Basic of Portfolio Planning and Construction

Introduction

understand the client's investment goals, resources, circumstances, and constraints

`Portfolio planning` can be defined as a program developed in advance of constructing a portfolio that is expected to satisfy the client's investment objectives. The written document governing this process is the **investment policy statement (IPS)**.

Investment Policy Statement

the IPS (or an equivalent document) is a legal or regulatory requirement.

> **For example**:
> UK pension schemes must have a statement of investment principles under the Pensions Act 1995 (Section 35)
> UK Financial Conduct Authority (FCA) also has requirements for investment firms to "know their customers."
> The European Union's Markets in Financial Instruments Directive ("MiFID") requires firms to assign clients to categories, such as professional clients and retail clients.

Major Components of an IPS

- Introduction & Statement of Purpose.
- Statement of Duties and Responsibilities.
- Procedures: Steps to take to keep the IPS current and the procedures to follow to respond to various contingencies.
- Investment Objectives.
- Investment Constraints: Factors that constrain the client in seeking to achieve the investment objectives.
- Investment Guidelines: Information about how policy should be executed (e.g., on the permissible use of leverage and derivatives).
- Evaluation and Review: Feedback on investment results.

Risk Objectives

The IPS should state clearly the risk tolerance of the client: Quantitative risk objectives can be `absolute` or `relative` or a `combination` of the two.

- A desire not to suffer any loss of capital or not to lose more than a given percent of capital in any 12-month period. (self-standing)
- Risk relative to one or more benchmarks perceived to represent appropriate risk standards, or some form of liability the institution has.
- a 95 percent probability that the portfolio return will be within X percent of the benchmark return over a stated time period.

Example

EXAMPLE 1

Types of Risk Objectives

A Japanese institutional investor has a portfolio valued at ¥10 billion. The investor expresses his first risk objective as a desire not to lose more than ¥1 billion in the coming 12-month period. The investor specifies a second risk objective of achieving returns within 4 percent of the return to the TOPIX stock market index, which is the investor's benchmark. Based on this information, address the following:

1. **A.** Characterize the first risk objective as absolute or relative.

   B. Give an example of how the risk objective could be restated in a practical manner.

2. **A.** Characterize the second risk objective as absolute or relative.

   B. Identify a measure for quantifying the risk objective.

Example

Solutions to 1:

A. This is an absolute risk objective.

B. This risk objective could be restated in a practical manner by specifying that the 12-month 95 percent value at risk of the portfolio must not be more than ¥1 billion.

Solutions to 2:

A. This is a relative risk objective.

B. This risk objective could be quantified using the tracking risk as a measure. For example, assuming returns follow a normal distribution, an expected tracking risk of 2 percent would imply a return within 4 percent of the index return approximately 95 percent of the time. Remember that tracking risk is stated as a one standard deviation measure.

Risk attitude, or willingness to take risk, is a more subjective factor based on the client's psychology and perhaps also his or her current circumstances.

Although the list of factors that are related to an individual's risk attitude remains open to debate, it is believed that some `psychological factors`, such as personality type, self-esteem, and inclination to independent thinking, are correlated with risk attitude.

Some individuals are comfortable taking financial and investment risk, whereas others find it distressing. Although there is no single agreed-upon method for measuring risk tolerance, a willingness to take risk may be gauged by a `psychometric questionnaire`.

Example

The Case of Henri Gascon: Risk Tolerance

Henri Gascon is an energy trader who works for a major French oil company based in Paris. He is 30-years old and married with one son, aged 5. Gascon has decided that it is time to review his financial situation and consults a financial adviser. The financial adviser notes the following aspects of Gascon's situation:

- Gascon's annual salary of €250,000 is more than sufficient to cover the family's outgoings.
- Gascon owns his apartment outright and has €1,000,000 of savings.
- Gascon perceives that his job is reasonably secure.
- Gascon has a good knowledge of financial matters and is confident that equity markets will deliver positive returns over the longer term.
- In the risk tolerance questionnaire, Gascon strongly disagrees with the statements that "making money in stocks and bonds is based on luck" and that "in terms of investing, safety is more important than returns."
- Gascon expects that most of his savings will be used to fund his retirement, which he hopes to start at age 50.

Based only on the information given, which of the following statements is *most* accurate?

A. Gascon has a low ability to take risk, but a high willingness to take risk.

B. Gascon has a high ability to take risk, but a low willingness to take risk.

C. Gascon has a high ability to take risk, and a high willingness to take risk.

Example

The Case of Jacques Gascon: Risk Tolerance

Henri Gascon is so pleased with the services provided by the financial adviser, that he suggests to his brother Jacques that he should also consult the adviser. Jacques thinks it is a good idea. Jacques is a self-employed computer consultant also based in Paris. He is 40-years old and divorced with four children, aged between 12 and 16. The financial adviser notes the following aspects of Jacques' situation:

- Jacques' consultancy earnings average €40,000 per annum, but are quite volatile.
- Jacques is required to pay €10,000 per year to his ex-wife and children.
- Jacques has a mortgage on his apartment of €100,000 and €10,000 of savings.
- Jacques has a good knowledge of financial matters and expects that equity markets will deliver very high returns over the longer term.
- In the risk tolerance questionnaire, Jacques strongly disagrees with the statements "I am more comfortable putting my money in a bank account than in the stock market" and "When I think of the word "risk" the term "loss" comes to mind immediately."
- Jacques expects that most of his savings will be required to support his children at university.

Based on the above information, which statement is correct?

A. Jacques has a low ability to take risk, but a high willingness to take risk.

B. Jacques has a high ability to take risk, but a low willingness to take risk.

C. Jacques has a high ability to take risk, and a high willingness to take risk.

Return Objectives

Return objectives may be stated on an absolute or a relative basis.

The return requirement can be stated before or after fees.

Some institutions also set their return objective relative to a peer group or universe of managers.

The manager or adviser must ensure that the return objective is realistic.

Example

The Case of Henri Gascon: Return Objectives

Having assessed his risk tolerance, Henri Gascon now begins to discuss his retirement income needs with the financial adviser. He wishes to retire at age 50, which is 20 years from now. His salary meets current and expected future expenditure requirements, but he does not expect to be able to make any additional pension contributions to his fund. Gascon sets aside €100,000 of his savings as an emergency fund to be held in cash. The remaining €900,000 is invested for his retirement.

Gascon estimates that a before-tax amount of €2,000,000 in today's money will be sufficient to fund his retirement income needs. The financial adviser expects inflation to average 2 percent per year over the next 20 years. Pension fund contributions and pension fund returns in France are exempt from tax, but pension fund distributions are taxable upon retirement.

1. Which of the following is closest to the amount of money Gascon will have to accumulate in nominal terms by his retirement date to meet his retirement income objective (i.e., expressed in money of the day in 20 years)?

   A. €900,000.

   B. €2,000,000.

   C. €3,000,000.

2. Which of the following is closest to the annual rate of return that Gascon must earn on his pension portfolio to meet his retirement income objective?

   A. 2.0%.

   B. 6.2%.

   C. 8.1%.

Solution to 1:

C is correct. At 2 percent annual inflation, €2,000,000 in today's money equates to €2,971,895 in 20 years measured in money of the day [$2m \times (1 + 2\%)^{20}$].

Solution to 2:

B is correct. €900,000 growing at 6.2 percent per year for 20 years will accumulate to €2,997,318, which is just above the required amount. [The solution of 6.2 percent comes from €2,997,318/€900,000 = $(1 + X)^{20}$, where X is the required rate of return.]

Liquidity

- The IPS should state what the likely requirements are to withdraw funds from the portfolio.
- When the client does have such a requirement, the manager should allocate part of the portfolio to cover the liability.

Time Horizon

- It may be the period over which the portfolio is accumulating before any assets need to be withdrawn
- It could also be the period until the client's circumstances are likely to change. For example, a 50-year old pension plan investor hoping to retire at age 60 has a 10-year horizon.

Example

Investment Time Horizon

1. Frank Johnson is investing for retirement and has a 20-year horizon. He has an average risk tolerance. Which investment is likely to be the *least* suitable for a major allocation in Johnson's portfolio?

   A. Listed equities.

   B. Private equity.

   C. US Treasury bills.

2. Al Smith has to pay a large tax bill in six months and wants to invest the money in the meantime. Which investment is likely to be the *least* suitable for a major allocation in Smith's portfolio?

   A. Listed equities.

   B. Private equity.

   C. US Treasury bills.

Solution to 1:

C is correct. With a 20-year horizon and average risk tolerance, Johnson can accept the additional risk of listed equities and private equity compared with US Treasury bills.

Solution to 2:

B is correct. Private equity is risky, has no public market, and is the least liquid among the assets mentioned.

Tax Concerns

Tax status varies among investors. Some investors will be subject to taxation on investment returns and some will not. For example, in many countries returns to pension funds are exempt from tax.

Some investors will face various rates of tax on income (dividends and interest payments) than they do on capital gains (associated with increases in asset prices).

Typically, when there is a differential, income is taxed more highly than gains. Gains may be subject to a lower rate of tax or part or all of the gain may be exempt from taxation. Furthermore, income may be taxed as it is earned, whereas gains may be taxed when they are realized.

Legal and Regulatory Factors

- An individual has access to material nonpublic information about a particular security, this situation may also form a constraint.
- There may be a limit on the proportion of equities or other risky assets in the portfolio, or on the proportion of the portfolio that may be invested overseas.

Example

Exhibit 3. Examples of Pension Fund Investment Restrictions

Country	Listed Equity	Real Estate	Government Bonds	Corporate Bonds	Foreign Assets
Switzerland	50%	50%	No limits	No limits	30%
Russia	65%	Not allowed	No limits	80%	10%
Japan	No limits	Not permitted	No limits	No limits	No limits
India	Minimum 25 percent in central government bonds; minimum 15 percent in state government bonds; minimum 30 percent invested in bonds of public sector enterprises				

Source: OECD "Survey of Investment Regulations of Pension Funds," July 2008.

Unique Circumstances

IPS should cover any other aspect of the client's circumstances that is likely to have a material impact on the composition of the portfolio.

A client may have considerations derived from his or her religion or ethical values that could constrain investment choices.

Gathering Client Information

An exercise in fact finding about the customer should take place at the beginning of the client relationship.

This will involve gathering information about the client's circumstances as well as discussing the client's objectives and requirements.

Example

Henri Gascon: Outline of an IPS

Following is a simplified excerpt from the IPS the adviser prepares for Henri Gascon, covering objectives and constraints.

Risk Objectives:

- The portfolio may take on relatively high amounts of risk in seeking to meet the return requirements. With a 20-year time horizon and significant assets and income, the client has an above average ability to take risk. The client is a knowledgeable investor, with an above average willingness to take risk. Hence, the client's risk tolerance is above average, explaining the above portfolio risk objective.
- The portfolio should be well diversified with respect to asset classes and concentration of positions within an asset class. Although the client has above average risk tolerance, his investment assets should be diversified to control the risk of catastrophic loss.

Return Objectives:

The portfolio's long-term return requirement is 6.2 percent per year, in nominal terms and net of fees, to meet the client's retirement income goal.

Constraints:

- *Liquidity*: The portfolio consists of pension fund assets and there is no need for liquidity in the short to medium term.
- *Time Horizon*: The portfolio will be invested with a 20-year time horizon. The client intends to retire in 20 years, at which time an income will be drawn from the portfolio.
- *Tax Status*: Under French law, contributions to the fund are made gross of tax and returns in the fund are tax-free. Hence, the client is indifferent between income and capital gains in the fund.
- *Legal and Regulatory Factors*: The management of the portfolio must comply with French pension fund regulations.
- *Unique Needs*: The client is an executive in the oil industry. The portfolio should strive to minimize additional exposures to oil and related stocks.

Portfolio Construction

Capital market expectations

It is the investor's expectations concerning the risk and return prospects of `asset classes`, however broadly or narrowly the investor defines those asset classes.

When associated with the client's investment objectives, the result is the `strategic asset allocation` that is expected to allow the client to achieve his or her investment objectives.

Strategic Asset Allocation

- Traditionally: cash, equities, bonds, and real estate as the major asset classes.
- Recently: private equity, hedge funds, and commodities.
- Future: art and intellectual property rights.

Strategic Asset Allocation

An asset class should contain relatively **homogeneous** assets while providing diversification relative to other asset classes.

In statistical terms, risk and return expectations should be similar and paired correlations of assets should be **relatively high** within an asset class but should be **lower** versus assets in other asset classes.

The asset classes, while being **mutually exclusive**, should add up to a sufficient approximation of the relevant investable universe.

Example

Exhibit 4. Asset Class Correlation Matrix

	A	B	C	D	E	F	G	H	I	J	K	L
A. MSCI Europe	1.00	0.77	0.95	0.97	0.88	0.20	0.59	−0.08	−0.35	0.10	−0.29	0.01
B. MSCI Emerging Markets	0.77	1.00	0.82	0.83	0.76	0.35	0.63	0.18	−.25	0.22	−0.20	0.11
C. MSCI World	0.95	0.82	1.00	0.96	0.97	0.25	0.69	0.00	−0.31	0.18	−0.27	0.06
D. MSCI EAFE	0.97	0.83	0.96	1.00	0.88	0.27	0.65	−0.01	−0.34	0.15	−0.29	0.05
E. MSCI US	0.88	0.76	0.97	0.88	1.00	0.20	0.70	−0.01	−0.27	0.18	−0.24	0.06
F. Commodities	0.20	0.35	0.25	0.27	0.20	1.00	0.27	0.25	−0.04	0.14	−0.07	0.14
G. Real Estate	0.59	0.63	0.69	0.65	0.70	0.27	1.00	0.18	−0.01	0.40	0.02	0.32
H. Gold	−0.08	0.18	0.00	−0.01	−0.01	0.25	0.18	1.00	0.21	0.30	0.12	0.14
I. US Treasuries	−0.35	−0.25	−0.31	−0.34	−0.27	−0.04	−0.01	0.21	1.00	0.67	0.78	0.55
J. US Investment Grade	0.10	0.22	0.18	0.15	0.18	0.14	0.40	0.30	0.67	1.00	0.61	0.79
K. European Government Bonds	−0.29	−0.20	−0.27	−0.29	−0.24	−0.07	0.02	0.12	0.78	0.61	1.00	0.83
L. European Investment Grade Corporates	0.01	0.11	0.06	0.05	0.06	0.14	0.32	0.14	0.55	0.79	0.83	1.00
Annualized Volatility	16.6%	20.7%	15.0%	15.4%	15.7%	25.4%	18.9%	16.6%	5.0%	6.0%	3.1%	3.2%

Data based on monthly returns in local currencies from January 1999 to February 2009. Commodities, Real Estate, and Gold in USD.

Source: MSCI, NAREIT, Bloomberg Barclays (formerly Bloomberg Capital), Standard and Poor's.

Example

(ABP is one of the world's largest pension funds)

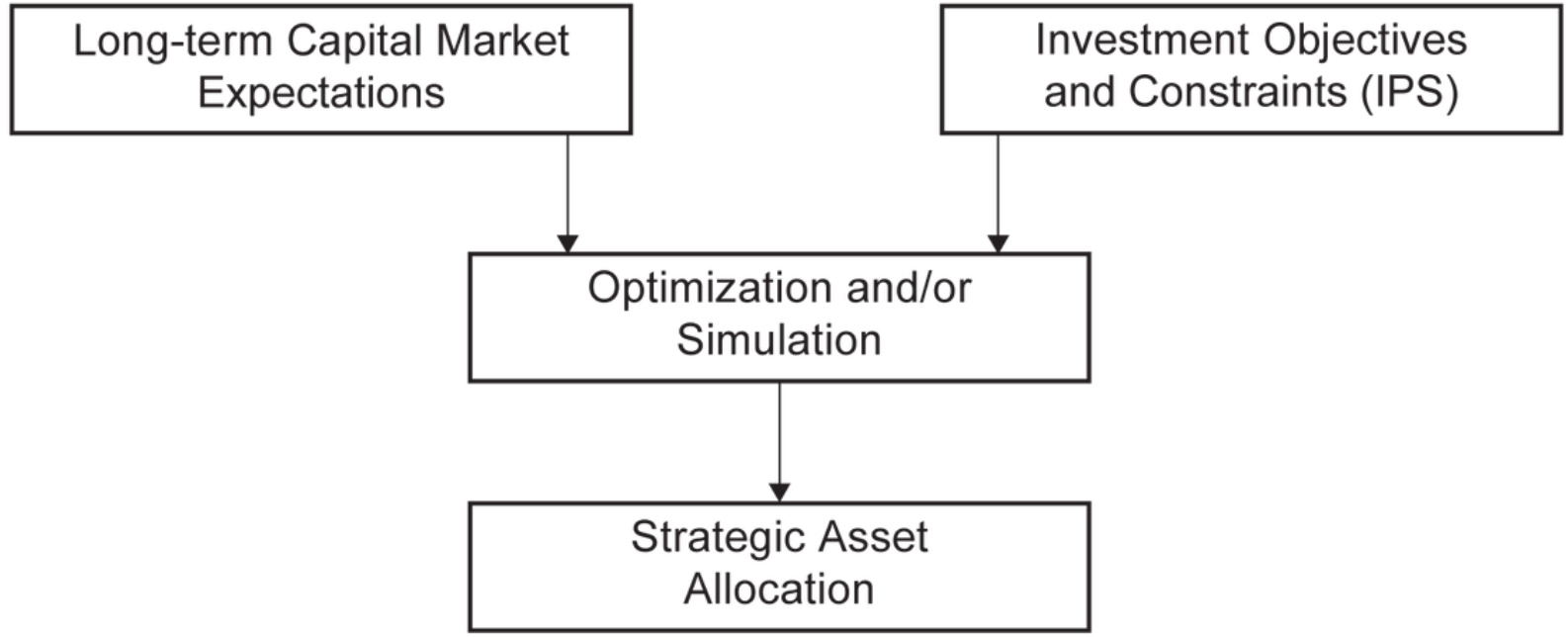
Strategic Asset Allocation for ABP

Real assets	
Equities, developed countries	27%
Equities, emerging markets	5
Convertible bonds	2
Private Equity	5
Hedge Funds	5
Commodities	3
Real estate	9
Infrastructure	2
Innovation	2
Total real assets	***60%***

Fixed income securities	
Inflation-linked bonds	7%
Government bonds	10
Corporate bonds	23
Total fixed income securities	***40%***
Total	100%

Strategic Asset Allocation Process

Exhibit 6. Strategic Asset Allocation Process



Strategic Asset Allocation Process

$$U_p = E(R_p) - \lambda\sigma_p^2$$

where

U_p = the investor's expected utility from the portfolio

$E(R_p)$ = the expected return of the portfolio

σ_p = the standard deviation of returns of the portfolio

λ = a measure of the investor's risk aversion

Steps Toward an Actual Portfolio

Tactical asset allocation: is the decision to deliberately deviate from the policy exposures to systematic risk factors.

Risk budgeting: is the process of deciding on the amount of risk to assume in a portfolio (the overall risk budget), and subdividing that risk over the sources of investment return.

Security selection: is an attempt to generate higher returns than the asset class benchmark by selecting securities with a higher expected return.

Steps Toward an Actual Portfolio

Exhibit 10. Asset Allocation of a European Charity (Beginning of Year)

Asset Class	Policy Weight	Corridor (+/–)	Upper Limit	Lower Limit
European equities	30.0%	2.0%	32.0%	28.0%
International equities	15.0	2.0	17.0	13.0
European government bonds	20.0	2.0	22.0	18.0
Corporate bonds	20.0	2.0	22.0	18.0
Cash and money market instruments	15.0	2.0	17.0	13.0
Total	100.0			

Exhibit 11. Asset Allocation for a European Charity (6 Months Later)

Asset Class	Policy Weight	Corridor (+/–)	Upper Limit	Lower Limit	Period Return	Ending Weight
European equities	30.0%	2.0%	32.0%	28.0%	15.0%	32.4%
International equities	15.0	2.0	17.0	13.0	10.0	15.5
European government bonds	20.0	2.0	22.0	18.0	0.5	18.9
Corporate bonds	20.0	2.0	22.0	18.0	1.5	19.1
Cash and money market instruments	15.0	2.0	17.0	13.0	1.0	14.2
Total	100.0%				6.6%	100.0%

Steps Toward an Actual Portfolio

Exhibit 12. Asset Allocation for a European Charity (an Additional 6 Months Later)

Asset Class	Policy Weight	Starting Weight	Corridor (+/–)	Upper Limit	Lower Limit	Period Return	Ending Weight
European equities	30.0%	32.0%	2.0%	32.0%	28.0%	–9.0%	29.7%
International equities	15.0	15.5	2.0	17.0	13.0	–6.0	14.9
European government bonds	20.0	18.9	2.0	22.0	18.0	4.0	20.0
Corporate bonds	20.0	19.1	2.0	22.0	18.0	4.0	20.2
Cash and money market instruments	15.0	14.6	2.0	17.0	13.0	2.0	15.2
Total	100.0%					–2.0%	100.0%

Exhibit 13. Returns to Tactical Asset Allocation

Asset Class	Policy Weight I	Starting Weight II	Weights Difference III (= II – I)	Period Return IV	TAA Contribution V (= III × IV)
European equities	30.0%	32.0%	2.0%	–9.0%	–0.18%
International equities	15.0	15.5	0.5	–6.0	–0.03
European government bonds	20.0	18.9	–1.1	4.0	–0.05
Corporate bonds	20.0	19.1	–0.9	4.0	–0.04
Cash and money market instruments	15.0	14.6	–0.4	2.0	–0.01
Total	100.0%			–2.0%	–0.30%