

# Money Management Strategies

Gordon Scott, CMT

# What is Money Management?

Money Management is the primary method of controlling risk in trading or investing. It is the area of decision making that determines:

- How much money to risk on each trade (Position Size)
- How to increase risk and opportunity (Position Sizing Strategy™)\*
- How much cumulative risk to accept (Portfolio Heat)
- How to apply Position Sizing Strategy in conjunction with traditional technical analysis methods (**trade optimization**).

It is an underdeveloped area of Technical Analysis.

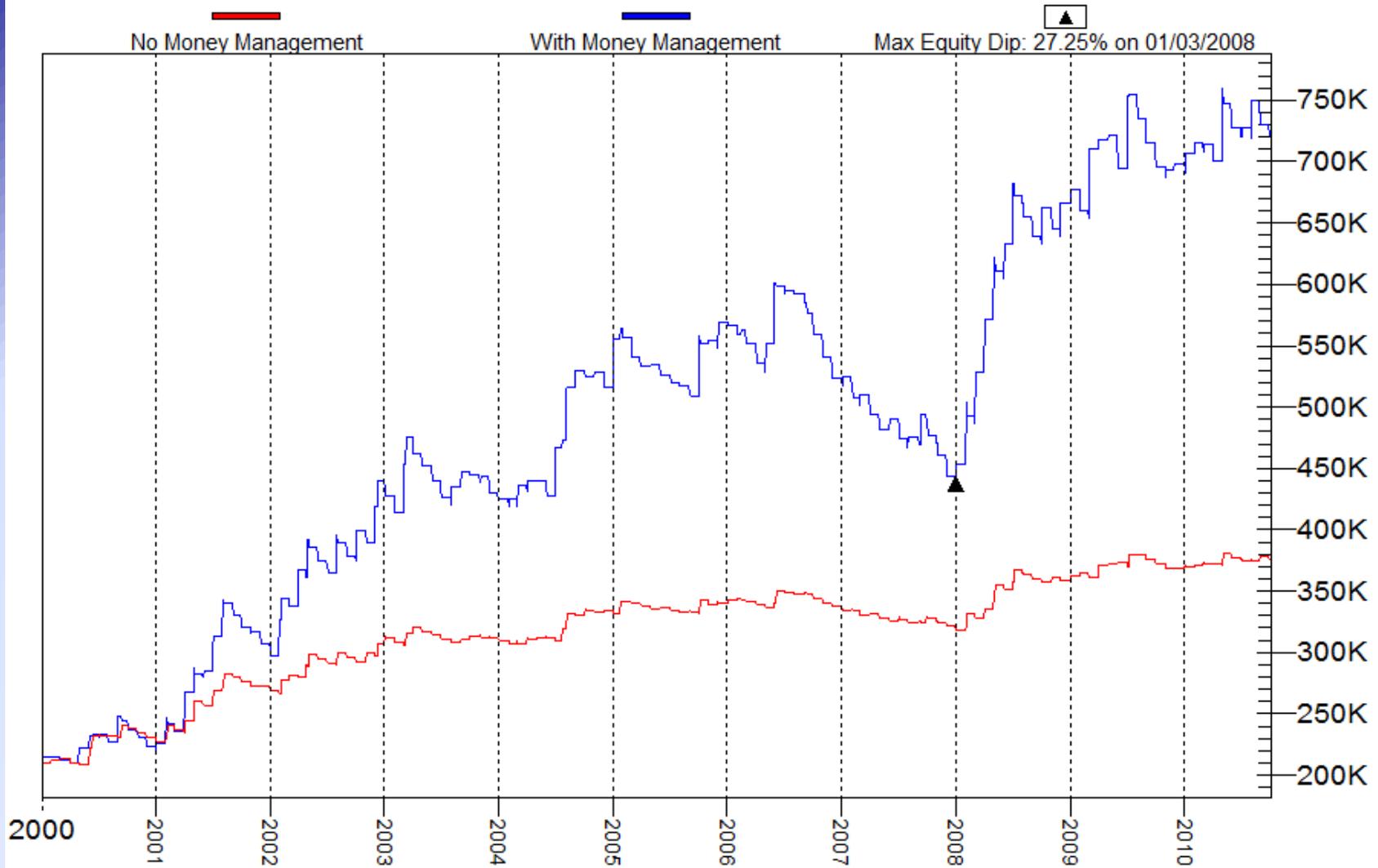
\* Position Sizing Strategy is a trademark of Van Tharp Institute and is used here by permission.

# Thank You:

## Acknowledgements:

- Definitive Guide to Position Sizing, by Dr. Van K. Tharp
- New Trading Systems and Methods, Perry J. Kauffman
- Computer Analysis of the Futures Market, Chuck LeBeau
- The Arcsine Distribution, Chris H. Rycroft

# Equity Curve



# Does Money Management have anything to do with Technical Analysis?

“Technical Analysis is the study of data generated by the action of markets and by the behavior and psychology of market participants and observers. Such study is usually applied to estimating the probabilities for the future course of prices for a market, investment or speculation by interpreting the data in the context of precedent.”

*-MTA.ORG knowledgebase*

**Does Money  
Management  
have anything  
to do with  
Technical  
Analysis?**

“...estimating the  
probabilities for the future  
course of prices for a  
market...”

How about estimating the  
optimal strategies for  
capitalizing on the course of  
prices for a market?

# Does Money Management have anything to do with Technical Analysis?

- YES. Especially when you consider...
- How you apply money management, in conjunction with Technical Analysis, actually changes your trading outcomes
- Without consideration for money management, the benefits of technical analysis can be negated

# The Arcsine Law

- Mathematical formula used in probability studies
- Implies that trends, even in random data, are more likely than an equal distribution of “walks” (the progression of results).

Full definition in printed lecture given by Chris H. Rycroft  
available at this URL:

[math.berkeley.edu/~chr/teach/Lec14\\_2006.pdf](http://math.berkeley.edu/~chr/teach/Lec14_2006.pdf)

# The Arcsine Law

- The Equation...

$$\frac{1}{\pi} \int_0^x \frac{dt}{\sqrt{t(1-t)}}$$

as  $n \rightarrow \infty$ .

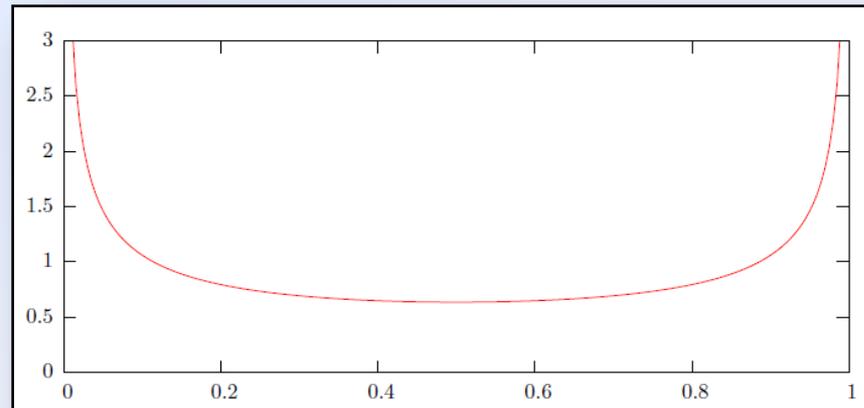
# The Arcsine Law

- The Equation...

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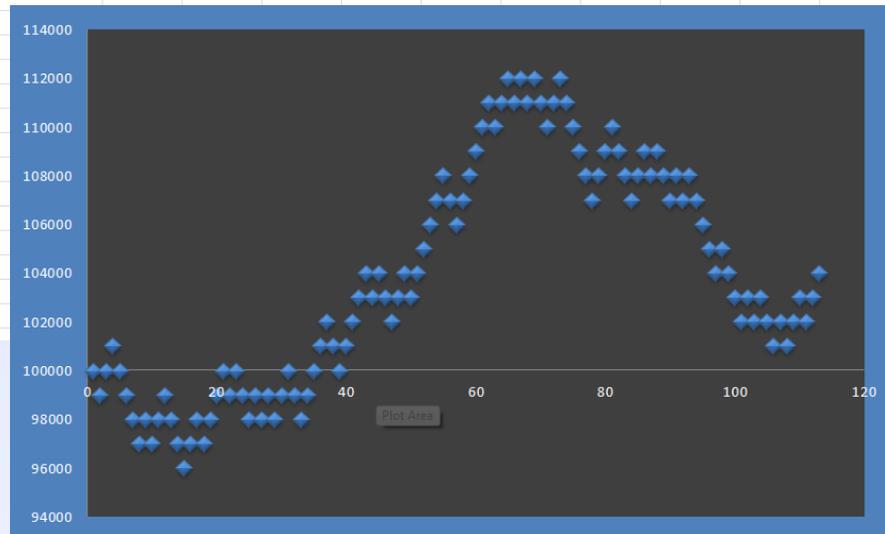
- appears graphically as...

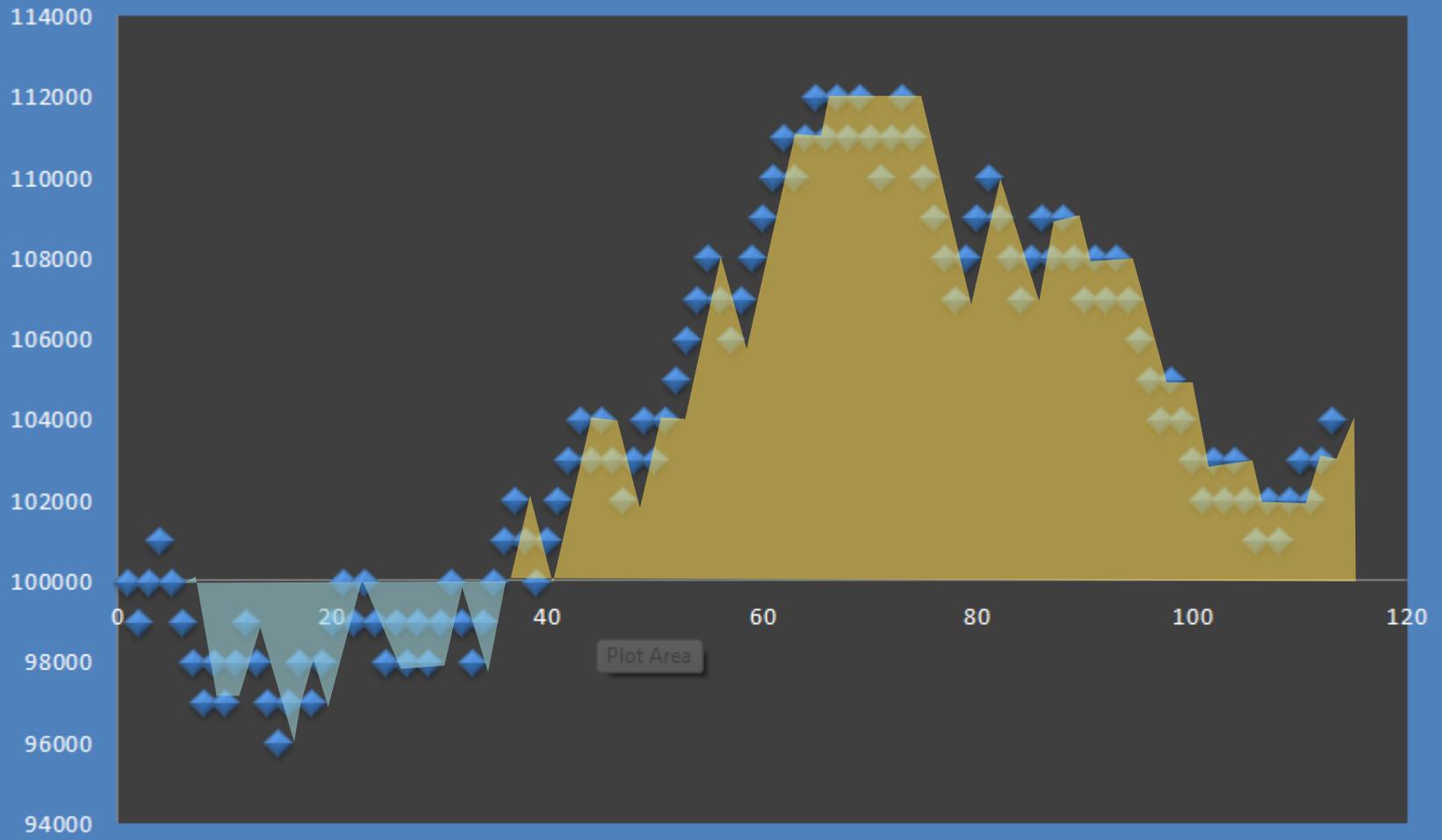


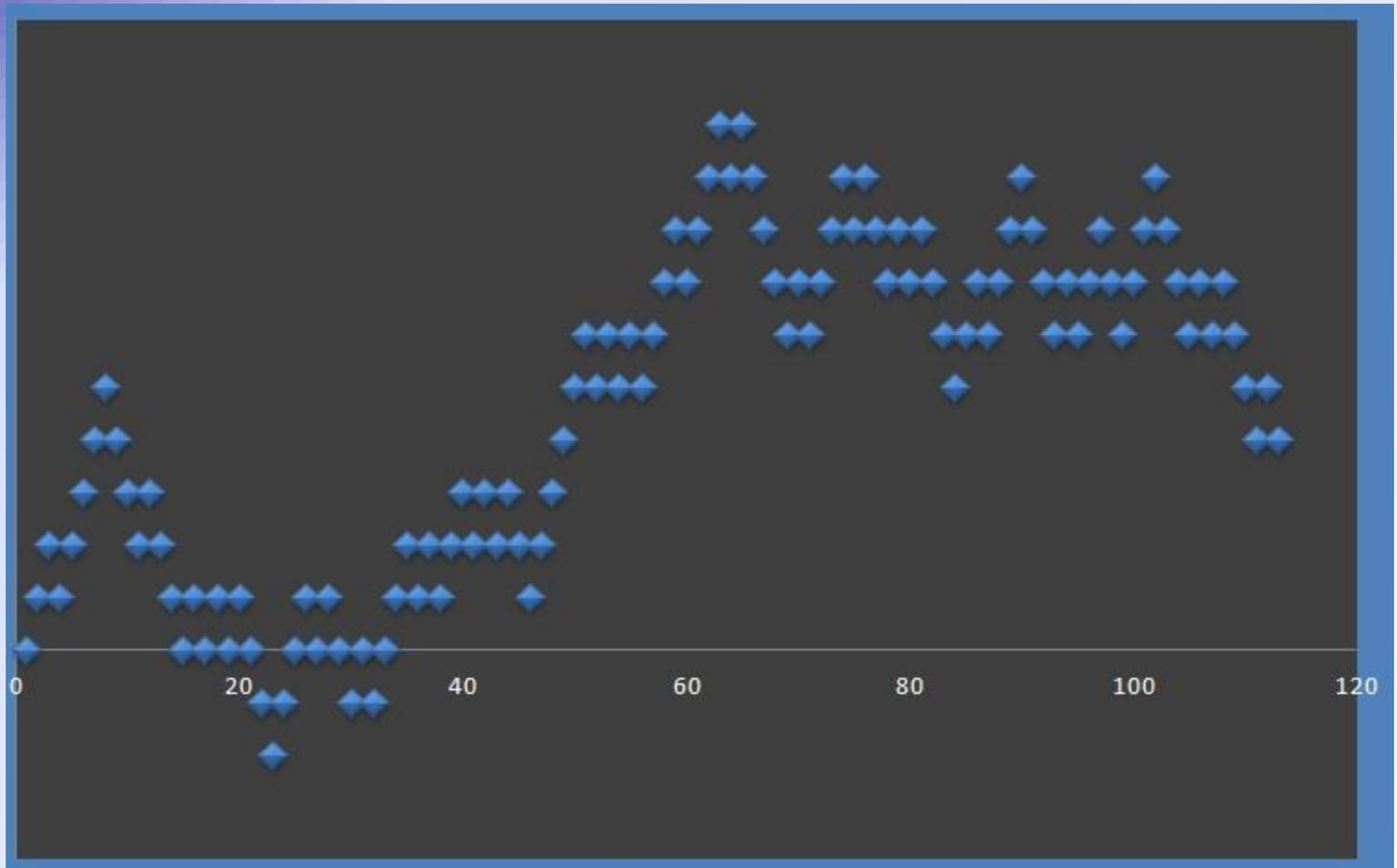


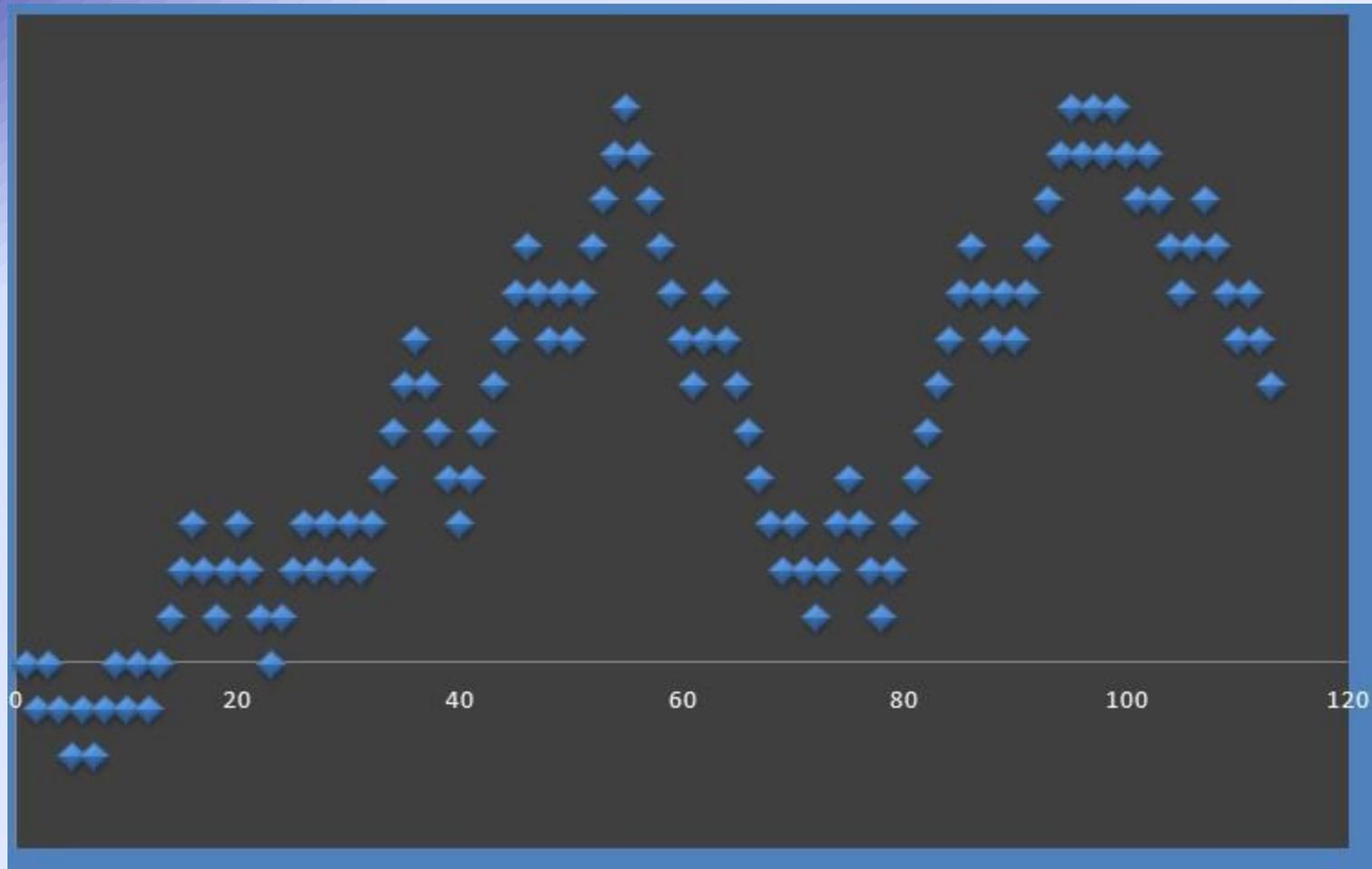
# Demonstrating the concept through simulation

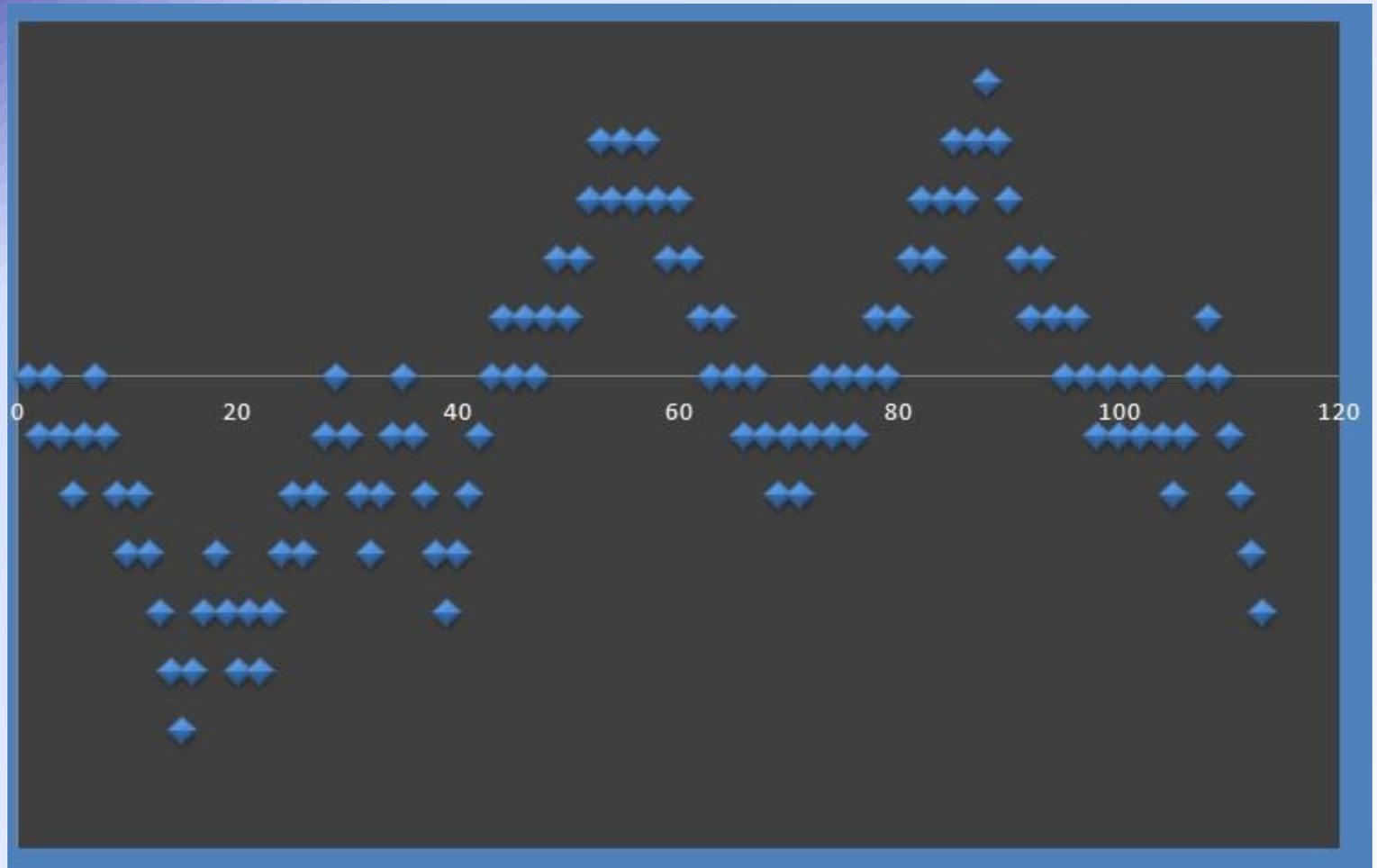
							Peak	Peak	1% Peak	1% Peak	1% Peak	1% Peak	1% Peak	1% Peak	1% Peak
Capital	100000	100000	99000	98000	99000	100000	101000	101000	101000	101000	101000	101000	102000	102000	103000
Risk per trade	1%	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Results (120 trades)	\$ 110,000.00	-1000	-1000	1000	1000	1000	1000	-1000	1000	-1000	1000	1000	-1000	1000	1000
X		-1	-1	1	1	1	1	-1	1	-1	1	1	-1	1	1
							Peak	Peak	1% Peak	0% Peak	1% Peak	0% Peak	1% Peak	0% Peak	1% Peak
Threshold	100000	100000	98000	96000	98000	100000	101000	99995	100995	99985.1	100985	101995	100975	101985	103005
Random Number		0.099492182	0.243079	0.605889536	0.8215	0.65216	0.16914	0.74348	0.38125	0.86814	0.82731	0.29633	0.90353	0.54866	0.99943
Risk per trade	1.00%	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Additional risk	1.00%	2000	2000	2000	2000	1000	1005	1000	1009.95	1000	1009.85	1019.95	1009.75	1019.85	1030.05
Results (120 trades)	\$ 110,133.69	-2000	-2000	2000	2000	1000	-1005	1000	-1010	1000	1009.85	-1019.9	1009.75	1019.85	1030.05
X		-1	-1	1	1	1	-1	1	-1	1	1	-1	1	1	1
Risk threshold	100%														
Gain/Loss %	10%	10%													
Lowest balance after 5 trades	\$100,000.00	Greatest Drawdown													
Lowest balance after 5 trades MM	\$99,985.05		5%												
W/L Distribution															
20%	-1	-0.2													
20%	-1	-0.2													
10%	-1	-0.1													
40%	1	0.4													
5%	1	0.05													
5%	1	0.05													
Expectancy		0													

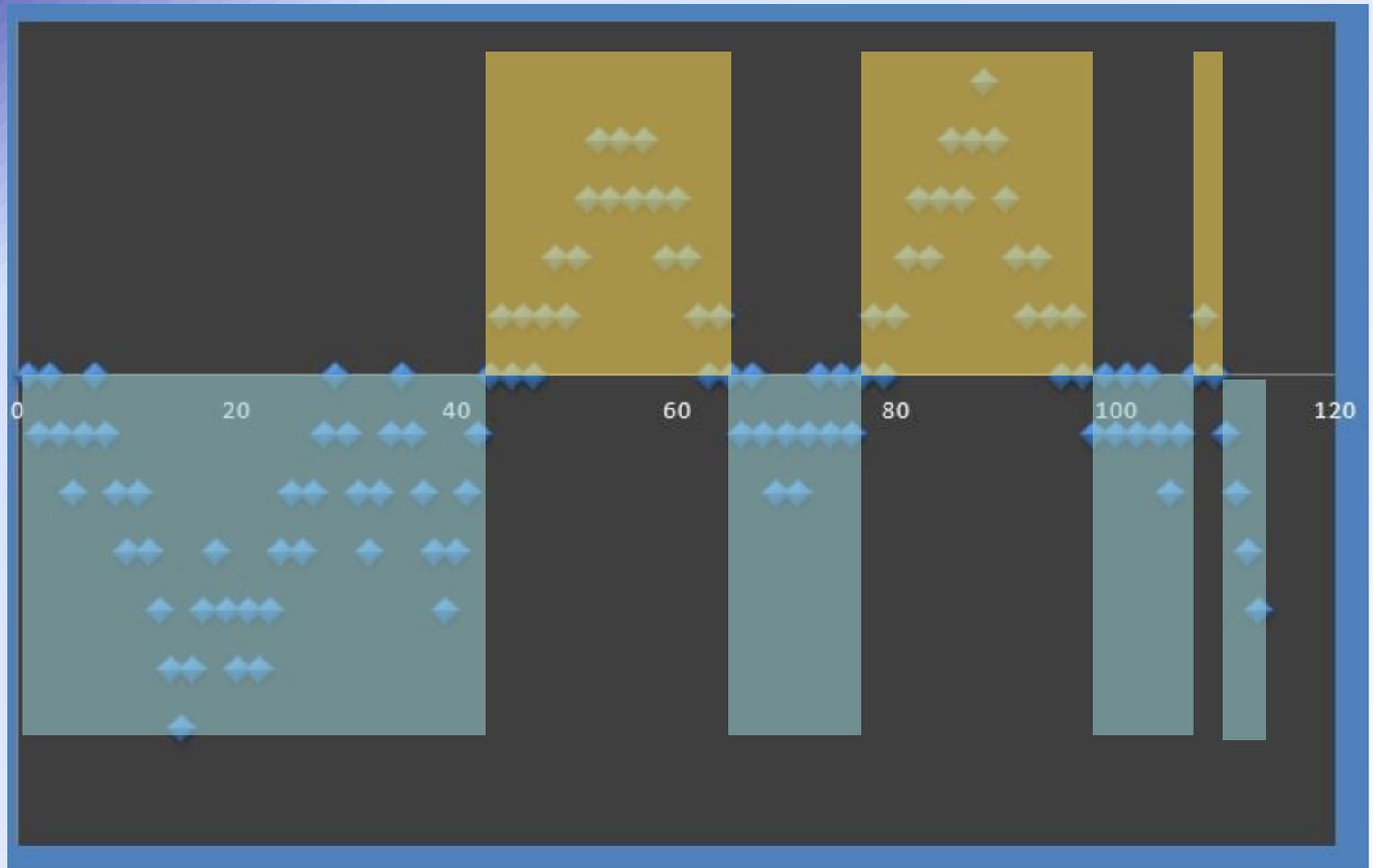












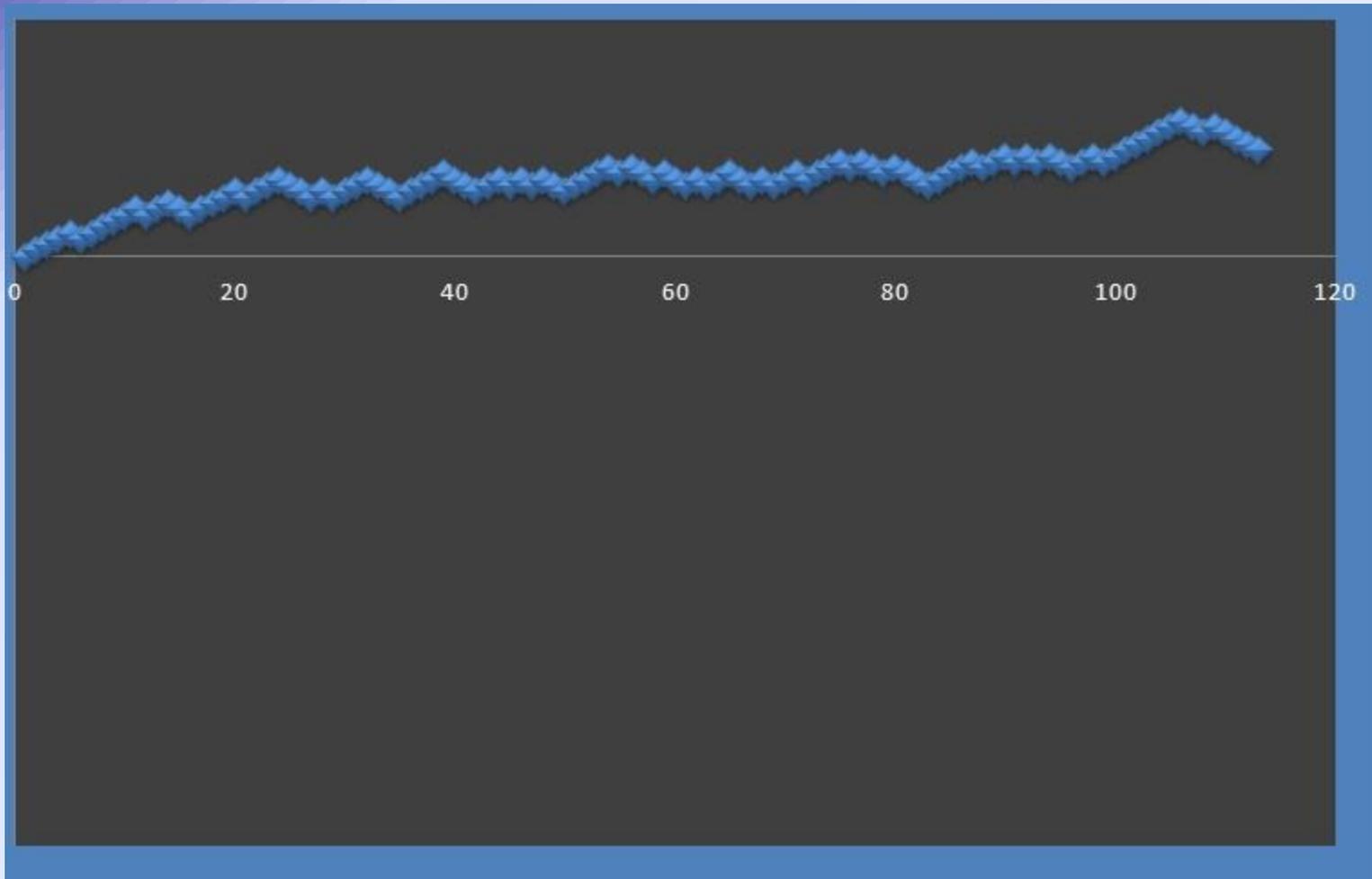
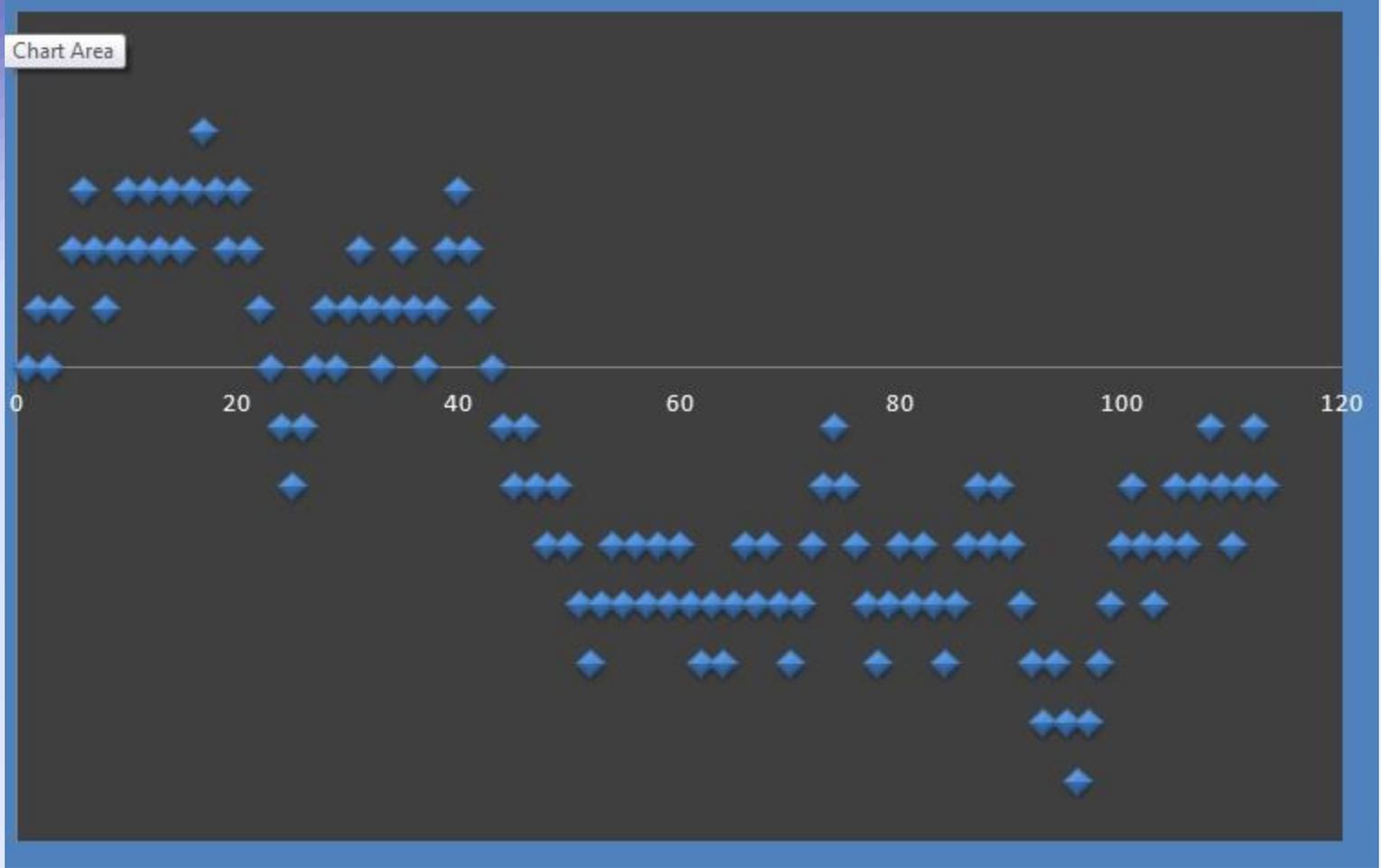
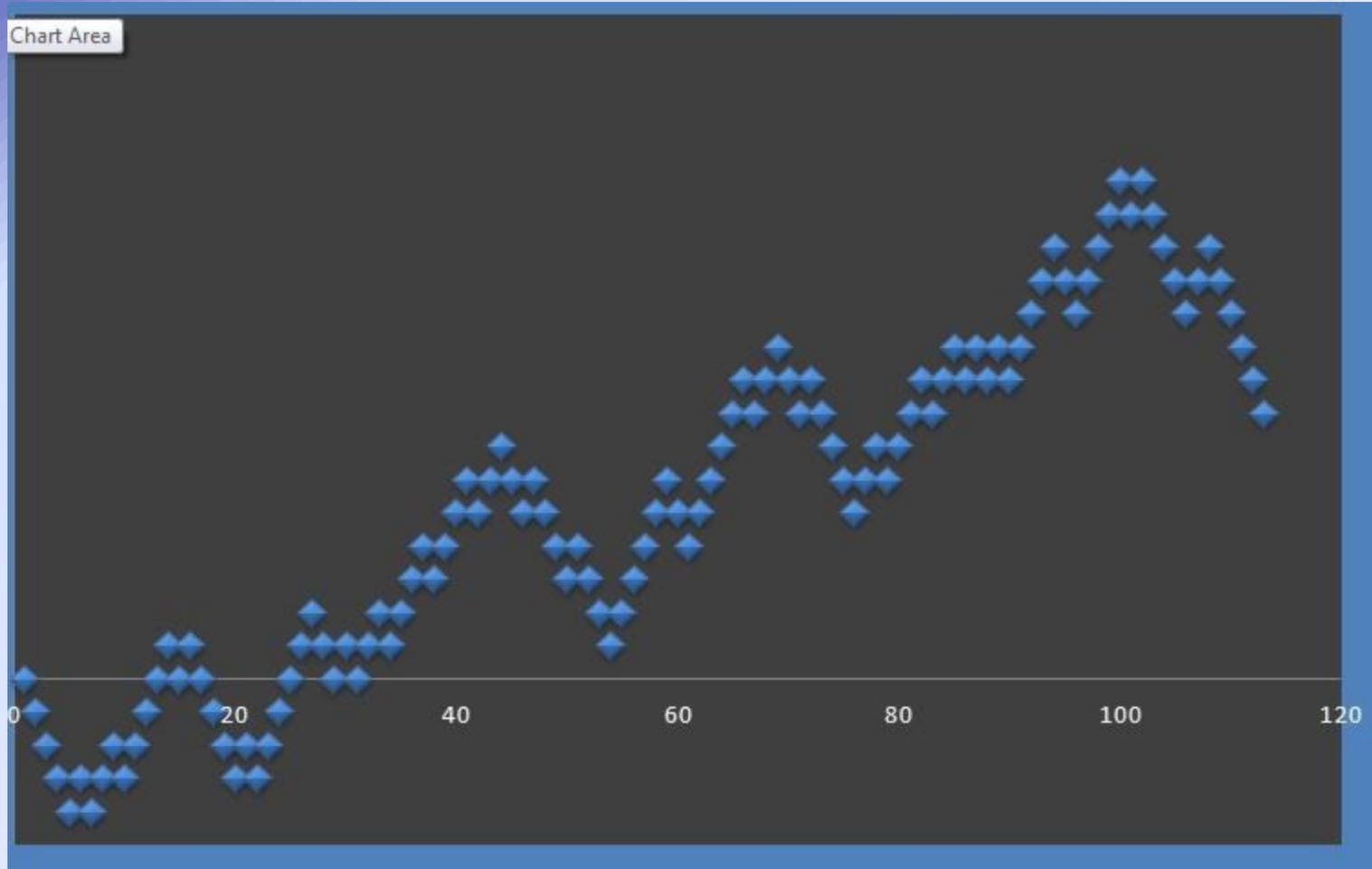
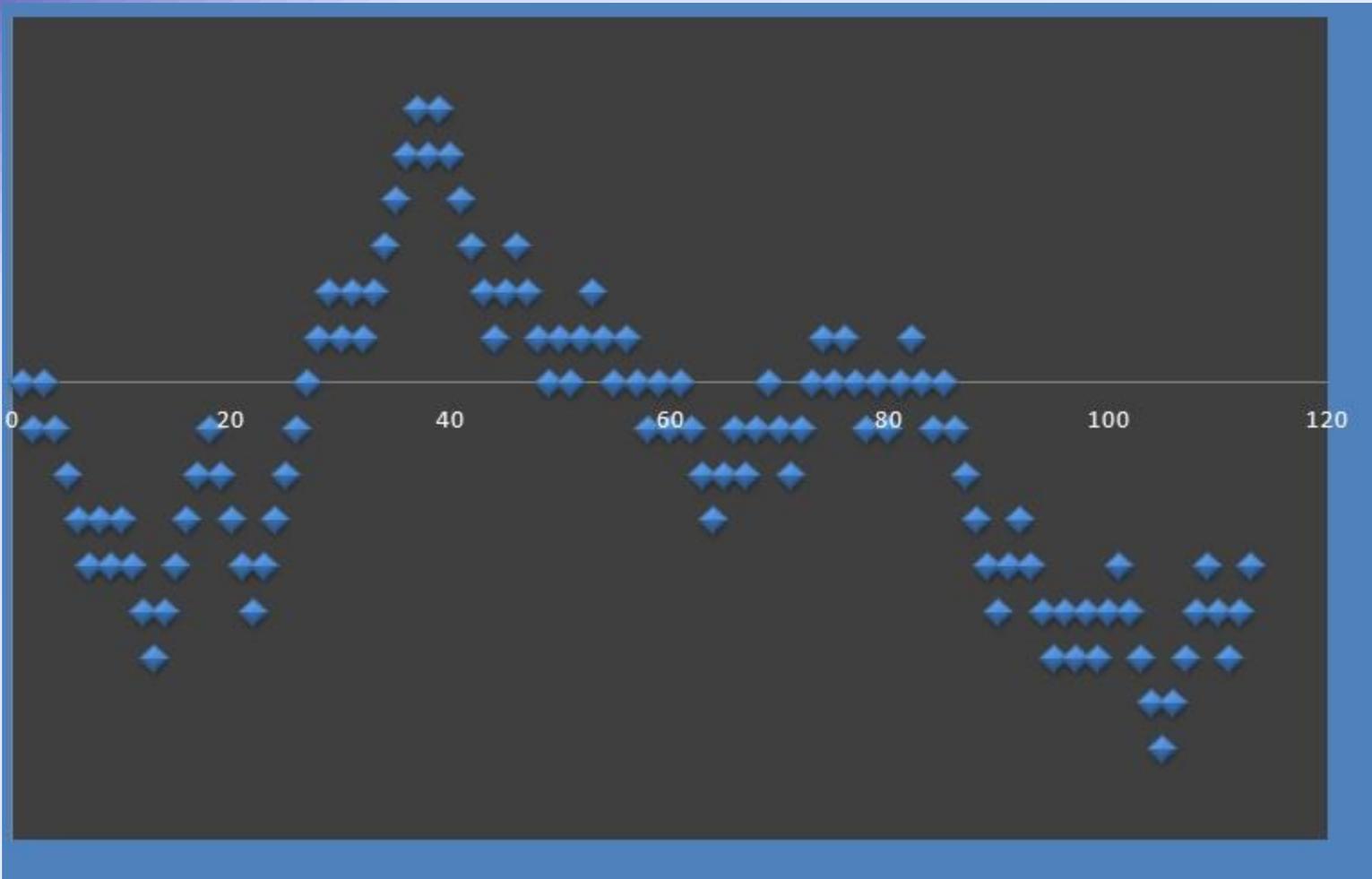
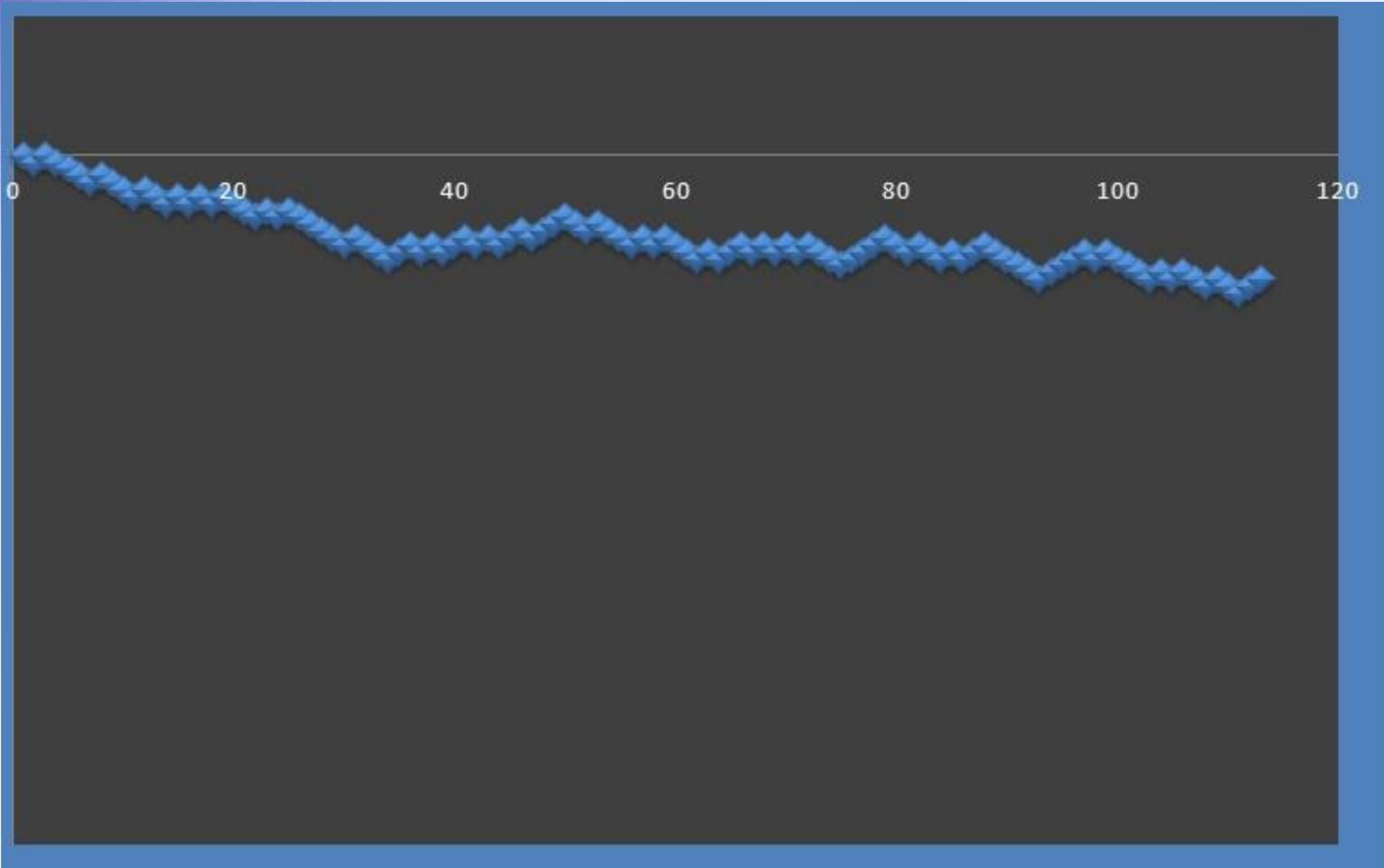


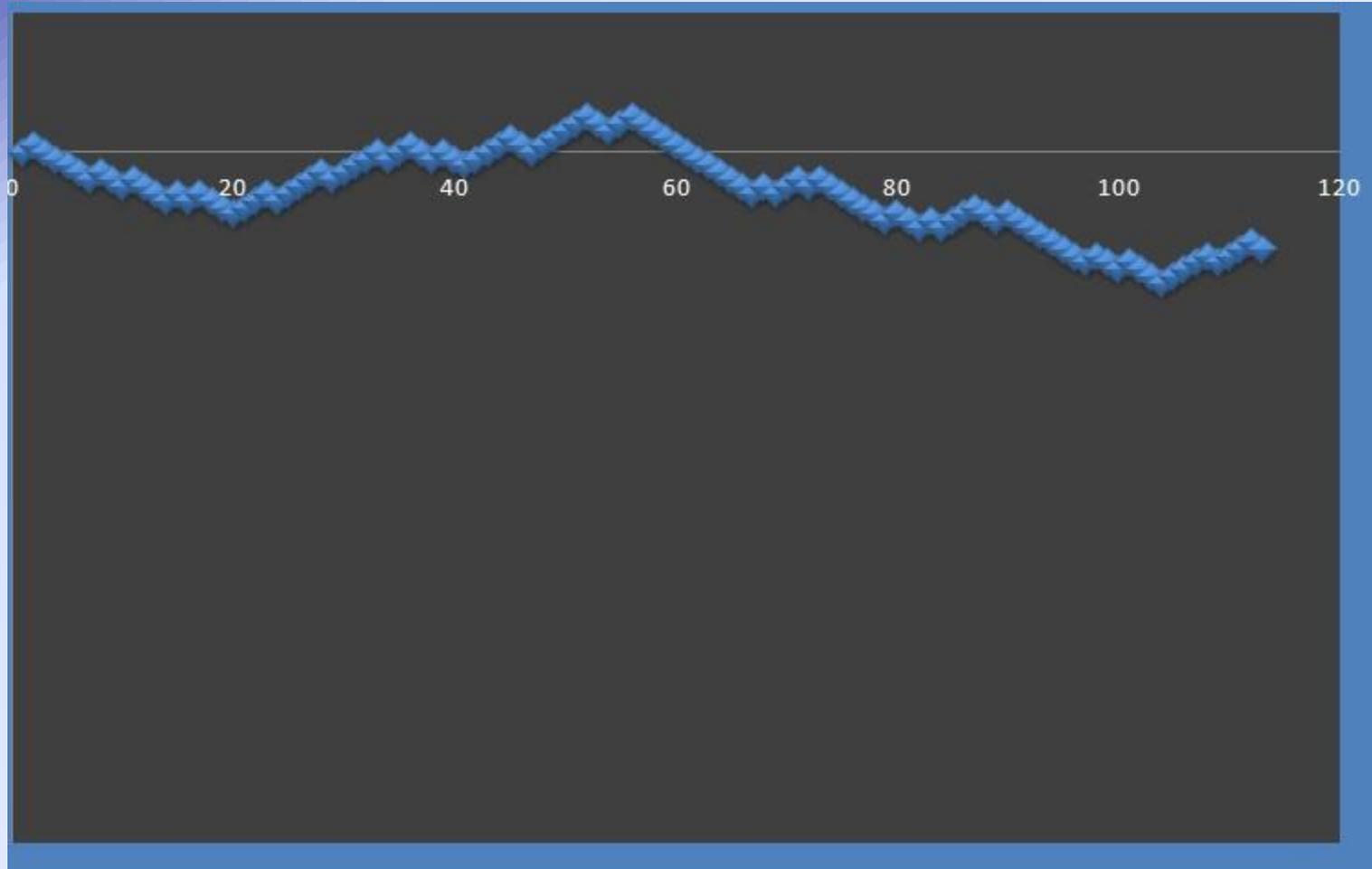
Chart Area











# What the Arcsine Law predicts

- Results are less likely to be symmetric across break even.
- The more trades, the farther away from break even you are likely to move.

# What a trader needs to do about the mathematical effects of the Arcsine Law

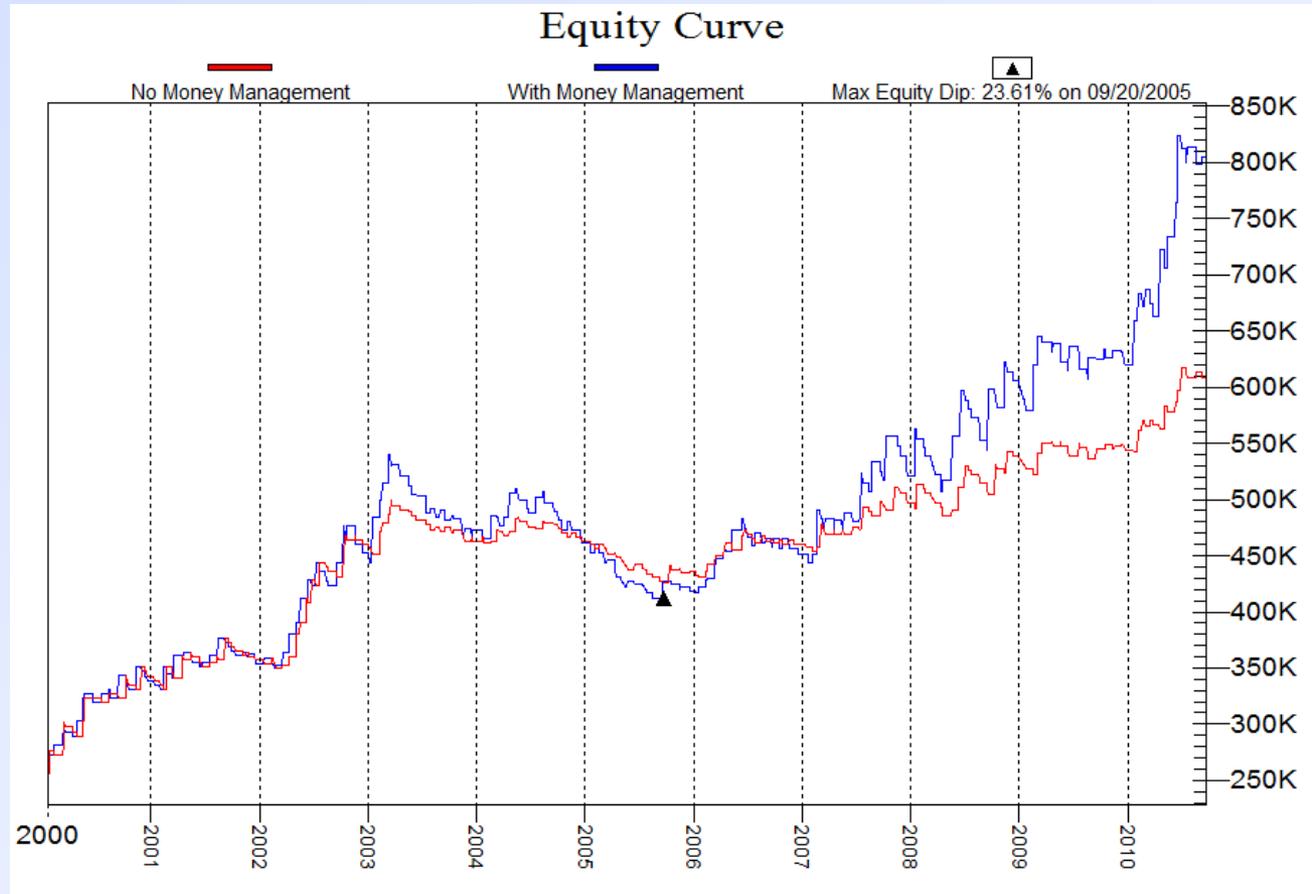
- Leverage a winning streak
- Counter a losing streak as early as possible.

# What the Technical Analysis can contribute

- Money management practices used in conjunction with price action can provide a sustainable edge in trading.

# Example: Good System Made Better

- A trading system with a positive track record, can be made more profitable with the use of increasing position sizes



# Turning a losing streak into a winning streak

- Single trade or small number of trades that are proportionally large winners.
- Always keeping losses small.

# Turning a good trade into a great trade

- Good setup with high probability.
- Small initial risk if trade does not produce gains
- Large gains if trade and market are in sync.

## Flag Pattern Example



# Flag Pattern Example



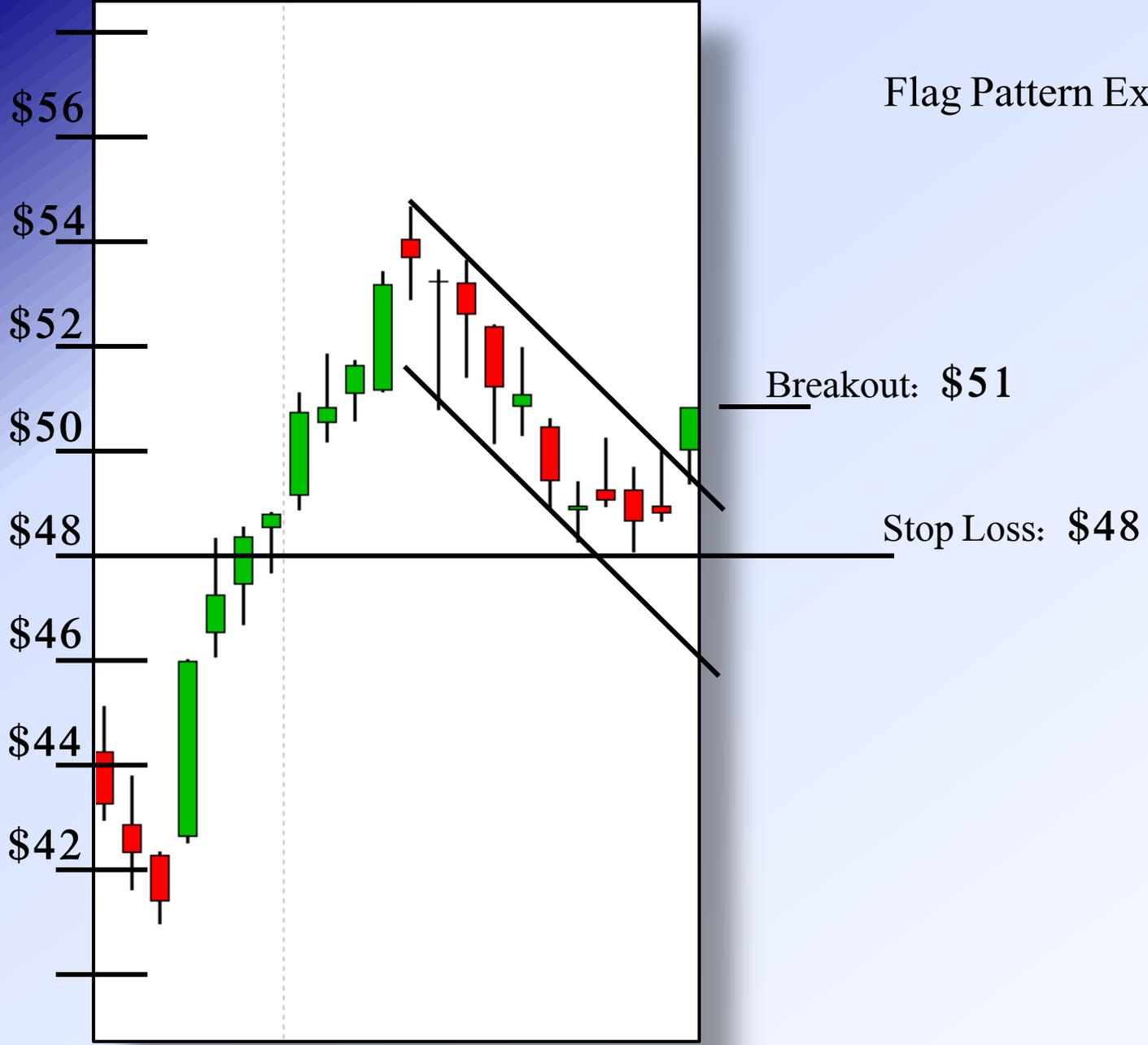
Resistance

Support

# Flag Pattern Example



# Flag Pattern Example





## Flag Pattern Example

Standard trade setup

Breakout: \$51

Stop Loss: \$48

Risk Per Share: \$3

# of shares: 300

@ risk: \$900

## Flag Pattern Example

### Alternative Setup



Breakout: \$51

Evidence: your studies show that fifty to seventy percent of such patterns retest the trend line.

Problem: the trend line is downward sloping.

# Flag Pattern Example

## Alternative Setup



Breakout: \$51

Stop Loss: \$46

Solution: consider multiple entries using a fractional scale-in technique.

# Flag Pattern Example

## Alternative Setup



Breakout: 100 shares @ \$51

Entry two: 100 shares @ \$49

Entry three: 100 shares @ \$47

Stop Loss: \$46



## Flag Pattern Example

### Alternative Setup

Breakout: 100 shares @ \$51

Entry two: 100 shares @ \$49

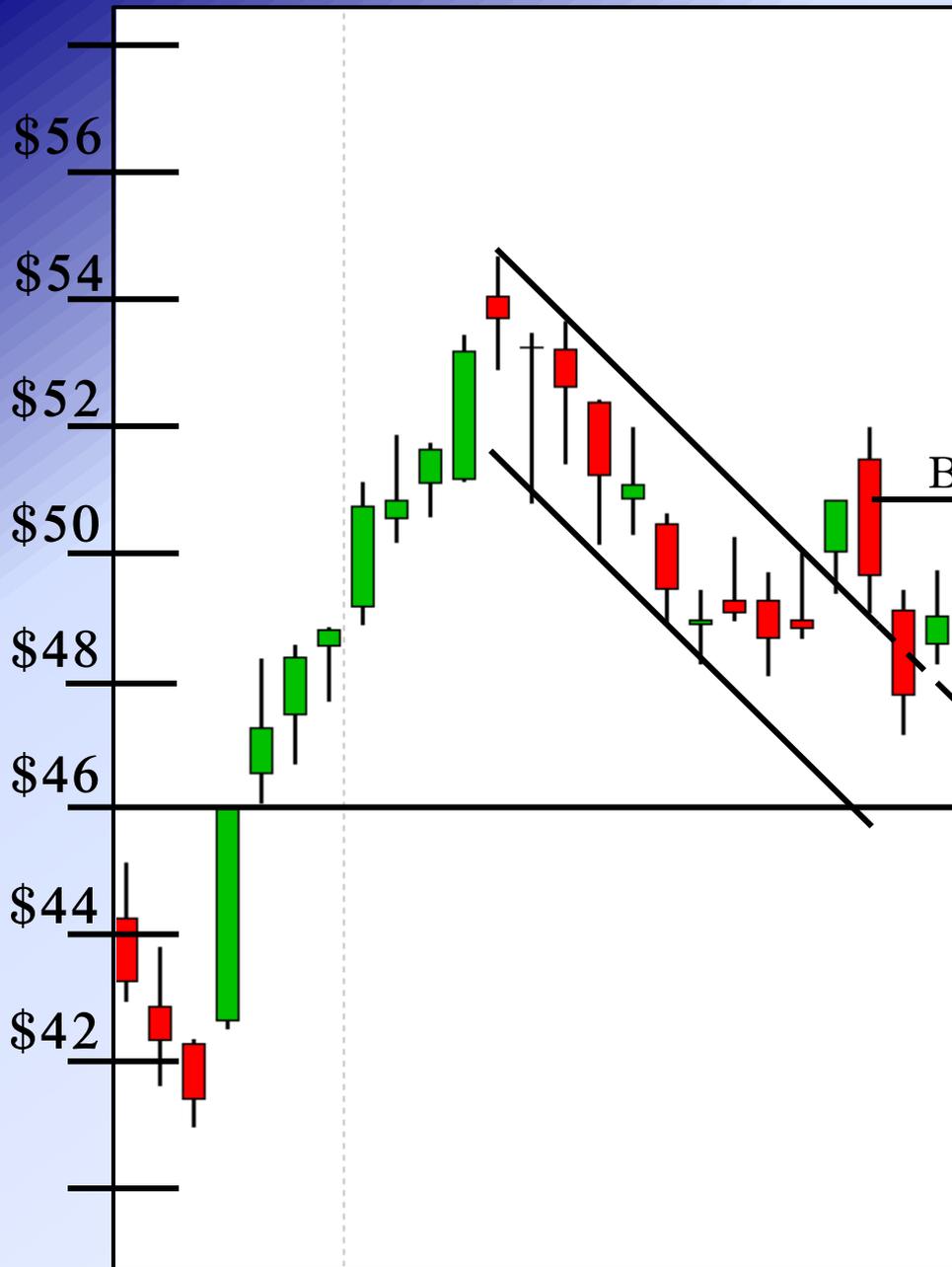
Entry three: 100 shares @ \$47

Stop Loss: \$46

Risk Per Share: \$5, \$3, \$1

# of shares: 100, 100, 100

@ risk: \$900



## Flag Pattern Example

### Alternative Setup

Breakout: 100 shares @ \$51

Entry two: 100 shares @ \$49

Entry three: 100 shares @ \$47

Stop Loss: \$46

Average Price: \$49

# of shares: 300

@ risk: \$900

# Flag Pattern Example

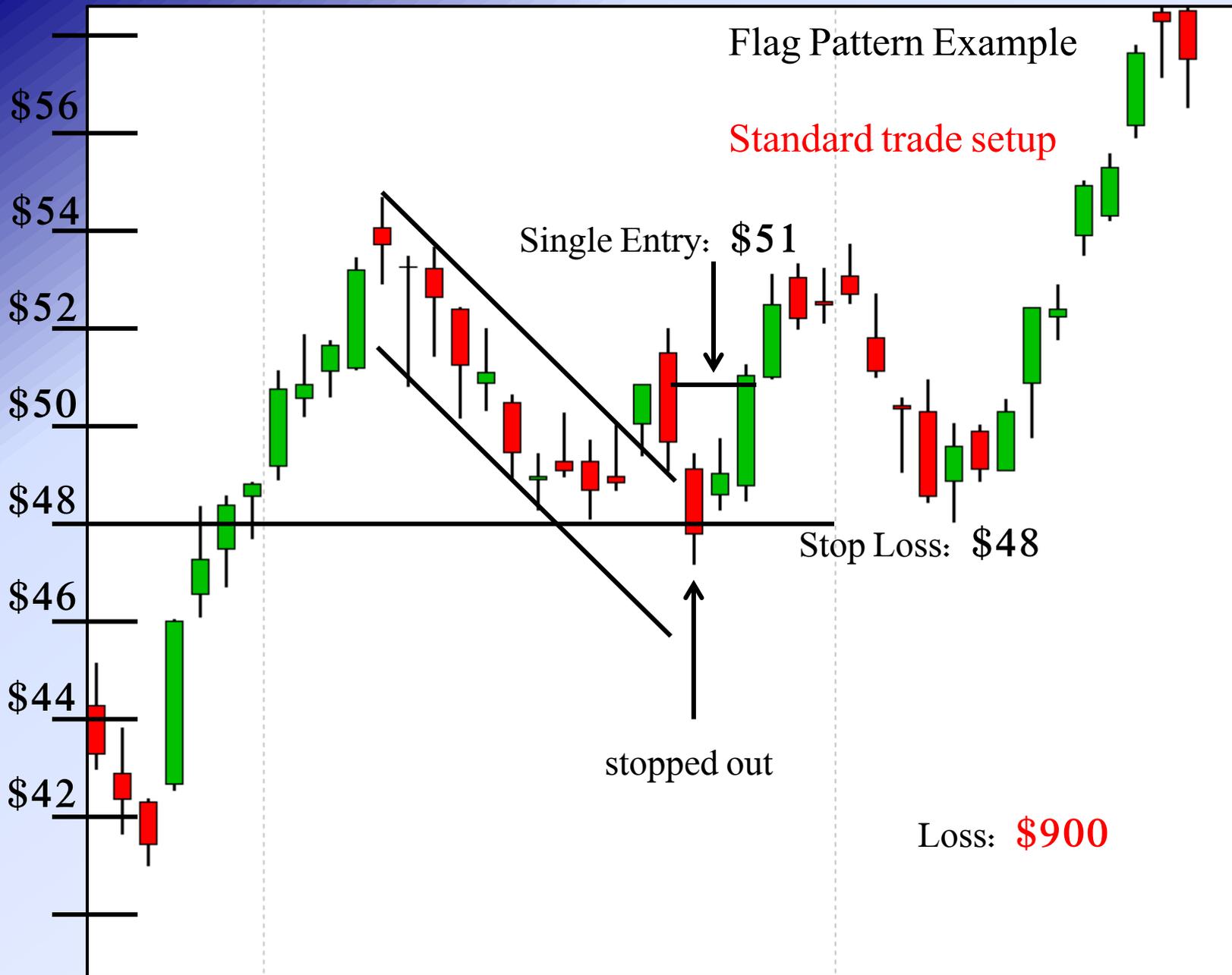
Standard trade setup

Single Entry: \$51

Stop Loss: \$48

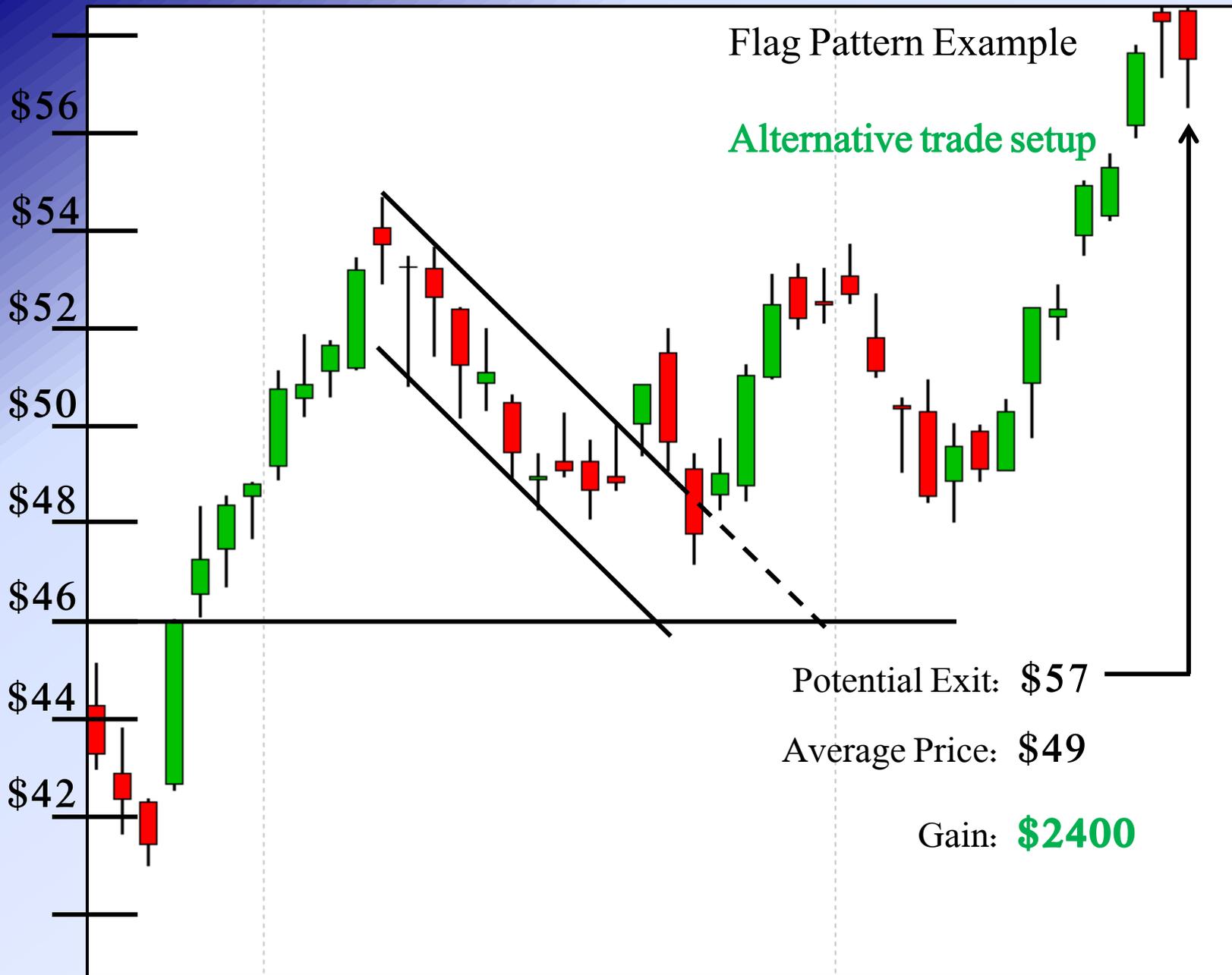
stopped out

Loss: \$900



# Flag Pattern Example

Alternative trade setup

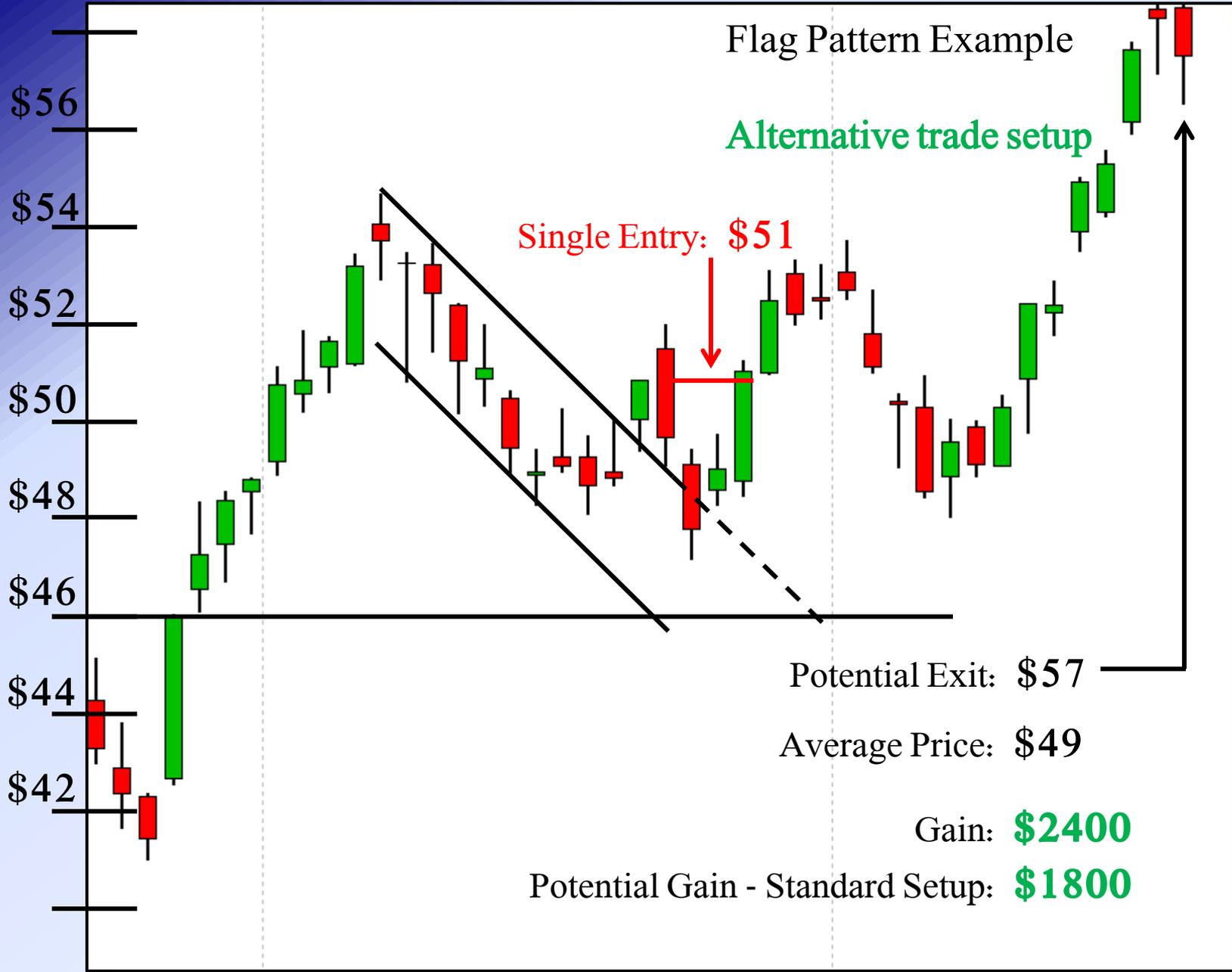


Potential Exit: \$57

Average Price: \$49

Gain: **\$2400**

# Flag Pattern Example



Alternative trade setup

Single Entry: \$51

Potential Exit: \$57

Average Price: \$49

Gain: \$2400

Potential Gain - Standard Setup: \$1800

## Rectangle Pattern Example

Evidence: your studies show that sixty to seventy percent of trades that have breakout-day gaps outperform the trades that retest.

Problem: Which to buy?

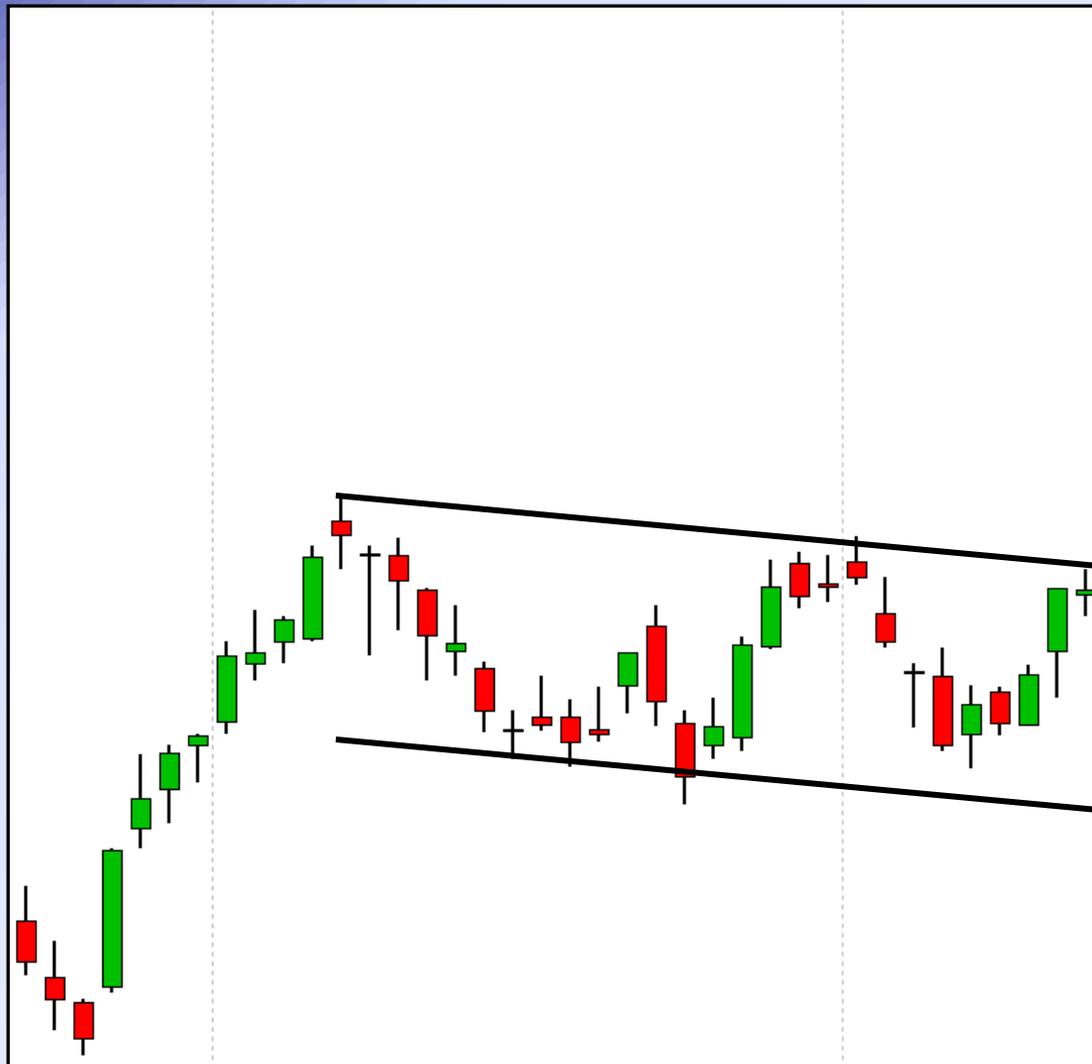


## Rectangle Pattern Example



Solution: Prepare for both using a One-Cancels-Other order type.

# Rectangle Pattern Example



Limit order at breakout price

# Rectangle Pattern Example



Buy Stop order at gapped price (e.g. one-half ATR)

# Rectangle Pattern Example



Buy Stop order at gapped price (e.g. one-half ATR)

Limit order at breakout price

# Rectangle Pattern Example



Buy Stop order

Limit order at breakout price

# Rectangle Pattern Example



# Rectangle Pattern Example

Problem: How to maximize a promising trade



## Rectangle Pattern Example

Solution: Consider more than one entry using a multiple scale-in technique



# Rectangle Pattern Example

Solution: Consider more than one entry using a multiple scale-in technique

Enter position with normal size and risk

1-ATR stop loss



# Rectangle Pattern Example

Solution: Consider more than one entry using a multiple scale-in technique

Add additional position  
of same size

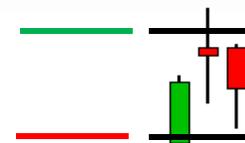
move stop loss to  
break-even price



# Rectangle Pattern Example

Solution: Consider more than one entry using a multiple scale-in technique

Add final position  
of same size

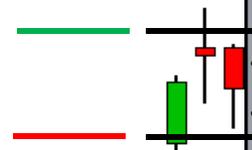
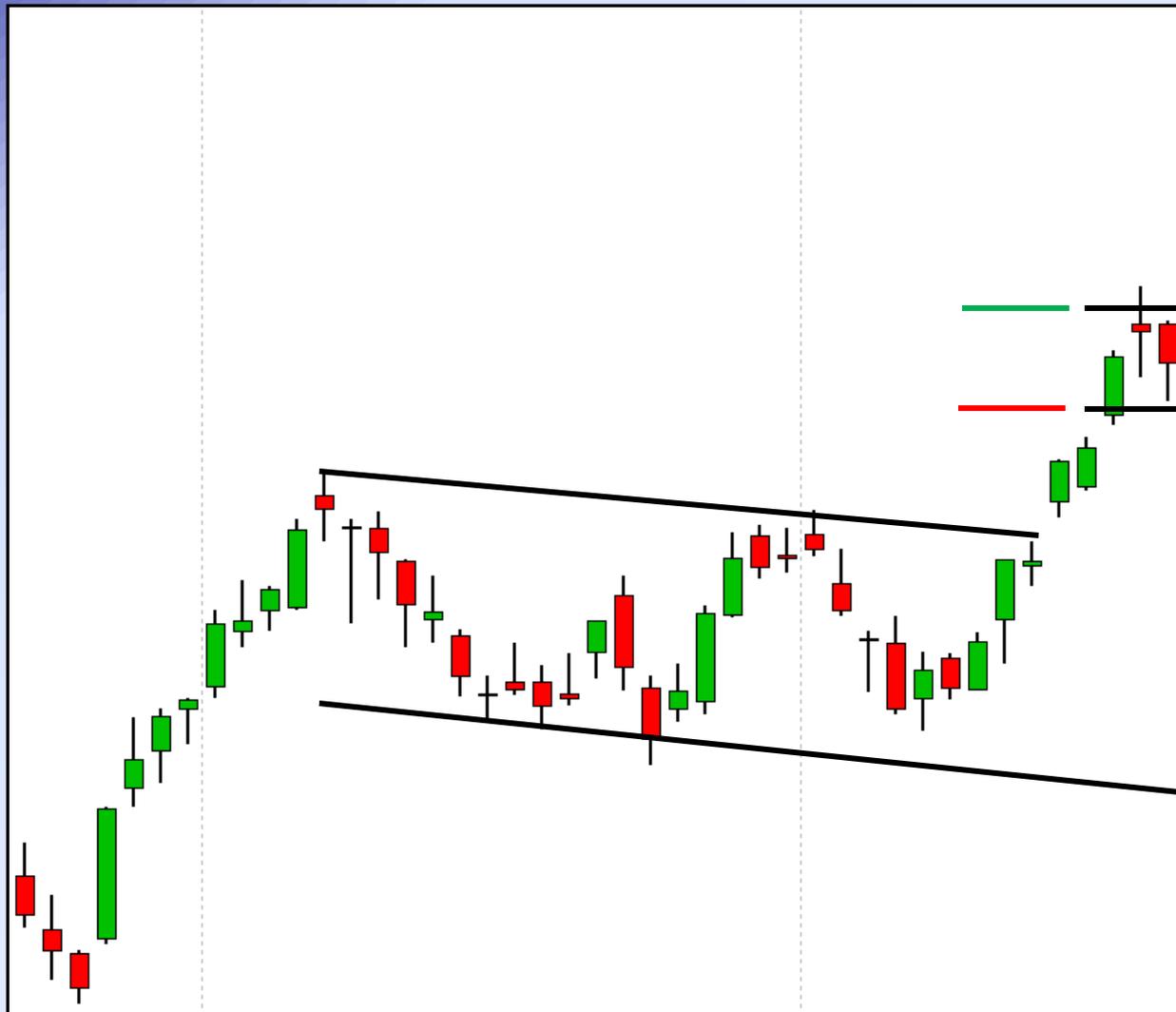


Move stop loss to  
second entry price.

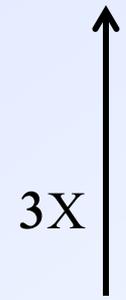
Second entry is  
new break-even  
price



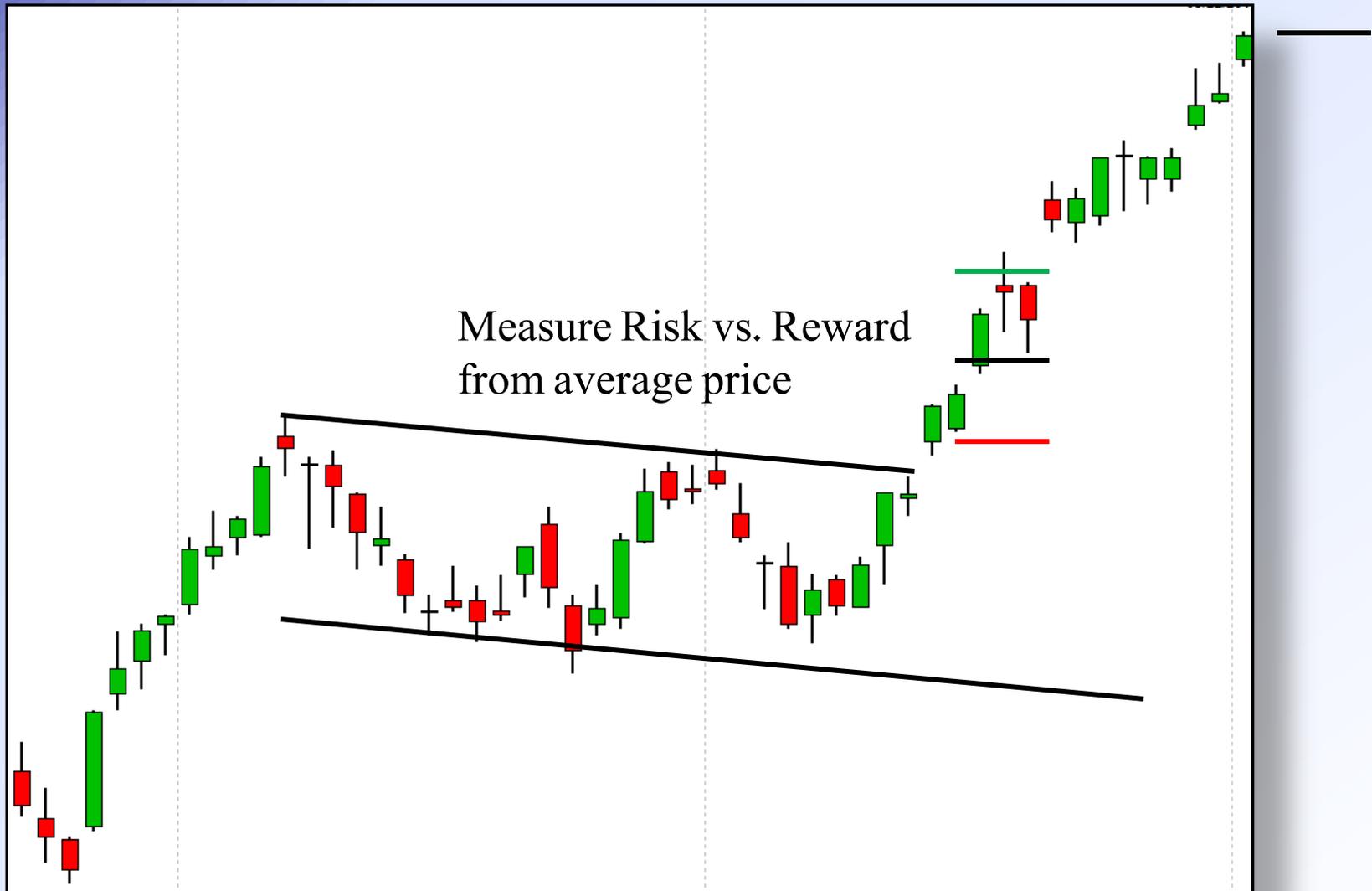
# Rectangle Pattern Example



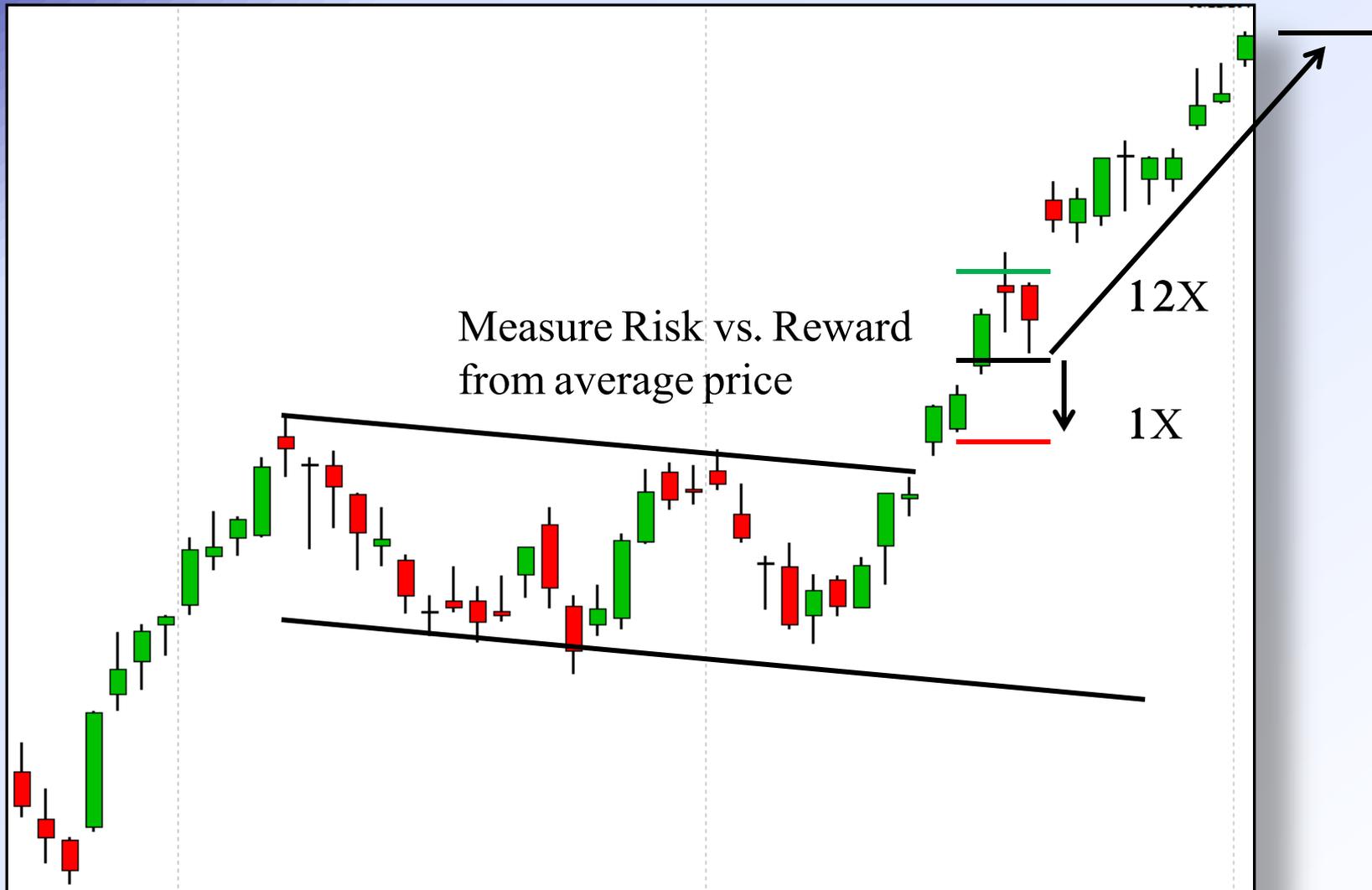
Risk is the same,  
but opportunity  
is greater



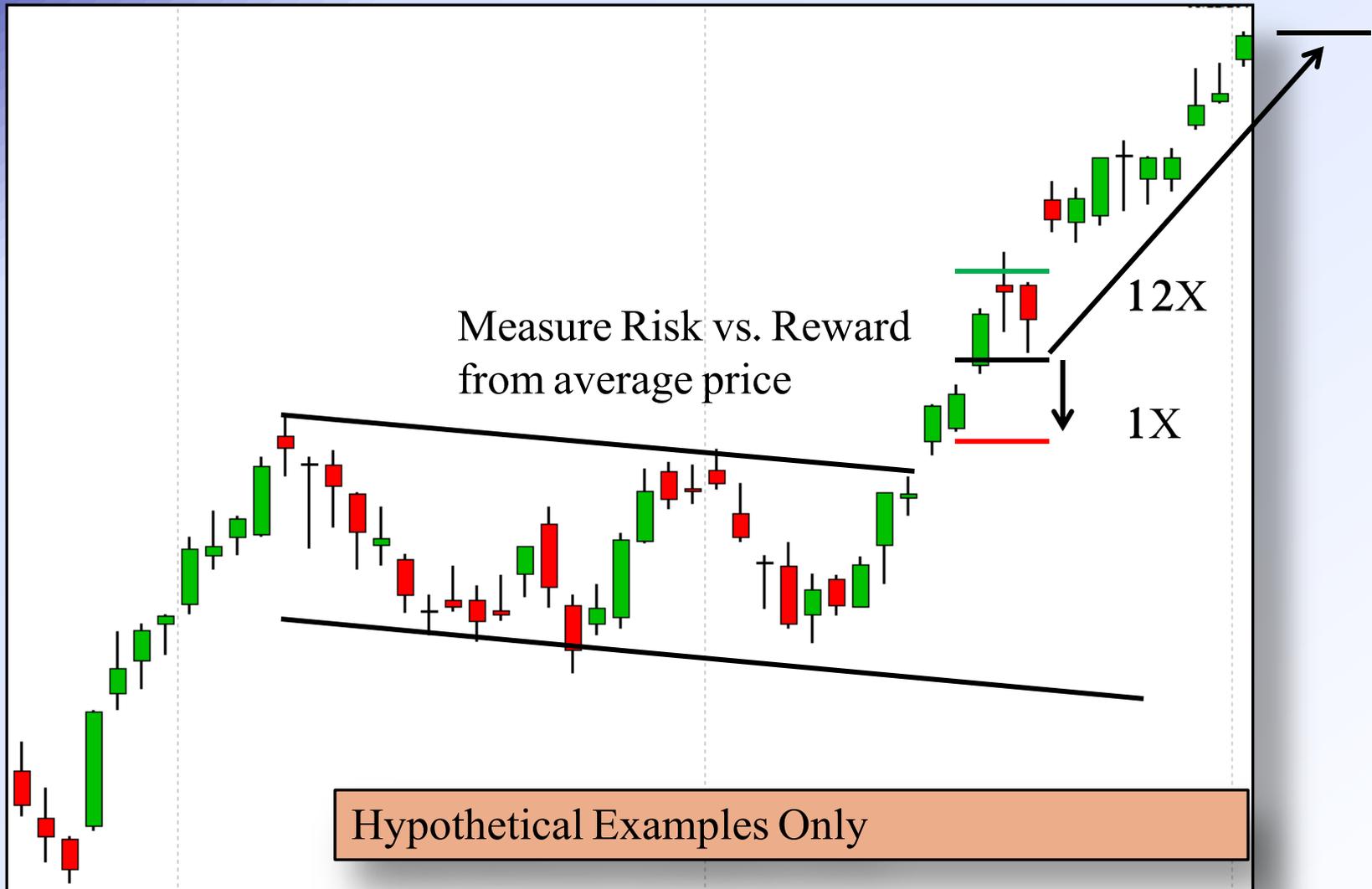
# Rectangle Pattern Example



# Rectangle Pattern Example

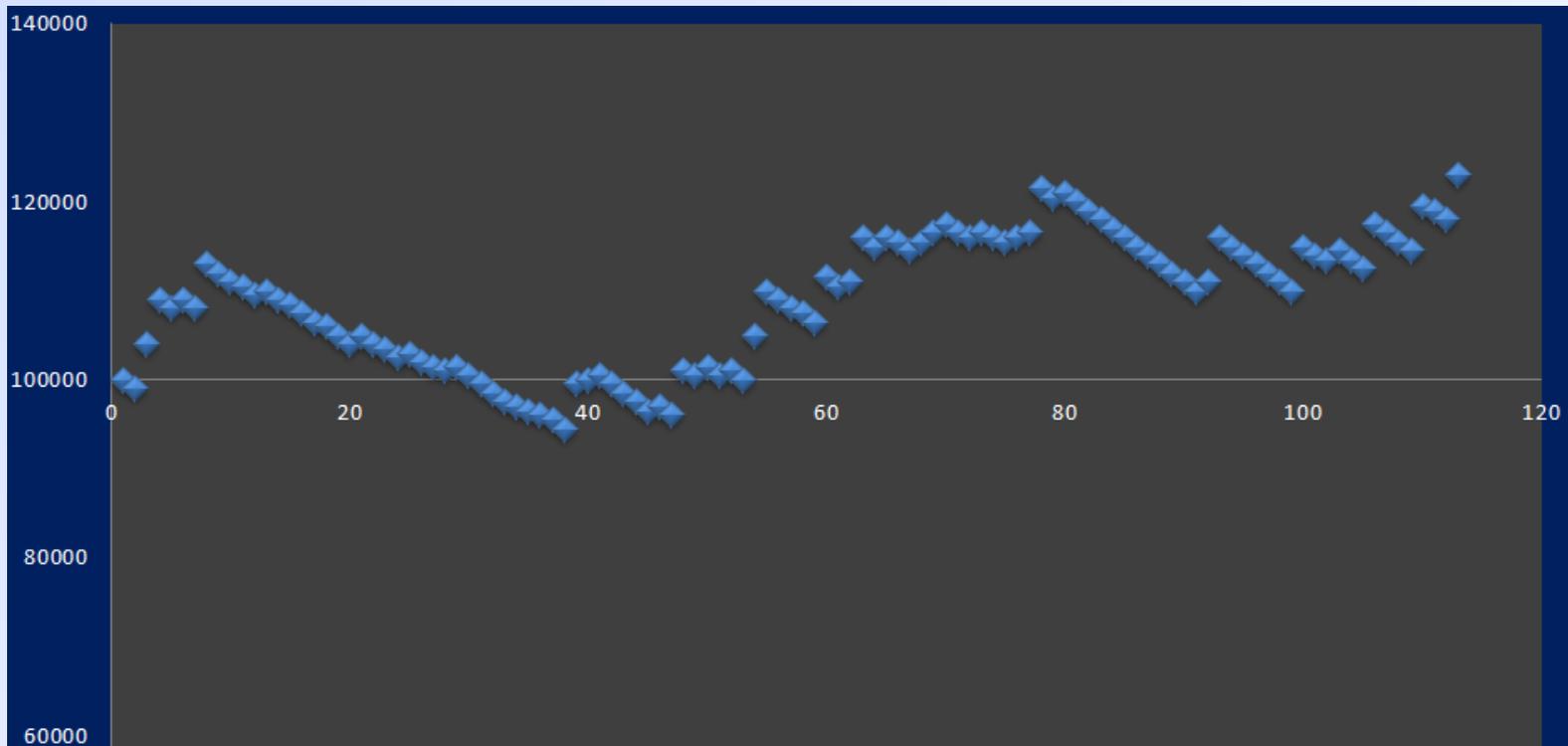


# Rectangle Pattern Example



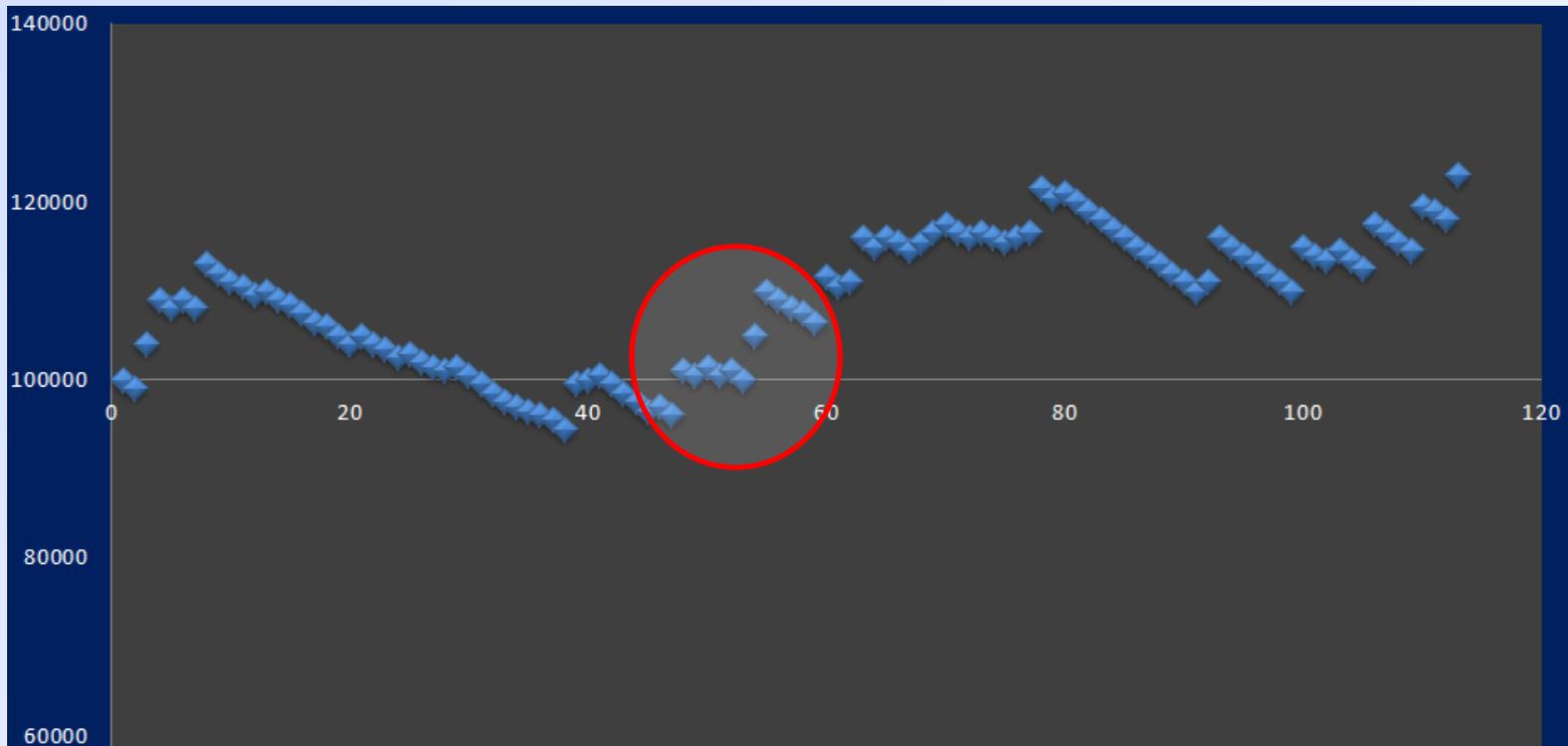
# What difference could it make?

- Chart below displays sample data for simulated trades.
- System win rate = 40%
- 1 out of 10 trades could be a 5x winner



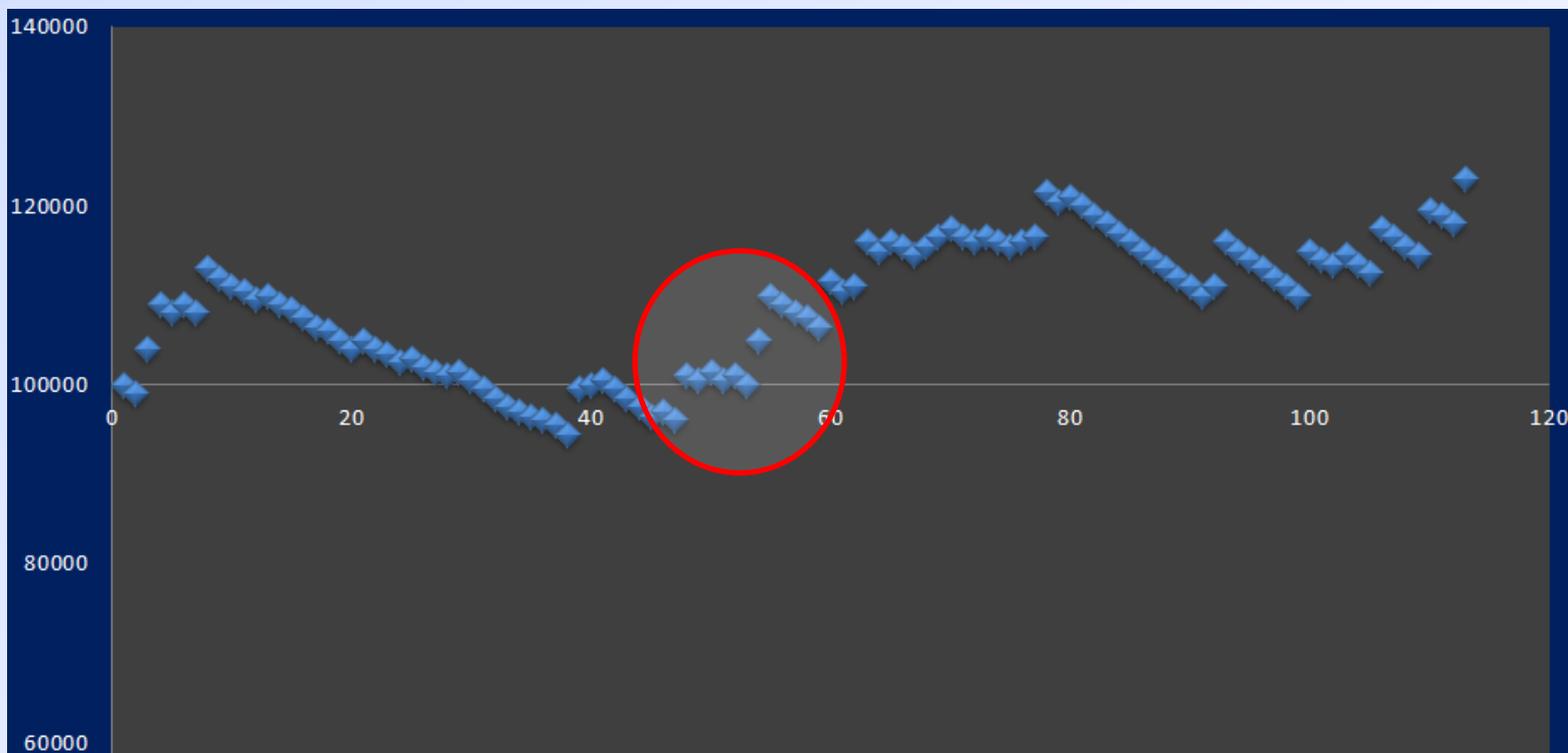
# What difference could it make?

- Notice how the beginnings of a losing streak were quickly negated by an outlier winning streak.
- Circled portion shows a string of three 5x winners in less than ten trades



# What difference could it make?

- Next five-trade losing streak could not wipe out all the profits
- Trend of outcomes stayed away from break even until the next winning streak came along.



# Conclusion

- Arcsine law implies trends in outcomes.
- Trade optimization and position size techniques can help swing results from a down trend to an uptrend.
- Technical Analysis would benefit from studies on position size and trade optimization techniques.

# Money Management Strategies

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[gordon.b.scott@hotmail.com](mailto:gordon.b.scott@hotmail.com)