

## Building, Optimizing and Maintaining a Portfolio: Agenda

Purpose/Goal: Review and implement techniques discussed in the May 06 Computerized Investing seminar on a portfolio.

A \$100K portfolio created from stocks from the Zweig screen run on 1/31/03 (Zweig0302) is used to illustrate the concepts and process.

Major topics include:

- Controlling Volatility using RiskGrades (RG)
- Position Sizing based on RG volatility
- Trailing Stops based on RG volatility
- The Zweig0302 Screen
- Finding RG Values
- Portfolio Initialization: Equal Weighted
- Portfolio Initialization: RG Weighted
- Portfolio Initialization: SD Weighted
- Buy & Hold Results: Equal, RG, SD weighted
- Selling: The Stop Loss Spread Sheet
- New Stocks: The Zweig0303 Candidates
- New Stocks: The Purchasing Spread Sheet
- Homework (!!)
- SS questions (time permitting)
- Appendices (reference only)

## Controlling Volatility using RiskGrades (1)

- The Zweig0302 portfolio uses RiskGrades (RG) as the measure of stock and portfolio volatility
  - The goal is to have the Zweig0302 portfolio RG be below the RG of the IWM and as near as possible to the SPY
- Candidate stocks use RiskGrades in 2 ways :
  - To determine the trailing stop and position size (\$\$ invested) if the stock were to be added to the portfolio
  - To minimize portfolio RG when adding stocks to the portfolio
    - This means only adding stocks that *maintain or reduce* portfolio RG
- Alternative measures of risk:
  - Standard deviation, semi-standard deviation, ATRs, etc.
  - RG used since convenient; RG site provides many metrics, charts useful for review and analysis; AAI uses RG

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### Homework

What is standard deviation, semi-standard deviation and Average True Range (ATR)? (Note: Not looking for the equations - just a sense of what they measure)

## Controlling Volatility using RiskGrades (2)

What is a RiskGrade™ Measure?

### **The Benchmark for Measuring Financial Risk**

A RiskGrade™ Measure is an open and transparent benchmark to measure the risk of the world's financial assets.

A RiskGrade™ Measure:

allows for a **comparison of investment risk** across all asset classes, regions, and currencies.

**varies over time** to reflect asset specific information (e.g., the price of a stock reacting to an earnings release) and general market conditions.

operates differently from traditional risk measures, such as beta, standard deviation, and average shortfall

### **How Do We Calculate a Riskgrade™ Measure?**

Calculating the RiskGrade™ Measure is a two-step process.

First, we **calculate how much variation there is in the asset's price**, making the most recent history more important than outdated observations.

Second, we **compare the asset's volatility to the volatility of a basket of global equities**. The ratio of these volatilities results is a RiskGrade™ Measure.

The RiskGrade™ Measure can vary from 0, for cash, to values well in excess of 1000 for highly speculative investments.

Above explanations taken  
from RiskGrades site

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## Position Sizing Based on RG Volatility (1)

- Position Sizing: Also known as trade sizing
- Key terms to understand and differentiate between:
  - Position size \$\$: total \$\$ devoted to stock purchase
  - Bet size \$\$: \$\$ at risk of loss (usually a target amount \$\$, percentage %)
- The Zweig0302 portfolio uses a Fixed Fractional betting strategy
  - Each trade risks (bets) a certain amount of portfolio equity - e.g., 1%
- Fixed Fractional is an anti-Martingale betting strategy
  - Bet size \$\$ increases/decreases as account equity \$\$ increases/decreases
- For a given bet size (\$\$), the trailing stop loss and position size vary with the volatility of the stock
  - Volatile stocks have larger trailing stops, smaller positions (\$\$)
  - Stable stocks have smaller trailing stops, larger positions (\$\$)

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### Homework:

Given the same \$\$ to invest and the same bet size (\$\$, %), which portfolio will require more stocks: A portfolio of high volatility stocks, or a portfolio of low volatility stocks? Why?

## Position Sizing Based on RG Volatility (2)

- Key terms to understand and differentiate between:
  - Position size \$\$: total \$\$ devoted to stock purchase
  - Bet size \$\$: \$\$ at risk of loss (target)
- Example: Given the following parameters..
  - Total portfolio size: \$100K
  - Stock A: Price \$10/share; RG=100, stop loss = 10%
  - Stock B: Price \$20/share; RG=200, stop loss = 20% (2x Stock A)
  - Bet size \$\$ = 1% of portfolio = \$100K x .01 = \$1,000
- To determine the amount of stock purchased..
  - Position size \$\$ = ( Bet size \$\$ ) / ( stop loss % )
  - Stock A: Position size \$\$ = \$1,000 / 10% = \$10,000 (= 1,000 shares)
  - Stock B: Position size \$\$ = \$1,000 / 20% = \$5,000 (= 250 shares)
- Choosing Stock B results in extra \$\$ available for further purchases

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### Homework

- If you had a portfolio of high volatility stocks requiring 40% stops each, and you wanted to maintain a 1% bet size, how many stocks would you need?
- If you had a portfolio of low volatility stocks requiring 10% stops each, and you wanted to maintain a 1% bet size, how many stocks would you need?

## Trailing Stop Percentages Based on RG Volatility

- A trailing stop - based on stock volatility (RG) - is the basic stop mechanism employed in the Zweig0302 portfolio
- What is the basis for determining the trailing stop?
  - Russell 2000 index (IWM ETF) volatility (RG) is the standard
    - Example: IWM RG = 100, trailing stop of 10%
  - A stock's trailing stop is based on its RG vs. that of the IWM
    - Example: StockA RG = 200 (2X IWM RG) =>  
StockA stop = 2X IWM stop = 2X 10% = 20%
  - The trailing stop is capped at 30%
    - Discretionary amount based on (my) maximum tolerable loss
- So, how did I determine the IWM trailing stop?
  - Performed study on various trailing stop losses and how they compared to a Buy & Hold strategy on the index

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### Homework

- If you require the bet size to be 1%, does it matter whether you have high volatility stocks requiring large (40-60%) trailing stops? Why or why not?

## Portfolio Initialization: The Zweig0302 Screen

SI Stock Notebook #1 - Untitled											
View	Overview	Multiples	Growth	Ratios	Valuations	Estimates	Fin - Qtr	Fin - Annl	Custom	Charts	
Company name	Ticker	Exchange	Sector	Industry	SIC primary code	ADR/ADS Stock	Dow stock	Standard and P	Shadow stock	Number of employees	Web address
Dominion Homes, Inc.	DHOM	Nasdaq	Capital Goods	Construction Services	1531	No	None	None	No	511	<a href="http://www.dominionhomes.com">http://www.dominionhomes.com</a>
ePlus inc.	PLUS	Nasdaq	Technology	Software & Programming	7372	No	None	None	No	582	<a href="http://www.eplus.com">http://www.eplus.com</a>
Garden Fresh Restaurant	LTUS	Nasdaq	Services	Restaurants	5812	No	None	None	No	1359	
IMCO Recycling Inc.	IMR	New York	Basic Materials	Misc. Fabricated Products	3399	No	None	SmallCap 600	No	1529	<a href="http://www2.imcorecycling.com/">http://www2.imcorecycling.com/</a>
Johnson Outdoors, Inc.	JOUT	Nasdaq	Consumer Cyclical	Recreational Products	3949	No	None	None	No	1300	<a href="http://www.johnsonoutdoors.com">http://www.johnsonoutdoors.com</a>
Marten Transport, Ltd.	MRTN	Nasdaq	Transportation	Trucking	4213	No	None	None	No	1884	<a href="http://www.marten.com">HTTP://WWW.MARTEN.COM</a>
MedCath Corporation	MDTH	Nasdaq	Health Care	Healthcare Facilities	8069	No	None	None	No	2607	
Metro One Telecommunic.	MTON	Nasdaq	Services	Communications Services	4899	No	None	SmallCap 600	No	6500	<a href="http://www.metro1.com/">http://www.metro1.com/</a>
Nashua Corporation	NSH	New York	Technology	Office Equipment	3861	No	None	None	No	971	<a href="http://www.nashua.com">http://www.nashua.com</a>
Noble International, Ltd.	NOBL	Nasdaq	Consumer Cyclical	Auto & Truck Parts	3714	No	None	None	No	2473	
Petroleum Development	PETD	Nasdaq	Energy	Oil & Gas Operations	1311	No	None	None	Yes	90	<a href="http://www.petd.com">HTTP://WWW.PETD.COM</a>
Pomeroy Computer Resource	PMRY	Nasdaq	Technology	Computer Hardware	5045	No	None	None	No	1765	<a href="http://www.pomeroy.com/">http://www.pomeroy.com/</a>
Quaker Fabric Corp.	QFAB	Nasdaq	Consumer Cyclical	Apparel/Accessories	2221	No	None	None	No	2751	<a href="http://www.quakerfabric.com">http://www.quakerfabric.com</a>
Rex Stores Corporation	RSC	New York	Services	Retail (Technology)	5731	No	None	None	No	1130	<a href="http://www.rexstores.com">http://www.rexstores.com</a>
Schnitzer Steel Industrie	SCHN	Nasdaq	Basic Materials	Iron & Steel	3312	No	None	None	No	952	<a href="http://www.schn.com">http://www.schn.com</a>
Steel Technologies, Inc.	STTX	Nasdaq	Basic Materials	Iron & Steel	3316	No	None	SmallCap 600	No	983	<a href="http://www.steelttechnologies.com/">http://www.steelttechnologies.com/</a>
Tandy Brands Accessories	TBAC	Nasdaq	Consumer Cyclical	Apparel/Accessories	2387	No	None	None	No	1156	<a href="http://www.tandybrands.com">HTTP://WWW.TANDYBRANDS.COM</a>
U.S. Xpress Enterprises	XPRSA	Nasdaq	Transportation	Trucking	4213	No	None	None	No	7287	<a href="http://www.usxpress.com">HTTP://WWW.USXPRESS.COM</a>
USA Truck, Inc.	USAK	Nasdaq	Transportation	Trucking	4213	No	None	None	No	2373	<a href="http://www.usa-truck.com">HTTP://WWW.USA-TRUCK.COM</a>
Water Pk Technologies	PK	New York	Consumer Cyclical	Appliances & Tools	3639	No	None	None	No	1600	<a href="http://www.waterpk.com">http://www.waterpk.com</a>

The 20 stock portfolio above was created by running the canned SIPro Zweig screen on the 1/31/03 CD.

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### Homework

- What Stock Investor (SI) view am I using above?
- What sort did I use above?

## Portfolio Initialization: The Zweig0302 Portfolio

	A	B	C	D	H	I	J	R	S
1	company	ticker	exchg_desc	smg_desc	dow_desc	sp_desc	shadow	employees	web_addr
2	Dominion Homes, Inc.	DHOM	M - Nasdaq	02 - Capital Goods	None	None	FALSE	511	<a href="http://www.dominionhomes.com">http://www.dominionhomes.com</a>
3	IMCO Recycling Inc.	IMR	N - New York	01 - Basic Materials	None	SmallCap 600	FALSE	1529	<a href="http://www2.imcorecycling.com/">http://www2.imcorecycling.com/</a>
4	Johnson Outdoors Inc.	JOUT	M - Nasdaq	04 - Consumer Cyclical	None	None	FALSE	1300	<a href="http://www.johnsonoutdoors.com">http://www.johnsonoutdoors.com</a>
5	Garden Fresh Restaurant	LTUS	M - Nasdaq	09 - Services	None	None	FALSE	1369	
6	MedCath Corporation	MDTH	M - Nasdaq	08 - Health Care	None	None	FALSE	2607	
7	Marten Transport, Ltd.	MRTN	M - Nasdaq	11 - Transportation	None	None	FALSE	1884	<a href="http://WWW.MARTEN.COM">HTTP://WWW.MARTEN.COM</a>
8	Metro One Telecommunic.	MTON	M - Nasdaq	09 - Services	None	SmallCap 600	FALSE	6500	<a href="http://www.metro1.com/">http://www.metro1.com/</a>
9	Noble International, Ltd.	NOBL	M - Nasdaq	04 - Consumer Cyclical	None	None	FALSE	2473	
10	Nashua Corporation	NSH	N - New York	10 - Technology	None	None	FALSE	971	<a href="http://www.nashua.com">http://www.nashua.com</a>
11	Petroleum Development	PETD	M - Nasdaq	06 - Energy	None	None	TRUE	90	<a href="http://WWW.PETD.COM">HTTP://WWW.PETD.COM</a>
12	Water Pik Technologies	PIK	N - New York	04 - Consumer Cyclical	None	None	FALSE	1600	<a href="http://www.waterpik.com">http://www.waterpik.com</a>
13	ePlus inc.	PLUS	M - Nasdaq	10 - Technology	None	None	FALSE	582	<a href="http://www.eplus.com">http://www.eplus.com</a>
14	Pomeroy Computer Resource	PMRY	M - Nasdaq	10 - Technology	None	None	FALSE	1765	<a href="http://www.pomeroy.com/">http://www.pomeroy.com/</a>
15	Quaker Fabric Corp.	QFAB	M - Nasdaq	04 - Consumer Cyclical	None	None	FALSE	2751	<a href="http://www.quakerfabric.com">http://www.quakerfabric.com</a>
16	Rex Stores Corporation	RSC	N - New York	09 - Services	None	None	FALSE	1130	<a href="http://www.rexstores.com">http://www.rexstores.com</a>
17	Schnitzer Steel Industrie	SCHN	M - Nasdaq	01 - Basic Materials	None	None	FALSE	952	<a href="http://www.schn.com">http://www.schn.com</a>
18	Steel Technologies, Inc.	STTX	M - Nasdaq	01 - Basic Materials	None	SmallCap 600	FALSE	983	<a href="http://www.steeltechnologies.com/">http://www.steeltechnologies.com/</a>
19	Tandy Brands Accessories	TBAC	M - Nasdaq	04 - Consumer Cyclical	None	None	FALSE	1156	<a href="http://WWW.TANDYBRANDS.COM">HTTP://WWW.TANDYBRANDS.COM</a>
20	USA Truck, Inc.	USAK	M - Nasdaq	11 - Transportation	None	None	FALSE	2373	<a href="http://WWW.USA-TRUCK.COM">HTTP://WWW.USA-TRUCK.COM</a>
21	U.S. Xpress Enterprises	XPRSA	M - Nasdaq	11 - Transportation	None	None	FALSE	7287	<a href="http://WWW.USXPRESS.COM">HTTP://WWW.USXPRESS.COM</a>
22									
23									
24									

IMR, LTUS, MTON, NSH, PIK no longer exist - eliminated from our portfolio....

5 stocks no longer exist - we will work with resulting  
15 stock portfolio shown above

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### Homework

- How did I get the above information into a spreadsheet?
- What SS sort did I use above?
- Not all columns on the SS are shown - how did I do this?
- What may have happened to the 5 companies to eliminate them from the market?
- How many sectors are present in SI? What are the dominant sectors that are found by this screen? Given 20 stocks in the portfolio, does this represent a well diversified set of stocks?

## Finding RiskGrade Values (1)

My Portfolio

The portfolio screen allows the user to view the risk statistics of their portfolio. One may select to view the results as a table, or in graphical mode. Click on the **printer** icon to get a version of the page specially formatted for printing. Each statistic is defined in the [definition](#) section at the bottom of the page. Click on any statistic to sort by it within each asset class. Each portfolio is available in four different views, available through the "Portfolio Views" menu, [explained below](#).

Select Portfolio : indices      Select Currency: USD      **CREATE NEW PORTFOLIO**      CUSTOMIZE COLUMNS

indices

- This portfolio's RiskGrade™ of 62 suggests [Balanced Plan Investment strategy](#).
- Diversification benefits have lowered this portfolio's risk by 3%.
- This portfolio is 1.32 times as volatile as the S&P - S&P 500 Index.

Portfolio Views: CC, RA, LGV, FA, RR, PR

Symbol	Risk Grade™	Risk Impact	XLoss	XLoss %	% of Holding	Market Value	Risk Chart™
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After registering at RiskGrades, click on the  
“CREATE NEW PORTFOLIO” button

## Finding RiskGrade Values (2)

Select Portfolio:

EQUITY				CASH		
Ticker	Shares	Exchange	Remove?	Amount	Currency	Remove?
DHDM	475	US Equity	<input type="checkbox"/>		USD	<input type="checkbox"/>
JOUT	954	US Equity	<input type="checkbox"/>		USD	<input type="checkbox"/>
MDTH	689	US Equity	<input type="checkbox"/>		USD	<input type="checkbox"/>
MRTN	381	US Equity	<input type="checkbox"/>		USD	<input type="checkbox"/>
NOBL	892	US Equity	<input type="checkbox"/>		USD	<input type="checkbox"/>
PETD	1171	US Equity	<input type="checkbox"/>			
PLUS	905	US Equity	<input type="checkbox"/>			
PMPY	797	US Equity	<input type="checkbox"/>			
QFAB	999	US Equity	<input type="checkbox"/>			
RSC	656	US Equity	<input type="checkbox"/>			
SCHN	312	US Equity	<input type="checkbox"/>			
STTX	589	US Equity	<input type="checkbox"/>			
TBAC	673	US Equity	<input type="checkbox"/>			
USAK	867	US Equity	<input type="checkbox"/>			
XPRSA	669	US Equity	<input type="checkbox"/>			
		US Equity	<input type="checkbox"/>			
		US Equity	<input type="checkbox"/>			
		US Equity	<input type="checkbox"/>			
		US Equity	<input type="checkbox"/>			
		US Equity	<input type="checkbox"/>			

Screen capture of portfolio entry window at RiskGrades  
(Here I am entering the Equal Weight portfolio)

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### Homework

- What is a quick way to get the RGs of a group of stocks?

## Finding RiskGrade Values (3)

Select Portfolio : Zweig0302-EqWeight    Select Currency: USD    CREATE NEW PORTFOLIO    CUSTOMIZE COLUMNS

Zweig0302-EqWeight    Set as default

- This portfolio's RiskGrade™ of 97 suggests [Aggressive Plan investment strategy](#).
- Diversification benefits have lowered this portfolio's risk by 50%.
- This portfolio is 2.06 times as volatile as the S&P - S&P 500 Index.

Portfolio Views: CC HRA LGV FA ARR PR

Symbol	Risk Grade™	Risk Impact	XLoss	XLoss %	% of Holding	Market Value	Risk Chart™
DHOM	200	0%	\$158	5.60%	1.53%	\$2,826	
JOUT	70	0%	\$192	2.03%	5.14%	\$9,457	
MDTH	212	9%	\$1,397	6.01%	10.90%	\$20,071	
MRTN	215	9%	\$538	8.72%	3.48%	\$6,401	
NOBL	174	5%	\$532	4.30%	6.72%	\$12,381	
PETD	204	29%	\$2,135	4.67%	24.83%	\$45,716	
PLUS	173	-1%	\$484	5.44%	4.83%	\$8,896	
PMBY	154	1%	\$483	7.18%	3.65%	\$6,727	
QFAB	338	0%	\$136	12.51%	0.59%	\$1,089	
RSC	161	0%	\$554	5.61%	5.37%	\$9,886	
SCHN	161	6%	\$515	5.24%	5.34%	\$9,825	
STTX	228	8%	\$929	8.04%	6.28%	\$11,562	
TBAC	173	2%	\$283	4.02%	3.82%	\$7,040	
USAK	217	6%	\$1,039	6.53%	8.64%	\$15,909	
XPRSA	240	12%	\$1,068	6.53%	8.89%	\$16,364	
<b>Equities</b>	<b>97</b>	<b>100%</b>	<b>\$4,601</b>	<b>2.50%</b>	<b>100.00%</b>	<b>\$184,149</b>	
<b>Portfolio</b>	<b>97</b>		<b>\$4,601</b>	<b>2.50%</b>		<b>\$184,149</b>	
<b>Diversification Benefit</b>	<b>97</b>		<b>\$5,672</b>	<b>55.21%</b>			

After creating the portfolio you can get individual RG values and current portfolio RG values from this table

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### Homework

- If you were to equal weight this portfolio today what would the resulting portfolio RG be? Why is it different?
- Why is the Risk Impact of PETD so high?
- Why is the Risk Impact of QFAB so low?
- Why is the Risk Impact of JOUT so low?
- For this Buy & Hold portfolio: How many winners and losers do you have?
- Which are the biggest winner, loser?

## Portfolio Initialization: Equal Weighted (1)

- First attempt to initialize the portfolio will be to put equal \$\$ amounts into each of the 15 stocks in Zweig0302
  - Each stock represents 6.7% of the portfolio ( $1/15 = 6.7\%$ )
  - Using a default trailing stop of 25% results in a 1.7% bet size
    - $\text{Bet size (\%)} = \text{Trailing stop (\%)} * \text{Position size (\% of portfolio)}$
    - $\text{Bet size (\%)} = 25\% * 6.7\% = 1.7\%$  bet size
  - To achieve a 1% bet size with this portfolio would have to use a tighter stop - specifically 15%
    - $\text{Trailing stop (\%)} = \text{Bet size (\%)} / \text{Position size (\% of portfolio)}$
    - $\text{Trailing stop (\%)} = 1\% / 6.7\% = 15\%$
    - This is probably too tight a stop for most stocks
  - Alternatively, could add stocks to the portfolio to reduce bet size
    - $\# \text{ Stocks} = 1 / \text{Position size (\% of portfolio)} = \text{Stop (\%)} / \text{Bet Size (\%)}$
    - $\# \text{ Stocks} = 25\% / 1\% = 25$
    - Additional stocks can be added to the portfolio by loosening screen criteria or by adding new stocks each month
  - For this example will continue with 15 stocks, 25% stop, 1.7% bet size
- Next slide shows Zweig0302-EqlWghtStrt worksheet

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### Homework

- Why do you think that I say 15% is too tight a stop for most stocks?
- What happens if you use too tight a stop?
- Assume a screen produces too few stocks: How would you go about loosening screening criteria to add stocks to the portfolio?
- As you buy and sell stocks over time where would you put the \$\$ when not invested in stocks?

## Portfolio Initialization: Equal Weighted (2)

A	B	C	D	E	F	G	H	I	J	K	L	M
1												
2	company	ticker	Price	Beta	% portfolio	target \$\$	#shares	apprx cost	\$\$ weighted	beta	RG	\$\$ weighted
3	Dominion Homes, Inc.	DHOM	\$ 14.00	0.70	6.67%	\$ 6,667	475	\$ 6,660		0.05	185	12
4	Johnson Outdoors Inc.	JOUT	\$ 12.00	0.16	6.67%	\$ 6,667	554	\$ 6,658		0.01	294	20
5	MedCath Corporation	MDTH	\$ 9.66	1.00	6.67%	\$ 6,667	689	\$ 6,666		0.07	212	14
6	Marten Transport, Ltd.	MRTN	\$ 17.44	0.14	6.67%	\$ 6,667	381	\$ 6,655		0.01	164	11
7	Noble International, Ltd.	NOBL	\$ 7.46	0.91	6.67%	\$ 6,667	892	\$ 6,664		0.06	228	15
8	Petroleum Development	PETD	\$ 5.68	0.34	6.67%	\$ 6,667	1171	\$ 6,661		0.02	138	9
9	ePlus inc.	PLUS	\$ 7.35	1.02	6.67%	\$ 6,667	905	\$ 6,662		0.07	143	10
10	Pomeroy Computer Resource	PMRY	\$ 8.35	1.57	6.67%	\$ 6,667	797	\$ 6,665		0.10	394	26
11	Quaker Fabric Corp.	QFAB	\$ 6.66	0.61	6.67%	\$ 6,667	999	\$ 6,663		0.04	255	17
12	Rex Stores Corporation	RSC	\$ 10.14	1.71	6.67%	\$ 6,667	656	\$ 6,662		0.11	236	16
13	Schnitzer Steel Industrie	SCHN	\$ 21.30	0.62	6.67%	\$ 6,667	312	\$ 6,656		0.04	169	11
14	Steel Technologies, Inc.	STTX	\$ 11.29	0.16	6.67%	\$ 6,667	589	\$ 6,660		0.01	423	28
15	Tandy Brands Accessories	TBAC	\$ 9.88	0.74	6.67%	\$ 6,667	673	\$ 6,659		0.05	197	13
16	USA Truck, Inc.	USAK	\$ 7.67	0.32	6.67%	\$ 6,667	867	\$ 6,660		0.02	214	14
17	U.S. Xpress Enterprises	XPRSA	\$ 9.94	1.24	6.67%	\$ 6,667	669	\$ 6,660		0.08	247	16
18												
19												
20												
21												
22												
23	Amount to be invested		\$ 100,000							port RG		86
24	Number of stocks		15							SPY RG		117
25	commissions (\$\$)		\$ 10							IWM RG		109
26	trailing stop (%)		25%									
27	equal weight % of portfolio		6.67%							Risk Multiple vs SPY		0.74
28	equal weight \$\$ of portfolio		\$ 6,667							Risk Multiple vs IWM		0.79
29	bet size (%)		1.7%							Diversification benefit (vs. equal weight)		63%
30	bet size (\$\$)		\$ 1,667									
31												
32												
33	Notes		1. MDTH has no Beta in SIPro 1/31/03 screen - assume 1.00									
34												
35	Key:		cells you must enter values into									

After entering indicated data, SS will compute various statistics, amounts for you

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### Homework

- Where did I get the beta and price from?
- How could I get columns B-E semi-easily from SIPro?
- The beta in MDTH is assumed to be 1. What else could I have done with this missing beta?
- Why does the approximate cost (column I) not match the target cost (column G)?
- Why does the average beta differ slightly from the \$\$ weighted beta? The \$\$ weighted RG?
- How did I get the RGs for IWM and SPY?
- What is the equation for diversification benefit (cell L28)? What does this represent?

## Portfolio Initialization: RG Weighted (1)

- Our second attempt to initialize the portfolio will be to put varying \$\$ amounts into each of the 15 stocks in Zweig0302 based on RG volatility. A few new columns are introduced:
  - Stop loss % is now calculated based on RG volatility vs. IWM
    - In our example some manual overrides are used to limit the stop loss to 30%
  - An “Ideal Target \$\$” based on bet size, stop loss and total \$\$ is calculated
    - This ideal size may require more or less funds than are available
  - The “100% Funds Target \$\$” is calculated to use all available funds
    - This is a simple scale up or scale down of the ideal target
    - This may increase (scaling up) or decrease (scaling down) the bet size
- Other information calculated as in equal weight SS
- Next slide shows Zweig0302-RGWghtStrt worksheet
  - In our example I increased the bet size to use all funds (for easy comparison to equal weight portfolio)

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### Homework

- Why did I limit my stops to 30%? Is this needed?
- If you require a set bet size (e.g., 1%) and the ideal target \$\$ and 100% funds target \$\$ does not match by a significant amount - how do you address this?

## Portfolio Initialization: RG Weighted (2)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1														
2	company	ticker	Price	Beta	RG	stop loss (%)	ideal target \$\$	100% funds target \$\$	% portfolio	#shares	apprx cost	\$\$ weighted beta	\$\$ weighted RG	
3	Dominion Homes, Inc.	DHOM	\$ 14.00	0.70	185	17%	7,463	\$ 7,463	7.5%	533	\$ 7,472	0.05	14	
4	Johnson Outdoors Inc.	JOUT	\$ 12.00	0.16	294	27%	4,709	\$ 4,709	4.7%	391	\$ 4,702	0.01	14	
5	MedCath Corporation	MDTN	\$ 9.66	1.00	212	19%	6,530	\$ 6,530	6.5%	674	\$ 6,521	0.07	14	
6	Marten Transport, Ltd.	MRTN	\$ 17.44	0.14	164	15%	8,441	\$ 8,441	8.4%	483	\$ 8,434	0.01	14	
7	Noble International, Ltd.	NOBL	\$ 7.46	0.91	228	21%	6,071	\$ 6,072	6.1%	812	\$ 6,068	0.06	14	
8	Petroleum Development ePlus inc.	PETD	\$ 5.68	0.34	138	13%	10,031	\$ 10,031	10.0%	1764	\$ 10,030	0.03	14	
9	Pomeroy Computer Resource	PMRY	\$ 8.35	1.57	394	30%	4,233	\$ 4,233	4.2%	505	\$ 4,227	0.07	17	
11	Quaker Fabric Corp.	QFAB	\$ 6.66	0.61	255	23%	5,429	\$ 5,429	5.4%	813	\$ 5,425	0.03	14	
12	Rex Stores Corporation	RSC	\$ 10.14	1.71	236	22%	5,866	\$ 5,866	5.9%	577	\$ 5,861	0.10	14	
13	Schnitzer Steel Industrie	SCHN	\$ 21.30	0.62	169	16%	8,191	\$ 8,191	8.2%	384	\$ 8,189	0.05	14	
14	Steel Technologies, Inc.	STTX	\$ 11.29	0.16	423	30%	4,233	\$ 4,233	4.2%	374	\$ 4,232	0.01	18	
15	Tandy Brands Accessories	TBAC	\$ 9.88	0.74	197	18%	7,027	\$ 7,027	7.0%	710	\$ 7,025	0.05	14	
16	USA Truck, Inc.	USAK	\$ 7.67	0.32	214	20%	6,469	\$ 6,469	6.5%	842	\$ 6,468	0.02	14	
17	U.S. Xpress Enterprises	XPRSA	\$ 9.94	1.24	247	23%	5,604	\$ 5,605	5.6%	562	\$ 5,596	0.07	14	
18														
19														
20														
21														
22														
23	Amount to be invested		\$ 100,000										port RG	79
24	Number of stocks		15										SPY RG	117
25	commissions (\$)		\$ 10										IWM RG	109
26	bet size (%)		1.27%										Risk Multiple vs SPY	0.68
27	bet size (\$)		\$ 1,270										Risk Multiple vs IWM	0.72
28	bet size (%) 100% funds		1.27%										Diversification benefit (vs. RG weight)	63%
29	bet size (\$)		\$ 1,270											
30														
31														
32														
33	Notes		1. MDTN has no Beta in SIPro 1/31/03 screen - assume 1.00											
34														
35	Key:		cells you must enter values into											
36			manually overridden calculations											

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### Homework

- What is the equation for calculating the stop loss (cell g3)?
- Why did I override PMRY's stop loss? What is the calculated stop for PMRY? What impact does a smaller stop have on PMRY and the portfolio?
- What is the equation for 100% funds scaling?
- Why is the \$\$ weighted beta lower than the average beta??
- Why is the \$\$ weighted RG lower than the average RG??
- Why do most \$\$ weighted RG stocks have the same value (14)? Why don't PMRY and STTX have a \$\$ weighted RG of 14?
- What's the highest beta stock in the portfolio? Is it the highest RG stock? Why not?
- What's the lowest beta stock in the portfolio? Is it the lowest RG? Why not?
- What is the RG of the overall portfolio? How does this compare to the equal weight portfolio? Which is the "better" portfolio? Why?
- Suppose this portfolio could be optimized to have the lowest RG-weighting with 10 stocks (I.e., 5 stocks get 0% weightings). Is this good or bad? Why?
- Does your answer change if the optimized portfolio has 5 stocks? 1 stock? Why?
- What risks do you take on when you reduce the number of stocks in the portfolio is reduced (regardless if the SD, RG is optimized)? All else being equal, what happens to your bet size?

## Portfolio Initialization: SD Weighted (1)

- Our final attempt to initialize the portfolio will be to put varying \$\$ amounts into each of the 15 stocks in Zweig0302 based on standard deviation (SD).
  - The RG column (column F) is now replaced with an SD column
  - Stop loss %, position size, etc. are now calculated based on the stock SD vs. the IWM SD
- SD for stocks and portfolio were calculated
  - Used 36 month lookback period with monthly prices
  - Details, spreadsheet not shown, provided (trust me!!)
  - Bob Smithson's session/SS tool will allow you to calculate this easily
    - Not hard to do in Excel, either
- Other information calculated as in the RG weighted SS
- Next slide shows Zweig0302-SDWghtStrt worksheet
  - In our example I increased the bet size to use all funds (for easy comparison to other portfolios)

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### Homework

- What is the Excel function to compute SD?
- Why did I use monthly prices to calculate SD (vs., e.g., daily SDs)?
- What factors would you consider in deciding how long a lookback period should be used in calculating SDs? For example, I used 36 months - why not 24 months? 60 months?
- Thought question: How would you calculate the SD for any of the stocks in this portfolio?
- Thought question: How would you calculate the SD for the entire portfolio?
- Extra credit: Calculate the standard deviation for DHOM as of 1/31/03 using monthly data from Yahoo!. Does it match the value I came up with?
- Super extra credit: Calculate the standard deviation for the SD weighted portfolio. Does it match the value I came up with?

## Portfolio Initialization: SD Weighted (2)

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1														
2	company	ticker	Price	Beta	36 mo. SD	stop loss (%)	ideal target \$\$	100% funds target \$\$	% portfolio	#shares	apprx cost	\$\$ weighted beta	\$\$ weighted SD	
3	Dominion Homes, Inc.	DHOM	\$ 14.00	0.70	17.3%	26%	5,142	\$ 5,142	5.1%	366	\$ 5,134	0.04	0.89%	
4	Johnson Outdoors Inc.	JOUT	\$ 12.00	0.16	15.5%	23%	5,746	\$ 5,747	5.7%	478	\$ 5,746	0.01	0.89%	
5	MedCath Corporation	MDTH	\$ 9.66	1.00	14.5%	22%	6,145	\$ 6,145	6.1%	635	\$ 6,144	0.06	0.89%	
6	Marten Transport, Ltd.	MRTN	\$ 17.44	0.14	9.1%	14%	9,807	\$ 9,807	9.8%	561	\$ 9,794	0.01	0.89%	
7	Noble International, Ltd.	NOBL	\$ 7.46	0.91	15.1%	23%	5,905	\$ 5,906	5.9%	790	\$ 5,903	0.05	0.89%	
8	Petroleum Development	PETD	\$ 5.68	0.34	12.8%	19%	6,971	\$ 6,972	7.0%	1225	\$ 6,968	0.02	0.89%	
9	ePlus inc.	PLUS	\$ 7.35	1.02	15.3%	23%	5,817	\$ 5,817	5.8%	790	\$ 5,817	0.06	0.89%	
10	Pomeroy Computer Resource	PMRY	\$ 8.35	1.57	14.2%	21%	6,253	\$ 6,253	6.3%	747	\$ 6,247	0.10	0.89%	
11	Quaker Fabric Corp.	QFAB	\$ 6.66	0.61	17.7%	27%	5,039	\$ 5,039	5.0%	755	\$ 5,038	0.03	0.89%	
12	Rex Stores Corporation	RSC	\$ 10.14	1.71	16.7%	25%	5,319	\$ 5,320	5.3%	523	\$ 5,313	0.09	0.89%	
13	Schnitzer Steel Industrie	SCHN	\$ 21.30	0.62	8.1%	12%	10,935	\$ 10,935	10.9%	512	\$ 10,916	0.07	0.89%	
14	Steel Technologies, Inc.	STTX	\$ 11.29	0.16	13.8%	21%	6,428	\$ 6,428	6.4%	568	\$ 6,423	0.01	0.89%	
15	Tandy Brands Accessories	TBAC	\$ 9.88	0.74	12.0%	18%	7,387	\$ 7,387	7.4%	746	\$ 7,380	0.05	0.89%	
16	USA Truck, Inc.	USAK	\$ 7.67	0.32	13.0%	20%	6,821	\$ 6,822	6.8%	888	\$ 6,821	0.02	0.89%	
17	U.S. Xpress Enterprises	XPRSA	\$ 9.94	1.24	14.2%	21%	6,280	\$ 6,281	6.3%	630	\$ 6,272	0.08	0.89%	
18														
19														
20														
21														
22														
23	Amount to be invested	\$ 100,000												
24	Number of stocks	15										port SD	6.67%	
25	commissions (\$\$)	\$ 10										IWM SD	6.63%	
26	bet size (%)	1.34%												
27	bet size (\$\$)	\$ 1,342												
28	bet size (%) 100% funds	1.342%												
29	bet size (\$\$) 100% funds	\$ 1,342												
30														
31														
32														
33	Notes	1. MDTH has no Beta in SIPro 1/31/03 screen - assume 1.00												
34														
35	Key:	cells you must enter values into manually overriden calculations												
36														

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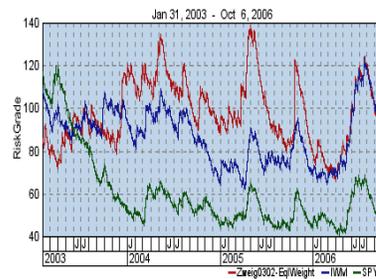
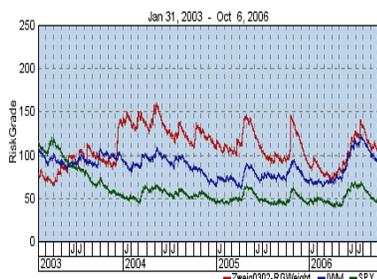
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### Homework

- Are the SD-based trailing stops, position sizes the same as for RGs? Which stock has the most significant difference? Are the SD, RG figures significantly different? Which stock has the least difference? Are the SD, RG figures significantly different?
- Assuming there is a significant difference between RG and SD stops, position sizes for a stock, what does this suggest has happened to that stock's volatility over time? In this case, which trailing stop, position size would you use: SD-weights or RG-weighted? Why?
- One guideline suggests that investors should set their trailing stops at 2X the monthly SD. Suppose you did that with this portfolio - would the stops grow larger or smaller? Would this cause more or less stocks to be needed in a portfolio? Where do you think this guideline originates from? Does this guideline make sense to you?
- What is the equation for calculating the stop loss (cell g3)?
- Why are there no stop loss overrides in this SS?
- What is the equation for 100% funds scaling?
- Why is the \$\$ weighted beta lower than the average beta??
- Why is the \$\$ weighted SD lower than the average SD??
- Why do all \$\$ weighted SD stocks have the same value (0.89%)?
- What's the highest beta stock in the portfolio? Is it the highest SD stock? Why or why not?
- What's the lowest beta stock in the portfolio? Is it the lowest SD stock? Why or why not?

## Buy & Hold Results: Volatility (RG)

<b>Portfolio name: Zweig0302-RGWeight</b> Portfolio <b>Min:</b> 67 <b>Max:</b> 160 <b>Avg:</b> 110 <b>(IWM) Ishares Russell 2000</b> <b>Min:</b> 63 <b>Max:</b> 124 <b>Avg:</b> 88 <b>(SPY) Standard&amp;Poors Depository Receipts</b> <b>Min:</b> 41 <b>Max:</b> 120 <b>Avg:</b> 61	<b>RiskGrade: 103</b> (01/31/2003-10/06/2006)	<b>Portfolio name: Zweig0302-EqWeight</b> Portfolio <b>Min:</b> 66 <b>Max:</b> 139 <b>Avg:</b> 99 <b>(IWM) Ishares Russell 2000</b> <b>Min:</b> 63 <b>Max:</b> 124 <b>Avg:</b> 88 <b>(SPY) Standard&amp;Poors Depository Receipts</b> <b>Min:</b> 41 <b>Max:</b> 120 <b>Avg:</b> 61	<b>RiskGrade: 97</b> (01/31/2003-10/06/2006)
	<b>RiskGrade: 94</b> (01/31/2003-10/06/2006)		<b>RiskGrade: 94</b> (01/31/2003-10/06/2006)
	<b>RiskGrade: 46</b> (01/31/2003-10/06/2006)		<b>RiskGrade: 46</b> (01/31/2003-10/06/2006)



- Measured by average RG over time period, equal weight approach beats the RG-weighted approach ( 99 RG vs. 110 RG - 11% greater)
- Both approaches above IWM RG most of the time period

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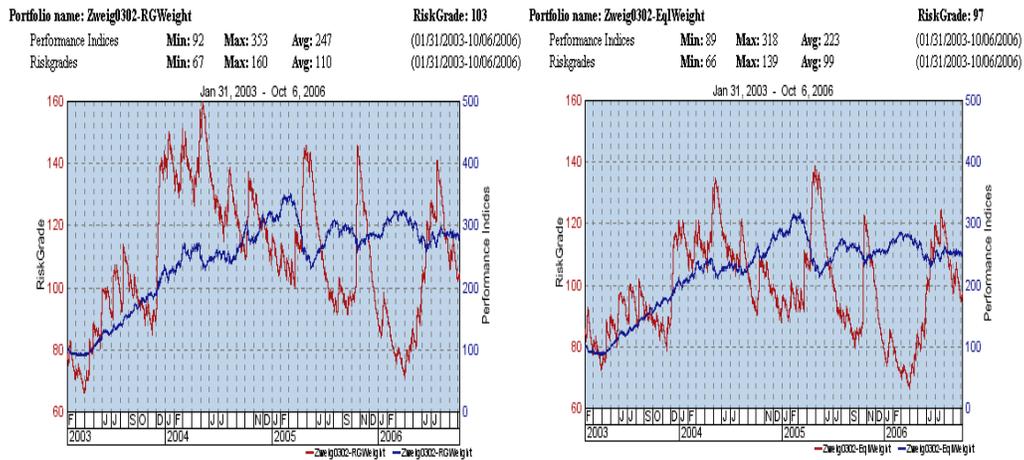
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### Homework

- How did I get these 2 curves?

## Buy & Hold Results: Performance



- Both curves have same shape - high slope through 2/05, flat-ish since
- RG weighted slightly outperforms equal weight portfolio

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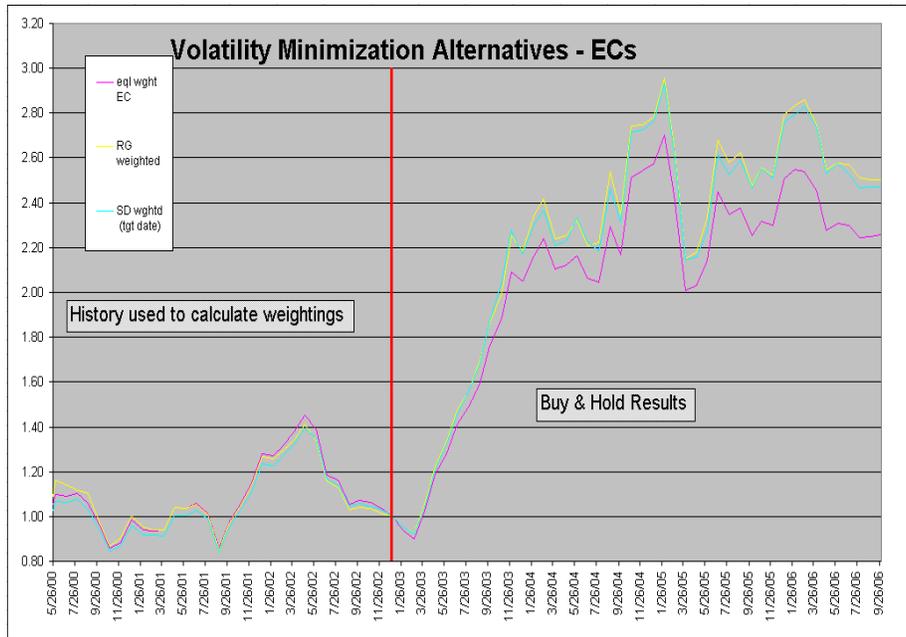
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### Homework

- How did I get these 2 curves?

# Buy & Hold Results: Performance



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## Selling: The Stop Loss Spreadsheet (1)

- The Stop Loss SS takes advantage of the RG calculations made during the buying process
- Stops are checked each weekend - market orders are used to sell and occur on Monday morning's open
- Several trailing stop losses are implemented:
  - A Trailing Stop (Selling Rule)
  - An Adjusted Trailing Stop (Guideline/Advisory)
    - Adjust trailing stop for losses relative to IWM since last stock peak
    - Attempt to guard against under-performing the index since last stock peak
  - A Purchase Stop (Guideline/Advisory)
    - Adjust trailing stop for losses relative to IWM since stock purchase
    - Attempt to guard against under-performing the index since stock purchase
- Guideline/Advisory serves as flag to consider selling
  - Example: Low volatility stocks easily set off the adjusted, purchase stops - IWM can easily outperform a low volatility (<10%) stock

## Selling: The Stop Loss Spreadsheet (2)

The spreadsheet displays the following data:

4												J	K					
5	Date	dhom	dhom Max	dhom Purchase RS	dhom Trailing RS	IWM	IWM dhom Max	IWM Purchase RS	IWM Trailing RS	dhom/IWM Purchase RS	dhom/IWM Trailing RS	dhom/IWM						
11	6-Jan-03						78.8											
12	13-Jan-03						77.26											
13	21-Jan-03						74.38											
14	27-Jan-03	14.00	14.00	1.00	1.00		74.24	74.24	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
15	3-Feb-03	12.16	14.00	0.87	0.87		71.32	74.24	0.96	0.96	0.90	0.90	0.90	0.90	0.90	0.90	0.90	
16	10-Feb-03	12.31	14.00	0.88	0.88		71.3	74.24	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
17	18-Feb-03	13.06	14.00	0.93	0.93		72.32	74.24	0.97	0.97	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
18	24-Feb-03	12.86	14.00	0.92	0.92		72.01	74.24	0.97	0.97	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
19	3-Mar-03	12.11	14.00	0.87	0.87		70.45	74.24	0.95	0.95	0.91	0.91	0.91	0.91	0.91	0.91	0.91	
20	10-Mar-03	12.70	14.00	0.91	0.91		70.85	74.24	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
21	17-Mar-03	14.59	14.59	1.04	1.00		74.77	74.77	1.01	1.00	1.03	1.00	1.00	1.00	1.00	1.00	1.00	
22	24-Mar-03	13.96	14.59	1.00	0.96		73.5	74.77	0.99	0.98	1.01	0.97	0.97	0.97	0.97	0.97	0.97	
23	31-Mar-03	14.01	14.59	1.00	0.96		74.53	74.77	1.00	1.00	1.00	0.96	0.96	0.96	0.96	0.96	0.96	
24	7-Apr-03	14.39	14.59	1.03	0.99		73.84	74.77	0.99	0.99	1.03	1.00	1.00	1.00	1.00	1.00	1.00	
25	14-Apr-03	14.91	14.91	1.07	1.00		76.35	76.35	1.03	1.00	1.04	1.00	1.00	1.00	1.00	1.00	1.00	
26	21-Apr-03	16.62	16.62	1.19	1.00		77.25	77.25	1.04	1.00	1.14	1.00	1.00	1.00	1.00	1.00	1.00	
27	28-Apr-03	16.91	16.91	1.21	1.00		81.3	81.3	1.10	1.00	1.10	1.00	1.00	1.00	1.00	1.00	1.00	
28	5-May-03	17.20	17.20	1.23	1.00		82.44	82.44	1.11	1.00	1.11	1.00	1.00	1.00	1.00	1.00	1.00	
29	12-May-03	17.51	17.51	1.25	1.00		83.07	83.07	1.12	1.00	1.12	1.00	1.00	1.00	1.00	1.00	1.00	
30	19-May-03	18.82	18.82	1.34	1.00		83.4	83.4	1.12	1.00	1.20	1.00	1.00	1.00	1.00	1.00	1.00	
31	27-May-03	20.70	20.70	1.48	1.00		88.03	88.03	1.19	1.00	1.25	1.00	1.00	1.00	1.00	1.00	1.00	
32	2-Jun-03	20.49	20.70	1.46	0.99		90.4	88.03	1.22	1.03	1.20	0.96	0.96	0.96	0.96	0.96	0.96	
33	9-Jun-03	22.03	22.03	1.57	1.00		89.64	89.64	1.21	1.00	1.30	1.00	1.00	1.00	1.00	1.00	1.00	
34	16-Jun-03	24.10	24.10	1.72	1.00		89.27	89.27	1.20	1.00	1.43	1.00	1.00	1.00	1.00	1.00	1.00	

Summary statistics at the top right:

- dhom RG (all): 185
- IWM (R2k) RG: 109
- Resulting stop: 17%
- 0.17 purchase stop
- 0.17 adj trailing stop
- 0.17 trailing stop

### Homework:

- Where does the date column come from? Why did I pick that source?
- Why do I need the stock/IWM purchase RS check?
- What is the equation for determining the max price value - e.g., in column D?
- What is the equation for setting the adjusted purchase stop flag - e.g., in column M?
- Could you use stop orders to implement the above? What are the advantages, disadvantages of doing it this way?
- How often should you reset trailing stops, position sizes due to changes in RGs? Why?
- Do the SS, rules laid out in this presentation advocate updating stops, position sizes based on changing RGs? Why or why not?

## Selling: The 25% Stop Loss Spreadsheet (3)

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1															
2													dhom RG (all)	185	
3													IWM (R2K) RG:	109	
4													Resulting stop:	25%	
5	Date	dhom	dhom Max	dhom Purchase RS	dhom Trailing RS	IWM	IWM dhom Max	IWM Purchase RS	IWM Trailing RS	dhom/IWM Purchase RS	dhom/IWM Trailing RS	0.25 adj purchase stop	0.25 adj trailing stop	0.25 trailing stop	
62	29-Dec-03		30.05	33.07	2.15	0.91	111.99	108.96	1.51	1.03	1.42	0.88			
63	5-Jan-04		28.65	33.07	2.05	0.87	114.3	108.96	1.54	1.05	1.33	0.83			
64	12-Jan-04		30.20	33.07	2.16	0.91	117.5	108.96	1.58	1.08	1.36	0.85			
65	20-Jan-04		32.25	33.07	2.30	0.98	118.72	108.96	1.60	1.09	1.44	0.90			
66	26-Jan-04		29.67	33.07	2.12	0.90	115.6	108.96	1.56	1.06	1.36	0.85			
67	2-Feb-04		31.44	33.07	2.25	0.95	116.32	108.96	1.57	1.07	1.43	0.89			
68	9-Feb-04		32.32	33.07	2.31	0.98	116.65	108.96	1.57	1.07	1.47	0.91			
69	17-Feb-04		33.47	33.47	2.39	1.00	115.55	115.55	1.56	1.00	1.54	1.00			
70	23-Feb-04		34.68	34.68	2.48	1.00	116.7	116.7	1.57	1.00	1.58	1.00			
71	1-Mar-04		39.34	39.34	2.81	1.00	119.49	119.49	1.61	1.00	1.75	1.00			
72	8-Mar-04		36.38	39.34	2.60	0.92	116.25	119.49	1.57	0.97	1.66	0.95			
73	15-Mar-04		34.33	39.34	2.45	0.87	113.7	119.49	1.53	0.95	1.60	0.92			
74	22-Mar-04		35.81	39.34	2.56	0.91	114.2	119.49	1.54	0.96	1.66	0.95			
75	29-Mar-04		36.58	39.34	2.61	0.93	120.4	119.49	1.62	1.01	1.61	0.92			
76	5-Apr-04		36.11	39.34	2.58	0.92	119.11	119.49	1.60	1.00	1.61	0.92			
77	12-Apr-04		36.00	39.34	2.57	0.92	116.26	119.49	1.57	0.97	1.64	0.94			
78	19-Apr-04		29.38	39.34	2.10	0.75	117.75	119.49	1.59	0.99	1.32	0.76			Sell

Trade ends with 110% gain.  
Peak gain of 181% on 3/1/04

25% trailing stop  
loss since last peak

Sell flag goes off

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### Homework:

- On the 25%StopTracking SS: When you move forward through time which stocks in the portfolio get sold, and when?
- On the RGStopTracking SS: When you move forward through time which stocks in the portfolio get sold, and when?
- Could you build an SD-based stop tracking SS? If so, how?

## Selling: The RG Stop Loss Spreadsheet (4)

	A	AD	AE	AF	AG	AH	AI	AJ	AK	AL	AM	AN	AO	AP	AQ
1															
2													mdth RG (all)	212	
3													IWM (R2K) RG:	109	
4													Resulting stop:	19%	
5	Date	mdth	mdth Max	mdth Purchase RS	mdth Trailing RS	IWM	IWM mdth Max	IWM Purchase RS	IWM Trailing RS	mdth/IWM Purchase RS	mdth/IWM Trailing RS	0.19 adj purchase stop	0.19 adj trailing stop	0.19 trailing stop	
6	2-Dec-02					79.16									
7	9-Dec-02					77.05									
8	16-Dec-02					77.03									
9	23-Dec-02					76.14									
10	30-Dec-02					77.77									
11	6-Jan-03					78.8									
12	13-Jan-03					77.26									
13	21-Jan-03					74.38									
14	27-Jan-03		9.66	9.66	1.00	1.00	74.24	74.24	1.00	1.00	1.00	1.00			
15	3-Feb-03		8.06	9.66	0.83	0.83	71.32	74.24	0.96	0.96	0.87	0.87			
16	10-Feb-03		7.10	9.66	0.73	0.73	71.3	74.24	0.96	0.96	0.77	0.77	Sell	Sell	Sell
17	18-Feb-03														

Trade ends with 27% loss.  
Peak gain of 0% on 1/27/03

Sell flag goes off

Example from RGStopTracking WS - will be used as stock replacement example

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### Homework:

- How much did the IWM decline by 2/18/03? Do you think this means that MDTH suffered due to a general market decline or a problem with MDTH?
- Did you have any warning that MDTH was in trouble?
- How does the loss on MDTH compare to its trailing stop loss? How could you have attempted to prevent this difference?

## Selling: The Stop Loss Spreadsheet (5)

	A	AR	AS	AT	AU	AV	AW	AX	AY	AZ	BA	BB	BC	BD	BE	BF
1																
2													mrtn RG (all)	185		
3													IWM (R2k) RG:	109		
4													Resulting stop:	25%		
5	Date		mrtn	mrtn Max	mrtn Purchase RS	mrtn Trailing RS	IWM	IWM mrtn Max	IWM Purchase RS	IWM Trailing RS	mrtn/IWM Purchase RS	mrtn/IWM Trailing RS	0.25 adj purchase stop	0.25 adj trailing stop	0.25 trailing stop	
36	30-Jun-03		28.40	28.40	1.63	1.00	90.96	90.96	1.23	1.00	1.33	1.00				
37	7-Jul-03		29.43	29.43	1.69	1.00	94.63	94.63	1.27	1.00	1.32	1.00				
38	14-Jul-03		30.07	30.07	1.72	1.00	92.25	92.25	1.24	1.00	1.26	1.00				
39	21-Jul-03		split	20.48	20.48	1.76	1.00	93.35	92.25	1.28	1.02	1.40	0.95			
40	28-Jul-03		split	19.15	20.48	1.65	0.94	93.35	92.25	1.26	1.01	1.31	0.92			
41	4-Aug-03		split	19.01	20.48	1.64	0.93	90.5	92.25	1.22	0.98	1.34	0.95			
42	11-Aug-03		split	22.20	22.20	1.91	1.00	94.24	94.24	1.27	1.00	1.50	1.00			
43	18-Aug-03		split	22.72	22.72	1.95	1.00	96.92	96.92	1.31	1.00	1.50	1.00			
44	25-Aug-03		split	23.75	23.75	2.04	1.00	99.21	99.21	1.34	1.00	1.53	1.00			
45	2-Sep-03		split	24.50	24.50	2.11	1.00	101.7	101.7	1.37	1.00	1.54	1.00			
46	8-Sep-03		split	24.12	24.50	2.07	0.98	101.41	101.7	1.37	1.00	1.52	0.99			
47	15-Sep-03		split	23.76	24.50	2.04	0.97	103.6	101.7	1.40	1.02	1.46	0.95			
48	22-Sep-03		split	24.10	24.50	2.07	0.98	96.6	101.7	1.30	0.95	1.59	1.04			
49	29-Sep-03		split	25.86	25.86	2.22	1.00	102.22	102.22	1.38	1.00	1.62	1.00			
50	6-Oct-03		split	27.55	27.55	2.37	1.00	103.82	103.82	1.40	1.00	1.69	1.00			
51	13-Oct-03		split	24.53	27.55	2.11	0.89	103.7	103.82	1.40	1.00	1.51	0.89			
52	20-Oct-03		split	24.21	27.55	2.08	0.88	101.25	103.82	1.36	0.98	1.53	0.90			
53	27-Oct-03		split	26.04	27.55	2.24	0.95	105.5	103.82	1.42	1.02	1.58	0.93			
54	3-Nov-03		split	25.32	27.55	2.18	0.92	107.99	103.82	1.45	1.04	1.50	0.88			
55	10-Nov-03		split	25.20	27.55	2.17	0.91	106.2	103.82	1.43	1.02	1.52	0.89			
56	17-Nov-03		split	24.97	27.55	2.15	0.91	105.29	103.82	1.42	1.01	1.51	0.88			
57	24-Nov-03		split	24.28	27.55	2.09	0.88	109.45	103.82	1.47	1.05	1.57	0.84			
58	1-Dec-03		split	23.58	27.55	2.03	0.86	107.5	103.82	1.45	1.04	1.40	0.83			
59	8-Dec-03		split2	15.63	18.37	2.02	0.85	108.96	103.82	1.47	1.05	1.37	0.81			

1st split adjustment

2nd split adjustment

Depending on data source, tools used may need to adjust for splits in data stream. This happens twice in the case of MRTN.

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### Homework:

- How do I determine if a split has occurred?
- What are the equations for the adjustments for a stock split (e.g., in cells au21, av21)?
- What are the other splits that will impact the portfolio?
- Can you get the SS to factor in splits for you? If so, how?

## Selling: Additional Selling Rules

Besides the trailing stop loss strategy, additional selling rules are used to handle special circumstances:

- “Too Big” rule: Sell a stock if it composes > 20% of the portfolio
  - Too much risk, \$\$ riding on a single stock
  - Rule would sell 50% of stock, re-distribute cash to new purchases
  - Rule would probably have been used on PETD (35% of RG-weighted B&H portfolio)
- “2 year laggard” rule: If a stock is not materially out-performing the IWM after 2 years - sell it
  - Additional check to adjusted stop loss guidelines
- M&A rule: If a stock is acquired, sell the stock
- Tax loss rule: Sell on the 51st week of ownership if have a significant (>5%) loss
  - Take your losses early and make them short-term for tax purposes

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### Homework:

- On the 25%StopTracking SS: Is there any 2 year laggard rule fallout? Any Tax loss rule fallout?

- On the RGStopTracking SS: Is there any 2 year laggard rule fallout? Any Tax loss rule fallout?

## New Stocks: The Zweig0303 Candidates (1)

Company name	Ticker	Exchange	Sector	Industry	SIC primary code	ADR/ADS Stock	Dow stock	Standard and Po	Shadow stock	Number of employe	Web address
American Pharmaceutical P	APPX	Nasdaq	Health Care	Biotechnology & Drugs	2834	No	None	None	No	940	<a href="http://www.appdrugs.com/">http://www.appdrugs.com/</a>
Caremark Rx, Inc.	CMX	New York	Services	Retail (Drugs)	5912	No	None	None	No	4037	<a href="http://www.caremark.com/">http://www.caremark.com/</a>
E-LOAN, Inc.	EELN	Nasdaq	Financial	Consumer Financial Services	6163	No	None	None	No	436	<a href="http://www.eloan.com/">http://www.eloan.com/</a>
Engineered Support System	EASI	Nasdaq	Capital Goods	Misc. Capital Goods	3595	No	None	SmallCap 600	No	2412	<a href="http://www.engineeredsupport.com/">http://www.engineeredsupport.com/</a>
Greater Atlantic Fincl.	GAFC	Nasdaq	Financial	S&Ls/Savings Banks	6712	No	None	None	No	148	<a href="http://www.gab.com/">http://www.gab.com/</a>
Headwaters Incorporated	HDMR	Nasdaq	Energy	Coal	1221	No	None	None	No	840	<a href="http://www.hdwtr.com/">http://www.hdwtr.com/</a>
Hovnanian Enterprises	HOV	New York	Capital Goods	Construction Services	1531	No	None	None	No	2370	<a href="http://www.khov.com/">http://www.khov.com/</a>
International Speedway	ISCA	Nasdaq	Services	Recreational Activities	7948	No	None	MidCap 400	No	900	<a href="http://www.daytonausa.com/">http://www.daytonausa.com/</a>
Neogen Corporation	NEOG	Nasdaq	Health Care	Biotechnology & Drugs	2836	No	None	None	No	285	<a href="http://www.neogen.com/">http://www.neogen.com/</a>
R&G Financial Corporation	RGF	New York	Financial	Regional Banks	6712	No	None	None	No	1522	<a href="http://www.rgonline.com/">http://www.rgonline.com/</a>
UGI Corporation	UGI	New York	Utilities	Natural Gas Utilities	4932	No	None	SmallCap 600	No	6300	<a href="http://www.ugicorp.com/">http://www.ugicorp.com/</a>
W Holding Company, Inc.	WHI	New York	Financial	Regional Banks	6712	No	None	None	No	817	<a href="http://www.wtpr.com/">http://www.wtpr.com/</a>

The 12 stock output above was created by running the canned SIPro Zweig screen on the 2/28/03 CD.

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### Homework

- Which SIPro view am I using above?
- Which sort did I use above?

## New Stocks: The Zweig0303 Candidates (2)

	A	B	C	D	H	I	J	R	S
1	company	ticker	exchg_desc	smg_desc	dow_desc	sp_desc	shadow	employees	web_addr
2	Abraxis BioSciences	ABBI	M - Nasdaq	08 - Health Care	None	None	FALSE	940	<a href="http://www.appdrugs.com/">http://www.appdrugs.com/</a>
3	Caremark Rx, Inc.	CMX	N - New York	09 - Services	None	None	FALSE	4037	<a href="http://www.caremark.com/">http://www.caremark.com/</a>
4	E-LOAN, Inc.	EELN	M - Nasdaq	07 - Financial	None	None	FALSE	436	<a href="http://www.eloan.com">http://www.eloan.com</a>
5	Engineered Support System	EASI	M - Nasdaq	02 - Capital Goods	None	SmallCap 600	FALSE	2412	<a href="http://www.engineeredsupport.com/">http://www.engineeredsupport.com/</a>
6	Greater Atlantic Fncl.	GAFC	M - Nasdaq	07 - Financial	None	None	FALSE	148	<a href="http://www.gab.com">http://www.gab.com</a>
7	Headwaters Incorporated	HW	M - Nasdaq	06 - Energy	None	None	FALSE	840	<a href="http://www.hdwtr.com/">http://www.hdwtr.com/</a>
8	Howmanian Enterprises	HOV	N - New York	02 - Capital Goods	None	None	FALSE	2370	<a href="http://www.khov.com">http://www.khov.com</a>
9	International Speedway	ISCA	M - Nasdaq	09 - Services	None	MidCap 400	FALSE	900	<a href="http://www.daytonausa.com">http://www.daytonausa.com</a>
10	Neogen Corporation	NEOG	M - Nasdaq	08 - Health Care	None	None	FALSE	265	<a href="http://www.neogen.com/">http://www.neogen.com/</a>
11	R&G Financial Corporation	RGF	N - New York	07 - Financial	None	None	FALSE	1522	<a href="http://www.rgonline.com/">http://www.rgonline.com/</a>
12	UGI Corporation	UGI	N - New York	12 - Utilities	None	SmallCap 600	FALSE	6300	<a href="http://www.ugicorp.com/">http://www.ugicorp.com/</a>
13	W Holding Company, Inc.	WHI	N - New York	07 - Financial	None	None	FALSE	817	<a href="http://www.wbpr.com">http://www.wbpr.com</a>

2 stocks (EELN, EASI) no longer exist. 2 stocks (ABBI, HW) have changed names and/or tickers. We will work with the remaining 10 stock candidates shown above.

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### Homework

- How did I determine that EELN and EASI no longer exist?
- How did I determine that ABBI and HW had new symbols?
- Are there any common stocks between the Zweig0302 and Zweig0303 screens? Why or why not?
- How many sectors are represented in the 10 surviving stocks? Is this good or bad?

### New Stocks: The Zweig0303 Candidates (3)

	A	B	C	D	E	F	G
1	company	ticker	price	price_date	peh_y1	eps_eg5	epscon_12m
2	American Pharmaceutical P	APPX	18.39	28-Feb-03	27.47	36.3	0.93
3	Caremark Rx, Inc.	CMX	17.46	28-Feb-03	6.97	23.7	3.32
4	Greater Atlantic Fncl.	GAFC	6.95	28-Feb-03	21.61		0.31
5	Headwaters Incorporated	HDWR	14.02	28-Feb-03	20.37	20	1.11
6	Hovnanian Enterprises	HOV	32.83	28-Feb-03	9.43	16	4.51
7	International Speedway	ISCA	38.14	28-Feb-03	22.99	15.5	2.01
8	Neogen Corporation	NEOG	12.5	28-Feb-03	30.81	19	0.74
9	R&G Financial Corporation	RGF	22.25	28-Feb-03	13.65	12	2.37
10	UGI Corporation	UGI	41.4	28-Feb-03	15	6.8	3.19
11	W Holding Company, Inc.	WHI	18.24	28-Feb-03	23.86	28.5	1.01

Created a custom view to help me rank stocks.

- PEH\_Y1: Highest PE obtained last calendar year
- EPS\_EG5: EPS Growth estimate
- EPSCON\_12M : EPS-Continuing 12m (TTM)

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#### Homework

- I chose PEH\_Y1 as an estimate of a high PE for 2003. What other options does Stock Investor provide? Which would you have chosen and why?
- I chose EPS-EG5 as an estimate of the long term earnings growth rate. What other options does Stock Investor provide? Which would you have chosen and why?
- I chose EPSCON\_12M as an estimate of current EPS. What other options does Stock Investor provide? Which would you have chosen and why?
- I chose a simple EPS-driven model to estimate a future target price. What other models does Stock Investor provide? Where can you find these in SI?

## New Stocks: The Purchasing Spreadsheet (1)

stock	rg	port rg	
DHOM	195		
JOUT	231		
MRTN	147		
NOBL	179		
PETD	129		
PLUS	127		
PMRY	319		
GFAB	262		
RSC	182		
SCHN	151		
STTX	332		
TBAC	150		
USAK	212		
XPRSA	224		
avg	203	70	
spy	106		tvl port \$95,163
mdy	98		bet size 1.00%
iwm	96		bet size \$ 952

RG of existing stocks in portfolio

Average RG of portfolio (203) and portfolio RG from RG site (70)

Portfolio stats: total size, bet size in percent risked and dollars risked

RGs of various indices:  
 SPY = SP500, MDY = MidCapSPYDR, IWM = R2K

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### Homework:

- How did I calculate the total size of the portfolio (cell I22)?

## New Stocks: The Purchasing Spreadsheet (2)

stock	rg	port rg		
DHOM	195			
JOUT	231			
MRTN	147			
NOBL	179			
PETD	129			
PLUS	127			
PMRY	319			
GFAB	262			
RSC	182			
SCHN	151			
STX	332			
TBAC	160			
USAK	212			
XPRSA	224			
avg	203	70		
spy	106		tll port	\$95,163
mdy	98		bet size	1.00%
iwm	96		bet size \$	952
stock	price	rg	stop loss	
WHI	\$ 8.11	154	16%	
UGI	\$ 13.80	110	11%	
ABBI	\$ 12.20	345	30%	
NEOG	\$ 10.00	212	22%	
RGF	\$ 14.83	136	14%	
HV	\$ 14.02	187	19%	
CMX	\$ 17.46	195	20%	
ISCA	\$ 38.14	129	13%	
GAFC	\$ 6.95	191	20%	
HOV	\$ 16.42	216	23%	
Key:	cells you must enter values into			
	manually overridden calculations			

Stock and stock price added from screen output.

RG of each stock added (from RG site)

Stop loss column computes stop loss based on stock Vs. IWN RG. Note pink shaded cell reflects 30% override

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### Homework

- What is the calculation for stop loss% (e.g., cell E27)?
- What stop loss does ABBI want from the RG calculation? Would you have allowed this large a stop?

## New Stocks: The Purchasing Spreadsheet (3)

stock	rg	port rg
DHOM	195	
JOUT	231	
MRTN	147	
NOBL	179	
PETD	129	
PLUS	127	
PMRY	319	
GFAB	262	
RSC	182	
SCHN	151	
STTX	332	
TBAC	150	
USAK	212	
XPRSA	224	
avg	203	70
spy	106	
mdy	98	
iwm	96	

Based on stop loss calculations, SS then determines the amount to invest (\$amount column) and the number of shares to purchase (#shares column)

Based on these values, the RG site is used (in "What if" mode) to determine the new Portfolio RG

Note that any stock increasing the portfolio RG is excluded from further analysis (in this case HOV)

stock	price	rg	stop loss	#shares	\$amt	port rg
WHI	\$ 8.11	154	16%	599	4856	69
UGI	\$ 13.80	110	11%	352	4858	68
ABBI	\$ 12.20	345	30%	260	3172	66
NEOG	\$ 10.00	212	22%	430	4300	67
RGF	\$ 14.83	136	14%	327	4850	69
HW	\$ 14.02	187	19%	346	4851	69
CMX	\$ 17.46	195	20%	268	4679	69
ISCA	\$ 38.14	129	13%	127	4844	69
GAFC	\$ 6.95	191	20%	688	4782	69
HOV	\$ 16.42	216	23%	257	4219	70

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### Homework

- What is the equation for the number of shares (e.g., in cell F29)?
- Why did I override the #shares for WHI, UGI and other stocks? How did I come up with the number of shares?
- Suppose no new stock lowered RG volatility - what would you do then? Why?

## New Stocks: The Purchasing Spreadsheet (4)

stock	rg	port rg
DHOM	195	
JOUT	231	
MRTN	147	
NOBL	179	
PETD	129	
PLUS	127	
PMRY	319	
GFAB	262	
RSC	182	
SCHN	151	
STTX	332	
TBAC	150	
USAK	212	
XPRSA	224	
avg	203	70
spy	106	
mdy	98	
iwm	96	

To pick between the stocks I used the info exported from the NewPurchase view to rank on target vs. current price multiple. The target price is computed by taking last calendar year's high PE times an estimate of future EPS. The future Est. EPS is based on analyst's EPS growth rate and TTM EPS from continuing operations.

Obviously many other figures of merit may be calculated for ranking these stocks. This includes using other rating, ranking services (e.g., Schwab, S&P, VV)

stock	price	rg	stop loss	#shares	\$amt	port rg	Hi PE		EPS (Cont)		Tgt Price	Tgt/Cmt Price
							Yr 1	EEPS GR	TTM	Price		
WHI	\$ 8.11	154	16%	599	4856	69	23.9	28.5%	1.01	30.97	3.82	
UGI	\$ 13.80	110	11%	352	4858	68	15.0	6.8%	3.19	51.10	3.70	
ABBI	\$ 12.20	345	30%	260	3172	66	27.5	36.3%	0.93	34.82	2.85	
NEOG	\$ 10.00	212	22%	430	4300	67	30.8	19.0%	0.74	27.13	2.71	
RGF	\$ 14.83	136	14%	327	4850	69	13.7	12.0%	2.37	36.23	2.44	
HW	\$ 14.02	187	19%	346	4851	69	20.4	20.0%	1.11	27.13	1.94	
CMX	\$ 17.46	195	20%	268	4679	69	7.0	23.7%	3.32	28.62	1.64	
ISCA	\$ 38.14	129	13%	127	4844	69	23.0	15.5%	2.01	53.37	1.40	
GAFC	\$ 6.95	191	20%	688	4762	69	21.6	-33.0%	0.31	4.49	0.65	
HOV	\$ 16.42	216	23%	257	4219	70				0.00		

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### Homework

- What is the equation for calculating the target price (e.g., in cell L27)?

## New Stocks: The Purchasing Spreadsheet (5)

	A	B	C	D	E	F	G	H	I	J	K	L	M
1													
2		stock	rg	port rg			stock	rg	port rg				
3													
4		DHOM	196				DHOM	196					
5		JOUT	231				JOUT	231					
6		MRTN	147				MRTN	147					
7		NOBL	179				NOBL	179					
8		PETD	129				PETD	129					
9		PLUS	127				PLUS	127					
10		PMRY	319				PMRY	319					
11		QFAB	262				QFAB	262					
12		RSC	182				RSC	182					
13		SCHN	151				SCHN	151					
14		STTX	332				STTX	332					
15		TBAC	150				TBAC	150					
16		USAK	212				USAK	212					
17		XPRSA	224				XPRSA	224					
18							whi	154					
19													
20		avg	203	70			avg	200	69				
21													
22		spy	106		tll port	\$95,163		cash por	4861				
23		mdy	98		bet size	1.00%							
24		iwm	96		bet size \$	952							
25													
26		stock	price	rg	stop loss	#shares	\$amt	port rg	Hi PE Yr 1	EEPS GR	EPS (Cont) TTM	Tgt Price	Tgt/Cmt Price
27		WHI	\$ 8.11	154	16%	599	4956	69	23.9	28.5%	1.01	30.97	3.82
28		UGI	\$ 13.80	110	11%	352	4858	68	15.0	6.8%	3.19	51.10	3.70
29		ABBI	\$ 12.20	345	30%	260	3172	66	27.5	36.3%	0.93	34.82	2.85
30		NEOG	\$ 10.00	212	22%	430	4300	67	30.8	19.0%	0.74	27.13	2.71
31		RGF	\$ 14.83	136	14%	327	4850	69	13.7	12.0%	2.37	36.23	2.44
32		HW	\$ 14.02	187	19%	346	4851	69	20.4	20.0%	1.11	27.13	1.94
33		CMX	\$ 17.46	195	20%	268	4679	69	7.0	23.7%	3.32	28.62	1.64
34		ISCA	\$ 38.14	129	13%	127	4844	69	23.0	15.5%	2.01	53.37	1.40
35		GAFC	\$ 6.95	191	20%	688	4782	69	21.6	-33.0%	0.31	4.49	0.65
36		HOV	\$ 16.42	216	23%	257	4219	70				0.00	
37													
38													
39		Key:	cells you must enter values into										
40			manually overridden calculations										

Updated SS with RGs of all stocks (old and new) in portfolio

Note lower RG for new portfolio

## Homework (!!)

- **Assignment 1: Answer the questions on the slides**
  - Questions are in the notes view of the presentation
  - Some questions asked have no "right" answer - up to interpretation, view of the individual
  - Some questions deal with Stock Investor (SI) and how it is used, information it can make available for use.
  - Some questions may/will require you to visit Yahoo!! Finance, do some Googling, visit the RiskGrade site, etc. This is also part of the process (we all need references to answer questions as we make investment decisions).
  - Some questions will require you to understand equations in excel worksheets
  - Some questions will cause you to "walk forward" in time to see what happens to the portfolio (e.g., sell decisions based on trailing stops occurring). Welcome to a form of back-testing.
  - There are extra credit questions dealing with SDs of stocks and portfolios. Be forewarned: These will take significant time and effort - but you will have some useful SS when you're done
- **Assignment #2: Initialize the Portfolios created in the last session's homework**
  - Use the exported data created from the O'Shaughnessy Sm-Cap Gw-Val-e-r and Dividend Yield w/SGR screens
  - Initialize using the equal RiskGrade approach (I.e., the RGWghtStart worksheet)
  - For extra credit, initialize using the equal SD approach (I.e., the SDWghtStart worksheet)
- **Assignment #3: Initialize your own portfolio (Extra Credit, Optional)**
  - Using your SI CD, run the Zweig screen and create an Equal and RG - weighted portfolio
  - Use current (today's) RGs for optimization. (If you are motivated to do so, there is a way to get historical RGs for stocks and portfolios - but it is painful.)
  - There are no pre-determined answers here - I'll help via Q&A but this is largely self-study
- **Assignment #4: Do a walk-forward test of your trailing stops (Extra Credit, Optional)**
  - Create a sell spreadsheet for your portfolio and perform walk-forward testing to see which stocks get sold, when and why
  - There are no pre-determined answers here - I'll help via Q&A but this is largely self-study

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## Appendix: References (1)

### Tools needed to perform this type of analysis

- Internet access, web browser: pick your favorite ISPs, SW vendor
- Stock screening tools
  - Either StockInvestor (SI) or Stock Investor Professional (SIPRo) are excellent tools
  - AAIi site allows you to download weekly updates
    - <http://www.aaii.com/stockinvestor/downloads/>
  - Historical data, CDs useful for studies like this - remember to keep the CDs!!
- RiskGrade account:
  - High points of site touched on in presentation - good site to spend some time at putting together portfolios, examining charts, etc.
- Spreadsheet tools:
  - Excel or equivalent needed
  - No macro programming knowledge needed for this exercise
    - There are macros in the sell SS to download stocks
  - Several plug-ins would help in downloading, maintaining stock pricing spreadsheets. Some examples: (no product plugs - just pointers)
    - Analyzer Excel (package I use): <http://www.analyzerxl.com/order.htm>
    - XLQPlus also gets good marks and has an interface to SIPro DB: <http://www.qmatix.com/XLQ.htm>
  - Bob Smithson's session will provide SS & tools that will aid in this analysis
  - In a pinch, can go to Yahoo!! and directly download price history into a SS

## Appendix: References (2)

### Reference Books

- James P. O'Shaughnessy's **What Works on Wall Street** can form the basis of many passive portfolios
- Bill Matson's **Data Driven Investing** performs studies similar to O'Shaughnessy's
- Ralph Vince's **The Mathematics of Money Management: Risk Analysis Techniques for Traders** is a good general text on money management techniques
- Tom Stridsman's **Trading Systems that Work** is an excellent trading system development text covering a number of topics touched on in these talks (e.g., exit design, money management)

### Web Sites/URLs

- URL on position sizing articles, tools:  
<http://www.adaptrade.com/Articles/index.htm>
- URL for RiskGrades information:  
<http://www.aaii.com/riskgrades/>
- URL for SIPro information:  
<http://www.aaii.com/stockinvestor/>
- URL for AAI article on the Zweig screen  
<http://www.aaii.com/stockscreens/screendata/overview.cfm?screen=Zweig>