

## Reading 24: Equity Portfolio Management

A. discuss the role of equities in the overall portfolio

- As of 30 September 2004, the aggregate market value of the equities in the Morgan Stanley Capital International All Country World Index (MSCI ACWI) was more than 19 trillion, of which almost half represented markets outside the United States.
- Emerging market represented nearly 950 billion.
- Equities have been a good inflation hedge.

B. discuss the rationales for passive, active, and semiactive (enhanced index) equity investment approaches and distinguish among those approaches with respect to expected active return and tracking risk

C. recommend an equity investment approach when given an investor's investment policy statement and beliefs concerning market efficiency

Investment approaches	Rationales	Expected active return and tracking risk
Passive (indexing)	<ul style="list-style-type: none"> <li>● Investors who believe that an equity market is efficient will usually favor indexing because they think that equity research will not provide a sufficient increment in return to overcome their research and transaction costs.</li> <li>● The manager does not try to outperform the index, she/he buys securities when the security's weight increases in the index or sells stock when the security's weight decreases.</li> </ul>	Both are low to virtually zero
Active	Active investors believe that the equity market is often inefficient and	Both are relatively high

Investment approaches	Rationales	Expected active return and tracking risk
	that good research will allow them to outperform the market net of all costs.	
Semiactive (enhanced indexing or risk-controlled active)	<ul style="list-style-type: none"> <li>A semiactive manager attempts to earn a higher return than the benchmark while minimizing the risk of deviating from the benchmark.</li> </ul>	Both are relatively low

- Indexing has grown in popularity since the 1970s and often constitutes an investor's core holding.
- Active management still constitutes the vast majority of assets under management.
- Historical data suggests that active management on average does not outperform passive management after consideration of expenses.

$$\text{Information Ratio} = \frac{(R_p - R_b)}{\sigma_{p-b}}$$

D. distinguish among the predominant weighting schemes used in the construction of major equity share indices and evaluate the biases of each

Index Choices	Definition	Bias	Indices
Price weighted	<p>The performance of a price-weighted index represents the performance of a portfolio that simply bought and held one share of each index component.</p> <p>Simple to construct.</p> <ul style="list-style-type: none"> <li>● Easy to obtain</li> <li>● historical data. Go</li> </ul>	<ul style="list-style-type: none"> <li>● The absolute level of a share price is an arbitrary figure (stock split, stock dividend)</li> <li>● A price-weighted index is biased towards the highest-priced share. It makes no sense to invest</li> </ul>	Dow Jones Industrial Average · Nikkei 225

Index Choices	Definition	Bias	Indices
	back far into the past.	money merely in proportion to an absolute share price.	
Value-weighted (or market-cap weighted) Subtype: Free Float-adjusted weighted	The value-weighted index assumes the investor holds each company in the index according to its relative weight in the index. A value-weighted index self-corrects for stock splits, reverse stock splits, and dividends. The portion of a firm's outstanding shares that are actually available for purchase is known as the free float.	The bias will be in over-weighting in stocks that are large cap and mature, and in stocks that are overpriced or has performed well in the recent past.	S&P 500 、 Russell Indices 、 MSCI International Indices 、 TOPIX 、 CAC 40 、 DAX 30
Equal weighted	The performance of an equal-weighted index represents the performance of a portfolio in which the same amount of money is invested in the shares of each index component	<ul style="list-style-type: none"> <li>● An equal-weighting methodology introduces a small-company bias.</li> <li>● To maintain equal weighting, this type of index must be rebalanced periodically to incur higher transaction costs.</li> <li>● Not all components in such an index may have sufficiently liquidity.</li> </ul>	Value Line Composite Average

<課本 p207, Example 1>

### A Problem of Benchmark Index Selection

Stephen Alcorn is a portfolio manager at Amanda Asset Management, Inc.(AAM). At the end of 2002, a wealthy client engaged Alcorn to manage \$10,000,000 for one year in an active focused (concentrated) equity style. The investment management contract specified a symmetric incentive fee of \$10,000 per 100 basis points (bps) of capital appreciation relative to that of an index of the stocks selected for investment. (Symmetric means that the incentive fee will reduce the investment management fee if benchmark-relative performance is negative.) In an oversight, the contract leaves open the method by which the benchmark index will be calculated. Alcorn invests in shares of Eastman Kodak Company, McDonald s Corporation, Intel Corporation, Merck & Co., Wal-Mart Stores, and Microsoft Corporation, achieving a 15.9% price return for the year. Exhibit 4 gives information on the six stocks.

Exhibit 4		Equity Market Data for the Shares of Six Companies				
	Share Price 31-Dec-02	Share Price 31-Dec-03	Price Change	Market Value of Shares 31-Dec-02 (Millions)	Market Value of Shares 31-Dec-03 (Millions)	Free Float Factor
Kodak	\$35.04	\$24.85	-29.1%	\$10,056	\$7,132	1
McDonald's	16.08	24.09	49.8	20,406	30,570	1
Intel	15.57	31.36	101.4	101,703	204,844	1
Merck	53.58	45.10	-15.8	119,216	100,348	1
Wal-Mart	50.51	53.05	5.0	221,992	233,154	0.6
Microsoft	25.85	27.37	5.9	277,060	293,352	0.85
Total				\$750,433	\$869,400	

Using only the information given, address the following:

1. For each of the six shares, explain the price-only return calculation on the following indices for the period 31 December 2002 to 31 December 2003:
  - I. price-weighted index
  - II. value-weighted index
  - III. float-weighted index
  - IV. equal-weighted index

2. Recommend the appropriate benchmark index for calculating the performance incentive fee on the account and determine the amount of that fee.

Solution to 1:

Exhibit 5		Price-Weighted Index				
	Share Price 31-Dec-02	Share Price 31-Dec-03	Price Change	Market Value of Shares 31-Dec-02 (Millions)	Percentage of Index 31-Dec-02	Contribution to Return
Kodak	\$35.04	\$24.85	-29.1%	\$10,056	17.82%	-5.19%
McDonald's	16.08	24.09	49.8	20,406	8.18	4.07
Intel	15.57	31.36	101.4	101,703	7.92	8.03
Merck	53.58	45.10	-15.8	119,216	27.25	-4.31
Wal-Mart	50.51	53.05	5.0	221,992	25.69	1.28
Microsoft	25.85	27.37	5.9	277,060	13.15	0.78
Total				\$750,433	100%	4.7%

- i. As Exhibit 5 illustrates, the value of the price-weighted index on 31 December 2002 is found by adding the six share prices as of the date and dividing by 6:  $196.63/6=32.77$ . As of 31 December 2003, the value of the index is  $205.82/6=34.30$ . Thus the one-year return is  $(34.30-32.77)/32.77=4.7\%$ . At 31 December 2002, the index gives a  $53.58/196.63=27.2\%$  weight to Merck and a  $50.51/196.63=25.7\%$  weight to Wal-Mart, the highest-priced shares.

ii.

Exhibit 6		Value-Weighted Index			
	Market Value of Shares 31-Dec-02 (Millions)	Market Value of Shares 31-Dec-03 (Millions)	Value Change	Percentage of Index 31-Dec-02	Contribution to Return
Kodak	\$10,056	\$7,132	-29.1%	1.34%	-0.39%
McDonald's	20,406	30,570	49.8	2.72	1.36
Intel	101,703	204,844	101.4	13.55	13.74
Merck	119,216	100,348	-15.8	15.89	-2.51
Wal-Mart	221,992	233,154	5.0	29.58	1.48
Microsoft	277,060	293,352	5.9	36.92	2.18
Index	\$750,433	\$869,400	15.9%	100%	15.9%

A value-weighted index is calculated by multiplying the share price by the number of **shares outstanding to arrive at each company's market value, the summing these**

values to create an index. As Exhibit 6 shows, such an index would have risen by 15.9% in 2003, because it would have had almost 14% of assets in Intel, which doubled, and only 1%

in Kodak, which fell by the largest amount. Note that for real world value-weighted

indices, if X is the total market values of the index components, the index vendor will

normalize X by dividing it by the total market value as of some baseline date, and multiply

that result by some value such as 100 to represent the starting index value. In the case of

Exhibit 6 data, for example, if 31 December 2002 were chosen as the starting date and

100 as the beginning value, then an index vendor would give the index value as of 31

December 2002 as 100, and its value as of 31 December 2003 as

$(869,400/750,433) \times 100 = 115.85$ .

iii.

Exhibit 7		Float-Weighted Index				
	Market Value of Shares 31-Dec-02 (Millions)	Market Value of Shares 31-Dec-03 (Millions)	Value Change	Free Float Factor	Percentage of Index 31-Dec-02	Contribution to Return
Kodak	\$10,056	\$7,132	-29.1%	1	1.62%	-0.47%
McDonald's	20,406	30,570	49.8	1	3.29	1.64
Intel	101,703	204,844	101.4	1	16.40	16.63
Merck	119,216	100,348	-15.8	1	19.23	-3.04
Wal-Mart	221,992	233,154	5.0	0.6	21.48	1.07
Microsoft	277,060	293,352	5.9	0.85	37.98	2.24
Index	\$750,433	\$869,400	15.9%		100%	18.10%

A float-weighted index is calculated the same way as a value-weighted index, except that the market value is adjusted by a float factor that represents the fraction of shares outstanding actually available to investors. As shown in value-weighted index

except for Wal-Mart and Microsoft, which have free-float factors below 1.0. A free-float index would have risen by 18.1% in 2003, or a bit over 2% points more than a simple value-weighted index. The pickup results from the fact that the effect of Wal-Mart and Microsoft's relatively poor performance in 2003 decreases because of their smaller weights after adjusting for free float.

iv.

Exhibit 8		Equal-Weighted Index			
	Index 31-Dec-02	31-Dec-03 (Millions)	Value Change	Percentage of Index 31-Dec-02	Contribution to Return
Kodak	16.67	11.82	-29.1%	16.67%	-4.85%
McDonald's	16.67	24.97	49.8	16.67	8.3
Intel	16.67	33.57	101.4	16.67	16.90
Merck	16.67	14.04	-15.8	16.67	-2.63
Wal-Mart	16.67	17.50	5.0	16.67	0.83
Microsoft	16.67	17.65	5.9	16.67	0.98
Index	100	119.55	19.55%	100%	19.55%

An equal-weighted index assumes an equal investment in each of the six stocks. Its performance would be the average performance of the six stocks over the year, or 19.5%.

In Exhibit 8, the base value of each of the six component shown for 31 December 2003 is found by multiplying its 31 December 2002 value by 1 plus the return over the year. For Kodak, for example,  $16.67(1-0.291)=11.82$  on 31 December 2003. The weights of the components would then be rebalanced to 16.67 to reestablish equal weighting.



## Solution to 2

Exhibit 9	Summary of Weighting Method Returns	
	Weighting Method	Index Return
Price-weighted	4.7%	11.2%
Value-weighted	15.9	0.0
Float-weighted	18.1	-2.2
Equal-weighted	19.5	-3.6

A float-weighted index of the six shares is the recommended benchmark index because it represents the return to the average dollar invested passively in the six stocks, reflecting the supply of shares actually available to the public. Because the portfolio underperformed that index by 220 basis points, AAM management fees should be reduced by  $(220/100) \times \$10,000 = \$22,000$ . Exhibit 9 below summarizes the dispersion of active return for the various ways in which the benchmark index might be calculated. The manager greatly outperformed a price-weighted index, and underperformed float-weighted and equal-weighted indices.

(建議將課本 p212~213 全球著名的各指數看一遍，大致瞭解其編製之方式，但不用硬背)