Managing Portfolio

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Chapter-11 MANAGING PORTFOLIO

A portfolio of investment means combining investment into more than one assets. The basic idea behind forming a portfolio is to reduce investment risk. A portfolio can reduce risk sometimes even without sacrisfying the return.

The portfolio policy and objectives play an important role in asset allocation while forming the portfolios.

* Measurement of the performance of Investment vehicles:

The return performance of each individual investment is measured in terms of holding period Return (HPR). A holding period Leturn is a total Late of Leturn Lealized from investment over a period of time usually one year or less. The holding period Leturn contains two types of Leturns:

i. Cash Income

ii. Capital Gain

· HPR for Stocks and Bonds:	The common stack
contains both cash income	received in the form
of dividend and capital gain	or loss resulted from
of dividend and capital	the end of period as
the Change in Stock price at	15413 W. 841 ·
compared to the beginning!	Te / A - I - A - A - A - A - A - A - A - A -
% HPR = V1-V0 +C X100	the same and a single best
Vo	TY - K
the property of the state of the state of	
where,	
Vi = Ending value of	investment
Vo = Beginning val	ue of investment
califal G	ain or loss
C = Cyrrent incom	e (Dividena of Stock of
at the state of th	interest on bond)
en vigen e seval, an else a la compe	70 (O.) - 171 1 - 1
· HPR Again	Burney T. J. Com Strait as
The state of the s	etas kungt sadke ka
Afterdax HPR = HPR (1-	t) end stage of a factor of the contract of th
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	with the permitted and
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· HPR for Mutual Funds:

The holding period return on mutual fund contains investment income dividend and capital gain dividend. Note that investment income dividend and capital gain dividend distributed to investors are treated as current Cash income since they are paid in cash.

. " HPR = NAVI - NAVO + ID, + CG, X100 MAVO

. Where,

NAV, = Net Assets value at the end of the year. HAVO = Net Assets value at the beginning of the year [D] = Income dividend at the end of the year CG1 = Capital fain at the end of the year.

· HPR for Options and Futures:

The only income that an options and futures holder realizes is the capital gain which results from the change in options or futures value at period as compared to the beginning. the end of

Ending value - Beginning value % HPR = Beginning value

· HPR for portfolio. The holding period return on portfolio contains two types of income: ordinary or current income and capital gain. The current income comes from dividends and inferest on the stocks and bonds respectively capital gain comes from the change in market whereas value of securities. .. HPR for portfolio = RCG+UCG+C Eo +/ NFX ip WF X WP 12 where, RCG = Realized Capital Gain UCG = Unrealized Capital Gain C = Dividend and Interest received Eo = Initial Equity investment MF = New Fund ip = number of months in portfolio WF = Withdrawn funds Wp = number of months withdrawn from portfolio.

* Comparison of portfolio Return with overall Market Measures: After measuring portfolio return it is compared with the broad market measure like NEPSE, S & P500 to conclude whether the portfolio is doing betterthan the market as a whole. Note that such comparison only takes into account the return but does not Consider the Lisk. So, we should use lisk-adjusted measure of rate of Leturn to compare the portfolio performance such as Sharpe's measure. Treynor's measure and lensen's measure. · Sharpe's Measure of portfolio performance: Sharpe's measure of portfolio performance is developed by william F. sharpe. This measure provides a portfolio performance index that compares a portfolo: Lisk premium to the total Risk associated with the portfolio. The borfolio's total risk is measured by the standard deviation of portfolio's zeturn. 00 Sp = Rp-Rf Where, Sp = Sharpe's Index of portfolio performance measure Rp = Potal hate of heturn on portfolio

	Rf = The Lisk free Eate of Return
	Rf = The Lisk free Edte of Zeronia
-	
For Mar	ket:
Sharbe's	measure for market portfolio:
1	
1 7 7 9	$S_m = R_m - R_f$
	€m
W	a get the territory of the second of the
	Where,
	Rm = Return on market
8 2 6	Or - Pick from rate
10 10 10	on = Standard deviation of markets
Co 1515	
Treynor's	Measure of portfolio performance.
,	Treynor's measure of portfolio performance is
developed	by Jack L. Treynor! This measure provides a
portfolio	berformance index that compares a portfolios
Lisk pre	mium to the systematic Risk . It is measured
by an	index of systematic risk called beta.
0	
	Po Tp = Rp-Rf
	Be
\$ 10 mm m	
	Where,

For	market:
	T 0
	lm = Rm - Rf
	βm
	Where,
10	· Tm = Treynor's index of market performance measur
	P. Poturn on market
	0,-1-1,-0,-0,-1,046
	Bm = Beta coefficient of market = 1
	13m = 15etq = 11
 je 	Insen's measure of portfolio performance: Jensen's measure of portfolio performance is developed
	Jensen's measure of portfolio performance
b	Hichel c. Jensen. Jensen's measure of portfolio performan
	The longon's Alpha which is The excess of
+	portfolio return above the required rate of
	the portfolio measured by CAPM.
	O .
	00 Ap = Rp - [Rf + (Rm-Rf) Bp]
	60.1
	Where,
F 4	Ap = Jensen's Alpha
+	Rp = Portfolio Return
-	Rf = Risk free Trate
	Rm = market return
	Km = 1 Miles hala
	Bp = Portifolio Beta

Sharpe's and Treynor's measure are different?

Sharpe's and Treynor's measure of portfolio

performance differs with each other in terms of

methodology and assumptions. Sharpe's measure takes

into account total risk measured by standard deviation

of portfolio while treynor's measure considers systematic

Lisk measured by beta.

Problem 11.7 Soln Given: Return on portfolio (Rp) = 11.8% Standard deviation on portfolio (4) = 14.1% Risk free Rate (Rf) = 6.2% Return on market (Rm) = 9% Standard deviation on market (m) = 9.4 % a. Sharpe's measure for Yamuna's portfolio: RP-RF 11.8%-6.2% 0p 14.17. = 0.3972 b. The sharpe's measure for Yamuna's portfolio is 0.3972 where as of Rabina's portfolio is 0.43. Lower value of sharpe's measure for Yamuna's portfolio implies that it offered lower lisk premium per unit total sisk as compared to that of Ravina's portfolio. So, Ravina's portfolio berformed better. c. Sharpe's measure for market portfolio: Sm = Rm-Rf = 9%-6.2% 9.4% = 0.2979 6m WE WAS !

d. The sharpe's measure for Yamuna's portfolio is 0.3972.

Where as of market portfolio is 0.2979. Higher value of Sharpe's measure for Yamuna's portfolio implies that it offered higher & 1 kg k premium per unit of total zisk as compared to the market. Yamuna's portfolio has outperformed the market during the year just ended.

Problem 11.8

SOT,

Given:

Portfolio Beta (Bp) = 0.90

Return on portfolio (Rp) = 8.6%

Risk free Rate (Rf) = 7.3%

Return on market (Rm) = 9.2%

q. Treynor's measure for Ashish's portfolio

Tp = Rp-Rf _ 8.6% - 7.3% Bp 0.90 = 1.44

b. The Treynor's measure for Ashish's portfolio is 1.44 and for Bishai's portfolio is 1.25. Higher value of Treynor's measure for Ashish's portfolio implies that it offered higher Lisk premium per unit of systematic Lisk as compared to that of Bishai's portfolio. Thus, Ashish's portfolio showed Superior performance.

C. Treynor's measure for market portfolio, Rm-Rf _ 9.2% - 7.3% Tm = = 1.9 Bm d. The Treynor's measure for Ashish's portfolio is 1.44, which is lower than that of market portfolo 1.9. Lower value of Treynor's measure for Ashish's portfolio implies that it Offered lower risk premium per unit of systematic &isk as compared to the market Thus, market portfolio has outperformed Ashish's portfolio during the year just ended. Problem 11.9 Sola Given: Return on portfolio (Rp) = 17.60 % Standard deviation of portfolio (a) = 15.20% Beta of portfolio (Pp) = 1.2 Return on market (Rm) = 18.40% Standard deviation of marker (om) = 20.40 %. Risk free Rate (R) = 5% a. Treynor's measure of the portfolio: Tp= Rp-Rt _ 17.60%-5% = 10.5 1.2

Treynor's measure for market: Tm = Rm - Rf 18.40% - 5% Bm = 13.4 According to Preynois measure the portfolio performance is inferior than the market since its Lisk premium per unit of systematic lisk is lower than that of the market. b. Sharpe's measure of the bortfolio: Sp = Rp-Rf _ 17.60% - 5% 15.20% = 0.83 Sharpe's measure for market Sm = Rm - Rf 18-40%-5% 20.40% = 0.66 According to Sharpe's measure the portfolio has outperformed the market since its lisk premium per unit of total tisk is higher than that of market.

Problem					
207,					
1.	Given:		18 A - 17	E of	
	Return o	n portfol	io (Rp) = 16.8	%	
	Beta o	f portfo	10 (Pp) = 1.10		
11	Risk Fi	ree Rate 1	(Rf) = 7.4 %		
	Return	on marke	Ct (Rm) = 15.	2 %	7
			tern will	shows the Village	
Jense	n's alpha c	of portfol	10:		7 E -
					•
71 11	Ap= Rp-	Rf + (Rm	1- Rt) Bp]	5 N 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	= 16.8%	- 17.4%	+ (15.2%- 7.	TOL. 1 (XP	1205
SIN SIN			THE PARTY		
	= 0.82	%	- 1 Table 1	1 - 11 - 1	17.2
			1		
Using	Jensen's h	neasure.	portfolio h	nas outperfo	rmed the
man	ricet becau	se it of	fers the bos	itive excess	hate of
retu	rn above t	he CAPM	Leguired &	ate of Letur	0.
	· · · · · · · · · · · · · · · · · · ·	1 7440	Jan 2 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	The second	
Problem	11.11	The Tree	100 110	1 150	
Soli	4-	: ::			17.
(given:				
	Beta of	portfolio	(Bp)= 1.3		
10	Return	on portfoli	O (Rp) = 12.9 %	6	1000
	Risk f	ree Rate 11	24)= 7.8%	1	
	Return	on mark	et (Rm) = 119	/0	-
			(1011) - 42)		

a. Jenso	en's measure	for Ind	u's portifolio:		
	Ap= Rp-	Rf+ (Rm.	- Ry) Bp]	1	4
	= 12.9%	- [7.8%.	+(11%-4.8%) 7.	3)	
	= 0.94	%		,	,
	1	0.0.0411100	Cara Laduia bo	rt folio (0.94%) 15
b. The	Jensen's r	neasure	for made post	rt folio (0.94%	30,
great	er than th	at of 6	sindus porter	olio (-0.24) . S	10.00
Indi	15 DOLATOR	10 pergi	ormed better		-
that	Indu's bor	ifolio h	as earned to	's alpha. It is ositive excess Leturn Legui	SELAVIT
Probler	n 11.12	1. 1. 12.	To the second		
SOLD		14-71			
q. Calc	culation of sl	narpe's me	easure of five	portfolios: (Sp)	
	Return on	Risk-free	Standard Deviation	Sp= Rp-Rf	O als
Portfolios.	Portfolio (Rp).	Rate (Rg)	of portfolio(op)	F	Rank
M	₹%	3%	3%	7%-3%	2
				3%	7
,	-	San take	1	= 1.3333	
17	10%	3%	8%	10%-3%	. 5
		17.7		8%	
		- 41	and the same of	= 0.875	

0	. 19%	. 3%	6%	= 13%-3%	1
		4 1		6%	
		Volt mayor for	+	= 1.67	
				,	
P	15%	3%	19%	=15%-3%	4
	* *	100		13%	4.7
				= 0.923	
8	18%	3%	15%	= 18/3/.	3
	12/1 + 1	71-22		15%	The second
4	gu 1981			= 1	
peco	sisk its sevi	rmed the best	st accord	of total sisk	measure is highest
peco	folio o perfo luse its lis ong all.	rmed the best	st accord	ing to Sharpe's of total Jusk	measure is highest
beca	iuse iti Lis	k gremium	per unit	of total Jusk	is highest
beca	sisk its sevi	k gremium	per unit	five portfolio (is highest
beco amo	culation of	Treynor's med	asure of	five portfolio (is highest
beca amo	culation of	Treynor's med	asure of Beta	five portfolio (Tp): Rank
beco amo	culation of Average Return (Rp)	Treynor's med Risk free Rate (Rf)	asure of Beta (B)	five portfolio (Tp= Rp-Rf Bp	Tp): Rank
beca amo	culation of Average Return (Rp)	Treynor's med Risk free Rate (Rf) 3%	asure of Beta (B)	five portfolio (Th= Rp-Rf Bp =7%-3%	Tp): Rank
beca amo	culation of Average Return (Rp)	Treynor's med Risk free Rate (Rf) 3%	asure of Beta (B)	five portfolio (Tp= Rp-Rf Bp =7%-3% 0.4 = 10	Tp): Rank
beca amo	culation of Average Return (Rp)	Treynor's med Risk free Rate (Rf) 3%	asure of Beta (B)	five portfolio (Tp= Rp-Rf Bp =7%-3% 0.4 = 10	Tp): Rank
beca amo	culation of Average Return (Rp)	Treynov's med Risk free Rate (Rt) 3%	asure of Beta (B) 0.4	five portfolio (Tp= Rp-Rf Bp =7%-3% 0.4 = 10	Tp): Rank 2

0 .	13%	3%	1.1	- 13% - 3%		3
		11	S .	1.1		
			1	= 9.09		
			82			
P	15%	3%	1.2	= 15% - 3%	100	2
		1		1.2		
	-	100		= 10		7 h
-						
Q	18%	3%	1.4	= 18%-3%		1
	-	No.	The second	1.4		
		1 1	- V	= 10.71		
per	cause its	Lisk pre	mium pe	according to 1	ireynor matic	s measun Lisk
	J	0				
c. S	harpe's an	d Treynor	's measu	ire of portfolio	perfo	rmance
d	iffers wit	h each o	ther in	terms of me	thodol	ogy and
0	essumption	ns · Sharp	e's meas	ure takes int	0 900	unt tota
حر	isk meas	sured by	standan	d deviation of	portf	olio while
-	Zallani's m	neasure 0	consider.	systematic &is	k me	asured
- 1	beta.	14.0	0	0	141	
	0				-	

Problem 11.13		
Sota		
Given:	1	
- 1	Portfolio X	Market
Average Return	Rp = 20.%	Rm = 15 %
Beta	Bp = 1.20	Bm = 1.00
Standard deviation	6p = 22%	5m = 20 %
	THE PART OF THE	the registration of
Risk free Rate (Rf):	= 6%	
1 1	the first of	20 . 7 . 4 . 4 . 1 . 1 . 1
Calculation of Sharps	e's measure for po	rafolio X:
Sp = Rp-	Rf - 20% - 6%	and the second second
op op		= 0.64
	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	33
Sharpe's measu	re for market	
	A Company of	Topicina to the sale
	RE ITON 1.01	
Sm = Rm	1-17 - 15/0-6/	a
	m 15%-6%	= 0·U5
e e	m 20%	= 0.45
e e	m 20%	= 0.45
Calculation of Trey	ynor's measure for	= 0.45
Calculation of Trey	m 20%	= 0.45

Treynor's measure for market 15% - 6% Rm-Rf m = = 9 Bm Both Sharpe's and Treynor's measure of portfolio X has outperformed the market because its Eisk premium are higher than that of market. Calculation of Jensen's measure for portfolio X (R++(Rm-R+) Bp) = 20% - [6% + (15% - 6%) 1.20] = 3.2% Jensen's measure of portfolio X has also outperformed because it has positive excess Leturn over 9th CAPM Leguired Leturn. Hence, all the portfolio measures shows the superior portfolio X over the market. benformance of

Problem 11.14	the second of th
Sol _u	
Given:	
Risk free	Rate (R) = 8.1%
	GEM's portfolio Market portfolio
Rate of Return	Rp = 12.8% Rm = 11.2%
Standard Deviation	op = 13.5% om = 9.6%
Beta	Bp = 1.10 Bm = 1.00
	t a local de la lace de lace de la lace de lace
a. Calculation of	Sharpe's measure of portfolio:
72 1- 12 1- 1	The second of th
Sp = Rp	- Rf _ 12.8% - 8.1%
	6p 43.5% = 0.3481
Charbe's measu	ine for market portfolio:
21141. 123	
Sm =	Rm-Rt = 11.2% -8.1%
en e	6m 9.6% = 0.3229
	0
Gamic bortfolio	of sharpe's measure has outperformed
the market	because it offers larger Lisk premium
	total hisk as compared to the market.
per unit of -	manager and the fact of the fa

b. Calculation of Treynor's measure of GEM's portfolio: Tp = Rp-Rt _ 12.8% - 8.1%. = 4.27 1.10 Treynor's measure for market portfolio: Tm = Rm-R4 _ 11.2% - 8.1% 1.0 Preynor's measure of GEM's portfolio has outperformed the market because it offers larger risk premium per unit of systematic risk as compared to the market. c. Calculation of Jensen's measure of portfolio: Ap = Rp - [Rf + (Rm-Rf) Bp] = 12.8% - [8.1% +(11.2% -8.1%)1.10] = 1.29% The portfolio has positive Jensen's alpha. It implies that the portfolio has 1.29% excess return above the CAPM required return. Thus portifolio has earned excess tretun on both tisk-adjusted and market adjusted basis.

Problem 11-15	,
Som	•
Grien:	
T- blus Rate (Ry) =	6%
Average return of bor	Holio (Rp) = 10% OF portfolio (q) = 18% (Bp) = 0.6
Standard deviation is	1 portfolio (6) = 18%
Beta of portfolio	(Bp) = 0.6
· Average return of m	aret (Rm) = 12%
- Standard deviation	arker (Rm) = 12% (Rm) = 1.0
Beta of market (1	$(2^{1}_{0}) = 1.0$
a. Calculation of sharpe's me	easure for portion:
Q P. P.	1004
	18% = 0.2222
op:	18% = 0.2222
Charles magain D	Lat
Sharpe's measure for mo	arket.
S., 0 %.	1011 011
3M = Km - KF	12% - 6%
- 6m	13% = 0.4615
Colourables of Tourselle to	
Calculation of Treynor's h	neasure for portfolio:
T 0 0.	Classic Action to the Control of the
10 = Kp-Kt	- 10%-6% - 10%-6%
	0.6 = 6.6667

	Treynor's measure for market:
	Tm = Rm- Rt = 1216%
	Bm 1 = 6
	Calculation of Jensen's measure of portfolio:
	Ap = Rp-[Rf+(Rm-Rf)Bp]
	= 10% - [6% + (10% - 6%) 0.6]
	The Carlot Andrewa Maria Carlot and the contract of the contra
	- 0.4 %
	and the state of the second of
	Jensen's measure for market:
	Am = Rm - [Rf + (Rm-Rf) Bm)
1.5	= 12% - [6% + (12% -6%)1)
100	= 12% - 12%
	= 0
b	According to Theynor's and Jensen's measure the
	portfolio x has outperformed the market
	because these values of the portfolio are
*	broker than the market.
c.	Sharpe's measure, Treynor's measure and Jensen's
	measure of portfolio performance differs with
	each other in terms of methodology and assumption.

Sharpe's measure takes into account total risk measured by standard deviation of portfolio while Treynor's measure and Jensen's measure consider systematic risk measured by beta.

Moshoiles. Coll