Fundamentals of Investing

by Lynn Gillette and Fred Smith

American Association of Individual Investors Silicon Valley Chapter

Copyright 2008 Frederick J. Smith

1

American Association of Individual Investors (AAII)

#National Non-Profit Organization

- Provides educational programs and material to individual investors
- **#** Silicon Valley Chapter
 - Monthly meetings at Lookout Restaurant, Sunnyvale
 - Computerized Investing meetings plus SIP at Saratoga Library
 - Discussion groups

Goal of Fundamentals of Investing Program

To give investors the knowledge and confidence to manage their assets, especially retirement portfolios such as IRAs and 401(k) plans

Program Suitability

Beginning investors

Learn the fundamental concepts before developing an investing strategy

Experienced investors
 Useful refresher course

Topics Covered Today

- Investment Goals and Your PIP
- The Risk/Return Tradeoff
- MPT and The Efficient Market Hypothesis
- Asset Classes and Asset Allocation
- Building a Portfolio
- Investment Vehicles
- Economic Cycles, Yield Curves
- The Annual Report, Stock Screening

What Is an Investment?

Current commitment of money or other resources in the expectation of reaping future benefits

Typical Investment Goals

etc., etc.

- **#** Short-Term Goals
 - Vacation
 - Car Purchase
- **#** Long-Term Goals
 - Child's education
 - Home purchase
 - Retirement

Growth of Retirement Portfolio

(Based in part on data from Marotta Wealth Management)



Your Personal Investor Profile

Time Horizon How soon do you need the money? **#** Risk Tolerance Eat well or sleep well? **#** Return Needs **Current income or future growth ? #** Tax Exposure **Don't forget the AMT !**

Typical Investment Profiles

	Early	Middle	Late	Early	Late
	Career	Career	Career	Retire.	Retire.
Time Horizon	Long	Long	Long	Long	Int/Short
Risk Tolerance	High	High	Mod.	Mod.	Low
Return Needs	Growth	Growth	Growth	G & I	Income
Tax Exposure	Low	High	High	Mod.	Low

Cash Flow Analysis

Time Value of Money

 A \$ today is worth more than a \$ tomorrow

 Time-Weighted Return

 also known as the geometric return

 Dollar-Weighted Return

 i.e. the Internal Rate of Return (IRR)
 Accounts for uneven cash flows

Measurement of Return

Total Return

= Interest or Dividend Income pa

+ Capital Gain realized on sale.

Example

If you bought a stock for \$100 at the beginning of the year, and receive \$2 dividend at the end of the year and then sell the stock for \$107, your total return =2% + 7% = 9%

Arithmetic Average

Suppose you had an investment with total returns of 9%, -5% and 14% for three consecutive years. How well did you do over the three year period ?

♯ The <u>Arithmetic Average</u> gives
(9% - 5% + 14%)/3 = 6.0% pa.

Good approximation, but the geometric mean gives the accurate answer.

Geometric Mean

■ Geometric Mean
= {(1+9%) x (1-5%) x (1+14%) } ^ (1/3) - 1
= {1.09 x .95 x 1.14} ^ .333 - 1
= 1.18 ^ .333 - 1
= 1.0569 - 1 = 0.0569 = 5.69% pa.
This is the <u>Compound Annual Growth Rate</u>
or CAGR

Arithmetic Mean versus Geometric Mean

Consider a newsletter which boasts that they turned \$10,000 into \$25,000 in ten years

Average return = 150%/10 years = 15% pa

Geometric mean {(\$25,000 / \$10,000) ^ (1/10)} - 1 = 9.6% pa.

Rule of 72

For an investment with an annual rate of return, r, the number of years, n, required to double the investment is given by: n = 72/r i.e. r x n = 72 approximately

Example: If r = 6% pa the investment will double in 12 years

Risk

Sources of Risk
Market risk
Industry risk
Inflation risk
Liquidity risk

etc.

Subjective Measurements of Risk

How much can you afford to lose ?
Check your Personal Investor Profile
Time Horizon

How soon do you need the money ?

Risk Tolerance

Your eat well / sleep well tradeoff

Normal Distribution Curve and Standard Deviation (sigma)



Objective Measurement of Risk

Standard Deviation

square root of the mean value of the squared deviations
from the mean. {Use STDEV function in Excel}
Example: If a normal distribution of returns has a mean
value of 8% and a standard deviation of 5%,
 68% probability that the return any year will be
 within +/- 1 sd of mean, i.e. between 3% and 13%
95% probability that it will fall within +/- 2 std. dev,
 i.e. between -2% and +18%
99.7% probability that it will fall between +/- 3 std.dev.,
 i.e. between -7% and + 23%

RiskGrades

Developed by RiskMetrics Group
 Time weighted computation of standard deviation
 Available at www.riskgrades.com

Free to individual investors after registration

Beta

Volatility relative to a benchmark e.g. S&P 500
Example
If a stock has a Beta of 1.2 then it is 20% more volatile than the S&P 500
i.e. if the S&P 500 loses 10% on a given day the stock can be expected to lose 12%.

Risk/Return Measurements

Sharpe Ratio

Expected Return – Risk-free Return

Standard Deviation

Useful parameter in all situations

Treynor Ratio
<u>Expected Return – Risk-free Return</u>
Beta
Only useful when Beta is meaningful

Techniques to Minimize Risk

Time diversification.

- Dollar Cost Averaging
- Value Averaging

Portfolio diversification

- Reduces risk with little impact on portfolio return
- Correlation coefficient is important



Dollar Cost Averaging

Invest a fixed amount each period

Period	Investment	Price	# Shrs	ShBal	<u>\$ Bal</u>
1	\$1000	\$10	100	100	\$1000
2	\$1000	\$9	111	211	\$1899
3	\$1000	\$8	125	337	\$2696
4	\$1000	\$10	100	437	\$4370
5	\$1000	\$12	83	520	\$6240
6	<u>\$1000</u>	<u>\$11</u>	<u>91</u>	611	\$6721
Total	\$6000	\$60	611		
OCUTP/2012-201			Second States	h colc	A A A A A

Average price of purchased shares = \$60/6 = \$10.00 Average cost of purchased shares = \$6000/611 = \$9.83

Value Averaging

Invest enough each period to grow the balance at a predetermined rate.

Period	Investment	Price	# Shrs	ShBal	<u>\$ Bal</u>
1	\$1000	\$10	100	100	\$1000
2	\$1100	\$9	122	222	\$2000
3	\$1224	\$8	153	375	\$3000
4	\$250	\$10	25	400	\$4000
5	\$200	\$12	17	417	\$5000
6	<u>\$1413</u>	\$11	<u>128</u>	545	\$6000
Total	\$5187		545		

Average cost of purchased shares = \$5187/545 = \$9.52

Portfolio Diversification A Poor Example

Investments A and B positively correlated

No benefit to portfolio

Portfolio still volatile



Portfolio Diversification An Ideal Example

Investments A and B
negatively correlated

Portfolio volatility
 removed

Not realistic in
 practice



Portfolio Diversification A Practical Example

Investments A and B partially negatively correlated

Portfolio volatility
 minimized but not
 eliminated



Modern Portfolio Theory (MPT)

Developed in early 1950s
Harry Markowitz and William Sharpe
Addresses efficiency of Diversified Portfolio
Optimizes the Risk/Return tradeoff

It is possible to build a low-risk portfolio using uncorrelated "risky" assets without sacrificing return

Efficient Market Hypothesis (EMH)

Eugene Fama: Security prices adjust instantaneously to news before anyone can profit **Prices already reflect all available information** Weak Form: Stock prices already reflect all information contained in the history of past trading Semi-Strong Form: Stock prices already reflect all publicly available information Strong Form: Stock prices reflect all relevant information, including insider information

Optimum Investment Strategy based on EMH

Fundamental Strategy
Build diversified portfolio of risky assets
Find the optimal portfolio allocation
Pick risk/return position to conform to PIP
Use low cost risky assets (index funds)
Passive approach
Buy and Hold; Rebalance as necessary
No picking hot stocks, no market timing

Summary

What We Learned in this Section Personal Investor Profile Methods to Measure Returns Methods to Measure Risk Risk / Return Trade-off MPT and The Efficient Market Hypothesis **#** After the break, in next Section Asset Allocation and Building a Portfolio

Asset Classes and Asset Allocation

Building a Portfolio

Fred Smith

Email: <u>fredsmithfinance@earthlink.net</u>

Review of Previous Section

Personal Investor Profile (PIP) Time Horizon, Risk Tolerance, Return Needs, Taxes **#** Risk and Return Measures Total Return, CAGR, IRR Standard Deviation Sharpe Ratio *H Controlling Risk* Time Diversification, Portfolio Diversification **H** Modern Portfolio Theory The Efficient Market Hypothesis

Advantages of MPT Approach

Simple to understand
Easy to implement in practice
Only strategy which guarantees the market return
Prevents making major errors
Asset Allocation

Major Decision

What percentage of portfolio to allocate to cash ? Bonds ? Stocks ?

1986-91 Study by Gary Brinson, et al. (Ref 12) Based on 10-year results for 82 large pension plans Asset Allocation contributes 91% of portfolio return Individual stock picking contributes <5% of return Timing the market contributes <2% of return

Stock and Bond Portfolios (from Reference 5)



Efficient Frontier for Vanguard Total Stock and Bond Funds (36 months) Software available at siliconvalleyaaii.org November 15, 2006



Overview of Asset Classes

Cash and Cash Equivalents

Savings Accounts
T-Bills
Money Market Funds
Certificates of Deposit

Bonds

- Loan to a corporation, municipal or federal government agency, etc.
- **#** Term

One year to over 30 years.

Interest Rate Sensitivity

As interest rates rise bond prices fall and vice-versa. If you paid \$1000 for a 5% bond last year, what is it worth today if interest rates have dropped to 4% ? What if interest rates increased to 6% ?

Stocks

Represent fractional ownership in a company

Owner is entitled to share in rewards and risks e.g. dividends, capital gains, bankruptcy !

Can provide protection against inflation

Correlation Coefficients

			Dom.	Intl.	Real
	<u>T-Bills</u>	Bonds	Stock	Stock	Estate
T-Bills	1.00				
Bonds	0.25	1.00			
Domestic Stock	-0.10	0.20	1.00		
Intl. Stock	-0.15	-0.10	0.70	1.00	
Real Estate	0.40	-0.10	0.05	0.15	1.00

Building a Simple Portfolio Use Vanguard Funds as Proxy for Asset Classes

Cash and Equivalents
Vanguard Treasury Money Market Fund

Domestic Bonds Vanguard Total Bond Market Index Fund

Domestic Stocks Vanguard Total Stock Market Index Fund

Vanguard Treasury Money Market Fund (VMPXX)



45

Vanguard Total Bond Index Fund (VBMFX)



46

Vanguard Total Stock Market Index Fund (VTSMX)











Simple 3-Asset Portfolio 10% Cash + 40% Bonds + 50% Stocks



Summary of Simple Portfolio Model Suggestions

				Avg.	Std.	Sharpe
Life Stage	<u>MM</u>	Bonds	Stocks	<u>Return</u>	Dev.	Ratio
Starting Career	0%	10%	90%	7.4%	15.2%	0.190
Mid-Career	0%	30%	70%	7.0%	11.4%	0.263
Retired	10%	40%	50%	6.4%	7.8%	0.349
	For Reference:		MM	3.5%	1.8%	na
			Bonds	5.8%	3.4%	0.631
			Stocks	7.5%	17.2%	0.163

A Closer Look at Asset Class Characteristics

Cash and Equivalents
Domestic Bonds
Domestic Stocks
International Investments
Real Estate Investment Trusts

Vanguard Prime Money Market Fund (VMMXX)



Bond Characteristics

#Term **¥Yield Coupon Rate Yield to Maturity Current Yield #**Quality **Moody's, S&P Ratings Investment, Non-investment Quality**

Bond Analysis

Maturity

Duration

- Measure of effective maturity
- Weighted average of times to each payment
- **#** Major Risks
 - Interest rate risk
 - Default risk

Bond Quality

#Treasuries

- **T-Bills** Term < 1 year
- Notes Term 1 5 years
- Bonds Term > 5 years

Municipal Bonds

- General Obligation Bonds
- Debenture Bonds, unsecured
- **#** Corporate Bonds
- **#** High Yield Bonds

Bond Quality Ratings (from Charles Schwab)

Moody	<u>s&P</u>	Comments
Aaa	AAA	Gilt edged
Aa	AA	Very high quality
Α	Α	Investment-grade
Baa	BBB	Lowest investment-grade rating
Ba	BB	Somewhat speculative; low grade
B	B	Very speculative
Caa	CCC	Substantial risk
etc.	etc.	High yield bonds, Junk bonds

Vanguard Short-Term Bond Index Fund (VBISX)



Vanguard Intermediate-Term Bond Index Fund (VBIIX)



Vanguard Long-Term Bond Index Fund (VBLTX)

Avg. Return 20% 7.2% 15% Std. Dev. 10% 6.8% 5% CAGR 0% 7.0% 1999 2000 2001 2002 2003 2004 2005 2006 2007 1998 -5% **Sharpe Ratio** -10% 0.516

Vanguard High-Yield Corporate Bond Fund (VWEHX)



Stock Characteristics

Morningstar Style Box

Capitalization

• Large Cap

• Large Cap

• Mid-Cap

• Mid-Cap

• Small Cap

• Small Cap

• Style

• Value

• Cow P/E

• Growth

Vanguard 500 Index Fund (VFINX)

Avg. Return 30% 7.2% 20% Std. Dev. 10% 17.3% 0% CAGR 1998 1999 2<mark>00</mark>0 2<mark>00</mark>1 2<mark>00</mark>2 2003 2004 2005 2006 2007 -10% 5.8% -20% **Sharpe Ratio** -30% 0.138

Vanguard Extended Market Index Fund (VEXMX)

Avg. Return 50% 9.3% 40% 30% Std. Dev. 20.4% 20% 10% CAGR 0% 7.6% 1998 1999 2<mark>000 2<mark>00</mark>1 2<mark>00</mark>2 2003 2004 2005 2006 2007</mark> -10% **Sharpe Ratio** -20% 0.203

Vanguard Value Index Fund



Vanguard Growth Index Fund



International Investments

Developed Countries

 Canada, Western Europe, Japan, etc

 Emerging Countries

 Brazil, Russia, India, China, Korea, etc.

 Additional Risks

 Currency Risk
 Political Risk

Vanguard Total International Stock Index Fund (VGTSX)



Vanguard Emerging Markets Stock Index Fund (VEIEX)

Avg. Return 70% 19.0% 60% 50% Std. Dev. 40% 31.2% 30% 20% 10% CAGR 0% 15.1% -10% 1998 1999 2000 2001 2002 2003 2004 2005 2006 2007 -20% **Sharpe Ratio** -30% 0.372

Real Estate Characteristics

Classification
Residential
Commercial
Industrial
Real Estate Investment Trusts (REITs)
Mortgage REITs
Equity REITs

Vanguard REIT Index Fund (VGSIX)

Avg. Return 11.9% Std. Dev. 20.0% CAGR

10.2%

Sharpe Ratio 0.340



Building a Multi-Asset Portfolio

Top-Down Approach

- **1. Personal Investor Profile**
- 2. Determine allocation for Cash / Bonds / Stocks
- 3. Within each major asset class determine style
 - sub-allocations, e.g. value and growth stocks
- 4. Select specific mutual funds, stocks, etc.
- 5. Implement, Monitor, Rebalance
Vanguard STAR Fund

Fund of Funds
Short-Term Investments
 ST Investment Grade 12%
Bond Funds
 LT Investment Grade, GNMA 25%
Stock Funds
 Windsor II, PRIMECAP, Intl, etc. 63%

Vanguard STAR Fund (VGSTX)



Vanguard "Lazy Portfolio" Examples

在16月1日的公司进行的委员会提供公司进行的	<u># Funds</u>	5yr CAGR
Kevin Roth's 2nd-Grader's Starter Portfo	olio 3	15.8%
Scott Burn's Margaritaville Portfolio	3	14.4%
Bill Bernstein's No-Brainer Portfolio	4	14.2%
David Swensen's Yale Portfolio	6	14.4%
Bill Schulteis' Coffeehouse Portfolio	7	11.8%
Bill Bernstein's Smart Money Portfolio	9	12.2%
Ted Aronson's Mod Lazy Man's Portfolia) 11	18.4%
FundAdvice.com Ultimate B&H Portfolio) 11	13.9%
S & P 500 Benchmark		5.8%
All data are for 5-year period ended 12/31/2007 Derived from <i>Lazy Portfolios Win Again</i> , Paul Farrell, Marke and <i>Lazy Portfolio Undate</i> 1/8/2008	etWatch.con	n, 1/17/2007

Performance Details of Vanguard's "Lazy Portfolios"

Vanguard's "Lazy Portfolios" Annualized Returns as of 12/31/07

Symbol	Fund #	Fund	<u>Type</u>	<u>1-yr</u>	<u>3-yr</u>	<u>5-yr</u>	<u>10-yr</u>	<u>A</u>	B	<u> </u>	D	<u> </u>	F	G	H	Х
VFISX	0032	Short-Term Treasury	STB	8%	4%	3%	5%			-	-	2015			12%	155
VFSTX	0039	Short-Term Investment-Grade	STB	6%	4%	4%	5%	1.000	-22.8	19-0-27	500502	1. 1. 1. 1.	40%	Contraction of the	COLUMN ST	
VFITX	0035	Intermediate-Term Treasury	ITB	10%	5%	4%	7%	S	CER.	and h	Secondo	12120.22	225	THE ELE	20%	
VUSTX	0083	Long-Term Treasury	LTB	9%	6%	5%	7%	2325	44.577	3.8 YES	15%	22/21/22	- V3R	5%		
VWEHX	0029	High-Yield Corporate	ITB	2%	4%	8%	5%	1.2.1	1820-121	224123	a station of the state	2000	266.28	5%	2.000,041,00	
VIPSX	0119	Inflation-Protected Securities	ITB	12%	5%	6%	1125.55	2023/12	33%	200002	15%	16.45.2018	STEARS	10%	8%	
VBMFX	0084	Total Bond Market Index	ITB	7%	5%	4%	6%	10%	1923	25%		40%	Charles (S)	CONTRACTOR OF		14
VFINX	0040	500 Index	LCB	5%	8%	13%	6%			25%		10%	North No.	15%	6%	200
VEXMX	0098	Extended Market Index	MCB	4%	10%	17%	8%	120.00	64,6776	States and	NH BY C	312223	1999 - S	10%		
VIVAX	0006	Value Index	LCV	0%	9%	15%	7%	12000	N MARCH	State of	6-51127	10%	10%	45 M M	6%	
NAESX	0048	Small-Cap Index	SCB	1%	8%	17%	8%		2417.267	25%		10%	5%	2124/22	6%	
VISVX	0860	Small-Cap Value Index	SCV	-7%	6%	15%	202	144 (PA)	1. Sec. 1.	BUNK.	1.4-1.43	10%	10%	5%	6%	
VISGX	0861	Small-Cap Growth Index	SCG	10%	10%	17%	141	20.25	Sec. al	2023	CG-III	10.33%	Early	5%		
VTSMX	0085	Total Stock Market Index	LCB	5%	9%	14%	6%	60%	33%	100	30%		15%	5%		1341
VGSIX	0123	REIT Index	RE	####	8%	18%	10%	1000 N	Ę.	2423	20%	10%	5%	ų,	6%	
VDMIX	0227	Developed Markets Index	FLB	11%	17%	21%		1 Yata	start 7/		15%	1-30-H	Ways	difference of	12%	23
VEIEX	0533	Emerging Markets Stock Index	EMB	39%	33%	36%	15%	A	12 Carto	2232515	5%	100	5%	20%	6%	
VEURX	0079	European Stock Index	ELB	14%	18%	23%	7%	12121	48m66/5	25%	12.20	10 Frit	5%	5%	1	
VPACX	0072	Pacific Stock Index	JLB	5%	13%	19%	5%	10.00	Statute -	Sec.			5%	15%	100	
VTRIX	0046	International Value	FLV	13%	19%	24%	8%	0.002.00		Sec. 2.					12%	
VGTSX	0113	Total International Stock Index	FLB	16%	19%	23%	9%	30%	33%	1000	11012	10%	20,000	100202		7235
3726	222	States and the second			023.11		Total:	100%	100%	100%	100%	100%	100%	100%	100%	5 202
Legend				12792		#1	Funds:	3	3	4	6	7	9	11	11	
Α	Kevin R	oth's Second-Grader's Starter P	ortfolio	1.123		CAGR			122.146	S. (11) 122		the second				
В	Scott B	urns' Margaritaville Portfolio	3737	19.82			1-yr	8.6%	10.9%	6.8%	5.1%	2.6%	4.6%	12.6%	8.0%	
С	Bill Ber	nstein's No Brainer Portfolio	2010	13.055			3-yr	11.5%	10.9%	9.8%	10.0%	7.7%	8.6%	14.0%	10.6%	
D	David S	wensen's Yale University Portfol	lio	1223			5-yr	15.8%	14.4%	14.2%	14.4%	11.8%	12.2%	18.4%	13.9%	
E	E Bill Schultheis' Coffeehouse Portfolio		Page 1				10-yr	7.2%	na	6.5%	na	na	na	na	na	
F	F Bill Bernstein's Smart Money Portfolio		1.1			20.0	12274	192000	Contraction of	States.	Second Providence	2000	123.6200		1.44	
G	Ted Arc	onson's Modified Lazy Man's Por	tfolio	0-24			224			9288-9	6161122				23.228	
н	FundAc	vice.com Ultimate Buy & Hold F	Portfolio							Cosme De	ICA MAD				Steene 1	
Х	Fill in Y	<i>Your Lazy Portfolio</i> in Column X.	10.23.00	1112	200	1939	NO SE	22/12/2	10-20 A	S. S. 172	Section 1	S 2002		100000		
	2011	THE USE OF STREET	1223.0	1000	13126	1.50	14450	1 Carlor	1000	10100	21.12	15.2.164	1000	20101	VaL	zPrt.x

Portfolio Maintenance

Monitor at least annually
Rebalance as necessary

Fixed intervals, e.g. May 1 each year
Rebalance only when original allocations have changed by a predetermined amount, e.g. 5%

Think <u>BIG</u>: Boring Is Good !

For more excitement go to Las Vegas or speculate with 10% of your portfolio

The Callan Periodic Table of Investment Returns

Ranks 8 major indices for past 20 years

- S&P 500 Large Cap Index
- S&P 500 Large Cap Growth Index
- S&P 500 Large Cap Value Index
- Russell 2000 Small Cap Index
- Russell 2000 Small Cap Growth Index
- Russell 2000 Small Cap Value Index
- MSCI Europe Australasia and Far East (EAFE)
- Lehman Brothers Aggregate Bond Index
 - Available in color at <u>www.callan.com/research</u>

In Conclusion

The market is mostly efficient
Stick to the fundamentals
Build a diversified portfolio
Keep a long-term view
Rebalance as needed
Most managers fail to beat the market

Summary

What we learned in this Section

- Reasons to build a diversified portfolio
- Primary asset classes
- Detailed characteristics of asset classes
- How to build a multi-asset portfolio
- Performance of various portfolios
- Portfolio maintenance and rebalancing
- **#** After Lunch in the next Section
 - Other Investment Vehicles and Tools
 - Economic Cycles, Tactical Investing

Other Investment Vehicles and Tools

Economic Cycles and Tactical Investing

Fred Smith

Email: <u>fredsmithfinance@earthlink.net</u>

81

Review of Previous Material

Asset Classes
Characteristics
Performance
Building a Diversified Portfolio
Index Mutual Funds
Maintenance and Rebalancing

Yes, but

- **#** ... What about Peter Lynch of Magellan Fund ?
 - **29%** pa for 13 years (1977-90)
 - Beat the S&P 500 for 11/13 years.
- ...or Warren Buffet with Berkshire Hathaway ?
 Up 27% pa from 1957-98
- ...or Bill Miller with Legg Mason Value Trust ?
 Beat S&P 500 for 15 straight years from 1991-2005

etc., etc.

Are these all just lucky ?

Ten-year Thought Experiment

Start with 1000 active fund managers
Each year fire any that don't beat market
End of Year 1 500 managers left
2 250
...
10 1

Is the remaining manager a superstar or just lucky ?
Next year would you bet your retirement on this guy ?

Another "Yes, but"

- **#** How does the EMH explain October 19, 1987 ?
 - S&P 500 lost 20% in one day
 - Was there new fundamental information ?
- **#** Answer: EMH can't explain the crash
 - No new information to justify loss this size
- **#** Occasionally crowd psychology overrides EMH
 - EMH assumes a "rational investor"
 - Many investors fail the test !
 - Behavioral Finance

Investment Vehicles other than Index Funds

Pooled Investment VehiclesMutual Funds
Exchange Traded Funds

Non-Pooled Investment VehiclesIndividual Stocks and Bonds

Pooled Investment Vehicles

Open-End Mutual Funds
Advantages
Low entry level
Instant diversification
Professional management
Easy record-keeping for tax purposes
Disadvantages
Management fee
Load (for some funds)

Mutual Fund Fees

Management Fee

- Small fraction of a percent to over 2%
- **#**Load
 - Front-end Load: Zero to a few percent
 - Back-end Load: Often declines with holding period

12b-1 Fee

Annual fee to cover marketing and sales expenses

Mutual Fund Documentation

#Prospectus **Objective, Risks, Performance history, Application #** Annual Report **Fund performance, Current holdings #**Statements Monthly / Quarterly / Annually **#** Tax Documents 1099 Div, 1099B

Closed-End Funds

Similar to Open-End Funds except ...
Finite number of shares issued
Traded through your stock broker
Not suitable for Dollar-Cost-Averaging
Current price may be above or below FMV i.e. can trade at a premium or discount

Exchange Traded Funds, ETFs

Similar to Open-End Funds except ...

- Must be traded through stock broker
- Not suitable for Dollar-Cost-Averaging
- May have a lower management fee
- No annual taxable capital gain distributions
- Can be traded throughout the day
- Can be sold short

Real Estate Investment Trusts, REITs

Pooled investments of real estate assets

- Instant diversification
- Avoids liquidity problem of direct ownership
- Professional management
- But dividends taxed as ordinary income

Therefore best to hold in tax-sheltered accounts

- **#** Two Types of REIT
 - Mortgage REIT: interest income
 - Equity REIT: operational income, capital gain

Non-Pooled Investment Vehicles

- **# Individual Bonds**
 - Building a Bond Ladder
 - Stock Broker
 - www.treasurydirect.gov
- **Individual Stocks**
 - Avoid fund management fees
 - Optimize timing of trades for tax purposes
 - Better access to small/micro cap stocks

Alternative Investments (Not covered in this Tutorial) **#** Collectibles: Fine Art, Coins, Stamps **#** Commodities: Oil, Gas, Pork Bellies **#** Options, Derivatives **# Hedge Funds #** Possible Problems Volatility, Liquidity, Entry Level, Fees

Timing The Market A Slippery Slope

Buy and Hold Investors

- Is it rational to buy and hold "forever" ?
- What about major economic cycles lasting up to several years ?
- Probably want to adjust asset allocation to track significant sea changes
- Yes, but where do you draw the line ?

Timing Techniques

Weak Timing Adjustment Tweak strategic asset allocation by small amount to track major market cycles Yes, but **#** Strong Timing Adjustment ... If we think we can identify major market cycles why not exit unfavorable sectors completely? **#** Slip/sliding down the slope !

Major Economic Cycles

Business Cycle Expansion and Contraction Phases

Stock Market Cycle Bull and Bear Phases

Interest Rate Cycle
 Short-term and Long-term Rates.



Business Cycles: Data Table National Bureau of Economic Research

Peak	Trough	新生产产产 利用	Exp.	Cont.	Cycle
Feb 1945	Oct 1945		80 mths	8 mths	88 mths
Nov 1948	Oct 1949		37	11	48
July 1953	May 1954		45	10	55
Aug 1957	Apr 1958		39	8	47
Apr 1960	Feb 1961		24	10	34
Dec 1969	Nov 1970		106	11	117
Nov 1973	Mar 1975		36	16	52
Jan 1980	July 1980		58	6	64
Jul 1981	Nov 1982		12	16	28
July 1990	Mar 1991		92	8	100
Mar 2001	Nov 2001		120	8	128
		Averages:	59	10	69

S&P 500 Stock Index (Log scale)





Earnings and Dividend Yields plus Total Return for S&P 500



Yields for 90-day T-Bills, LT T-Bonds and Corporate Bonds



Inflation vs. S&P 500 and LT T-Bond Yields



Monetary and Fiscal Policy

Monetary Policy

- Federal Reserve Board controls short-term rates
- Increases rates to dampen inflationary pressure during expansion (Greenspan's Irrational Exhuberance)
- Lowers rates to stimulate the economy during recession (Bernanke's Accommodation)

Fiscal Policy

 Government can stimulate the economy in a recession by lowering taxes or increasing spending



What Determines Interest Rates ?

Short term rates are set by the Fed
Long term rates are set by investor expectations
Delta gives a measure of investor

sentiment

The Yield Curve www.stockcharts.com www.smartmoney.com **Yield Curves** 8.0 7.0 6.0 Interest pa (%) 5.0 4.0 3.0 2.0 1y 3у 10y 3m 5y 30yr Nov-99 -Sep-00 Oct-92 -• May-94 • 107

Recent Yield Curves


S&P 500 (Linear scale)



Market Sectors

Consumer Discretionary	11% Market Weight
Consumer Staples	9%
Energy	9%
Financials	22%
Health Care	12%
Industrial	11%
Information Technology	16%
Materials	3%
Telecommunication Services	4%
Utilities	3%

Which Sectors Do Best In Bull Phase ?

Early Bull: Transportation, Technology
 Middle Bull: Capital Goods

 Agricultural Equipment, Industrial Machinery, Basic Electronics

Late Bull: Basic Industry, Basic Materials Aluminum, Chemicals, Paper, Steel

Which Sectors Do Best In Bear Phase ?

Early Bear: Health Care Consumer Non-cyclicals

Food, Pharmaceuticals, Cosmetics

Middle Bear: Utilities

(after Fed lowers interest rates)

Late Bear: Housing, Autos, Financials

Examples of Sector ETFs

BBH Biotech HOLDRS IYD Chemical iShares IYC Consumer Svc iShares IYE Energy iShares IYF Financial iShares IYH Health Care iShares HHH Internet HOLDRS PPH Pharma HOLDRS IYR Real Estate iShares SMH Semicon HOLDRS SWH Software HOLDRS TTH Telecom HOLDRS UTH Utilities HOLDRS

Active versus Passive Portfolio Management

Passive Portfolio (assumes efficient market) Goal: Build a diversified portfolio appropriate for your PIP using low-cost index funds or ETFs **Rebalance as necessary #** Passive Core + Active Satellite Portfolio Goal: Use passive strategy for 70%-90% of assets Manage remaining assets actively **#** Actively Managed Portfolio Stock picking, market timing Most active managers fail to beat the market

In Summary

Investment Vehicles Mutual Funds, Closed-end Funds Exchange Traded Funds Real Estate Investment Trusts **#** Economic Cycles Business and Market Cycles, Yield Curves **#** Next Section, after the Break Stock Analysis and Stock Screening

Stock Analysis

The Annual Report

Lynn Gillette

Stock Analysis

The Annual Report
Chairman's Letter
Balance Sheet
Income Statement
Cash Flow Statement
CPA Letter
Footnotes

The large print giveth and the small print taketh away !

The Balance Sheet ... 1 Assets: (Home Depot 2/3/08)

Current Assets (life < 1 year)	millions
Cash and cash equivalents	\$445
Receivables	\$1,259
Inventories	\$11,731
Other	\$1,239
Total Current Assets	\$14,674
# Property Plant Equipment (PPE)	\$27,476
# Other Assets	\$2,174
Total Assets	\$44,324

The Balance Sheet ... 2 Liabilities (Home Depot 2/3/08)

# Current Liabilities	<u>millions</u>
Loans payable	\$1,747
Accounts payable	\$5,732
Income taxes due	\$60
Other	\$5,167
Total Current Liabilities	\$12,706
# Long-Term Debt	\$11,383
# Deferred Income Taxes	\$688
# Other	\$1,833
Total Liabilities	\$26,610

The Balance Sheet ... 3 Stockholders' Equity (Home Depot)

Assets minus Liabilities millions
 Preferred Stock Common Stock \$85
 Retained Earnings \$11,388
 Other <u>\$6,241</u>
 Total Stockholders' Equity \$17,714
 Total Liabilities + Stockholders' Equity \$44,324

The Income Statement ... 1 (Home Depot for Fiscal Year ended 2/3/08

Operating Revenues	millions
Sales Revenue	na
less Returns and Allowances	na
equals Net Sales	\$77,349
less Operating Expenses	
Cost of Sales	\$51,352
General and Administrative expenses	\$17,053
Depreciation and Amortization	<u>\$1,702</u>
equals Operating Income	\$7,242

The Income Statement ... 2 (Home Depot for Fiscal Year ended 2/3/08)

201 근거나이어? (JAND) 는 (MCR9 근거나이어? (JAND) 는 (MCR9 근거나이어? (JAND)	
Operating Income	\$7,242
plus/minus Non-operating Income	
Earnings before Interest/Taxes (EBIT)	\$7,242
less Net Interest Expense	(\$622)
Earnings before Income Taxes	\$6,620
less Income Taxes	\$2,410
equals Net Income	\$4,395
Average Common Shares	1,849
Earnings per share	\$2.28

Cash Flow Statement (Home Depot for Fiscal Year ended 2/3/08)

Cash Flows from Operating Activities	millions
Net Income	\$4,395
Depreciation and Amortization, etc.	\$1,906
Other	<u>(\$574)</u>
Total Cash Flow from Operations	\$5,727
+ Cash Flows from Investing Activities	\$4,758
+ Cash Flows from Financing Activities	
Dividends paid to stockholders	(\$1,709)
Other	<u>(\$8,930)</u>
Total Cash Flow from Financing ((\$10,639)
= Net Increase (Decrease) in Cash/Equivalents	(\$154)



Return on Equity (ROE)
 Net profits / Common equity
 = \$4,395M / \$17,714M = 25% for Home Depot

Return on Assets (ROA)

EBIT / Total assets = \$7,242M / \$44,324M = 16% for Home Depot

Financial Ratios ... 2 Liquidity and Coverage Ratios

Current Ratio

Current assets / Current liabilities = \$14,674M / \$12,706M = 1.15 for Home Depot **# Quick Ratio** (Cash + Receivables) / Current Liabilities = \$2,943M / \$12,706M = 0.23 for Home Depot **# Interest Coverage Ratio** EBIT / Interest expense = \$7,242M / \$622M = 12 for Home Depot

Financial Ratios ... 3a Market Price Ratios

Assume Home Depot share price = \$31 Price to Dividend Ratio (P/D) Market price / Annual dividends per share = \$31 / \$0.92 = 34 for Home depot Dividend Yield = D/P = \$0.92 / \$31 = 3.0%**Figure 1** Price to Earnings Ratio (P/E) **Market price** / Earnings per share = \$31 / \$2.28 = 14 for Home Depot Earnings Yield = E/P = \$2.28 / \$31 = 7.4%

Financial Ratios ... 3b Market Price Ratios contd.

Price to Book Ratio (P/B)
Market price / Book value per share
= \$31 / \$9.58 = 3.2 for Home Depot

Price to Sales Ratio (P/S)

Market price / Annual sales per share = \$31 / \$41.83 = 0.74 for Home Depot

The Dividend Discount Model (DMM)

Intrinsic value of stock = PV of expected future net cash flows discounted by required rate of return

Vo = D1/(1+r) + D2/(1+r)^2 + + Dn/(1+r)^n where Dn is expected dividend for year n and r is the required rate of return

The Constant Growth DDM

Assume dividends are growing at a constant rate, g Then $D_1 = D_0(1+g)$ $D_2 = D_0(1+g)^2$etc.

Therefore

 $V_0 = D_0(1+g)/(1+r) + D_0(1+g)^2/(1+r)^2 + ...$ = D_0(1+g)/(r-g) (by Mathematical Induction) = D_1/(r-g)

Constant Growth DDM Example

 $V_0 = D_1/(r-g)$

Suppose a stock is expected to pay a \$4 dividend next year, with an expected growth rate of 5% pa and your required rate of return is 12% pa

Then the intrinsic value of the stock <u>to you</u> is $V_0 = \frac{4.00}{0.12 - 0.05} = \frac{57.14}{0.05}$

Fundamentals of Computerized Stock Screening

Goal: Reduce >8000 stocks to <100 candidates # Database

- Current stock price
- Revenues history
- Earnings and dividends history
- Returns for various periods

etc., etc.

Program screen

Select appropriate value/range for key parameters

Manual due diligence before investing

AAII's Stock Investor Pro

Over 150 fields on 8000+ stocks for 7 yrs **#** Monthly CD plus weekly updates **#** Includes 50+ pre-programmed screens Warren Buffet William O'Neill Marty Zweig, etc., etc. **#** High portfolio turnover **#** Write/edit your own screens

Buffett (Hagstrom) adapted from Robert Hagstrom's book. **#** Basic Value Screen Market Cap > \$1B Gross Operating Income > 0 for Y1...Y7 Return on Equity > 0 for Y1...Y3 LT Debt/Equity < Industry LT Debt/Equity</p> etc., etc. **#** Screen typically outputs 20 - 50 stocks **#** Due Diligence needed before investing

Relevant AAII Meetings

Computerized Investing: Bob Smithson Saratoga Library (no charge)

SIP User Group: Andy Prophet Saratoga Library (no charge)

Useful AAII Websites

- www.aaii.com
- www.siliconvalleyaaii.org



WWW.AAII.COM Site Map ... 1

AAII - American Assoc	iation of Individual Investors - Avan	t Browser		
File Edit View Navigatio	n Groups Favorites Feeds Tools Wir	ndows Help 🛛 🔀 Back 🕶 🔝 🕞 ớ	- 🗙 - 🔄 - 🎲 🔀 Block	>> >
Address: Main http://www.	aaii.com/sitemap.cfm			Go 🖸
ORTFOLIOS	AALcomSit	eMan		
y Portfolio				
tro to Portfolios	AAll Publications:			100
utual Fund Portfolio	Stock Investing	Mutual Fund Investing	Other	
nadow Stock Portfolio	Stock Investor Pro 🖬 Stock Superstars Report 🚯	Top Mutual Funds Guide Quarterly Mutual Fund Update 🚯	Tax Guide Investing Pathways	
AII Stock Screens	Computerized Investing		AAll Journal	
UBLICATIONS	Computerized Investing			
ee Content				
AII Journal	Miscellaneous:			
AII Ta× Guide	Community About AAII	AAll Events AAll Local Chapters	My Account Information My Account Home Page	
op Mutual Funds uide	JOIN AAII Contact Us	AAll Local Chapter Calendar AAll National Programs	Change My Login Information Update My Mailing Address	
vesting Pathways	AAll.com Privacy Policy AAll Copyright		Update My E-mail Address Update My Local Chapter Affiliation	ĩ
Computerized			Subscribe to E-Mail Newsletters	
Quarterly Mutual	Resources Investing FAQs	Benefits Member Benefits		
Fund Update	AAII.com Help	Publishing Schedule		
Pro Pro		Thee Content		
Stock Superstars Report	Investing Basics:			10
OOLS	Successful Investing for Beginners (a	nd Veteran investors)	I Investing Basics Home Page	2]
AII Guides	AAII Guides	Investor Classes	Other	
ownload Library	Investing Basics Guides Lifetime Investment Strategy	Investor Classroom First Steps to Successful Investing	AAll Local Chapters Investing Basics Download Library	0
ivestor Classroom	Guide to Investment Information Guide to Top Web Sites		Investing Basics FAQs	
vestor Surveys				
skGrades	Stock Market Education:			
&P Reports	Stock Investing, Trading Strategy and	More 1 Sto	ocks Market Education Home Page	21
entiment Survey	AAll Guides	AAll Publications	Other	
VESTMENT PROGRAMS	AAll Stock Investing Guides Guide to Dividend Reinvestment Plans	SI Pro Data Updates	Investor Classroom Stock Investing Download Library	
ocal Chapters	(DRPs) Guide to Top Web Sites	AAll Journal	Stock Investing FAQs	
ational Programs	CONST TO TOP YYON SILES			
napter Calendar	Portfolios Shadow Stock Portfolio			
ONMUNITY	A All Stock Screeps			





		WINDER REPORT	
MAX A	ccount		
IVI Y A	ccount		
🙆 AAII - American Associ	ation of Individual Investors - Avan	t Browser	
File Edit View Navigation	Groups Favorites Feeds Tools Win	idowsHelp 🖸 🔄 Back 👻 📄 - 💋 🔸 🗙	• 🖻 • 🔞 😒 🐵 • 🚳 👋 <
Address: Main http://www.a	aii.com/login/welcome.cfm?CALLER=		🖝 🕒 Go 🕶
	American Association of	Home My Account	t <u>Site Map</u> <u>Help</u> × <u>LOG OUT</u>
	Individual Wei	come to the <i>New</i> AAII.cor	Thursday, September 29, 2005
	Investors		
Search AAll:	GO Adv.	anced Search Enter Name or 1	Ticker:
AAII STORE	INVESTING BASICS	BONDS MUTUAL FUNDS PER	SONAL FINANCE RESEARCH
PORTFOLIOS	Welcome to	AAII.com	AAII.com Logout
My Portfolio	Thank you for logging in		
Intro to Portfolios			
Mutual Fund Portfolio	AAll Profile for Wayne Thorp		
Shadow Stock Portfolio	Membership Type:	Expiration:	My Account Links
AAII Stock Screens	AAII MEMBER	LIFE	→ View My Account
PUBLICATIONS	Subscriptions:	Expiration:	\rightarrow Change Login
Free Content	COMPUTERIZED INVESTING	LIFE	Information
AAII Journal	STOCK SUPERSTARS REPORT	12/31/2005	Change E-mail Address
AATI Tay Cuida	If you recently added or renewed a	Membership or Subscription on-line, it will	→ Change Mailing
AATI Tax Guide	allow three weeks for any orders se	ys for this transaction to be verified. Please ent to AAll via U.S. Mail.	Address
Top Mutual Funds Guide	-		Chapter Affiliation
	AAII Local Chapters:		→ Subscribe to F-Mail
Investing Pathways	CHICAGO		

AAII Member Benefits

WWW.AAII.COM



WWW.AAII.COM Education Topic Areas





Summary: What we Learned Today

- Investment Goals and Your PIP
- The Risk/Return Tradeoff
- MPT and The Efficient Market Hypothesis
- Asset Classes and Asset Allocation
- Building a Portfolio
- Investment Vehicles
- Economic Cycles, Yield Curves
- The Annual Report, Stock Screening

Final Words

Before we make any portfolio decisions ...
... be very clear on the fundamental concepts
Hopefully this workshop has helped !

Live Long and Prosper !
Useful Websites

www.aaii.com www.vanguard.com www.troweprice.com www.finance.yahoo.com www.smartmoney.com www.yieldcurve.com www.morningstar.com www.ustreas.gov www.investinbonds.com www.nareit.com

www.siliconvalleyaaii.org www.fidelity.com www.franklin.com www.moneycentral.msn.com www.etfconnect.com www.stockcharts.com www.riskgrades.com www.treasurydirect.gov www.investinreits.com www.callan.com/research

References

1. Investing Basics...and Beyond; Maria Crawford Scott, AAII, 2005 2. Stock Investing Strategies; Maria Crawford Scott et al AAII, 2004 3. Maximum Return Minimum Risk; James B. Cloonan, AAII 2005 4. The Top Mutual Funds; AAII annual guide, 2007 5. Essentials of Investments; Zvi Bodie et al 1998 6. A Random Walk Down Wall Street; Burton G. Malkiel 1990+ 7. Common Sense on Mutual Funds; John Bogle 8. Winning The Loser's Game, Charles D. Ellis, 2002 9. Stocks for the Long Run; Jeremy Siegel 10. Fire Your Stock Analyst, Harry Domash, 2003 11. Asset Allocation, Roger C. Gibson 1990+ 12. Determinants of Portfolio Performance; Gary Brinson et al, 1986 13. The Asset Allocation Hoax, William Janke, 1997 14. Asset Allocation Revisited, William O'Rielly et al, 2000.

Panel Discussion

AAII Silicon Valley Chapter Board Members