Propose an Optimum Stocks Portfolio Using Markowitz Modern Portfolio Theory in Educational Endowment Fund Management (Case Study of XYZ Institution)

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ABSTRACT: XYZ institution is a Public Service Agency in Educational Sector, focused on giving the scholarship in master and doctoral programs level domestically and abroad, also in many affiliated researchers funding programs. The effect of granting scholarships and research funding produces an extraordinary output for the country. It was successfully increased the quality level of education in Indonesian society, also with the Indonesian Human Development Index. With a great accumulated amount of asset under management in fiscal year 2023, XYZ institution have a really big opportunity to maximize the investment return and give all Indonesia's citizens an equal chance of pursuing the higher education.

Markowitz Modern Portfolio Theory (MPT) is utilized to construct an optimal stocks portfolio for XYZ institution. The proposed stocks portfolio seeks to find a combination between high-growth stocks that have the potential to increase in value and stable dividend-paying stocks that provide income stability. The goal is to maximize the overall investment portfolio returns while taking its risk tolerance and investing objectives into consideration. Diversification was done by investing in a diverse range of companies across sectors and asset classes, reducing exposure to single asset risk. The proposed optimum investment portfolio provides XYZ institution a diversified allocation of assets, consisting of a portion in Time Deposits at 36,68%, Government Bonds at 34,10%, Corporate Bonds at 27,21%, and Stocks at 2%, which is constructed in a form of Aggressive Strategy, Moderate Strategy, and Defensive Strategy. The stocks selection resulting the best five stocks composition in Moderate Strategy which consist of BBNI at 20,17%, BJBR at 19,54%, PTBA at 20,15%, ADRO at 19,67%, and INDF at 20,47%, projected could give a return contribution at 6,60% with the lowest given risk of 26,83% from the stocks portfolio and could generate a 7,15% to the overall investment portfolio return.

KEYWORDS: Educational Endowment Fund, Markowitz Modern Portfolio Theory, Optimum Investment Portfolio, Portfolio Diversification, Risk-Adjusted Return.

INTRODUCTION

In 2022, there are only 185.000 Indonesian students who qualify as recipients of the *Kartu Indonesia Pintar-Kuliah* known as KIP-*Kuliah* Scholarship Program, where the number of applicants for the program reaches 758.000 people. This fact showed that the number of students who can be supported by scholarships is still very limited, only about 24 percent from the applicants. Besides, there were 6 thousand students who registered for the XYZ scholarship program for Masters and Doctoral study programs both domestic and abroad. Where 4,3 thousand students failed the test, resulting in 1,7 thousand students who successfully passed the selection of the scholarship program. Around 70 percent of XYZ scholarship applicants were not accepted and had to find other sources of funding to be able to continue their studies in Masters and Doctoral programs both domestically and abroad. The average cost for higher education in Indonesia is still too high when it is compared to the average expenditure of Indonesian society. On average, Indonesian society spends around only three percent of the total expenditure for education costs. Around 2,1 million high school graduates who do not register for further studies in higher-education institutions (college) due to several factors, especially economic limitations.

There are three main segments which still cannot be fully reached by the scholarship program offered by the government. Firstly, the domestic undergraduate program, the second is the domestic master and doctoral program, lastly the master and doctoral program abroad. Whereas in fact, the effect of granting scholarships and research funding produces extraordinary output for the country. As of 2022, there are 17.979 scholarship alumni spread throughout the provinces of Indonesia. Then, there are 2.062 research projects

funded in total from 2013 to 2022, worth 1,7 trillion Rupiah. The research projects funded are in accordance with national research priorities and coordinate with the National Agency for Research and Innovation (BRIN) and the Ministry of Education and Culture. The research outputs that have been produced include technology products, policies, licenses, journal publications, national and international awards, also Intellectual Property Rights.

BUSINESS ISSUE

XYZ institution has faced a potential deficit problem in fiscal year 2023 income projection and spending budget up to IDR 2 trillion. Theoretically, the principal of endowment fund was not allowed to be reduced. Therefore, the utilization of funds was only allowed from the investment return.

Figure 1. 1 Realized Investment Return of XYZ Institution Period 2018 to 2022.

In the previous five years from 2018 to 2022, there was also appears a declining trend for the realized investment return. For fiscal year 2018 was achieved at 6,59 percent, for fiscal year 2019 was increased at 7,82 percent. Then, for fiscal year 2020 the achievement was slightly decreased at 7,65 percent, which continued to decrease in fiscal year 2021 at 5,64 percent, and for fiscal year 2022 was at 5,65 percent.
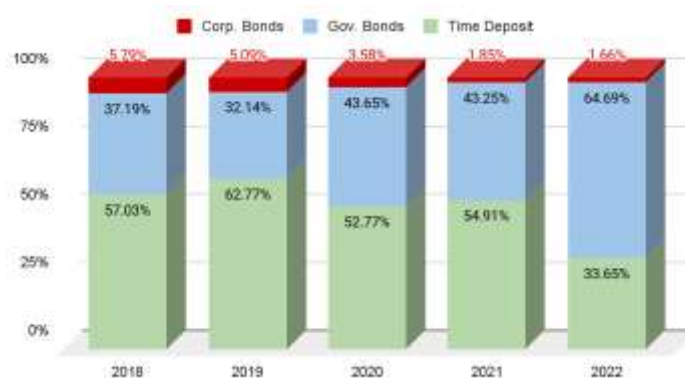

Figure 1. 2 Investment Portfolio Composition per Instrument of XYZ Institution Period 2018 to 2022.

The investment portfolio composition was consisted of Time Deposits, Government Bonds, and Corporate Bonds. In 2018, the portion of Time Deposits was at 57,03%, Government Bonds was at 37,19%, and Corporate Bonds was at 5,79%. In 2019, the portion of Time Deposits was at 62,77%, Government Bonds was at 32,14%, and Corporate Bonds was at 5,09%. In 2020, the portion of Time Deposits was at 52,77%, Government Bonds was at 43,65%, and Corporate Bonds was at 3,58%. In 2021, the portion of Time Deposits was at 54,91%, Government Bonds was at 43,25%, and Corporate Bonds was at 1,85%. Lastly, in 2022, the portion of Time Deposits was at 33,65%, Government Bonds was at 64,69%, and Corporate Bonds was at 1,66%.
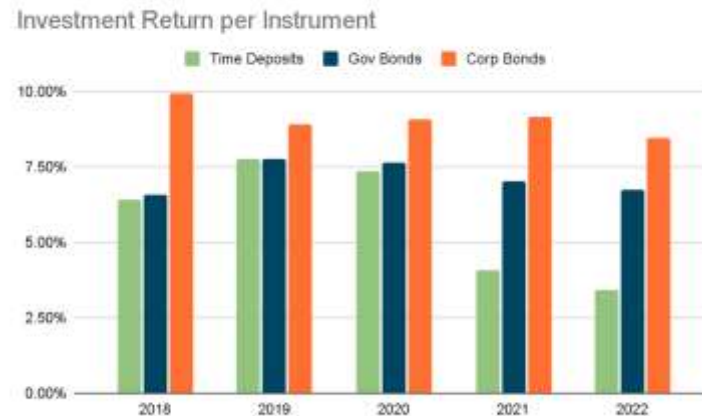
Figure 1. 3 Investment Return per Instrument of XYZ Institution Period 2018 to 2022.

The realized investment return recorded per instrument, for the Time Deposits in 2018 booked a return of 6,40%, in 2019 was at 7,76% - even it was slightly higher than the government bonds return at the same period, in 2020 was at 7,36%, in 2021 was at 4,07%, and in 2022 was at 3,41% return. For the Government Bonds in 2018 booked a return of 6,58%, in 2019 was at 7,74%, in 2020 was at 7,63%, in 2021 was at 7,03%, and in 2022 was at 6,74% return. Lastly, for Corporate Bonds in 2018 booked a return of 9,93%, in 2019 was at 8,89%, in 2020 was at 9,06%, in 2021 was at 9,16%, and in 2022 was at 8,46% return. The return of time deposits unable to offset the return on government bonds as in the previous periods.

It could be concluded that the main cause of the declining trend realized investment return was the decreasing interest rate of time deposits as the FED continued to decrease the interest rate in that period of time. Since the management allocated the endowment funds in a range of 40 to 50 percent as mentioned previously, the changes in time deposits' interest rate would sensitively affect the realized investment return. Thus, the management should rebalance the investment portfolio in order to keep up with the market condition and could obtain a sustain return.

LITERATURE REVIEW

Types of Financial Investment Instruments

Financial investment instruments are the financial assets which could be traded in financial markets and could be invested by expecting the probability to give a higher future value in return. Financial investment instruments could be set in the form of a share of ownership in a company, evidence of equity placement, financing or granting of debt, as well as placement funds in financial instruments. There are at least four types of financial investment instruments which are very common in the market, such as bank time deposit, bonds - private and government bonds, mutual funds, and stocks.

1. Time Deposit

Time deposit is a financial settlement in which an entity or individual places funds into a time deposit bank account and holds it for a specified period of time in exchange for an interest rate per annum as offered. The greater funds which are being placed, the greater return of interest rate will get in return. The longer period of time deposits - more than a year, the greater interest rate per annum offered. Then, for the time deposits interest rate is being regulated by the Central Bank of Indonesia, known as BI 7-days Repo Rate.

2. Bonds

Long-term financing is earned and associated with additional funds raised through long-term debt. Commonly, the funds are generated by issuing bonds. Bonds are long-term debt instruments which enable companies and governments to raise significant amounts of capital from a variety of lenders (Gitman and Zutter, 2015). Bonds are transferable yet trade-able medium to long-term notes which contain a guarantee from the issuing party to pay the bond holder with a payment in the form of coupon rate for a specified period and to repay the principal at a predetermined time (IDX, 2023). The coupon rate is higher than the interest rate of Bank Indonesia or BI rate. The Government and Corporations could issue bonds. Two types of Indonesia's bonds are firstly bonds issued by the Government as Government Bonds (SBN) - Sovereign Debt Instrument (SUN) and Government Shariah Securities (SBSN) or State

Sukuk. Secondly, the Corporate Bonds which are issued by National Private Companies and State-Owned Enterprises are also Local-Owned Enterprises. Corporate bonds normally have an initial maturity between about 10 and 30 years, and are required to be fully paid back at maturity. Corporate bonds typically pay interest semiannually (every six months) at a predetermined coupon rate (Gitman et al., 2015). As an investment instrument, bonds are categorized as a low-risk instrument. Especially for the government bonds, there is a legal certainty which guarantees the payment of government bond coupons. The provisions concerning Government Bonds are regulated in Law Number 24 Year 2002 concerning Sovereign Debt Instruments (SUN). While the provisions concerning Government Shariah Securities (SBSN) are regulated in Law Number 19 Year 2008 concerning State Sharia Securities (IDX, 2023). Thus, government bonds coupon rate - specifically 10 year-government bonds - often used as market risk free rate.

3. Mutual Funds

A mutual fund is a kind of investment vehicle which allows investor funds allocated to invest in several securities such as stocks, bonds, money market instruments, and other assets in a whole package. A professional investment management does manage mutual funds, deploying the assets and aiming to increase investors' capital gains. The investing objectives explained in a mutual fund's prospectus are reflected in the portfolio structure and management. Mutual funds value depends on the investment portfolio performance within it. Buying a unit of a mutual fund, means an investor is buying the performance value of the portfolio. Investing in a unit of a mutual fund is different from investing in shares of stock. Mutual fund units do not give the shareholders any voting rights, in contrast to what is given by the stocks.

4. Stocks

Stocks, commonly referred to equity, is a kind of investment which represents ownership in a portion of the issuing firm. As one of tools for the company to raise investment funds. Shares, as well known as units of stock, authorize the owners to a share of the firm's assets and income in proportion to the amount of shares acquired. As a representation of a person's or institution's capital participation in a business or corporation. Common stockholder shares show the ownership or equity portion in a corporation. Common stockholders get the investment return by receiving the amount of the dividend portion and by having the capital gain. If a loss condition occurs as the decreasing price of stocks will impact investors by having capital loss, proportionally by the shares owned. While, preferred stock is a special kind of ownership which combines elements of both bonds and common stock. An agreement to set periodic dividends for preferred stockholders must be paid first before dividends to common stockholders. As an investment instrument, stocks offered higher expected return but in line with a higher risk. Investors' decisions regarding whether or not to invest in stocks are based on the value of common stocks. By calculating stock valuation, it is possible to determine which ones are being offered for a fair price, are being overvalued, or are being undervalued. The common stocks basic valuation model is explained as follows.

$$P0 = \frac{D1}{(1+rs)^1} + \frac{D2}{(1+rs)^2} + \frac{D3}{(1+rs)^3} + \ldots + \frac{D\infty}{(1+rs)^\infty} \tag{1}$$

Where:

P0   = today's value of common stocks

D0   = dividend per share expected at the end of year t

rs   = common stocks required return

Investment Portfolio

Investment portfolio is a set of several investment instruments owned such as cash and cash equivalent, time deposits, bonds, mutual funds, and stocks in a collection. The investment instruments are chosen by initially assessing the risk profile of an individual or institution to identify their risk appetite and risk tolerance toward each instrument. Investment portfolios are categorized according to each investment strategy and objectives. A diversified instruments are very important to form a good investment portfolio. The main idea of "don't put all the eggs in one basket" is to get the overall risk faced by investors getting lower. When one instrument is in decline due to the market or sectoral decline, other instruments might be in a sideways condition or even might be in a rise. Thus, it could cover or at least reduce the loss of the previous instrument. According to Bodie et al. (2014), the wealth management principle typically involves dividing an investor's portfolio into three parts: a defensive approach, a moderate approach, and a growth approach.

1. Defensive Approach

   A defensive portion of the investment portfolio designed to provide stability and income continuity, focuses on capital preservation and risk management. While pursuing alpha, or excess profits, is desirable, it's also essential to focus on minimizing downside risk and preserving the capital (Swedroe, L. E., 2011). Investors are able to minimize the negative risk while also benefiting from the market's potential upside by utilizing options trading strategies as covered calls and protected puts (Gross, 1999). Investors could optimize the risk-adjusted returns on a long-term basis by using the low-volatility investing strategy to protect existing portfolios by choosing investment instruments with lower volatility and downside risk (Clarke et al., 2018).

2. Moderate Approach

   The term "balanced portfolios" refers to a moderate approach to investing. The moderate portion aimed to generate consistent and reliable growth by allocating funds among various asset classes such as a mix of stocks, government and company's bonds, fixed income and balanced mutual funds, money markets, and other asset classes. A balanced portfolio may offer a reasonable trade-off between risk and return (Bodie et al., 2014).

3. Growth Approach

   The growth portion which is allocated purposively with the goal of maximizing long-term capital growth. Investors could increase returns over the long term, albeit with greater volatility by investing in stocks and other high-risk / high-return investments instruments (Bernstein, 2018). Value investing in multi-bagger stocks could facilitate investors to achieve the growth goals.

Markowitz Modern Portfolio Theory (MPT)

A Modern Portfolio Theory (MPT) and the Sharpe ratio are popular investment tools which are widely used in the business industry up until now (Contreras et al., 2016). The MPT was introduced initially in the article of Portfolio Selection published in Journal of Finance in 1952. Harry Markowitz who created the MPT and William Forsyth Sharpe who created the Sharpe ratio are American financial economists and the 1990's Nobel Prize winners. Markowitz shows that the investors formulate in such a way combining investment instruments to pursue at least two portfolio goals. Firstly, minimize the risk for a given return and secondly, maximize return for a given risk. As mentioned previously, diversification is the best way to control investors' risk on investment. MPT exposes the common practice of portfolio diversification and shows how an investor could minimize the standard deviation of portfolio returns by selecting stocks which are not moving simultaneously. This basic principle of portfolio construction is the basis of the relationship between risk and return (Brealey et al., 2017). This statement is also adapted by the research of Surte et al., (2022) and Halim et al., (2020), which said that MPT utilizes return and risk to pinpoint the most efficient investment portfolios by modifying the asset weights to generate a portfolio with a total weight of one. According to Verdiyanto et al., (2020), the concepts of Markowitz's MPT could be applied to any kind of market situation as it consistently offers higher expected return and Sharpe ratio than the benchmark index. Based on the Sharpe ratio, the active investing approach is always better than the semi-active investment strategy for any kind of market situations.

1. Risk

The future cannot be predicted and full of uncertainty. There is no one who can be constantly accurate in forecasting the capital market, exchange rates, interest rates or even commodity prices. Those unpredictable and uncertain future events are being risky for investors to achieve the portfolio objectives because the events create potential for losses - the unexpected losses as a bad outcome. Risk related to the fluctuation of investment return which is affected by future events.

According to Crouhy et al., (2014), the risk of individual assets could be decomposed into two portions as follows.

1. Systematic Risk

   The risk which could not be eliminated through diversification due to the factors' which are affected by the macroeconomics situation. This type of risk is also known as market risk. Is the influence of changes in exchange rates, interest rate, commodity price, government policies, and international relation among countries.

2. Diversifiable or Specific Risk - Idiosyncratic Risk

   The risk which could indeed be neutralized through diversification, due to its uniqueness' risk events probability for a single entity or industry sector which differs from each other. Is further classified in several types of risks such as financial

risk which is related to liquidity risk, and operational risk which is related to internal processes and business strategies of the entity.

1.1. Risk Profiling

Investors' risk appetite and tolerance are being assessed in the risk profile. Risk profile is characterization of a person's or an organization's general behavior toward risk and readiness to accept or avoid particular kinds of risks (Merna, 2008). In the capital market, the higher risk taken, the higher expected return will be obtained. As well-known as the "High Risk, High Return" principle. Risk profiles are categorized into different types based on the level of risk exposure, the nature of the risks involved, and the organization's risk management strategies.

According to Merna (2008), there are three common types of risk profiles including conservative, balanced, and aggressive profiles.

1. Conservative Risk Profile

   A conservative risk profile is identified as a low risk appetite and a strong focus on preserving capital (Hillson & Webster, 2017). The characteristic of conservative investors is a risk averse.

2. Moderate - Balanced Risk Profile

   A moderate - balanced risk profile seeks to balance risk and reward, thus investors may invest in a mix of conservative and aggressive investment instruments (Hillson & Webster, 2017). The characteristic of moderate investors is a moderate - relatively-less risk tolerant; they are not eager to take on high risk, but also want a higher return.

3. Aggressive Risk Profile

   An aggressive risk profile is indicated by a high risk appetite and a high tendency of investors to take on higher levels of risk in pursuing potentially higher returns (Hillson & Webster, 2017). The characteristic of aggressive investors is a risk seeker.

1.2. Value at Risk (VaR)

VaR measures the total risk exposure of a portfolio which supports the details of non-statistical risk measures previously to give the value comparison at a basis point of two different types of assets movement statistically. VaR also gives correlation between market factors statistically as well (Allen, 2013). VaR could be used on any asset class with the basis of an apple-to-apple asset class. It uses several methods, firstly a Historical Method, secondly the Variance - Covariance Method. The potential loss could be captured in terms of standard deviation from the mean.

2. Return

Return is the result of an investment instrument over holding periods in the form of capital gains (losses) and dividends. It shows the changes in an investment value which is represented in terms of price changes or percentage changes. The rate of return of an investment instrument is calculated using the formula below.

$$r = \frac{p1 - p0}{p0} \tag{2}$$

Where:

r = rate of return of one holding period of investment instrument

p0 = initial price of investment instrument at the beginning of holding period

p1 = investment instrument price at the end of holding period

Investors also need to calculate the compounding investment return obtained from year to year in more than one time period. The calculation could use Geometric Mean. Here is the formulation of geometric mean.

$$\check{R} = (\prod_{i=1}^{N}(1 + R_i))^{\wedge 1/N} - 1 \tag{4}$$

Where:

$\check{R}$ = Average Geometric Mean return

Ri = Return at observation i

N = Number of observation (years)

3. Variance and Standard Deviation

Variance measures the dispersion which takes into account the spread of all numbers in a data set. To estimate the variance is done by averaging squared deviations from the expected. Here is the formula to calculate variance.

$$Variance\ (\sigma^2) = \frac{\sum_{i=1}^{N}(Ri - E(Ri))^2}{N - 1} \tag{5}$$

Where:

Ri = return of investment instrument i

E(Ri) = expected return of return of investment instrument i

N = number of data

While, Standard deviation is a statistical parameter which measures how far a set of numbers is relative to the mean, showing the amount of volatility as the risk. Standard deviation calculates all uncertainty as risk by calculating the square root of variance. The greater standard deviation value, the greater risk between price fluctuation and the mean in the portfolio. To measure the standard deviation, the formula can be used as follows.

$$Standard\ Deviation\ (\sigma)\ =\ \sqrt{\sigma^2}$$
$$=\ \sqrt{\frac{\sum_{i=1}^{N}(Ri - E(Ri))^2}{N-1}} \tag{6}$$

Where:

$\sigma^2 p$ = variance value of investment portfolio

4. Covariance

Covariance determines the relationship of two investment instruments return. A positive covariance indicates that investment returns movements are correlated, whereas a negative covariance indicates the opposite. Covariance is measured by calculating the multiplied value of the correlation of the two investment instruments by the standard deviation of those two investment instruments. The formula below is used to calculate covariance.

$$Cov\ (Ri\ Rj)\ =\ \rho_{ij}\ \sigma_i\ \sigma_j \tag{7}$$

Where:

ρ_{ij} = correlation coefficient of investment instrument i and j

σ_i = standard deviation of investment instrument i

σ_j = standard deviation of investment instrument j

5. Portfolio Risk and Return

Portfolio risk is measured by calculating the portfolio variance. The calculation determines the total risks that would be faced in a certain portfolio composition. Thus, here is the formula to calculate the portfolio risk.

$$TRisks\ (\sigma^2 p)\ =\ \sum_{i=1}^{N}\theta i^2\sigma^2\ +\ 2\sum_{i,j=1,i\neq j}^{N}\theta i\ \theta j\ cov(i,j) \tag{8}$$

Where:

θi^2 = squared value of the weight of investment instruments

σ^2 = variance of investment instruments

θi = the weight of investment instrument i

θj = the weight of investment instrument j

$cov(i,j)$ = covariance; correlation of investment instrument i and j

Portfolio return is a result of a set of investment instruments in a portfolio. The return could be positive or negative based on the market situation and the price fluctuation. Basically, the portfolio return is calculated by multiplying the weight of each investment instrument by each expected return of the investment instrument. Here is the formula to calculate the portfolio expected return.

$$TReturn = \sum_{i=1}^{n}\theta i\ x\ E(Ri) \tag{9}$$

Where:

n = the number of investment instrument hold

θi = the weight of each investment instrument

$E(Ri)$ = the expected return of each investment instrument

6. Sharpe Ratio

The sharpe ratio measures a risk-adjusted return by dividing the risk premium by the standard deviation. The calculation contrastingly compares the difference of investment return against a risk-free asset to the investment risk. Therefore, the ratio will be higher when annualized from higher frequency return (Bodie et al., 2014). The shorter period's excess return might indicate a higher volatility and risk rather than outstanding investing competence. Here is the formulation to calculate sharpe ratio as follows.

$$\text{Sharpe ratio} = \frac{Risk\ Premium}{Standard\ Deviation} = \frac{r - rf}{\sigma} \tag{10}$$

Where:

r = rate of return of investment

rf = risk free rate; rate of return of 10-years government bonds rate

σ = standard deviation of investment

7. Portfolio Mean Variance Frontier (MVF)

The efficient frontier represents the optimal combination of risk and return of investment instruments. The instruments' green dots which are far from the efficient frontier line means those instruments are inefficient. The closest instruments to the efficient frontier line potentially to give the greatest return at the lowest risk. According to Bodie et al., (2014), for optimizing the investment allocation, the capital allocation line (CAL) offered the highest slope as Sharpe Ratio. The maximum value of sharpe ratio indicates that those investment instruments are in the efficient frontier. The instruments which are right on the efficient frontier line and tangent with the capital allocation line are well-known as a tangency portfolio or market portfolio thus having the highest value of the sharpe ratio. According to Verdiyanto et al., (2020), the investment manager may choose any point in the efficient frontier area based on the goals and targets of the investors. However, it is important to remembered that higher predicted returns consist of higher risks.

METHODOLOGY

Research Design

This research employs a quantitative research method which is categorized as a case study, with the objective to propose the optimum stocks investment portfolio to boost the overall investment portfolio of the educational endowment fund management.

Figure 1. 4 Research Design of the Research.

The research will be started from the business issues identification and come up with some related theoretical foundations as a base to solve the business issues. The author conducts the business situation analysis utilizing SWOT analysis to see the internal strengths and weaknesses of the institution and maximize the opportunities while also minimizing external threats, then collects all the historical data needed to assess the current investment portfolio condition - historical performance, policy, composition, and strategic plan. The author analyse the current composition and compare it to its return projection. The author will try to rearrange the portfolio composition by utilizing Markowitz MPT into several scenarios which would give an attractive investment return at a given risk. The stocks screening process started by gathering all the potential stocks from IDX BUMN 20 and LQ 45 index, determine the optimum stocks portfolio composition, then create some stocks composition scenarios as defense, moderate, and aggressive strategy. Lastly, the author will gather the overall portfolio composition scenarios and see the stocks investment return contribution to the overall

investment portfolio and give recommendation of the best scenario which give the most attractive investment return in the lowest risk.

Data Collection Method

This research utilizes quantitative data by combining secondary data and primary data which are gathered from the institution website and conducting interviews with related parties within the institution. The stocks screening process will be conducted by using purposive sampling in accordance with the institution's investment policy.

Data Analysis Method

The existing investment portfolio mean, variance, covariance, and standard deviation will be calculated to see the current investment portfolio performance. The data analysis tool used in this research is Markowitz Modern Portfolio Theory (MPT) by utilizing previous equation (II. 2), (II. 4), (II. 5), (II. 6), (II. 7), (II. 8), (II. 9), (II. 10), using solver tool in Microsoft Excel to process the data to obtain the optimum portfolio composition. MPT will also be utilized to propose potential capital market stocks investment options and its optimum composition. Author will conduct several investment instrument compositions based on three scenarios as defense, moderate, and aggressive strategy to give optimum return, also calculate the return contribution from stocks investment to boost the overall portfolio performance.

RESULTS AND DISCUSSION

Analysis

SWOT analysis is a strategic tool that measures an organization's internal strengths and weaknesses as well as potential threats and opportunities from the outside. Organizations might utilize it to pinpoint areas where they possess a competitive advantage and where they require some improvements (Thompson, A.A., et al, 2020). This analysis could help the institution to gain insights into their internal capabilities and limitations, as well as the external factors that may impact their activities as opportunity and threat, also help the institution to develop strategies that capitalize on strengths, address weaknesses, exploit opportunities, and mitigate threats.

1. **Strengths**
   - A very big amount of Asset Under Management (AUM);
   - The organization has securely diversified their investment portfolio to get a measurable risk-adjusted return from their AUM; and
   - The organization has the best of human resources who are expertly experienced in each respective field.

2. **Weaknesses**
   - A very strict existing investment regulation, which capped the stocks composition maximum of 2%, the organization is very limited by the investment standard to achieve; such as PBV < 1, undervalued PER compared to its industry, and an attractive EPS, ROE, and DPR. For example, entering a stock which has PBV < 1, so they could expect that the stock will gain and reach PBV = 1 as the selling point. As we know, it is barely possible to have good stocks which have PBV less than one;
   - A low risk profile, thus limiting the stocks selection of scenario options to maximize investment return. As we know that if we seek for high profit, there is a high risk as well - aligned with the concept of high risk, high return.
   - Lack of internal investment policy, especially in capital market stocks;

3. **Opportunity**
   - Recovery of the capital market (JCI) from the Covid-19 market crash would be a good potential for the organization to gain more profit from the undervalued stocks;
   - Foreign potential capital markets to invest in, such as US Stocks Market (DJI and S&P 500), Europe Stocks Market (FTSE), Japanese Stocks Market (Nikkei), or Hongkong Stocks Market (HSI).

4. **Threat**
   - High volatility of the capital market;
   - The changes of regulations in investment policies, creating uncertainty and adjusting the investment strategy; and
   - The changes of Board of Directors and investment staff would impact the styles of investment they made.

The World's Top 50 Endowment Funds

The world's top endowment funds have over a trillion dollars in assets and have billions in investable assets, making them sizable players in the finance sector. On a broad economic scale, the assets of the greatest endowment funds can be compared. They commonly stand in for the exclusive and elitist institutions of society. It's become such that educational institutions like Harvard and Yale are now more commonly referred to as hedge funds rather than as universities (Ali, 2023). Although Stanford has recently surpassed Harvard in size, Harvard has historically been the largest. Compared to Harvard's $73 billion in assets, Stanford has $75 billion. According to Ali (2023), these huge amounts of money have not gone unnoticed, and prestigious universities are coming under increasing pressure in some quarters. In fact, 39 of the top 50 endowment funds are university-based, with 35 of them based in America. Thus, the author tried to do benchmarking with Harvard Management Company (HMC) as the US College and University representative of best practice comparison in managing endowment funds for education.

Benchmarking Harvard Management Company (HMC) Endowment Fund

HMC asset allocation is mostly invested in Public Equity, Private Equity, and Hedge Funds. In fiscal year 2019, the portion of public equity is at 25,7%, private equity at 19,8%, and hedge funds at 32,7%. For fiscal year 2020, the portion of public equity is at 18,9%, private equity at 23%, and hedge fund at 36,4%. Lastly, in fiscal year 2021, the portion of public equity is at 14%, private equity at 34%, and hedge funds at 33%. The rest of asset allocation is invested in Real Estate, Natural Resources, Bonds, Other Real Assets, also Cash & Others. HMC allocated only a small portion of Bonds at 5,9% for fiscal year 2019, 5,1% for fiscal year 2020, and 4% for fiscal 2021. Based on those asset allocation data from the past three fiscal years, we could see that HMC profile is a risk taker in investing. They allocated almost half of their assets to high-risk instruments - public equity and private equity (venture capital). However, they keep their risk prevention through placing some portion in hedge funds around 60 - 80% of their total high-risk portion.

Figure 1. 5 HMC's Investment Return from FY 2019 to FY 2021.

Fiscal year 2021 was an extraordinary year. Both public and private equity markets continued their strong performance due to the market crash Covid-19 recovery and speculation of market players during the market undervalued period. A meaningfully higher level of portfolio risk would have increased HMC's investment return dramatically. The CEO of HMC admitted that Harvard should take an appropriate amount of risk, subject to some important constraints. Since the main constraint for any university is its ability to absorb a significant reduction in the value of the portfolio and resulting in reduction of distribution to the annual operating budget. Furthermore, most of the highest risk assets are illiquid ones - such as venture capital funds - a major decline in market or portfolio will generally result in a reduction of portfolio liquidity.

Benchmarking the Indonesia College and University Endowment Fund – BPUDL ITB

The investment portfolio composition of BPUDL ITB has changed from fiscal year 2020 - 2022. The management was entered bonds investing gradually. From 2020, the portion of bonds was only at 0,42%, mainly invested in mutual funds at 70,99%, in time deposit at 26,35%, and in other assets at 2,24%. In 2021, the portion of bonds increased at 8,93%. The majority investment allocation was still on mutual funds which is at 55,23%. Time deposit portion was at 33,31% and other assets were at 2,53%. As of year-end 2022, most of the investment was allocated in bonds at 43,37% and in mutual funds at 40,52%. The rest is being allocated in time deposits

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at 15,37% and other assets; stocks, property, and else at only 0,74%. Those investment strategy allocation which mostly focuses on bonds was aligned with the characteristics of endowment funds and the risk appetite of most of PTNBH itself. However, BPUDL ITB is also brave enough to diversify their investment portfolio on stocks investment from 2020 - 2021 in around 2% of the total portfolio even though it is mixed with other assets like property.

Figure 1. 6 BPUDL ITB's AUM and Investment Return from FY 2018 to FY 2022.

In 2020, BPUDL ITB could obtain 3,81 billion Rupiah from the previous investment portion. In 2021, the return was 2,93 billion Rupiah, and in 2022 the total return obtained by BPUDL ITB was 2,61 billion Rupiah. The return trend was down from 2020 to 2022.

Current Investment Portfolio Performance of XYZ Institution

The basic principle of an endowment fund management is to keep the principal fund to not be reduced by losses. Thus, the current investment portfolio composition has changed from year to year as the market condition, changes of internal policies and regulations, also different investing styles of the leaders.

1. **Mean Return of Investment Instruments**
    The arithmetic mean and geometric mean return of the investment portfolio from each investment instrument were calculated by utilizing formula (2) and (4).

Table 1. 5Y Monthly Mean Return of Investment Instruments

Instruments	TD	Gov Bonds	Corp Bonds
Arith Mean	0,4833%	0,5953%	0,7583%
Geo Mean	0,4832%	0,5923%	0,7568%

The greatest geometric monthly mean return is on Corporate Bonds which is at 0,7568%, then Government Bonds at 0,5923%, and lastly Time Deposit at 0,4832%. Those geometric mean returns per each instrument would be utilized to calculate the overall portfolio return and to determine the optimum current investment portfolio composition.

2. **Variance and Standard Deviation of Investment Instruments**
    Variance and standard deviation of the investment portfolio from each investment instrument were calculated by utilizing formula (5) and (6).

Table 2. Variance and Standard Deviation of Investment Instruments

Instrument	TD	Gov Bonds	Corp Bonds
Var Mean	0,0000032	0,0000619	0,0000314
Std. Dev	0,1796%	0,7870%	0,5600%

The highest variance and standard deviation are on Government Bonds which have 0,0000619 for the variance and 0,7870% for the standard deviation. It means that the Government Bonds have the highest risk compared with all the three investment instruments.

3. **Covariance of each Investment Instrument**

The correlation between investment instruments from each investment instrument were calculated by utilizing formula (7).

Table 3. Covariance of Investment Instruments

COVAR	
TD - Gov Bonds	0,000000199
Gov Bonds - Corp.Bonds	-0,000003956
TD - Corp Bonds	0,000000621

The Government Bonds have a negative correlation with Corporate Bonds which means when the return of Government Bonds rise, then the return of Corporate Bonds will decline, and vice versa.

4. **Risk and Return of Investment Portfolio**

The risk and return of the investment portfolio from 2018 - 2022 was calculated by utilizing formula (8) and (9). For the overall 5-year risk and return of investment portfolio, the annualized portfolio return was at 6,49% with the annualized portfolio risk at 18,32%.

Table 4. 5Y Portfolio Risk and Return

Instrument	Avg. Composition	Portfolio Return	Annualized Return	Variance Portfolio	Std Deviation	Annualized Std Dev
TD	52,22%	0,2523%	3,0279%		0,1796%	2,1549%
Gov Bonds	44,18%	0,2617%	3,1405%	-0,0000010%	0,7870%	9,4442%
Corp Bonds	3,59%	0,0272%	0,3262%		0,5600%	6,7205%
Total	**100,00%**	**0,5412%**	**6,4946%**		**1,5266%**	**18,3196%**

5. **Sharpe Ratio of Investment Portfolio**

The sharpe ratio of investment portfolio was calculated by using formula (10) to compare the difference of investment return against the risk-free asset to the investment risk and to see if the portfolio returns are greater than the risk-free rate asset and worth the accepted risk.

Table 5. Sharpe Ratio of Investment Instrument

	2018	2019	2020	2021	2022
Porto Return	6,59%	7,82%	7,65%	5,64%	5,65%
Var Mean	0,0000663	0,0000300	0,0000281	0,0000211	0,0000217
Std Deviation	0,81%	0,55%	0,53%	0,46%	0,47%
Risk-Free Rate	7,98%	7,10%	6,10%	6,38%	6,92%
Sharpe Ratio	(1,71)	1,31	2,92	(1,61)	(2,72)

The portfolio's sharpe ratio only shows the positive ratio in fiscal year 2019 - 2020. It means, the investment portfolio in 2018, 2021, and 2022 is lower than expected compared to what could be obtained by putting the risk-free asset. The possible cause is the decrease of the interest rate which caused the declining portfolio return as well, throw back to 2019 to the middle of 2020 when it was the peak of Indonesia interest rates which gave attractive rates for the depositors of banks.

6. **Current Optimum Investment Portfolio – Modern Portfolio Theory**

The optimum portion of investment portfolio was utilizing Markowitz modern portfolio theory. The process of determining the mean variance frontier of the portfolio was by conducting 64 investment composition simulation, with a risk-free rate of 6,456% per annum, also utilizes solver data in excel to create Risk Minimization Scenario for the existing investment portfolio optimization, since XYZ institution's risk profile was low. Here is the optimum composition of current investment portfolio.

Table 6. Optimum Composition of Current Investment Portfolio

PORTFOLIO	COMPOSITION
TD	38,68%
GOV. BONDS	34,10%
CORP. BONDS	27,21%
TOTAL	**100,00%**
OPTIMUM PORTFOLIO RISK	**34,00%**
OPTIMUM PORTFOLIO RETURN	**0,59%**

Business Solution – Stocks Screening

Since there was a market crash in 2020 due to pandemic Covid-19, the author decided to divide the stocks selection into two 5-years periods. Firstly, it will be on the bullish market before pandemic period from 2015 to 2019. The second will be the bearish market during the pandemic period from 2018 - 2022 aligned with the observed investment portfolio of the institution. For the stocks screening are based on some criteria as shown in table below.

Table 7. Stocks Screening Criteria

Risk Profile: Low - Moderate	JCI Index	LQ45 Index
Criteria:		
Blue Chip Stocks	Market Cap >10 T	
PBV	< 1,8718	< 2,0878
Trailing P/E	< 14,54	< 14,32
Diluted EPS (TTM)	> 1.096,79	> 58,85
ROE	10 - 20%	10 - 20%
DPR	30 - 50%	30 - 50%
Index	**BUMN 20**	
	LQ 45	

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Table 8. Stocks Screening Result

Index	Stocks	Market Cap (T)	PBV	Trailing P/E	EPS	ROE	DPR
BUMN 20	BBNI	168,77	1,30	9,64	1.049,72	14,45%	37,41%
	BJBR	11,95	0,76	5,97	200,16	14,16%	50,14%
	PGAS	34,67	0,84	6,79	209,94	10,86%	59,71%
	PTBA	35,15	1,40	3,60	1038,12	41,49%	69,06%

Index	Stocks	Market Cap (T)	PBV	Trailing P/E	EPS	ROE	DPR
LQ 45	ADRO	63,17	1,04	2,49	1233,88	48,78%	31,44%
	ASII	261,12	1,43	9,50	760,99	17,92%	37,06%
	INDF	62,34	1,13	8,49	783,23	11,61%	35,50%

Table 9. Stocks Selection in Bullish Market of 2015 - 2019

Stocks	BBNI	BJBR	PGAS	PTBA	ADRO	ASII	INDF
Geo Mean Return	0,0050	0,0080	-0,0157	0,0042	0,0073	-0,0013	0,0032

From the stocks screening result previously, the author examines the geometric return of each selected stock. The author will only choose those stocks which have a positive geometric return. From seven stocks selected, two of those are being eliminated. Thus, there are five selected stocks in the bullish market such as BBNI, BJBR, PTBA, ADRO, and INDF. The author tries to determine the mean variance frontier of the portfolio by conducting 66 investment composition simulations and utilizes solver data in excel to create Risk Minimization Scenario and Return Maximization Scenario.

Table 10. Risk Minimization Scenario of Stocks Selection Composition in Bullish Market

SUM Shares	BBNI	BJBR	PTBA	ADRO	INDF	Var Risk	Covar Risk	Risk	Return
1,00	0,2017	0,1954	0,2015	0,1967	0,2047	0,2001	0,00324	0,2033	0,0055

From the data solver result, the optimal stocks weight obtained as present in Table 10 above. By taking risk minimization at 20,33%, it could obtain a given optimum portfolio monthly return at 0,55%, which annualized at 6,60% greater than its annualized risk-free rate of 6,46%.

Table 11. Return Maximization Scenario of Stocks Selection Composition in Bullish Market

SUM Shares	BBNI	BJBR	PTBA	ADRO	INDF	Var Risk	Covar Risk	Risk	Return
1,00	0,0100	0,9600	0,0100	0,0100	0,0100	0,9220	0,00034	0,9223	0,0079

From the data solver result, the optimal stocks weight obtained as present in Table 11 above. By constructing a return maximization scenario, it obtained a 0,787% return, annualized at 9,46%, greater than its annualized risk-free rate of 6,46%. It comes with a given optimum portfolio risk at 92,23%.

Table 12. Stocks Selection in Bearish Market of 2018 - 2022

Stocks	BBNI	BJBR	PGAS	PTBA	ADRO	ASII	INDF
Geo Mean Return	0,0013	-0,0033	-0,0052	0,0088	0,0093	-0,0032	0,0009

In the bearish market, the author examines the geometric return of each selected stock as well. The author will only choose those stocks which have a positive geometric return. From the seven stocks screened previously, there are four selected stocks in the bearish market such as BBNI, PTBA, ADRO, and INDF.

Table 13. Risk Minimization Scenario of Stocks Selection Composition in Bearish Market

SUM Shares	BBNI	PTBA	ADRO	INDF	Var Risk	Covar Risk	Risk	Return
1,00	0,2500	0,2489	0,2491	0,2519	0,2500	0,00199	0,2520	0,0051

From the data solver result, the optimal stocks weight obtained as present in Table 13 above. By taking risk minimization at 25,20%, it could obtain a given optimum portfolio monthly return at 0,506%, which annualized at 6,07%, lower than its annualized risk-free rate of 6,46%. But at least in the bearish market, the portfolio could still generate profit around 6%.

Propose Investment Strategies and Its Return Contribution to Overall Investment Portfolio

The calculated optimum composition of the current investment portfolio consists of 38,68% portion for time deposits, 34,10% portion for government bonds, and 27,21% portion for corporate bonds. The management agreed to reduce the time deposit portion up to 25%. Thus, the author reduces the 2% composition of time deposits to be 36,68% and allocating 2% portion for the stocks worth around IDR 2.910.899.037.191,-.

1. **Aggressive Strategy**

    The aggressive strategy was arranged from the return maximization stocks composition scenario. Resulting in five selected stocks composition consisting of BBNI, BJBR, PTBA, ADRO, and INDF. It is forecasted to generate annualized return at 9,46% for given risk at 92,23% due to the dominant stocks composition at 96% in BJBR. The aggressive strategy could contribute to the average rate of overall portfolio investment return at 7,86%, which is greater than XYZ institution's return projection at 6,63%. It is forecasted to obtain a return at around 10,496 trillion Rupiah, which is greater than XYZ institution's current forecasted return at around 8,014 trillion Rupiah and could also fulfill the total spending budget needed for fiscal year 2023 worth 10,326 trillion Rupiah. The average given risk for the portfolio is at 62,78%. The detail is shown in Table 14 below.

Table 14. Aggressive Strategy Investment Composition and The Return Contribution in Million Rupiah

Instrument	Composition	Amount	Annualized Return	Forecasted Return	Risk
TD	36,68%	53.389.977	5,80%	3.095.558	
Gov Bonds	34,10%	49.636.621	7,11%	3.528.031	33,32%
Corp Bonds	27,21%	39.607.455	9,08%	3.597.080	
Stocks	2,00%	2.910.899	9,46%	275.420	92,23%
TOTAL	100,00%	145.544.952	7,86%	10.496.088	62,78%

2. Moderate Strategy

The moderate strategy was arranged from risk minimization stocks composition scenario in bullish market. Resulting in five selected stocks composition consisting of BBNI, BJBR, PTBA, ADRO, and INDF. It is forecasted to generate annualized return at 6,60% for given risk at 20,33%. The stocks composition was well-diversified at around 19% - 20% for each stock.

Table 15. Moderate Strategy Investment Composition and The Return Contribution in Million Rupiah

Instrument	Composition	Amount	Annualized Return	Forecasted Return	Risk
TD	36,68%	53.389.977	5,80%	3.095.558	
Gov Bonds	34,10%	49.636.621	7,11%	3.528.031	33,32%
Corp Bonds	27,21%	39.607.455	9,08%	3.597.080	
Stocks	2,00%	2.910.899	6,60%	192.239	20,33%
TOTAL	100,00%	145.544.952	7,15%	10.412.907	26,83%

The moderate strategy could contribute to the average rate of overall portfolio investment return at 7,15%, which is greater than XYZ institution's return projection at 6,63%. It is forecasted to obtain a return worth around 10,412 trillion Rupiah, which is greater than XYZ institution's current forecasted return at around 8,014 trillion Rupiah and could also fulfill the total spending budget needed for fiscal year 2023 worth 10,326 trillion Rupiah. The average given risk for the portfolio is at 26,83%.

3. Defensive Strategy

The defensive strategy was arranged from risk minimization stocks composition scenario in bearish market. Resulting in four selected stocks composition consisting of BBNI, PTBA, ADRO, and INDF. It is forecasted to generate annualized return at 6,07% for given risk at 25,20%. The stocks composition was well-diversified at around 25% for each stock. Although the return was slightly lower than the risk-free rate, at least even in a bearish market condition those four compositions could still generate a quite good rate of return.

Table 16. Defensive Strategy Investment Composition and The Return Contribution in Million Rupiah

Instrument	Composition	Amount	Annualized Return	Forecasted Return	Risk
TD	36,68%	53.389.977	5,80%	3.095.558	
Gov Bonds	34,10%	49.636.621	7,11%	3.528.031	33,32%
Corp Bonds	27,21%	39.607.455	9,08%	3.597.080	
Stocks	2,00%	2.910.899	6,07%	176.828	25,20%
TOTAL	100,00%	145.544.952	7,02%	10.397.496	29,26%

Even the defensive strategy from a bearish stocks market in Table 16 above could still contribute to the average rate of overall portfolio investment return at 7,02%, which is greater than XYZ institution's return projection at 6,63%. It is forecasted to obtain a return at around 10,397 trillion Rupiah, which is greater than XYZ institution's current forecasted return at around 8,014 trillion Rupiah, could also fulfill the total spending budget needed for fiscal year 2023 worth 10,326 trillion Rupiah. The average given risk for the portfolio is at 29,26%.

Suggestion for Improvements

Considering the low to moderate risk profile of XYZ institution, the author highly recommended the management to implement the moderate strategy shown previously in Table 15. The investment portfolio consists of the defensive portion in Time Deposits at

36,38%, Government Bonds at 34,10%, and also Corporate Bonds at 27,21% as current core investment to support the institution's liquidity, lastly for the growth portion in stocks at 2%. Those compositions could obtain the optimum expected return at 7,15% worth 10,412 trillion Rupiah at the lowest risk of 26,83%, also obtain another gain from yearly dividend payment from the stocks portfolio. It could still booked an excess investment return worth around 86 billion Rupiah, after deducting for funding the spending budget for the current fiscal year. Here is several additional investment policies suggestion for the stock market as present in table below.

Table 17. Propose an Additional Investment Policies

No	Current Policies	Propose Additional Investment Policies
1	Blue Chip Stocks	Market Cap > 10 trillion Rupiah
2	BUMN 20 &LQ45	Index IDX30, Index SRI-Kehati, Index ESG Leaders.
3	Buy on Weakness	Technical analysis; Bollinger Band, MACD,and RSI.
4	PBV < 1	PBV < average industry's PBV
5	Undervalued PER	PER < average industry's PER
6	An attractive EPS	EPS > average industry's EPS
7	An attractive DPR	DPR at 30 – 50%
8	An attractive ROE	ROE at 10 – 20%
9	-	Take profit at 6 – 10% gain
10	-	Cut loss at 5% loss
11	-	Averaging down by technical analysis indicators.

CONCLUSIONS

Based on XYZ Institution's historical performance of investment return for the last five years shown a continuously decline trend and was not optimum yet. The declining trend was caused by the previous dominant investment composition about around 50 - 60% which allocated in time deposits, thus when the time deposit rate trend was drowning will also impact to the overall portfolio return. By the great amount of total asset under management, the investment portfolio should generate a higher investment return.

In terms of investment strategy, the benchmarking analysis was conducted by selecting from the world's top 50 endowment funds and found out that Harvard Management Company (HMC) was the greatest US colleges and University endowment fund, also to BPUDL ITB as the Indonesia college and University endowment fund. The HMC was mostly allocated their investment portfolio into hedge funds, private equity, and public equity. While, Indonesia college and University endowment fund like BPUDL ITB was mostly allocated their investment portfolio into time deposits, government bonds, corporate bonds, and a small portion in stocks. They didn't have hedge funds because in Indonesia, it was counted as "insurance" expense, not as an investment.

In terms of current investment portfolio, the optimum portfolio was calculated using Markowitz method. From the calculation resulted a portion of 38,68% for time deposits, 34,10% for government bonds, and 27,21% for corporate bonds. Those investment instrument composition could generate an annualized return of 7,08% with a given risk level of 34%.

The stocks selection results came from two index of BUMN 20 and LQ 45 was obtained five selected stocks such as BBNI, BJBR, PTBA, ADRO, and INDF. The author divided into two scenario of stocks selection. Those are a Bullish Market in between period from 2015 to 2019 and a Bearish Market in between period from 2018 to 2022. Firstly, the optimum composition of stocks selection

in Return Maximization Scenario of Bullish Market were a portion of BBNI for 1,00%, BJBR for 96,00%, PTBA for 1,00%, ADRO for 1,00%, and INDF for 1,00%. It could generate an annualized return of 9,46%. Also, the given risk was at 92,23%. Secondly, the optimum composition of stocks selection in Risk Minimization Scenario of Bullish Market were a portion for BBNI of 20,17%, for BJBR of 19,54%, for PTBA of 20,15%, for ADRO of 19,67%, and for INDF of 20,47%. It could generate an annualized return of 6,60%. Also, the given risk was at 20,33%. Thirdly, the optimum composition of stocks selection in Risk Minimization Scenario of Bearish Market were a portion for BBNI at 25,00%, for PTBA at 24,89%, for ADRO at 24,91%, and for INDF at 25,19%. It could generate an annualized return of 6,07%. Also, the given risk was at 25,20%.

It is resulting three implementation plan options, firstly the Return Maximization Scenario of Bullish Market as an Aggressive Strategy. Secondly, the Risk Minimization Scenario of Bullish Market would be a Moderate Strategy. Lastly, the Risk Minimization Scenario of Bearish Market as a Defensive Strategy. All the strategies' investment composition would mix all the investment instrument available. The author took a 2% portion of time deposits to be switched for the stocks composition.

In terms of the three implementations plan strategy options, firstly the aggressive strategy could generate overall annualized return at 7,86% with forecasted return worth around 10,496 trillion Rupiah with an average given risk of 62,78%. While, the moderate strategy could generate overall annualized return at 7,15% with forecasted return worth around 10,412 trillion Rupiah with an average given risk of 26,83%. Lastly, the defensive strategy could generate overall annualized return at 7,02% with forecasted return worth around 10,397 trillion Rupiah with an average given risk of 29,26%.

In terms of XYZ institution's risk profile, the Moderate Strategy was matched best to be implemented. If it is compared with other two scenario, Moderate Strategy offered an attractive forecasted return of around 10,412 trillion Rupiah – which is greater than XYZ institution's current forecasted return worth around 8,014 trillion Rupiah – and sufficient to fulfill the current fiscal year 2023 spending budget worth 10,326 trillion Rupiah in the lowest level of given risk at 26,83%. The institution could also obtain an excess investment return worth around 86 billion Rupiah.

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