

EMPLOYEES PROVIDENT FUND

FACULTY BUSINESS AND MANAGEMENT
BACHELOR OF BUSINESS ADMINISTRATION (HONS.) FINANCE



INDUSTRIAL TRAINING REPORT

1/9/2023 - 9/2/2024

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EXECUTIVE SUMMARY

Industrial Training (MGT666) is a significant component of the course outline provided by the Faculty of Business Administration at Universiti Teknologi Mara (UiTM). This practical training experience requires students to undergo six months of training at a chosen company approved by the faculty's Industrial Training Unit. During this period, students have the opportunity to develop their knowledge, skills, and abilities in a real-world working environment. The internship course serves as a practical training ground for students to gain hands-on experience and prepare for their future careers. Throughout the internship, students are expected to actively participate in organizational activities and professionally complete their assigned tasks. At the end of the 24-week internship period, every student is required to submit an internship report to their faculty advisor. The industrial report is my six-month internship experience at the Department of Finance in the Employees Provident Fund (EPF) located in Kwasa Utama, Kwasa Damansara, from 1st September 2023 to 9th February 2024. As a newcomer to the real world and the workplace, every hour spent at EPF provided me with valuable experiences that will be advantageous for my future profession.

Furthermore, this report will display the findings for the dependent and independent variables of The Determinants of Inflation: Evidence from ASEAN. The aim of this paper is to investigate the factors that influence inflation towards ASEAN countries. Five distinct characteristics that were examined for their connections to inflation are the foundation of this investigation. These elements are Exchange Rate, Gross Domestic Product, Money Supply, Foreign Direct Investment and Interest Rate. Data for this study was gathered from ten ASEAN countries and spans the years 2003 through 2022 (20 years). The research approach employed in this study is the Static Panel Data Analysis model, and the data were taken from Refinitiv Eikon Datastream in Microsoft Excel. It is shown through the use of fixed effects regression that Money Supply and Interest Rate have a significant influence on the inflation. However, the Exchange Rate, Gross Domestic Product and Foreign Direct Investment show a poor correlation with inflation.

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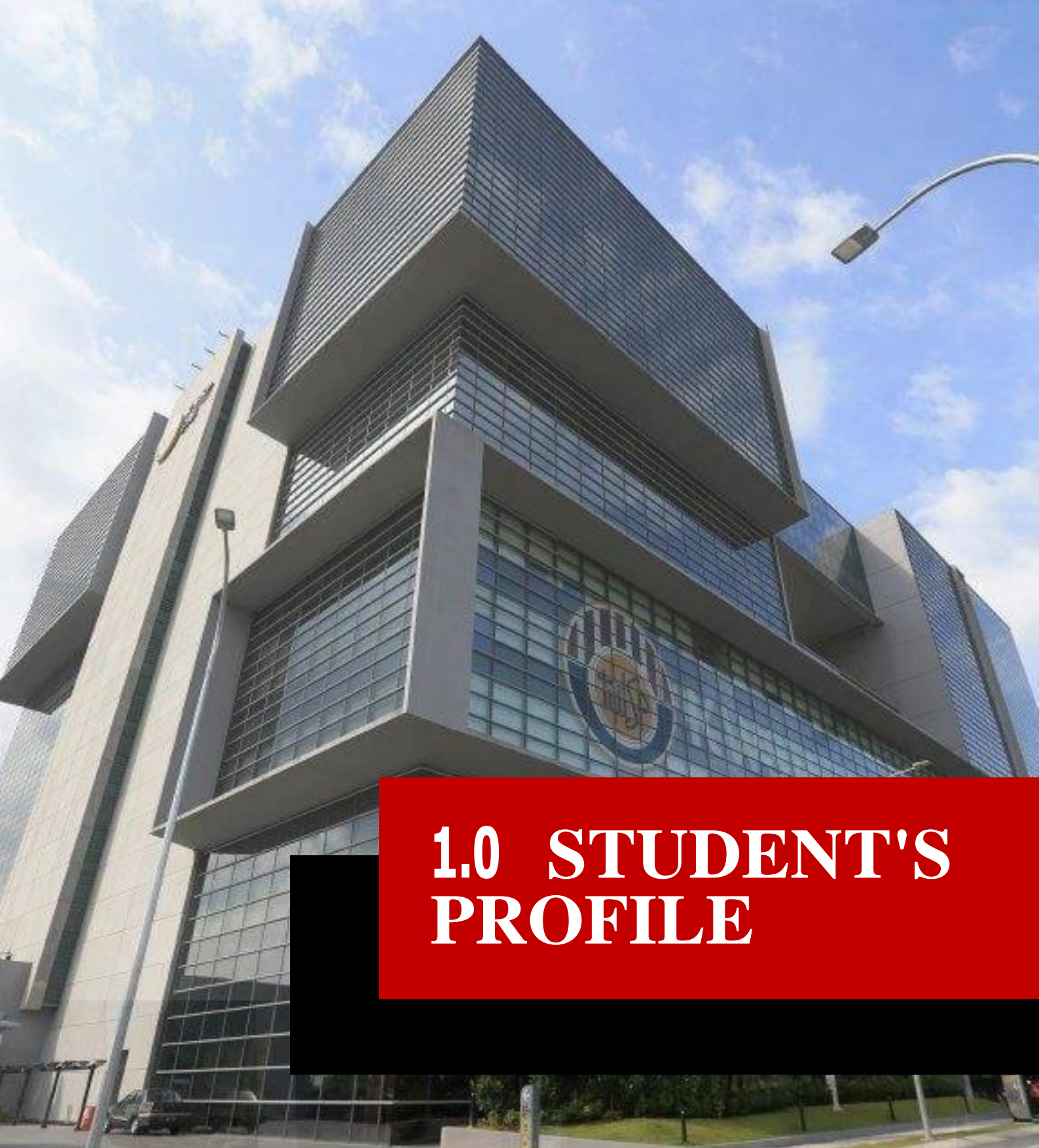


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1.0 STUDENT'S PROFILE



KWSP | EPF



2.0 COMPANY'S PROFILE



COMPANY'S PROFILE

2.1 NAME & LOCATION

The old Headquarter (HQ) building of the Employees Provident Fund (EPF) or “Kumpulan Simpanan Wang Pekerja” (KWSP) is located at Bangunan KWSP, Jalan Raja Laut, 50350 Kuala Lumpur.

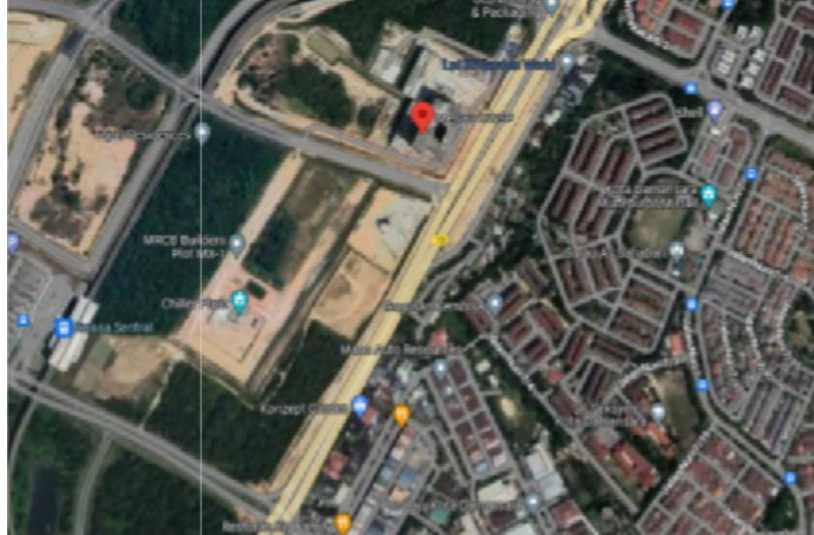


Figure 1: Maps Of EPF HQ At Kwasa Damansara

While the EPF's new headquarter which is now pronounced as Menara KWSP is located at No 1, Persiaran Kwasa Utama, Kwasa Damansara, Seksyen U4, 40150 Shah Alam, Selangor Darul Ehsan. Menara KWSP started operating on 1st July 2022.

2.1 BACKGROUND

The Employees Provident Fund (EPF), established in 1951, is one of the largest and oldest retirement funds globally. It operates as a social security organization under the Employees Provident Fund Act of 1991 (Act 452), making it mandatory for private sector and pensionable employees in Malaysia to participate in a retirement program. EPF facilitates private sector employees in saving a portion of their earnings in a lifetime savings plan, primarily intended for retirement but can also be accessed in case of temporary or permanent disability.

EPF plays a crucial role in providing a framework for businesses to fulfill their moral and legal obligations towards their workforce. Despite being a statutory organization, EPF's structure and remuneration differ from typical Malaysian government organizations. Its corporate structure resembles that of the private sector, and employees are not eligible for the government servant pension plan. The EPF board comprises representatives from employees, employers, the government, and experts from business and finance disciplines, ensuring effective governance while considering the organization's nature.

1951

COMPANY'S PROFILE

2.1 BACKGROUND



Figure 2: Logo EPF Company



Figure 3: Employees Provident Fund (EPF) Headquarter Building

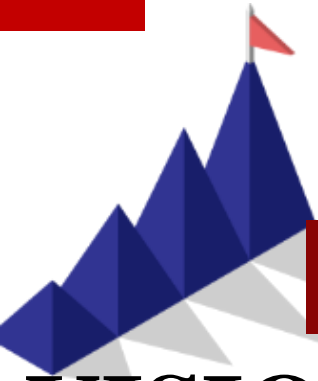
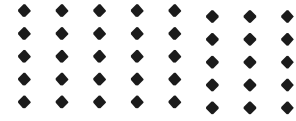
In recent times, EPF has introduced new facilities such as i-Saraan, i- Sayang, Belanjawanku, and i-Lindung 2 to cater to the diverse needs of its members. As of 2020, EPF managed the accounts of 14.89 million members, with 7.59 million active contributors and contributions from 534,398 employers. The retirement fund's assets under administration have reached a substantial amount, with billions of Ringgits in yearly contributions from companies and employees.

To generate revenue, the EPF invests its monthly contributions in a variety of sanctioned financial assets, including loans and bonds, stocks, money market instruments and real estate. This strategy protects members' money while paying them with reasonable dividends. EPF guarantees a minimum yearly payout of 2.5% to its members. The announced dividend rate is affected by the returns from approved investment instruments, and dividends are paid out once a year based on the initial balance of members' deposits on January 1st of each year.

The EPF has been successful in managing the funds of millions of Malaysians and continues to play a crucial role in securing their financial well-being and providing support during retirement. The steady growth in contributions and prudent investment strategies have contributed to the organization's financial stability and its ability to generate returns for its members.

SINCE 1951

2.2 MISSION, VISION & OBJECTIVE



MISSION

“Safeguard members' savings and deliver excellent services”

VISION

“Helping members achieve a better future”



OBJECTIVES

Strives to grow the retirement savings of EPF's members.

- Constantly creating various products and services to aid in their journey to a comfortable retirement.
- Leading the sustainability agenda by becoming a more sustainable and responsible organization.

GOAL

“To safeguard or protect employees' retirement savings”

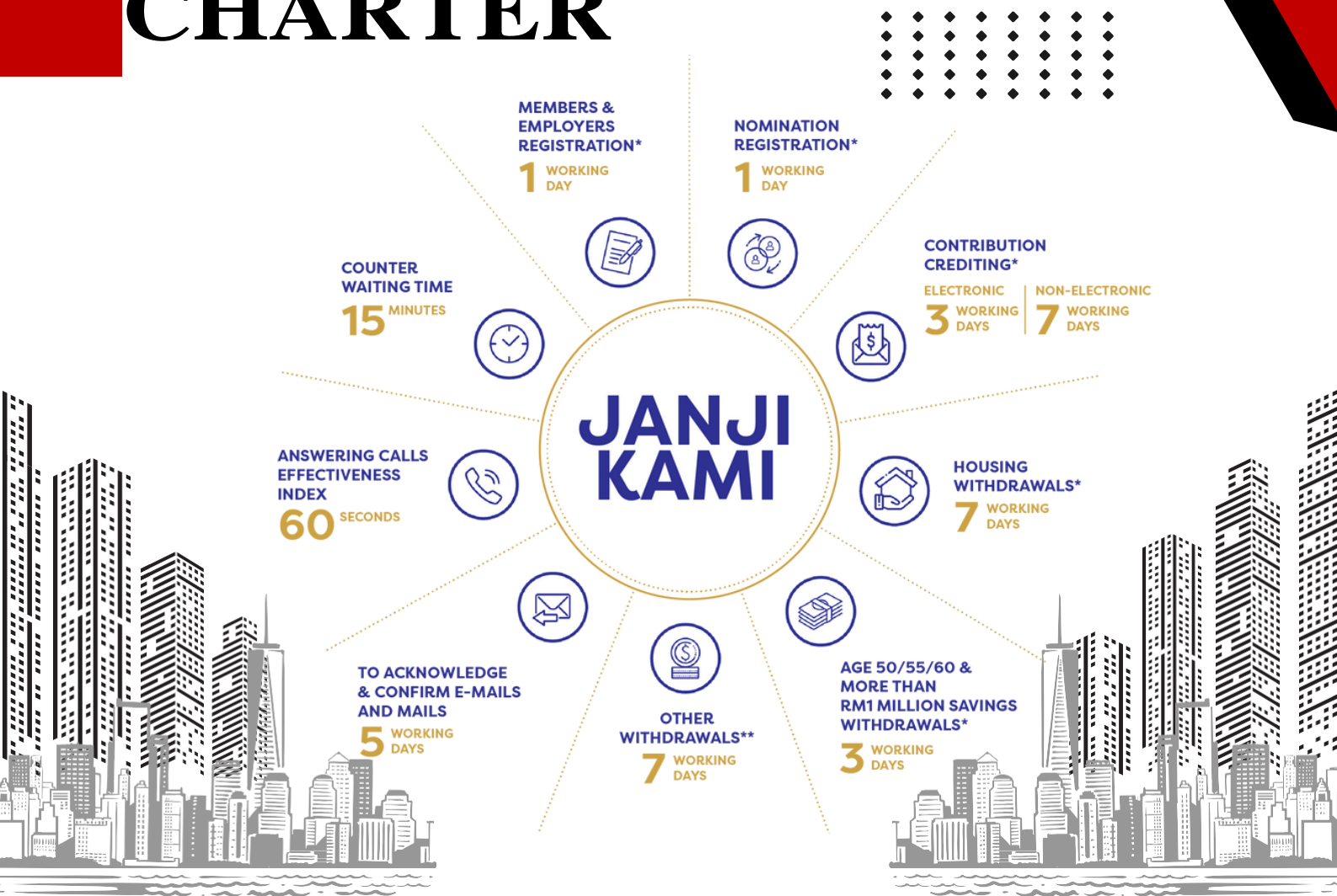


SHARED VALUES

“Integrity, Continuous Improvement, Customer Focused and Teamwork”



CUSTOMER CHARTER



FACTS AT A GLANCE

<p>15,716,213 total members of which</p> <p>8,392,031</p> <p>are active contributors (as of Q4 2022)</p>	<p>598,268</p> <p>EMPLOYERS</p> <p>contributed to the EPF (as of Q4 2022)</p>	<p>RM88.07</p> <p>BILLION</p> <p>Annual contribution received from employees and employers (as of Q4 2022)</p>
<p>Simpanan Shariah dividend rate 2022</p> <p>4.75%</p>	<p>Simpanan Konvensional dividend rate 2022</p> <p>5.35%</p>	<p>Total dividend payout 2022</p> <p>RM51.14</p> <p>BILLION</p>
<p>Simpanan Shariah dividend payout 2022</p> <p>RM5.70</p> <p>BILLION</p>	<p>Simpanan Konvensional dividend payout 2022</p> <p>RM45.44</p> <p>BILLION</p>	

2.3 ORGANIZATIONAL EPF SENIOR MANAGEMENT



Tan Sri Ahmad Badri Mohd Zahir
Chairman, EPF



Datuk Seri Amir Hamzah Azizan
Chief Executive Officer



Sazaliza Zainuddin
Chief Operations Officer



Nurhisham Hussein
Chief Strategy Office



Muhammad Afhzal Abdul Rahman
Chief Digital Technology Officer



Mohamad Hafiz Kassim
Chief Financial Officer



Rohaya Mohammad Yusof
Chief Investment Office



Iwan Azlan Mokhtar
Chief Human Resources Officer

2.4 PRODUCTS & SERVICES

The main services of an EPF company are to provide members with retirement benefits by managing their savings in an efficient and dependable manner. Furthermore, EPF reimburses an annual dividend of at least 2.5% but has consistently delivered significantly higher rates since 1960. EPF announced a dividend rate of 5.35% for Conventional Savings and 4.75% for Syariah Savings on 4th March 2023.

i-Sayang

i-Sayang is a government effort that allows the husband (contributor) to transfer the 2% employee share contribution received from the company to the wife's (receiver) EPF account.

By enabling husbands to voluntarily contribute 2% of their EPF monthly contribution, they would encourage their wives to have long-term savings. In addition, it gains access to the quality social security and income security currently enjoyed by EPF members. About 2.4 million housewives in the country were not in any employment or were outside the labour force, hence were not covered by any form of social protection and leaving them more vulnerable to adversities or financial shocks.



Figure 4: Poster of i-Sayang by EPF

As a result, the i-Sayang initiative is consistent with the government's commitment to empower rights and care for women's welfare, as well as applying family values consistent with the Malaysia Madani concept. EPF i-Akaun (Member), EPF's Self- Service Terminal (SST), or any EPF counter nationwide could be used to apply for i-Sayang.



2.4 PRODUCTS & SERVICES

i-Lindung

i-Lindung is a self-service system accessible through i-Akaun (Member) that allows you to acquire Member Protection Plan (MPP) protection items. Members may purchase insurance and takaful goods from EPF-approved Insurance and Takaful Operators (ITO). This is to offer members protection coverage options during difficult times or bad circumstances.

The government's decision to allow EPF members to use Account 2 to buy life, medical, and health insurance through the i-Lindung platform will help members supplement their savings and provide financial and long-term protection. EPF will launch i-Lindung 2 in July 2023 to support the nation's financial inclusion agenda of increasing insurance penetration and household resilience among the population.

Shahrin Saharoodin, 40, an EPF contributor, expressed his happiness at being able to finally purchase his own life insurance and critical illness insurance.



Figure 5: Poster of i-Lindung by EPF

"I purchased medical and life insurance for all my children as it is cheaper and will help protect them, I had to put them first before myself."

2.4 PRODUCTS & SERVICES



i-Saraan

The EPF has started the i-Saraan voluntary contribution project. It allows self-employed members with unpredictable incomes and gig economy employees to receive exclusive government retirement incentives, subject to certain restrictions. The benefits of i-Saraan include members under the age of 60 receiving a government contribution of 15% of the total contribution, subject to:

- Extension of the i-Saraan program for 2023
- Voluntary contribution
- The maximum limit of contributions incentive is RM250 per year

ELIGIBILITY

Individuals who are self-employed or do not earn a regular income, housewives and pensionable employees

Malaysian Citizen

Yet to reach the age of 55

Contribute voluntarily, any amount, any time (subject to a maximum amount of RM60,000 per annum for all voluntary contributions)

REGISTRATION

Register as an EPF member/ i-Saraan for eligible individuals at any EPF counter.

BENEFITS

GOVERNMENT CONTRIBUTION

Government contribution of **15%** on the amount contributed, subject to a maximum of **RM250** a year

BENEFITS FOR EPF MEMBERS

Annual Dividend, Death Benefit, Withdrawal, Tax Relief

An EPF member will enjoy annual dividend, and be eligible for incapacitation benefits and death benefits, able to make withdrawals from EPF savings and qualify for tax relief (subject to any prevailing rules).

PAYMENT OF CONTRIBUTION

Cash or cheque at the EPF's receiving counter

Cash or cheque at any counter of the EPF's panel banks [MBB, PBB, BSN and RHB]

Fund transfer via online banking services by the appointed banks [MBB and PBB]

QUERIES

Website: www.kwsp.gov.my

Contact Management Centre: 03-89226000

KWSP | EPF

Figure 6: Infographic of i-Saraan by EPF

i-SARAAN

BAGI YANG BEKERJA SENDIRI DAN TIADA PENDAPATAN TETAP

Ini Mutiara.

Mutiara bekerja sendiri dengan menjual produk kecantikan.

Selain memastikan pelanggannya sentiasa cantik, Mutiara juga ingin memastikan simpanan persaraannya cantik.

Jadi, Mutiara memilih untuk menyimpan dengan i-Saraan.



Manfaat i-Saraan



Dividen Tahunan



Pelepasan Cukai



15% Setahun

2.4 PRODUCTS & SERVICES

i-Invest

The EPF has established the i-Invest platform to encourage member participation. This service's inception was unprecedented in the business. The EPF was the first public retirement fund to allow members to invest their retirement savings directly in the unit trust funds of their choice. This service also benefits customers by dramatically lowering sales charges.

The sales charge ranges from 0% to 0.5%, as opposed to the standard 2%-3% commonly charged by intermediaries. The i-Invest service also includes tools that allow members to actively monitor all relevant information on the unit trust funds they have chosen. EPF encourages more involvement from its members through these tools.





3.0 TRAINING'S REFLECTION



KWSP | EPF



All UiTM degree students are expected to attend industrial training. I got the opportunity to complete my industrial training at the Employees Provident Fund (EPF) or Kumpulan Wang Simpanan Pekerja (KWSP) for 24 weeks, which is comparable to about 5 and a half months. The industrial training session begins on September 1st, 2023 and ends on February 9th, 2024. I was assigned to the Finance Department, where the everyday operations run from Monday to Friday. The everyday working hours demand me to spend 9 hours at the office, with a 1-hour break for prayer. Fortunately, EPF provides flexible working hours, with the choice of starting at 7.30 a.m. and finishing at 4.30 p.m., or at 8.00 a.m. and finishing at 5.00 p.m. Employees, however, must arrive at work by 9 a.m. Flexible working hours are advantageous since they make life easier for employees, particularly those who live a long distance away from work.



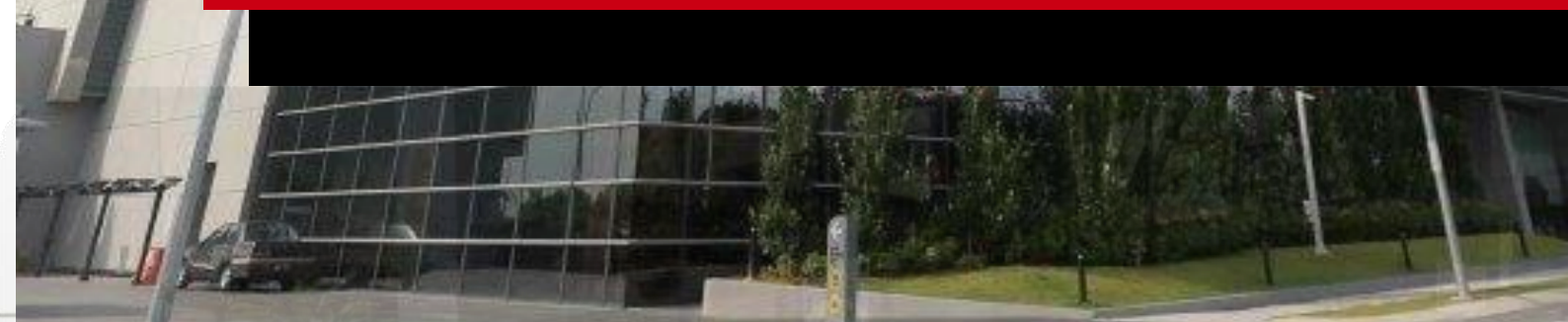
ROLES & RESPONSIBILITIES

During my industrial training, I was assigned to the Finance Department's Budget Section, where I got to experience firsthand the department's involvement in managing EPF's financial matters. The Finance Department is responsible for overseeing and controlling EPF's budgetary issues, payments, taxation, and financial reporting. Moreover, the department plays a key advisory role, offering guidance on financial policy, cost management, accounting, and taxation matters. Throughout my training, I gained valuable insights into how the Finance Department efficiently handles these critical financial aspects to ensure EPF's financial stability and compliance while providing valuable financial advice to support the organization's growth especially in Budget Section.





4.0 RESEARCH ANALYSIS



KWSP | EPF

Determinants of Inflation: Evidence from ASEAN

1.0 INTRODUCTION

Inflation, as a measure of the general increase in prices of goods and services over time, is a significant economic indicator that affects individuals, businesses, and governments especially in Asean. It has become one of the serious topics that need to be discussed in this research (Nor Jana Salim, 2021). Previous research on the determinants of inflation has provided valuable insights into the factors influencing price fluctuations; however, there is a need for a comprehensive analysis that explores the relative importance and interplay of these determinants across different countries and regions. Understanding the fundamental determinants of inflation is critical for policymakers and central banks in developing effective monetary policies and ensuring macroeconomic stability.

Previous research on the determinants of inflation in ASEAN countries has examined factors such as money supply, exchange rates, and oil prices, highlighting their impact on inflation (Warjiyo, P. 2019). The research issues related to the determinants of inflation in ASEAN countries may vary depending on the specific context and time period under investigation. This research will provide valuable insights for policymakers and contribute to the existing body of knowledge on inflation determinants, enabling more informed decision-making and policy implementation (Mohanty & John, 2015).

In summary, studying the determinants of inflation in ASEAN countries is essential for policymakers, economists, and researchers. It aids in formulating effective policies, achieving price stability, supporting regional economic integration, promoting trade and investment, and facilitating cross-country comparisons. By understanding the factors driving inflation, policymakers can make informed decisions to ensure sustainable and inclusive economic growth in the ASEAN region (Lee and Lim, 2020).

In this research, we find that the determinants of inflation in ASEAN countries can be attributed to a combination of factors, including changes in money supply, exchange rates, interest rates, and FDI (Abaidoo & Agyapong, 2022). The research novelty in the determinants of inflation in ASEAN countries lies in investigating the unique regional factors, emerging trends, and diverse economic structures within the context of ASEAN, providing insights into the complex interplay of global and domestic factors and contributing to the academic literature on inflation analysis and policy formulation in the region (Abdulaziz Alzahrani ,2023). The research on the determinants of inflation in ASEAN countries aims to identify the common and country-specific factors, analyze the impact of global factors, examine the role of monetary policy, study inflation expectations, assess

policy implications, and compare inflation across countries to inform effective policy formulation and decision-making in managing inflation in the region (Nguyen and Smith, 2018).

The organization of a paper on the determinants of inflation in ASEAN countries typically includes an introduction that sets the context and research question, a literature review section that surveys relevant prior studies, a data and methodology section explaining the data sources and analytical techniques employed, an empirical analysis section presenting the findings of the econometric analysis, a discussion section that interprets the results and addresses limitations, a conclusion summarizing the key findings and implications, and a references section listing the cited sources (Abdulaziz Alzahrani, 2023).

2.0 LITERATURE REVIEW

2.1 Population and sample

The target population of the research was selected from eight out of ten developing ASEAN countries. These are the listed countries chosen for the data which are Malaysia, Indonesia, Philippine, Singapore, Thailand, Vietnam, Laos, Brunei, Cambodia and Myanmar from the analysis because of the incomplete data from The World Bank.

2.2 Dependent variable (Inflation)

Inflation is the rise in the average price of goods and services in an economy during a specific time period while the value of the currency is falling, which results in a decline in consumer purchasing power.

$$\text{Formula} = [(y_1 - y_0) / y_0 \times 100]$$

Y1 = current year

Y0 = Initial year

With the use of regression specification, the result will be shown on how each of the variables relate with Gross Domestic Product (GDP) in Coefficients of statistical significance term. If it shows p-value is ≤ 0.1 , p-value is ≤ 0.05 and p-value is ≤ 0.01 respectively means it's statistically significant. Therefore, BM and NNI is a statistically significant relationship at the end of the result.

2.3 Independent variable

Carrying out the research, three variables that are being used are exchange rate, gross

domestic product, money supply, interest rate and net inflow of foreign direct investment.

2.3.1 Exchange rate

Exchange rates have a significant relationship with inflation, and numerous studies have explored this dynamic. A study by Campa and Goldberg (2002) examined the impact of exchange rate movements on consumer price inflation in a sample of developed countries. The findings revealed that exchange rate depreciation was positively associated with higher inflation rates, while exchange rate appreciation was linked to lower inflation. The authors argued that a weaker exchange rate can lead to higher import prices, thereby increasing the cost of imported goods and potentially translating into higher inflation. Conversely, a stronger exchange rate can lower import prices, contributing to lower inflationary pressures (Campa & Goldberg, 2002). This suggests that changes in exchange rates can have important implications for domestic price levels and overall inflationary trends.

The exchange rate represents the price at which one currency can be exchanged for another. It is commonly expressed as the value of one unit of a currency in terms of another currency. The formula for the exchange rate is as follows:

$$\text{Exchange Rate} = \text{Base Currency} / \text{Counter Currency}$$

2.3.2 Gross domestic product (GDP)

Gross Domestic Product (GDP) is a measure of the total value of all final goods and services produced within a country's borders over a specific period, typically a year. It is commonly used as an indicator of economic activity and is considered an essential measure of a country's overall economic performance.

The formula for calculating GDP is as follows:

$$\text{GDP} = C + I + G + (X - M)$$

Where:

C: consumption expenditure, which includes spending by households on goods and services.

I: investment expenditure, which includes spending on capital goods, such as machinery and equipment, and changes in inventories.

G: government expenditure, which includes spending by the government on public goods and services.

(X - M): net exports, which is the difference between exports (X) and imports (M).

As an independent variable in the context of inflation, GDP can be used to examine its relationship with the overall price level. GDP is positively related to Inflation. A study in Malaysia by (Nor Jana Salim, 2021) revealed that there is an inverse relationship between GDP growth and inflations applying explanatory research design approach.

2.3.3 Money supply

Money supply refers to the total amount of money that is available in an economy. The money supply is important because it affects the overall level of economic activity. If there is too much money circulation, it can lead to inflation when prices increase rapidly, and the value of money decreases. The relationship between broad money and inflation is considered to be positive and significant. A theoretical framework for explaining the positive relationship between broad money and inflation is provided by the quantity theory of money. This theory states that inflation can occur if the money supply increases more quickly than the real gross domestic product (GDP). According to this hypothesis, changes in the money supply and changes in the level of prices are correlated directly and quantitatively.

Formula:

$M2 \text{ (broad money)} = M1 + \text{marketable securities} + \text{other less liquid bank deposit}$

2.3.4 Foreign direct investment (FDI)

Foreign direct investment (FDI) refers to the investment made by foreign entities, such as multinational corporations or individuals, in the production or business operations of a host country. Numerous studies have investigated the relationship between FDI and inflation in ASEAN countries, shedding light on the underlying factors and their impact. For instance, Smith (2010) found that increased FDI inflows led to rising prices in several ASEAN countries due to increased demand and liquidity effects (Smith, 2010). Similarly, Nguyen et al. (2015) and Liang et al. (2017) observed a positive relationship between FDI and inflation, suggesting the importance of considering other factors alongside FDI (Nguyen et al., 2015; Liang et al., 2017). As a result, estimation and discussion of the parameters are made more effective. Therefore, based on our research, real FDI inflows serve as a proxy for Foreign Direct Investment (FDI).

2.3.5. Interest Rate

In general, there tends to be a positive relationship between interest rates and inflation. When inflation is high, central banks often raise interest rates to curb inflationary pressures. Higher interest rates make borrowing more expensive, which reduces consumer spending and investment, thereby dampening inflationary pressures. (Abdulaziz Alzahrani ,2023).

Formula:

Adjusted NNI = Gross National Income (GNI) - Consumption of Fixed Capital (CFC) + Net International Income (NII)

3.0 RESEARCH METHODOLOGY

3.1 Description of the sample

Following the literature, this research will define the top 10 countries as the countries Malaysia, Indonesia, Philippine, Singapore, Thailand, Vietnam, Laos, Brunei, Cambodia and Myanmar.

3.2 Description of the variables

To remain consistent with previous studies, measures pertaining to the dependent variables and the determinants of capital structure will be taken from reviewing and following the suggestions made by the previous studies. The variables are categorized into three different categories: (1) traditional variables, (2) new variables / proxy, and (3) institutional and economics variables. The final list of variables to be included in the study will be based on the result of the variable selection procedure.

3.3 List of Variables

Table 1.0 List of Variables

Dependent variable	Independent variables - proxy
1. Inflation – Consumer Price Index	1. Exchange rate - Current health expenditure 2. Gross domestic product (GDP) - Trade 3. Money supply - Broad money 4. Foreign direct investment (FDI) - Net outflows 5. Interest rate - Adjusted Net National Income

Formula:

Inflation – Formula = $[(y1 - y0) / y0 \times 100]$

Y1 = current year

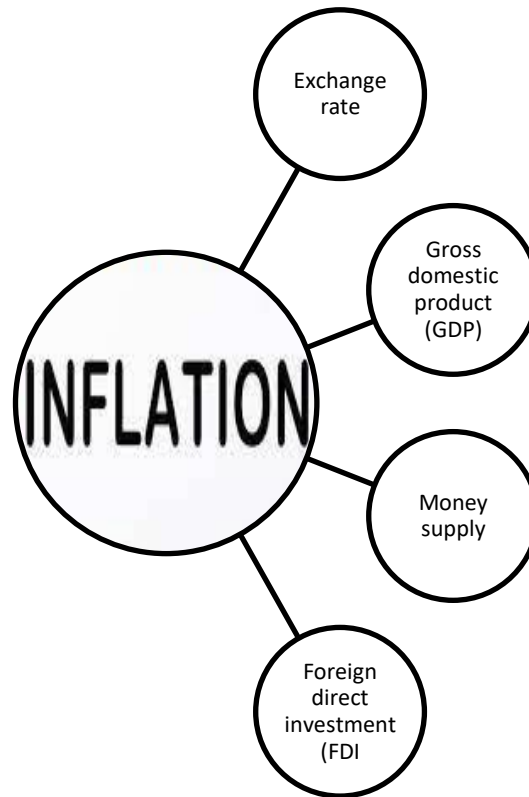
Y0 = Initial year

Exchange rate - Exchange Rate = Base Currency / Counter Currency

Gross domestic product (GDP) - $GDP = C + I + G + (X - M)$

Money supply - M2 (broad money) = M1 + marketable securities + other less liquid bank deposit

Model Development and Testing



3.4 Data Collection Procedures

This research will be using secondary data. Financial data of the companies will be extracted from the published annual reports obtained from the Bursa Malaysia's website and online databases such as DataStream and Eikon.

3.5 Data Cleaning and Preliminary Data Analysis

The main objective of this stage is to check the data availability and validity of the data. The output of this stage is the final data ready to be analyzed.

3.6 Model Development and Evaluation → Data Analysis Steps

The main objective of this stage is to analyse the data and to come out with the model explaining the inflation decision of countries. The detail explanations of this stage are as follows:

The first step is to determine the most optimal combination of predictors. In this study, Stata command, `vselect`, developed by Lindsey and Sheather (2010) will be employed to determine whether certain variable should be included in the model. Following Lindsey and Sheather (2010), optimal model is defined as one that optimizes one or more information criteria. Those criteria are Mallows's C_p (C), Adjusted R^2 (R2ADJ), Akaike's information criterion (AIC), Akaike's corrected information criterion (AICC), and Bayesian information criterion (BIC). This research used the definitions of these criteria given in Sheather (2009). Generally, higher variance explained by the model R2ADJ and lower C, AIC, AICC and BIC values indicate the best fitting model (Lindsey & Sheather, 2010).

The second step is to choose the most appropriate static panel data analysis technique. The choice of the most appropriate static technique depends upon three types of tests as suggested and outlined by Park (2011). The tests are F-test, Breusch-Pagan Lagrange Multiplier (BP-LM) test, and Hausman test.

The third and final step is to perform the diagnostic tests and to find the correct strategy to rectify the problem(s) identified (if any). The strategy to rectify the problem(s) will be based on the suggestion by Hoechle (2007).

3.7 MODEL SPECIFICATIONS

$$\text{cpit} = \beta_0 + \beta_1 \text{bmt} + \beta_2 \text{nnit} + \beta_3 \text{tradet} + \beta_4 \text{chet} + \beta_5 \text{fdit} + \varepsilon_t$$

Table 2.0 Definition of Research Model

cpi	= Consumer price index
bm	= Broad money (% of GDP)
nni	= Adjusted net national income (annual % growth)
trade	= Trade
che	= Current health expenditure (% of GDP)
fdi	= Firm Size
t	= years / times

Table 3.0 List of Proxies & Countries

Inflation (5 Proxies)	Country (10 countries)
1. Current health expenditure	1. Malaysia
2. Trade	2. Indonesia
3. Broad money	3. Philippine
4. Net outflows	4. Singapore
5. Adjusted net national income	5. Thailand
	6. Vietnam
	7. Laos
	8. Brunei
	9. Cambodia
	10. Myanmar

1 Model (Theoretical Model)

To examine the use of different proxies for ASEAN countries may impact inflation (Nor Jana Salim, 2021)

4.0 FINDINGS

Using the consumer price index as the proxy for inflation, this section investigates the Determinants of Inflation: Evidence from ASEAN for all countries which are Philippine, Thailand, Singapore, Indonesia, Malaysia, Vietnam, Myanmar, Laos, Brunei and Cambodia classified as group of countries.

The overall sample consists of 98 observations. The summary statistics of the variables over the sample period is presented in Table 4. The average size of the inflation for the period of study is 14 and it ranges from a minimum value of 2 to a maximum value of 19.

Table 4: Descriptive Statistics

Variables	N	Mean	SD	Min	Max
cpi	197	107.4834	26.41118	38.95043	182.1773
bm	184	80.48313	38.95727	17.22931	148.9482
nni	128	-2.388904	74.43289	-653.5264	234.7391
trade	174	137.4132	90.56414	32.97218	437.3267
che	181	3.694922	1.336101	1.850972	7.583306
fdi	157	2.621327	4.369103	-1.244177	22.59415

The first step is to determine the most optimal combination of predictors. As shown in Table 5, the choices of the most optimal model predictor sizes were four (4) for R2ADJ, C, AIC, BIC and AICC. In this research, following the suggestion by Yang (2005), the four-predictor model is chosen. The chosen variables are broad money, trade, net outflow and current health expenditure.

Table 5: Variable Selection

Models	Variable Selection						Optimal Model
	R2ADJ	C	AIC	AICC	BIC	#	IV
Model 4	4	4	4	4	4	4	broad money, GDP, net outflow and current health expenditure

The next step is to choose the most appropriate panel data estimator. The three available alternatives are pooled ordinary least squares (POLS), fixed effects (FE), and random effects (RE) models. As presented in Table 6, the results of the F-test (p-value < 0.05), BP-LM test (p-value > 0.05) and Hausman test (p-value < 0.05) suggest that FE is the most appropriate model estimator.

Table 6: Panel Specification Tests

Models	p-values of the tests			
	F-test	BP-LM	Hausman	Technique
Outcome 2	0.0018	1.000	0.0016	Fixed Effect

Various diagnostic tests were then performed to check for the presence of multicollinearity, heteroskedasticity and serial correlation problems. As presented in Table 7, the diagnostic test results indicated the presence of heteroskedasticity (p-value < 0.05) and serial correlation (p-value < 0.05) problems. To rectify the problems, following the suggestion by Hoechle (2007), remedial procedure has been carried out by using fixed effect (within) regression with cluster option.

Table 7: Diagnostic Tests for Static Models

Models	p-values of the tests			Strategy
	VIF	H	SC	
Model 1	1.79	0.0000	0.0000	Fixed Effect (within) regression with cluster option

As shown in Table 8, the regression result suggests that the model fits the data well at the 0.05 significance level. The Adjusted R² of 0.4239 suggests that the five independent variables explain 42.4% of the variance in the inflation. The remaining 57.6% is explained by other variables that were not included in the model. The results of the regression also suggest that broad money and adjusted net national income has **statistically** significant relationship with Inflation. The results also suggest that trade and net outflows is **negatively** related to inflation, whereas broad money, net national income and current health expenditure are **positively** related to inflation. In addition to that, net national income seems to have the greatest influence on the inflation, which is explained by the highest t-value (@ z-value) of 11.34.

Table 8: Final finding

	Fixed effect (within) regression
BM	0.7557*** (7.02)
NNI	0.0332*** (11.34)
Trade	-0.1728 (-0.65)
CHE	14.6336 (1.21)
FDI	-1.4157 (-0.88)
Constant	9.7935 (0.12)
N	98.0000
r2	0.4536
r2_a	0.4239
r2_w	0.4536
r2_b	0.2904
r2_o	0.1898
F	605.2495
p	0.0000
chi2	

t statistics in parentheses

* $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$

Notes: (1) BM = broad money, NNI = net national income, Trade = Trade, CHE = current health expenditure and FDI = foreign direct investment. 2) Figures in parenthesis are *t*-statistic.

4.1 Summary of Findings

Purpose of this research is to contribute for Theoretical theory by providing the analysis done on how inflation and its determinants affect the inflation rate of the developing country. This analysis uses the current data from the year 2003 to 2022, which includes all ASEAN countries. Ten ASEAN countries data were examined. Followings are the findings of this analysis:

First: Consumer Price Index.

The consumer price index as the dependent variable was measured either it's had a relation with exchange rate, gross domestic product (GDP), money supply, foreign direct investment (FDI) and net national income as its determinants. As the study, descriptive table showed the result of mean of each variable and it ranges from a minimum value and maximum value.

The minimum value showed of 38.95043 and its maximum value is 182.1773.

Second: The optimal model.

The optimal model in this analysis will show the result on which variable will be select. The result of the variables selections test has suggested four out of five will be included in the model which is current health expenditure (% of GDP), net outflow, broad money and trade (% of GDP). Which means here, adjusted net national income (annual % growth), should not be included in the model. The result chosen based on the lowest AICC.

Third: Panel Specification Test.

This panel specification test is to choose the most appropriate panel data estimator. There are three tests that cans use which is F-test, BP-LM test and Hausman test. For F-test, if p-value is > 0.05 choose Pooled Ordinary Least Square (POLS) and if < 0.05 choose Fixed Effect (Fe). The result Tar F-test showed that p-value is 0.0018. This means Fe is chosen. Next, Tar BP-LM test if p-value is > 0.05 choose POLS and if < 0.05 choose Random Effect (Re) and the result for this test is 1.000 and POLS has been chosen. Based on the decision rule for panel specification tests (Park, 2011), if the outcome 2 of F-test is Fe and BP-LM is POLS there's no need to do Hausman test. The result of the panel specification tests suggest that Fixed Effect is the most appropriate data analysis technique.

Fourth: Diagnostic Tests for Static Models.

The diagnostic test will investigate the existence of severe multicollinearity, heteroscedasticity and serial correlation problem. This test needs to be run because it will be identifying either the data have met the assumptions of linear regression or not. The result of Variance inflations Factors (VIF) is < 10 means no multicollinearity problem exist. The diagnostic test results indicated the presence of heteroskedasticity (p-value < 0.05) and serial correlation (p-value < 0.05) problems. The strategy used is Fixed Effect (within) regression with cluster option because our heteroskedasticity (p-value < 0.05) which is 0.0000 and serial correlation (p-value < 0.05) which is 0.0000.

Fifth: Final findings.

The result of R2 is 0. 4536 and Adjusted R2 is 0. 4239. The results of the regression also suggest that net national income has a statistically significant relationship with inflation. The results also suggest net national income and current health expenditure are positively related

to inflation.

5.0 DISCUSSION

The aim of this paper is to determine the determinants of inflation by using inflation as its dependent variable. This research used ASEAN-10 countries yearly data from the year 2003 to 2022. As for this research, the first step to determine the most optimal combination of predictors as suggested by Yang (2005), the lowest AICC model should be chosen and this research found out that the four-predictor model has been chosen thus, those variables are current health expenditure (% of GDP), net outflow, broad money and trade (% of GDP). The second step that has been taken to find out the result was to choose the most appropriate panel data and the finding suggests that FE is the best model data analysis technique to be used.

Next, the result of the diagnostic tests found out that there was a presence of heteroskedasticity and serial correlation problems. Moreover, Fixed Effect (within) regression with cluster option has been used to rectify the problems. In a nutshell, this research suggests that exchange rate, gross domestic product (GDP), money supply, and foreign direct investment (FDI) have a positive relationship with inflation. The findings indicate that an increase in the exchange rate, GDP, money supply, and FDI is associated with higher inflation levels. This implies that changes in these variables can contribute to inflationary pressures in the economy. These results provide insights into the factors that influence inflation and can be useful for policymakers and economists in understanding and managing inflationary trends.

The relationship between the broad money and inflation.

The research findings demonstrate a significant positive relationship between broad money (BM) and inflation towards the ASEAN countries. This means when the broad money rises, there is a corresponding enhancement in the inflation. The T-statistics for the coefficient between broad money and inflation is 0.7557*** (t-value = 7.02, p-value < 0.01). This suggests that there is a statistically significant correlation between broad money and inflation. In conclusion, there is strong proof to support the claim that a greater broad money is linked to greater inflation in the ASEAN countries.

The relationship between net national income and inflation.

The research findings suggest that there is a significant relationship between net national income (NNI) and inflation towards the ASEAN countries. The T-statistics for the coefficient between net national income and inflation is 0.0332***, with a t-value of 11.34 and a significance level of $p < 0.01$. These findings demonstrate that there is a statistically significant positive relationship between net national income and inflation. There is strong proof to suggest that a rise in net national income impacts the inflation of the country.

RESEARCH CONTRIBUTIONS & IMPLICATIONS

Doctoral Research | Contribution to new knowledge | How has this thesis contributed to the body of knowledge?

Importance:


1. The importance of investigating regional-specific factors as **new knowledge** lies in understanding how unique characteristics and within a specific region, such as ASEAN and influence inflation.
2. The effect of using different proxy for inflation
3. The effect of using different proxy & variable selection technique

Contributions:

1. Estimate on inflation
2. Model affecting the inflation
3. Unique approach
4. Most optimal model
5. No conclusive evidence
6. Model to explain inflation

Implications:

1. Academic Contribution - Research on the determinants of inflation contributes to the academic understanding of macroeconomic. By identifying and analyzing the factors that drive inflation, researchers contribute to economic theory and empirical knowledge, enriching the field of macroeconomics.
2. Policy Guidance - Understanding the determinants of inflation provides valuable guidance for policymakers. Research findings can help policymakers design and implement appropriate monetary and fiscal policies to manage inflation effectively.
3. Economic Stability - Inflation has significant implications for economic stability. Research on the determinants of inflation can contribute to maintaining price stability, promoting sustainable economic growth, and preventing harmful inflationary episodes. It can provide insights into the optimal level of inflation targeting and policy frameworks to ensure stable and predictable economic conditions.
4. Forecasting and Monetary Policy Tools - Analyzing the determinants of inflation contributes to the development of forecasting models and monetary policy tools. By understanding the key drivers of inflation, researchers can improve inflation forecasts and develop effective tools for central banks to guide monetary policy decisions.

- 
5. Risk Management - Research on inflation determinants helps identify and manage risks associated with inflation. By understanding the factors that influence inflation, policymakers, businesses, and individuals can make informed decisions regarding investment, savings, borrowing, and pricing strategies to mitigate the potential adverse effects of inflation.

Publications

Journal Articles 8 citation

6.0 LIMITATION AND RECOMMENDATIONS

Limitation is the possibility of endogeneity among the independent variables. For example, there could be a bidirectional relationship between GDP and inflation, with inflation influencing GDP growth and GDP growth affecting inflation. Similarly, exchange rates, money supply, interest rates, and FDI can all be influenced by inflation levels. Failure to address these endogeneity issues may result in biased and inconsistent estimations of the links between the independent factors and inflation.

To address the limitation mentioned, several recommendations can be made for future research on the determinants of inflation in ASEAN countries. First, it is important to consider a broader set of variables that might influence inflation, such as government policies, fiscal deficits, labor market conditions, and political stability. Including these variables in the analysis would provide a more comprehensive understanding of the determinants of inflation in the ASEAN region.

Secondly, researchers should employ advanced econometric techniques, such as instrumental variable regression or panel data analysis, to address the endogeneity issues among the independent variables. By using appropriate methodologies, it becomes possible to establish causal relationships between the independent variables and inflation, mitigating the potential biases and inconsistencies.

Furthermore, expanding the sample size beyond the 10 selected ASEAN countries could enhance the generalizability of the findings. Including more countries would allow for a more diverse range of economic conditions and policy contexts, providing a better understanding of the determinants of inflation in the ASEAN region.

Lastly, conducting a time-series analysis to capture the dynamic relationships between the variables over an extended period would be beneficial. Inflation dynamics can be influenced by various factors that evolve over time, and analyzing these long-term relationships can provide valuable insights into the determinants of inflation in ASEAN countries.

By considering these recommendations, future research on the determinants of inflation in ASEAN countries can improve the robustness and applicability of its findings, leading to a better understanding of inflation dynamics in the region.

7.0 CONCLUSION

The study aims to explore the factors influencing inflation in ASEAN countries and contribute to the existing body of knowledge on inflation determinants. Current research gathers information from 10 ASEAN countries on inflation recorded in World Bank and the information cover the period from year 2003 to 2022 (20 years). The research methodology involves analyzing secondary data from ASEAN countries, including variables such as exchange rates, gross domestic product (GDP), money supply, interest rate and foreign direct investment (FDI). The data will be analyzed using panel data techniques, including fixed effects regression, to examine the relationships between these variables and inflation. The findings indicate that exchange rates, money supply and interest rate have a positive relationship with inflation in ASEAN countries. An increase in these variables is associated with higher inflation levels, suggesting that changes in these factors can contribute to inflationary pressures in the economy.

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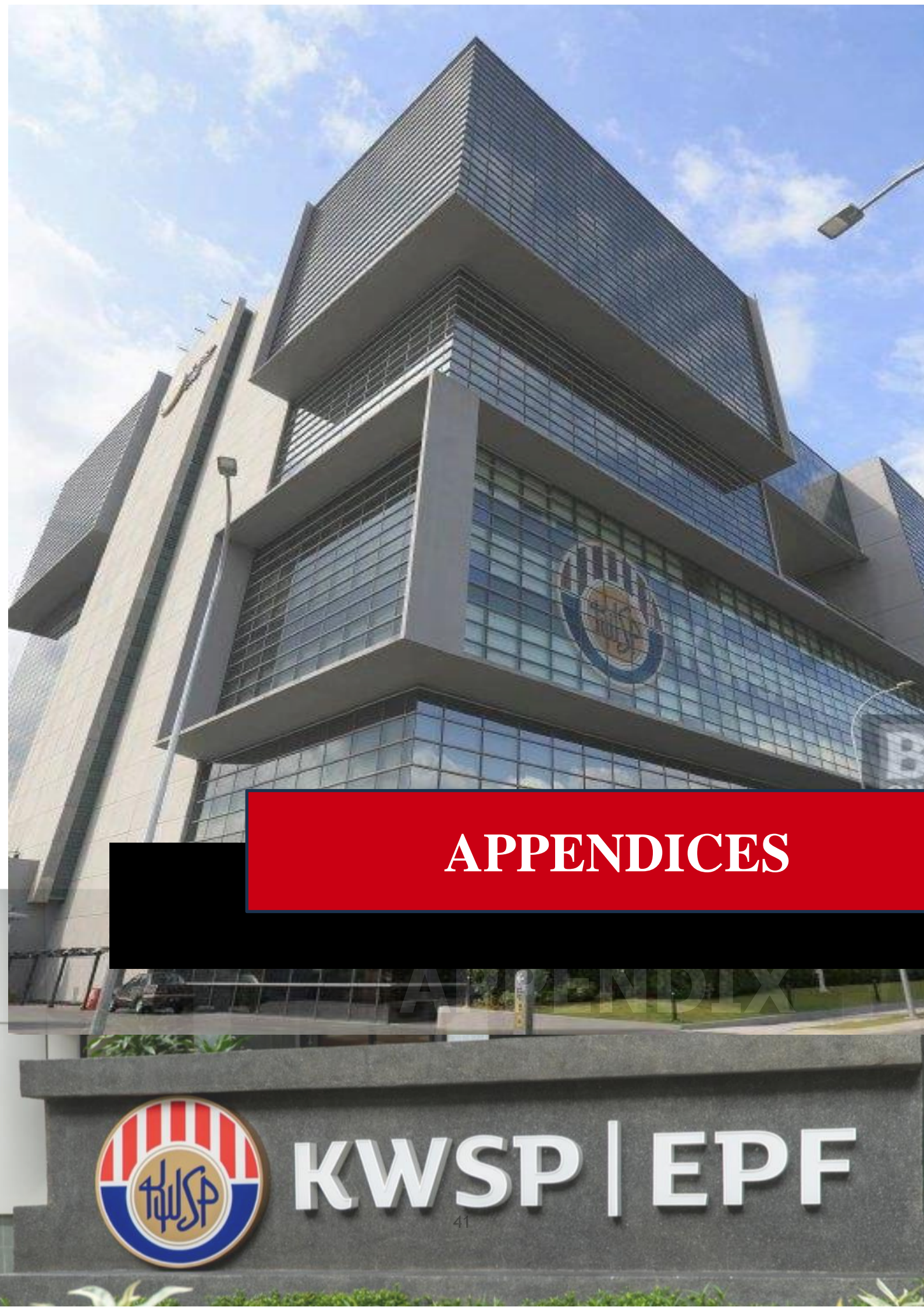
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APPENDICES



KWSP | EPF














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