Smart Allocation Model (SAM)

White Paper

About Smart Allocation Model (SAM)

Smart Allocation Model (SAM) is an automated investment service equipped with robo-advisor platform via @ccess mobile of Krungsri Asset Management. It is designed to provide recommendations, implement asset allocation, and monitor the investment portfolio which is appropriate for the investment goal through an automated system which will compile necessary information of the investor such as investment objective, investment time horizon, initial investment amount, etc., to assess and recommend the investment portfolio that fits the need of each investor.

SAM is developed to promote investment among the public according to financial goals through appropriate asset allocation rather than receiving investment advisory service on a product basis. The structure of SAM is composed of 5 main parts as follows:

1) Exploring and Understanding Customers
2) Determining the Asset Allocation Plan
3) Implementing the Portfolio according to Asset Allocation Plan
4) Monitoring and Rebalancing the Portfolio
5) Providing Consolidated Reports

This White Paper aims to provide information and better understanding about the procedures of the 5 components of SAM.

Part 1: Exploring and Understanding Customers

Presently most of the investors do not have proper investment planning that meets their financial goals. They tend to focus on investing in specific investment products, resulting in potentially fluctuating return on investment which are not consistent with the financial goals.

Accordingly, SAM adopts the approach of exploring and understanding customers to determine the most appropriate investment portfolio through conducting questionnaire surveys. In this connection, investors are required to provide information about their investment targets in line with one of the following three guidelines:

1) **Goal-based plan:** Investors must provide information regarding target investment amount, investment time horizon, initial investment amount, and expected monthly contribution for investment. The system will then calculated the expected investment return which is the target to be achieved.

2) **Retirement plan:** Investors must provide information about current age, expected retirement age, life expectancy, post-retirement monthly expenses, initial investment amount, and expected monthly contribution for investment. The system will then calculated the expected investment return to ensure that sufficient reserve funds will be available to cover spending after retirement.

3) **Absolute Target Return Plan:** For investors who have the target investment return, each investment plan will specify the framework of expected return (which is not guaranteed) and the potential losses. Investors can select the investment plan with appropriate return to risk ratio according to their acceptable risk level.

Once the system knows about the expected return of each investor, it will use such information to calculate the asset allocation in the investment portfolio that is appropriate for the investor's expected return.

Summary of Investment Plans and Information Used for Assessment

Type of Investment Plan	Information Used for Exploring and Understanding Customers
1. Goal-based Plan	Target investment amount, investment horizon, initial investment amount, monthly contribution for investment.
2. Retirement Plan	Current age, expected retirement age, life expectancy, post-retirement monthly expenses, initial investment amount, monthly contribution for investment.
3. Absolute Target Return Plan	Expected return and risk level.

Part 2: Determining the Asset Allocation Plan

Determining the asset allocation plan is to assign the optimal weight to each type of assets and funds in the investment portfolio to match the expected investment return. SAM provides 8 framework model portfolios with the expected return of 3%, 4%, 5%, 6%, 7%, 8%, 9% and 10%. However, if the calculated value of expected return falls between 2 model portfolios, for instance, the expected return is 3.5%, the system will determine an appropriate asset allocation that is close to the expected return by assigning the weight to each asset using the weighted average method.

The criteria used for developing an asset allocation is to create an investment return that is closest to target on a portfolio of lowest risk. The portfolio risk is calculated based on the standard deviation which is a measure of risk.

This process of asset allocation will start from determining the types of assets, the funds under each asset type and the portfolio weight constraints of each asset that are appropriate for the risk acceptance level of the investors. All these factors are subject to the consideration of the relevant committees.

Criteria for determining types of assets: The committee will identify the most comprehensive range of assets to diversify risk of the investment portfolio.

Criteria for determining funds under each type of assets: The committee will select funds by applying the combination of quantitative and qualitative approaches. Regarding quantitative analysis, the committee will select the funds under management of the Company that offer a good return consistently over time. As for qualitative analysis, considerations will be based on such factors as the qualifications of the fund manager team (for foreign investment funds), the asset allocation strategies with the potential to generate good return in the future, the funds without dividend policy of which total investment return can be reflected in the investment portfolio, and so on.

For investment in the equity markets in developed countries such as country funds or regional funds, the committee will select mainly the passive funds that track the performance of an index because they involve lower transactional fees and the equity markets of developed countries are regarded as efficient markets. This criteria is also applied to investment in commodity (gold) funds. However, the committee does not reject the possibility of selecting active funds if they consider that investing in such funds would be more appropriate.

For other types of assets, the committee has the discretion to select the mutual funds with the investment strategy similar to either a passive fund or an active fund as deemed appropriate.

Criteria for determining portfolio weight constraint for each type of assets: The determination of portfolio weight constraint on each asset for each type of investment

portfolio is based on the preliminary assumption that the investment portfolio expecting a low rate of return can usually accept lower risk than the portfolio expecting higher rate of return and thus the portfolio weight on risk assets is normally lower. Simultaneously, the investment portfolio expecting higher rate of return will have a higher portfolio weight on risk assets to enhance the ability to generate return in the long run.

Besides, to avoid concentration of investment in any of the funds which may result in the volatility of total return, the committee also sets the maximum portfolio weight for each fund under some types of assets to help diversify risk for investors.

Example of Asset Types, Funds, and Portfolio Weight Constraints of a Portfolio with 3%-Expected Return

Asset Types	Funds	Portfolio Weight Constraints
Local fixed income	KFSMART, KFMTFI, KFAFIX-A	Total exposure must not exceed 100%
Foreign fixed income	KF-TRB, KF-CSINCOM, KFDIVERS-A	Total exposure must not exceed 100% and weighting of each fund must not exceed 50%.
Local equities	KFENS50-A, KFTSTAR-A	Total exposure must not exceed 30% and weighting of each fund must not exceed 50%.
Foreign equities – Developed markets	KFUSINDX-A, KFHEUROP-A, KFJPINDX-A	Total exposure must not exceed 30% and weighting of each fund must not exceed 50%.
Foreign equities – Emerging markets	KFACHINA-A, KF-INDIA, KFHASIA-A, KFVIET-A	Total exposure must not exceed 30% and weighting of each fund must not exceed 50%.
Sector equities	KFHTECH-A, KFHHCARE-A, KFCLIMA-A	Total exposure must not exceed 30% and weighting of each fund must not exceed 50%.
Alternative assets	KF-HGOLD, KFGPROP-A	Total exposure must not exceed 10% and weighting of each fund must not exceed 15%.

Remark: The above information is an example for clarification purposes which does not refer to an actual portfolio. The investment frameworks, asset types, and funds specified above are subject to change.

Subsequently, the committee will jointly establish a viewpoint on market condition for each asset which will be another factor involved in the calculation. The quantitative model of SAM will then take all factors into consideration along with the correlation among funds and assets in order to determine and rebalance the investment proportion of each asset to obtain an optimal investment portfolio that meets the goal of expected return with lowest risk. Assets or funds with favourable future growth potential will be assigned a

higher weight than those with relatively low potential whereas assets or funds with a higher correlation with other assets or funds are likely to be assigned a relatively low portfolio weight comparing to those with low correlation in order to reduce volatility and diversify the portfolio risk.

Example Table Showing Correlation Matrix of Daily Return of Each Fund

CORRELATION (DAILY)	KFSMART	KFMTFI	KFAFIX-A	KF-TRB	KF-CSINCOM	KFENS50-A	KFTSTAR-A	KF-HUSINDX	KF-HEUROPE	KF-HJPINOX	KFACHINA-A	KF-INDIA	KFHASIA-A	KFVIET-A	KFHHCARE-A	KFHTECH-A	KFGPROP-A	KF-HGOLD
KFSMART	1.00	0.69	0.65	0.20	0.09	-0.07	-0.07	-0.04	-0.01	0.00	0.10	-0.09	0.06	0.03	0.03	0.04	0.00	0.20
KFMTFI	0.69	1.00	0.95	0.39	0.17	-0.12	-0.12	-0.10	-0.07	-0.02	-0.01	-0.05	0.00	0.00	0.06	0.02	0.00	0.29
KFAFIX-A	0.65	0.95	1.00	0.37	0.13	-0.13	-0.13	-0.13	-0.10	-0.04	-0.04	-0.08	-0.02	-0.03	0.04	-0.01	-0.04	0.30
KF-TRB	0.20	0.39	0.37	1.00	0.34	-0.08	-0.06	-0.19	-0.09	-0.05	-0.04	0.01	-0.02	-0.12	0.04	0.03	0.05	0.12
KF-CSINCOM	0.09	0.17	0.13	0.34	1.00	0.41	0.39	0.52	0.44	0.09	0.22	0.52	0.40	0.36	0.50	0.48	0.75	0.11
KFENS50-A	-0.07	-0.12	-0.13	-0.08	0.41	1.00	0.94	0.38	0.66	0.11	0.36	0.51	0.59	0.49	0.56	0.58	0.53	0.03
KFTSTAR-A	-0.07	-0.12	-0.13	-0.06	0.39	0.94	1.00	0.35	0.65	0.38	0.38	0.49	0.58	0.47	0.56	0.58	0.53	0.04
KF-HUSINDX	-0.04	-0.10	-0.13	-0.19	0.52	0.38	0.35	1.00	0.43	0.07	0.20	0.34	0.28	0.41	0.41	0.45	0.87	0.07
KF-HEUROPE	-0.01	-0.07	-0.10	-0.09	0.44	0.66	0.65	0.43	1.00	0.16	0.42	0.50	0.65	0.48	0.66	0.76	0.63	0.01
KF-HJPINDX	0.00	-0.02	-0.04	-0.05	0.09	0.11	0.38	0.07	0.16	1.00	0.39	0.27	0.55	0.37	0.41	0.47	0.41	-0.01
KFACHINA-A	0.10	-0.01	-0.04	-0.04	0.22	0.36	0.38	0.20	0.42	0.39	1.00	0.29	0.69	0.34	0.36	0.55	0.38	0.09
KF-INDIA	-0.09	-0.05	-0.08	0.01	0.52	0.51	0.49	0.34	0.50	0.27	0.29	1.00	0.48	0.37	0.48	0.50	0.57	0.01
KFHASIA-A	0.06	0.00	-0.02	-0.02	0.40	0.59	0.58	0.28	0.65	0.55	0.69	0.48	1.00	0.45	0.51	0.67	0.50	0.09
KFVIET-A	0.03	0.00	-0.03	-0.12	0.36	0.49	0.47	0.41	0.48	0.37	0.34	0.37	0.45	1.00	0.49	0.47	0.46	0.06
KFHHCARE-A	0.03	0.06	0.04	0.04	0.50	0.56	0.56	0.41	0.66	0.41	0.36	0.48	0.51	0.49	1.00	0.80	0.48	0.20
KFHTECH-A	0.04	0.02	-0.01	0.03	0.48	0.58	0.58	0.45	0.76	0.47	0.55	0.50	0.67	0.47	0.80	1.00	0.54	0.18
KFGPROP-A	0.00	0.00	-0.04	0.05	0.75	0.53	0.53	0.87	0.63	0.41	0.38	0.57	0.50	0.46	0.48	0.54	1.00	0.20
KF-HGOLD	0.20	0.29	0.30	0.12	0.11	0.03	0.04	0.07	0.02	-0.01	0.09	0.01	0.09	0.06	0.20	0.18	0.20	1.00

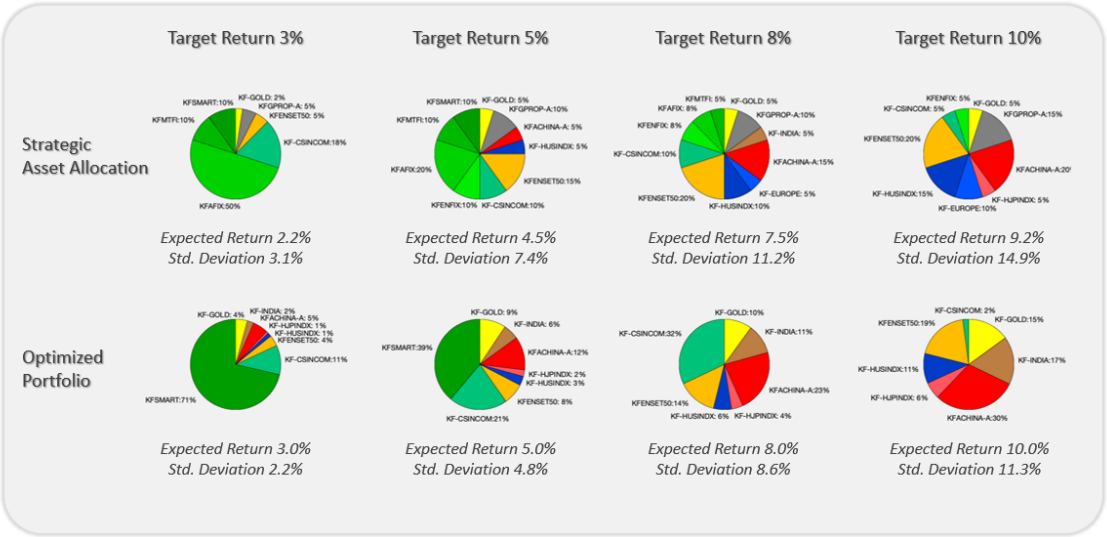
Source: Krungsri Asset Management. Based on historical data of NAV during 30 Dec 2016 – 30 Sep 2020
For any funds established after 30 Dec. 2016, the historical data will be used as much as possible.
Remark: The above information is an example for clarification purposes which does not refer to an actual portfolio. The actual portfolio may differ from the investment framework specified above.

This quantitative model is the asset allocation technique according to the Modern Portfolio Theory (MPT) developed by Markowitz which utilizes both the historical data of volatility and return correlation and the viewpoint on expected return in the future in determining the portfolio weight of each asset.

The outcome of asset allocation of each investment portfolio must seek approval from relevant committee of the Company before being used in the platform.

According to empirical testing, this quantitative model help generate incremental return when comparing to the strategic asset allocation and reduce the volatility of every investment portfolio.

Example of the Return and Risk of Investment Portfolio
Derived from Strategic Asset Allocation vs. Quantitative Model



Source: Krungsri Asset Management.
Remark: The above information is an example for clarification purposes which does not refer to an actual portfolio. The actual portfolio may differ from the investment framework specified above.

Part 3: Implementing the Portfolio according to Asset Allocation Plan

After obtaining the information of recommended investment portfolio, investors interested in making investment according to the recommendations have to open a new unitholder account specifically designed for this service for the convenience of portfolio monitoring and assessment. One unitholder account will be used for one investment plan only. Moreover, this newly open unitholder account can only invest according to the selected investment plan. It cannot be used for normal fund transactions.

After successfully opening the account, the investors can start investing as per the specified plan immediately by specifying the amount of money desired for making transactions. The system will then automatically calculate the investment proportion of investment units and proceed to send the subscription/redemption instructions according to the investment plan confirmed by the investors.

Investment in the funds within the recommended portfolio may involve higher or lower risk level than the investor's acceptable risk level. Accordingly, the investors must agree to acknowledge all related risks before making transactions.

For redemption of investment units, after the investors have specified the amount of money desired for making transaction, the system will calculate the proportion of investment execute the redemption and deposit the redemption proceeds to the bank account specified by the investors. The date of receipt of the proceeds will depend on the timeframe for receiving redemption proceeds as specified by each fund in the related prospectus. In this regard, the Company will notify the customers of the approximate date the proceeds will be wired in to the customer's bank account on the transaction date.

In making investment transactions, the system will calculate and allocate the transactions of each fund according to the selected investment plan without making specific transactions for any individual fund to make sure that the portfolio will perform according to the investor' s target to the most possible extent. In implementing the portfolio through an increase in investment or redemption of investment units, the cash flow rebalancing technique will be adopted by considering selling of the overweight assets or buying of investment units of the underweight funds to rebalance the portfolio weight of each fund to close to the investment plan selected and confirmed by the customers as much as possible.

The customers can cancel any pending transaction before the cut-off time for sending the subscription/redemption instructions provided that such transactions are made as per the payment method specified by the Company. Any subscription/redemption instructions sent after the cut-off time of each business day will be processed on the next business day. The channels for making payment and the details for making other

transactions shall be in accordance with the terms and conditions stipulated by the Company.

If the investors change their investment plan, resulting in significant deviation of the portfolio weight of assets in the actual portfolio from the recommended portfolio under the new investment plan, the system will send a notification to the investor to consider rebalancing their investment portfolio to ensure consistency with the new investment plan.

Part 4: Monitoring and Rebalancing the Portfolio

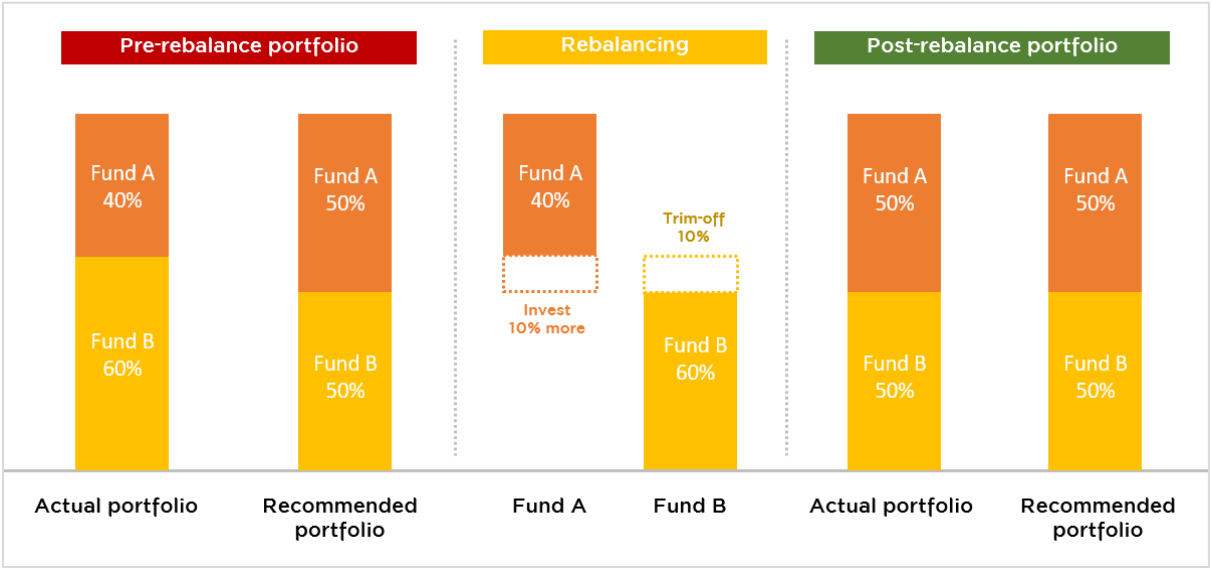
The committee will analyse the model portfolio on a quarterly basis to assess market conditions and viewpoints on investment and rebalance the portfolio accordingly to ensure consistency with the investor's target of expected return.

During the investment process, the system will regularly monitor the investment portfolio of the investors and compare the actual portfolio weights of each asset with the recommended portfolio which may be different as a consequence of the price movements of assets or the rebalancing of the recommended portfolio due to changing market environments. If the actual portfolio weights of the invested assets divert significantly from the recommended portfolio, the system will send a notification that the existing portfolio falls under the criteria of portfolio rebalancing. In this respect, the investors must determine by themselves whether to allow or reject portfolio rebalancing, the system then will be proceed according to investors' instruction.

The criteria for portfolio rebalancing will consider selling the overweight assets and buying the investment units of the underweight funds to rebalance the portfolio weights to close to the investment plan selected and confirmed by the investors as much as possible.

Such process of portfolio rebalancing will enable each investor to have an appropriate investment which can generate investment return meeting the expected target in the long run.

Example of Diagram Showing Guidelines for Portfolio Rebalancing

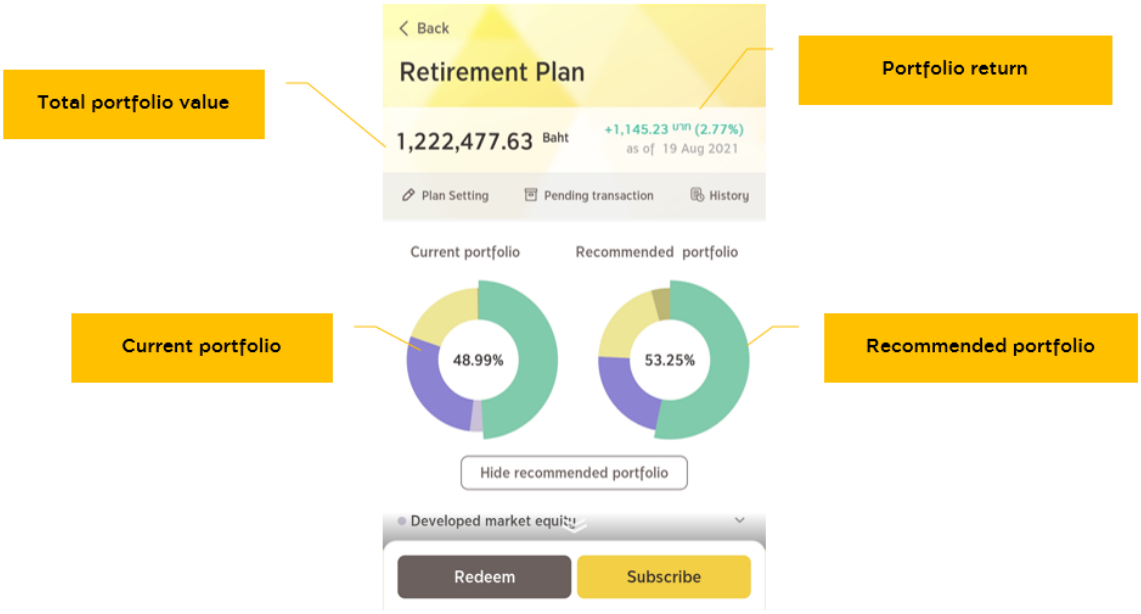


Source: Krungsri Asset Management.

Remark: The above information is an example for clarification purposes which does not refer to an actual portfolio. The actual portfolio may differ from the investment framework specified above.

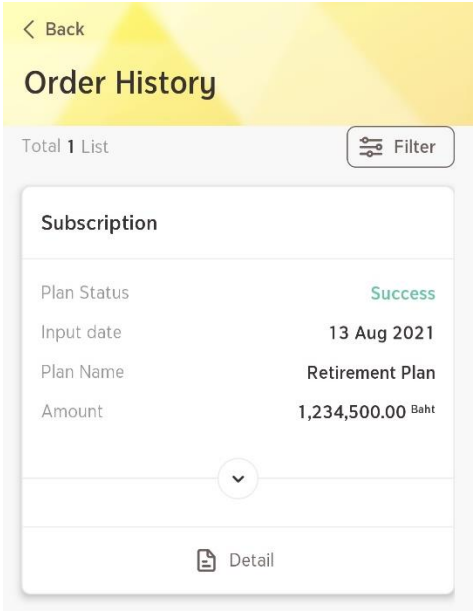
Part 5: Providing Consolidated Reports

Investors can monitor the investment status by themselves via the system of SAM around the clock. The information contained in the report include current investment value, return on investment, and actual investment against recommended investment proportion.



Besides, investors can also retrieve the information of investment history to review the status of transactions and browse the diagram showing the growth forecast for investment in the target portfolio. They can try adjusting various information such as monthly investment or expected retirement age to determine whether such adjustments have an effect on the target investment.

Example of Transaction History Report



Example of Investment Growth Forecast