As a result, VAT revenue also decreased. This is supported by research (Warnita et al., 2016) which states that increasing inflation requires the government to raise interest rates to maintain overall macroeconomic stability, thereby reducing the purchasing power of consumption of goods and services which will affect VAT revenue. (Simarmata, 2020) in his research also states that inflation shows a negative influence on VAT revenue.

**Effect of FDI on VAT Revenue**

The FDI regression coefficient is 6.830272, meaning that if foreign investment increases by one percent, VAT revenue will increase by 6.830272 percent with other independent variables held constant. This variable has a significant positive effect on VAT revenue. FDI is a direct investment from foreign companies where they establish or expand their business operations in the destination country. Thus, FDI can increase domestic economic activity which in turn will contribute to an increase in VAT revenue. This is as stated by (Eiya & Okaiwele, 2019) which states that in the influence of FDI shows a positive and significant response to VAT.

**Effect of FDI in Influencing the Relationship between GDP and VAT Revenue**

From the test results, it is found that the FDI variable weakens the relationship between GDP and VAT revenue. This can happen if the incoming FDI is dominated by one particular sector. If that sector experiences a decline, fluctuations in that sector can have a negative impact on overall economic growth. This is supported by Rahmawati's research (2022) which states that an increase in FDI will reduce economic growth. Mamingi & Martin (2018) in their research also produced findings that an increase in FDI resulted in a decrease in economic growth.
Effect of FDI in Influencing the Relationship between CPI and VAT Revenue

From the test results, it is found that FDI has no effect on the relationship between CPI and VAT revenue. This can happen because FDI is a long-term investment made by foreign companies in the destination country. This investment is related to technology transfer between countries to build or expand companies and infrastructure in the long term (OECD, 2023). In the short term, the impact of FDI on inflation may not be very significant as these investments tend not to directly contribute to the overall increase in prices of goods and services. This is supported by Okafor's (2016) research which states that FDI has no significant effect on the inflation rate.

CONCLUSION

From the analysis of the factors affecting VAT revenue in ASEAN member countries in the period 2012 to 2019, it can be concluded that high GDP contributes positively and significantly to VAT revenue because the higher the economic growth of a country, the more it increases people's income, which has an impact on increasing consumption and transactions subject to VAT. CPI has a negative and significant influence on VAT revenue because when inflation occurs, people's purchasing power decreases, causing the consumption of goods and services to decrease, and ultimately reducing VAT revenue. FDI has a positive and significant effect on VAT revenue because FDI can increase domestic economic activity and consumption of goods and services, which has an impact on increasing VAT revenue. Furthermore, FDI weakens the relationship between economic growth and VAT revenue. This means that in a situation where FDI is dominant in a particular sector, fluctuations in that sector can negatively impact overall economic growth, and ultimately reduce VAT revenue. Finally, FDI does not affect the relationship between inflation and VAT revenue. This could be because FDI tends to focus on long-term investments that do not directly contribute to the overall price increase of goods and services.

This research is expected to provide an understanding of the factors that affect VAT revenue in ASEAN countries. From the research results, the government can take into consideration to continue to support economic growth and foreign investment as well as control the inflation rate to strengthen VAT revenue. Due to the limited availability of data, the author hopes that future research can use more comprehensive and up-to-date data so that it can be more accurate and relevant in analyzing the factors that affect VAT revenue in ASEAN countries.

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