Portfolio management

Portfolio management and investment banking

- Asset management and trading constitute the other major activity of IB, alongside "investment banking" (i.e. corporate finance)
- For large banks, asset management and trading constitute most of their revenues
- Interesting feature: Conflicts of interest in asset management
 - Proprietary trading: management of the bank's own portfolio
 - Asset management: advising or directly managing equity funds of institutional clients such as hedge funds or mutual funds.

Passive portfolio management

- There are two main passive strategies: buy-and-hold and index-matching
- Buy-and-hold involves purchasing securities and holding them until maturity of indefinitely. The return is dominated by income flows (dividends, coupon) and long-term capital growth.

Since there is a consensus that securities are fairly priced, it does not matter which securities are held.

However, by buying only a few securities or by not adjusting the portfolio, a significant amount of risk has not been diversified away.

- Index matching involves the construction of an index fund which is designed to replicate the performance of the market index.
- The portfolio is determined as an optimal mix between the market portfolio and the riskless assets.
- Target indexes include the FTSE, DOW, S&P etc.

- Different types of indexing exist:
 - Complete indexing: exact matching of the market portfolio (e.g. FTSE All share index). This can be expensive since index contains many different stocks, and weights change frequently.
 - Stratified sampling: construction of an index fund based on a sample (say 5%) of securities from an index. The securities that have the highest correlation with the index are selected. This limits transaction costs but increases tracking error.
 - Factor matching is more general than stratified sampling. The securities are selected on the basis of several criteria, not just one. The criteria include industry, risk, dividend pattern, size etc. The securities whose characteristics are close to the index are selected.

- Cost of index funds:
 - Indexes composition change, which forces index funds to rebalance their portfolio. This involves transaction costs.
 - Dividend payments are different from the index dividends. This requires relatively frequent rebalancing
 - Dividends need to be reinvested. This also generates transaction costs.
- Hence, index funds can hardly perform as well as indexes.

Active portfolio management

- A portfolio will be actively managed when it is believed that there are misvalued securities, or when there are heterogeneous expectations of the risks are returns of securities.
- Based on the client's utility function, it is possible to build an optimal active portfolio (determined by the fund manager's own estimated on future returns), in the same way that there is an optimal passive portfolio.

Asset allocation

The first stage is to decide what proportions to invest in broad asset categories, such as shares, bonds and cash.

It depends on the client's risk aversion and the manager's estimates on the risk and returns on the different securities.

This is a crucial choice that dominates the performance of most portfolios.

Securities selection

This is about choosing securities within each category.

This is crucial when the manager believes that some securities are mispriced and have a good return potential for its level of risk.

A security is mispriced if its alpha is non-zero:

$$\alpha_i = \overline{r_i} - \overline{r_i}^* \neq 0$$

Asset pricing: In efficient markets, risky securities should generate higher return than safer securities.

The relationship between risk and return is as follows:

$$\bar{r}_i^* = r_F + \beta_i \times (\bar{r}_M - r_F)$$

Where \overline{r}_i^* is the return of security i Where r_M is the return on the market portfolio Where r_F is the return on the safe asset Where β_i is the risk of asset i, i.e. the responsiveness of a security to movements in the market portfolio. Relationship between beta and the return



- The objective of the manager is to select securities with positive alphas. A portfolio composed of securities with positive alphas will have a good return given its level of risk.
- An active portfolio is therefore equal to a market portfolio plus the set of side bets, i.e. the under- or over-weighting of some stocks.

Portfolio adjustment

- The portfolio needs to be adjusted frequently to maximize return and manage risk.
- Trading stocks naturally generates significant transaction costs, which reduce the overall return.
- Moreover, when a fund is large enough, it faces investment capacity restrictions. When a fund wishes to take a strong position in one stock, it might not be able to get the shares at the existing price due to the lack of sellers. This pushes the price upwards and reduces the value of the stock picking.

The case for active portfolio management

- Fund managers have developed powerful valuation techniques that allow them to pick cheap stocks
- Transaction costs are shrinking
- Most fund managers adopt active strategies, there has to be a reason
- The empirical evidence in favour of passive strategies is mixed at best

- Although most funds do not beat the market, hundreds of funds do. So there is value added for the clients who select their funds carefully.
- In down markets, fund managers can take defensive positions and beat the market.
- Active strategies can lead to more diversification: large-caps vs. small-caps, domestic vs. foreign etc.
- Clients prefer having a fund managed by an experienced and talented manager.

The case for passive portfolio management

- Low fees compared with active funds
- Theory of indexing:
 - Investors, in aggregate, own the entire market, so they cannot outperform it. Active strategies underperform due to fees.
 - Performance is unpredictable. Fund managers' performance is hardly persistent. Mimicking the strategies of the top performers does not generate abnormal returns. Moreover, this questions the ability of fund managers.
- Indexing in practice
 - Passive strategies forces investors to identify the sources of investment risk, and design efficient portfolios
 - Active funds induce unrealistic expectations and cannot always deliver

- Other issue: fund managers are careerist. When the payoffperformance relationship is convex, there are incentives to take high risks. This might hurts investors' return.
- It has been found that net flows into funds are highly sensitive to performance. This can generate incentive to be excessively careful or risky at times. When active portfolios return fall below the target return, managers take even more risks in order to stay in business.
- In a developed market, assets are fairly priced and active strategies cannot outperform passive strategies.

Empirical evidence

- Chen et al. (2000): stocks purchased by mutual funds outperform the stocks sold by them
- Wermers (2000): fund managers pick stocks well enough to cover transition costs and fees
- Shukla (2004): interim revisions in mutual funds portfolios lead to higher returns, however this does not compensate the high fees
- Most studies find that active funds underperform passive funds.

Is there persistence in fund performance?

The issue of performance persistence in actively managed funds is crucial for investors:

- If the best performing funds in year t tend to be the best performing ones in year t+1, then investors should invest in the best performing funds
- If there is no correlation between past and future performance, then investing in the best funds based on past performance is pointless.

Evidence from the UK

- There is a large literature analyzing on this issue and most authors find some evidence of (weak) performance persistence
- Lunde et al. (1998) consider the yearly performance quartiles for equity funds and find weak evidence of persistence:

	Fut	Future performance				
		I	П	111	IV	
Past	l (worst)	0.28	0.24	0.22	0.25	
performance	II	0.22	0.27	0.28	0.21	
	III	0.22	0.3	0.26	0.21	
	IV (best)	0.26	0.18	0.23	0.31	

• Allen and Tan (1999) look at ranked alphas over successive two-year intervals:

	Successive period			
	winners	losers		
nitial winners	53.70%	46.30%		
nitial losers	45.20%	54.80%		

• Positive jensen alpha funds have only a 53.7% probability of overperforming the market the following year.

Portfolio performance measurement

Performance and the Market Line



Risk-adjusted returns

- The expost rate of return has to be adjusted for risk
- If the fund beneficiary has other well diversified investments, then the risk should be measured by the fund's beta
- If the fund beneficiary has no other investment, then the risk should be measured by the fund's total risk (i.e. volatility)

Measures of performance based on riskadjusted returns

• Sharpe ratio:

sharpe =
$$\frac{r_p - r_f}{\sigma_p}$$

Where \mathcal{V}_p is the average return of the portfolio over an interval Where \mathcal{V}_f is the risk-free return over the same interval Where σ_p is the standard deviation of the return on the portfolio



• Treynor ratio:

$$Treynor = \frac{r_p - r_f}{\beta_p}$$

Where β_p is the beta of the portfolio.



Sharpe vs Treynor

- The Sharpe and Treynor measures are similar, but different:
 - Sharpe uses the standard deviation, Treynor uses beta
 - Treynor is more appropriate for well diversified portfolios,
 Sharpe for individual assets
 - For perfectly diversified portfolios, Sharpe and Treynor will give the same ranking, but different numbers (the ranking, not the number itself, is what is most important)

Sharpe & Treynor Examples

<u>Portfolio</u>	Return	RFR	Beta	Std. Dev.	Trenor	Sharpe
Х	15%	5%	2.50	20%	0.0400	0.5000
Y	8%	5%	0.50	14%	0.0600	0.2143
Z	6%	5%	0.35	9%	0.0286	0.1111
Market	10%	5%	1.00	11%	0.0500	0.4545



Jensen's Alpha

- Jensen's alpha is a measure of the excess return on a portfolio over time
- A portfolio with a consistently positive excess return (adjusted for risk) will have a positive alpha
- A portfolio with a consistently negative excess return (adjusted for risk) will have a negative alpha



The role of analysts

What do analysts do?

- Gather information on the industry or individual stock from customers, suppliers, firm managers etc.
- Analyze the data.
- Form earnings estimates and make recommendations to investors.
- Involvement in investment banking activities.
- Sell-side vs. buy-side analysts

- Teams of analysts tend to become bigger and more international. (Global Media Team of Merrill Lynch has 40+ analysts covering more than 200 companies. Most European media companies are followed by 20 to 25 analysts)
- Earnings forecasts are less confidential. Media diffuse analysts forecasts and recommendations.
- Companies keep track of analysts' forecasts and recommendations and rank these analysts.

Analysts' compensation

The compensation is based on:

• Perceived quality

Institutional Investor poll of institutions and fund managers ranks analysts according to: stock picking, earnings estimates

Analysts earn 2 or 3 times their basic salary in bonuses if they get a high rating in the Institutional Investor poll.

- Ability to generate investment banking revenue
- Job offers from competitors

<u>Performance of analysts on the Institutional Investor All-</u> <u>Americans Research Team</u>

Institutional Investor asks 2000 money managers to evaluate analysts on the basis of stock picking, earnings forecasts and written reports.

Position in the poll can be viewed as a proxy for relative reputation.

All-Americans analysts:

- 1. Produce more accurate forecasts.
- 2. Make more revisions.
- 3. Have higher impact on prices.

What are the conflicts of interest for analysts?

One the one hand, IB want their individual investors clients to be successful over time. At the same time, several factors affect the analyst's objectivity.

<u>Investment banking relationships</u> Underwriting and M&A advisory are lucrative activities. Clients want:

- 1. Analyst coverage, otherwise investors will not be interested in the company.
- 2. Positive recommendations from analysts (M&A and underwriting).

IB want positive coverage in order to attract clients.

Positive coverage also reduces the necessity for price stabilization by the underwriter when the underwriting contract stipulates that underwriters must support the price in the aftermarket.

Trading

Conflicts of interest may arise when a firm trades securities covered by the firm's analysts, because analysts' recommendations may impact the share prices.

Compensation

Analysts' remuneration depend on (i) reputation, (ii) investment banking revenue generated.

Optimistic bias

- The "Sell" or "Strong sell" recommendations represent 3% of all recommendations, while "Buy" or "Strong buy" represent 53%.
- The median earnings growth forecast is +14%, while the actual median earnings growth is +9%.
- This bias can also be explained by cognitive reasons: Underwriters tend to believe that the firms they underwrite are better than average.

Does it pay to be optimistic?

- Accurate analysts are more likely to experience favorable job separations (i.e. move to larger IB). For instance analysts who are extremely inaccurate are 62% more likely experience unfavorable job separation than average analysts. Those who are extremely accurate are 52% more likely to experience a favorable job separation than average analysts.
- After controlling for accuracy, optimistic analysts are more likely to experience favorable job separations (+38% w.r.t. average analysts).

- Among analysts who cover stocks underwritten by their brokerage houses, job separation depends less on forecast accuracy and more on forecast optimism.
- Job separations depend less on accuracy and more on optimism during the years 1990s than compared to earlier and later periods.

Affiliation and recommendation bias (Michaely and Womack (1999))

- Does an underwriting relationship bias analysts' recommendations?
- Do underwriter's analysts tend to be overly optimistic?
- Does the market correctly discount overly positive recommendations of affiliated analysts?

Findings:

- Lead underwriter analysts issue more "Buy" recommendations on the IPO than other analysts.
- The market responds differently to the announcement of "Buy" recommendations by underwriters (+2.7%) and non-underwriters (+4.4%).
- The long-run post-recommendation performance of firms that are recommended by their underwriters is significantly worse than the performance of firms recommended by other analysts.

Lin and McNichols (1998)

- No difference in the returns to affiliated and unaffiliated analysts "Strong Buy" and "Buy" recommendations, however the returns to "Hold" recommendations are lower for affiliated analysts.
- Suggests that analysts are overoptimistic when they issue "Hold" recommendations.
- Affiliated analysts strategically avoid "Sell" recommendations.

The effect of experience

- Inexperienced analysts are more likely to lose their job for inaccurate earnings forecasts.
- Inexperienced analysts make more conservative forecasts, they deviate less from the consensus.
- Even after controlling for private information, inexperienced analysts behave more conservatively than experienced analysts.