

Money Management Strategies

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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

The Arcsine Law

- The Equation...

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

as $n \rightarrow \infty$.

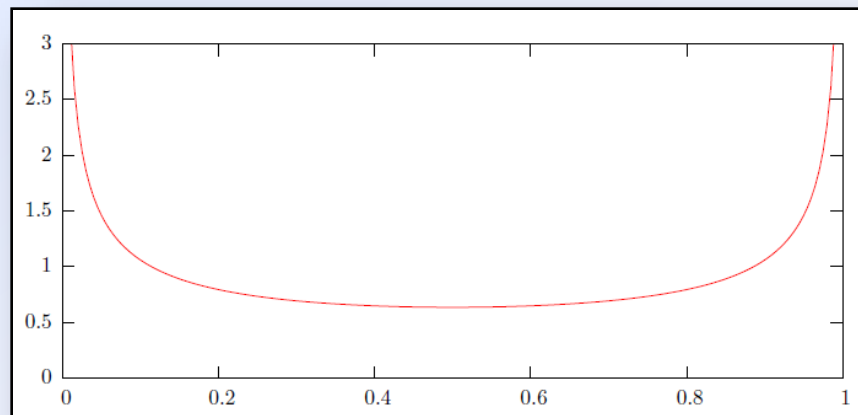
The Arcsine Law

- The Equation...

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

as $n \rightarrow \infty$.

- appears graphically as...

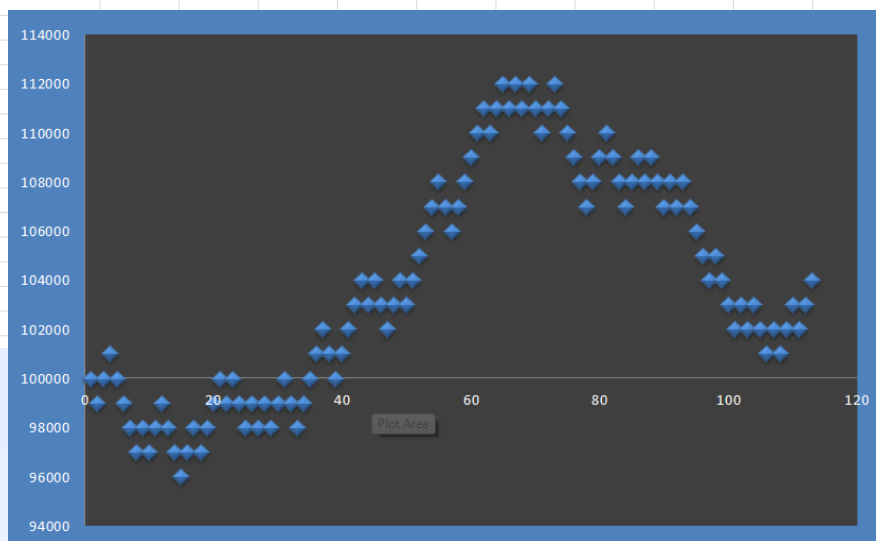


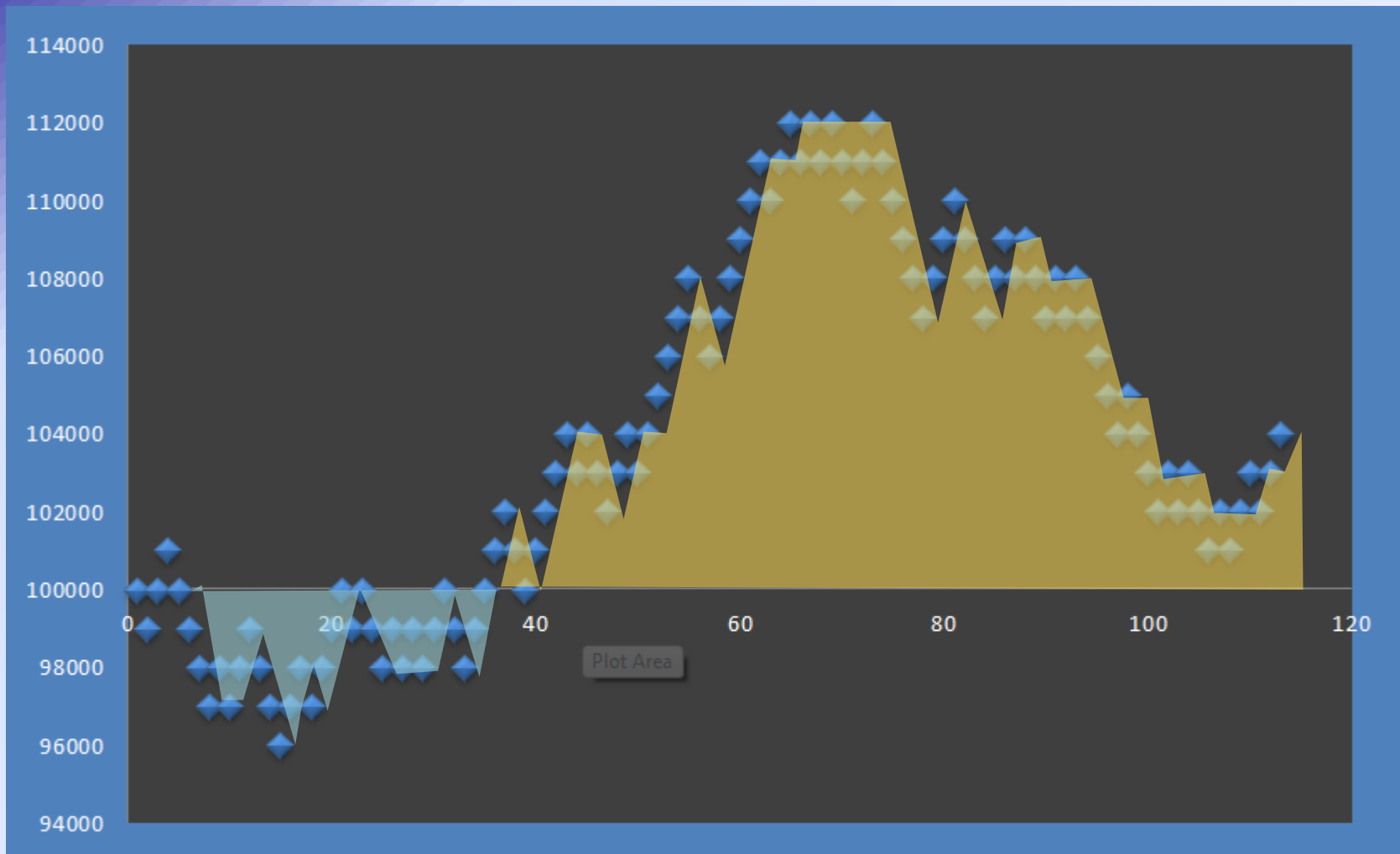
Demonstrating the concept through simulation

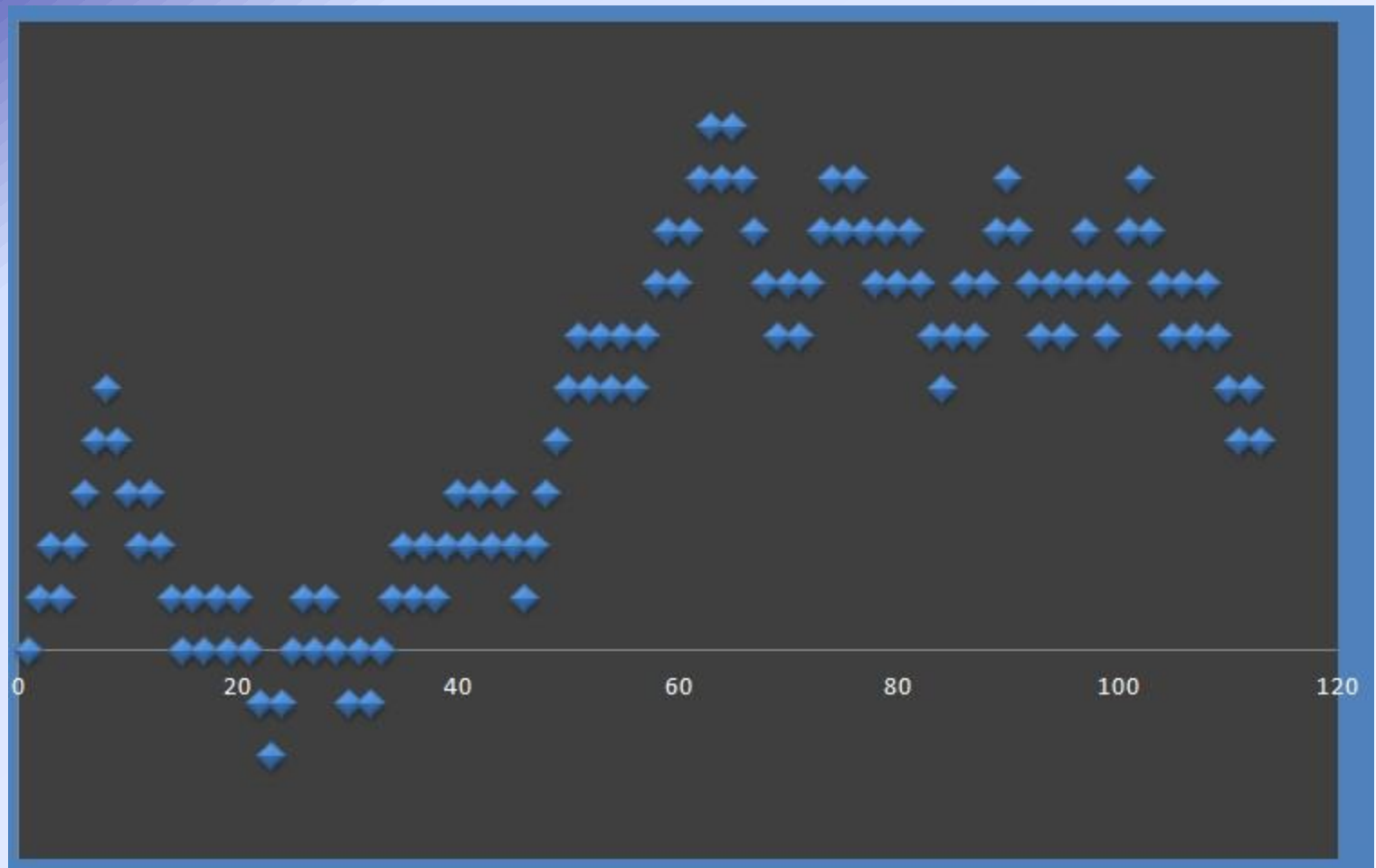
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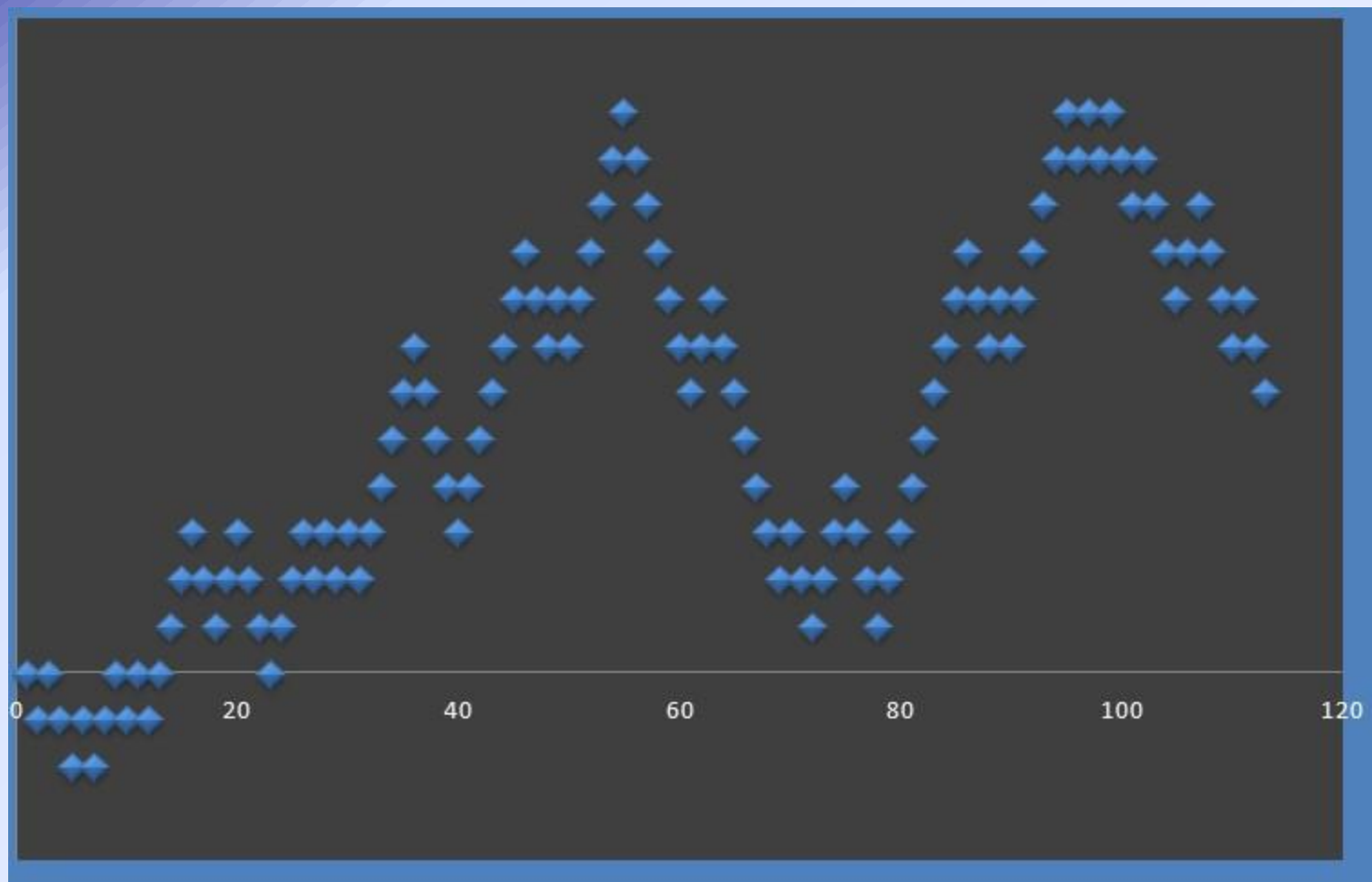
Demonstrating the concept through simulation

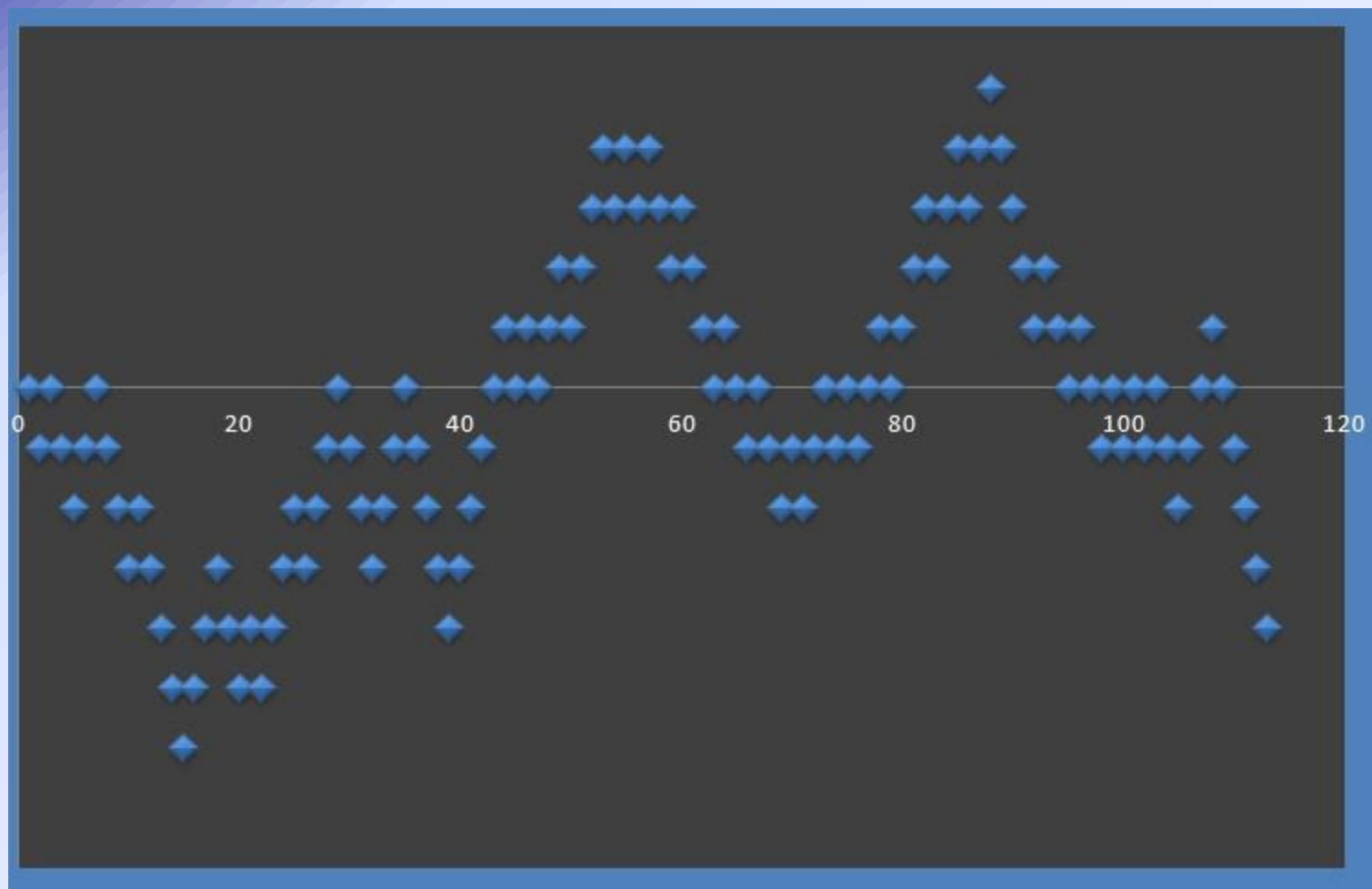
| | | | | | | | Peak | Peak | 1% | Peak | 1% | Peak | Peak | 1% | Peak | Peak |
|----------------------------------|---------------|-------------------|----------|-------------|--------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------|
| | | | | | | | 100000 | 101000 | 101000 | 101000 | 101000 | 101000 | 102000 | 102000 | 102000 | 103000 |
| Capital | 100000 | 100000 | 99000 | 98000 | 99000 | 100000 | 101000 | 101000 | 100000 | 101000 | 100000 | 101000 | 102000 | 101000 | 102000 | 103000 |
| Risk per trade | 1% | 1000 | 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 | 1000 |
| X | | -1 | -1 | 1 | 1 | 1 | 1 | -1 | 1 | -1 | 1 | 1 | -1 | 1 | 1 | 1 |
| | | | | | | | Peak | Peak | 1% | 0% | 1% | 0% | Peak | 1% | 0% | Peak |
| | | | | | | | 100000 | 101000 | 101000 | 101000 | 101000 | 101000 | 101995 | 101995 | 101995 | 103005 |
| 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 | 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 | | | | | | | | | | | | | | | |

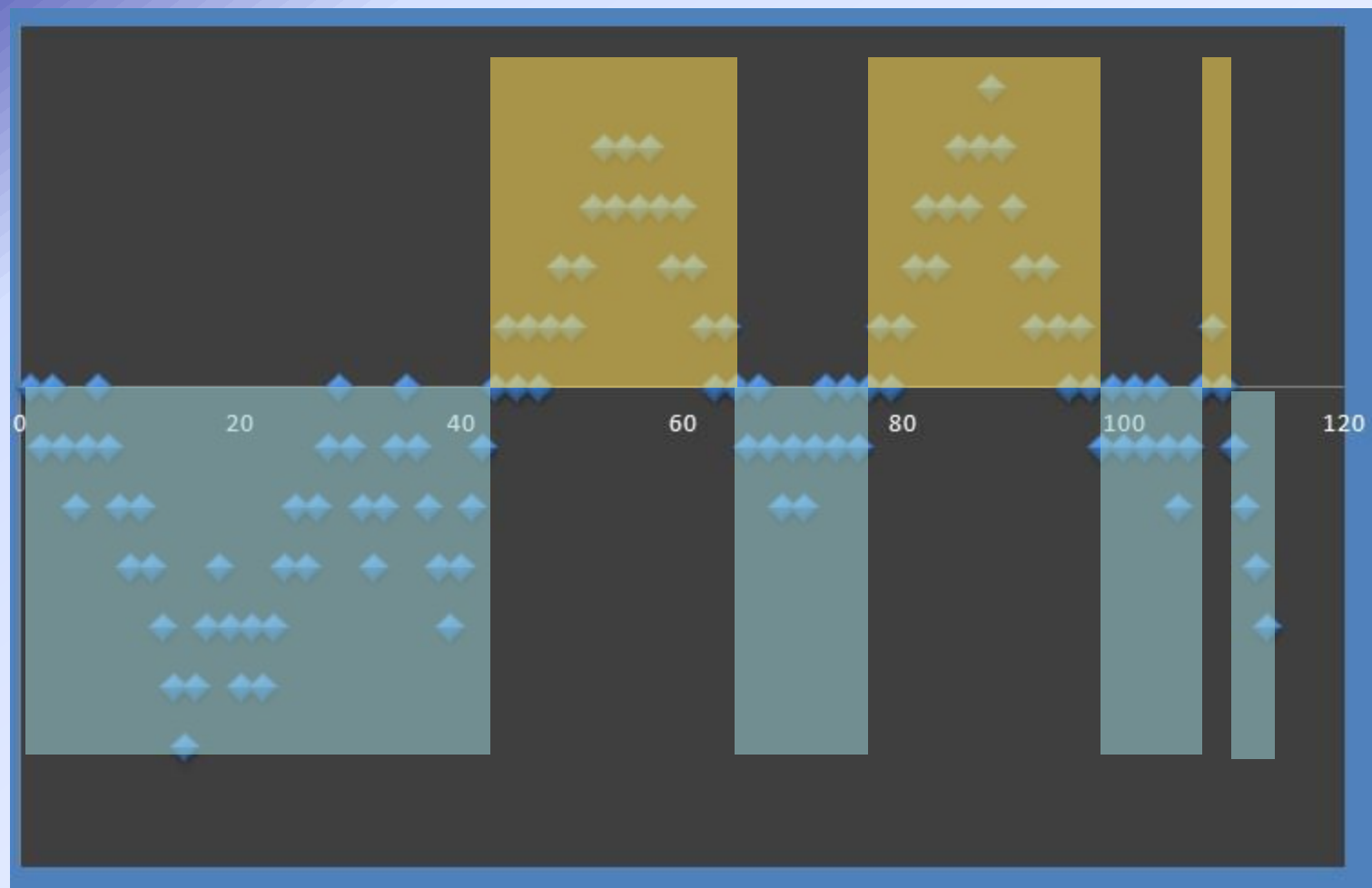


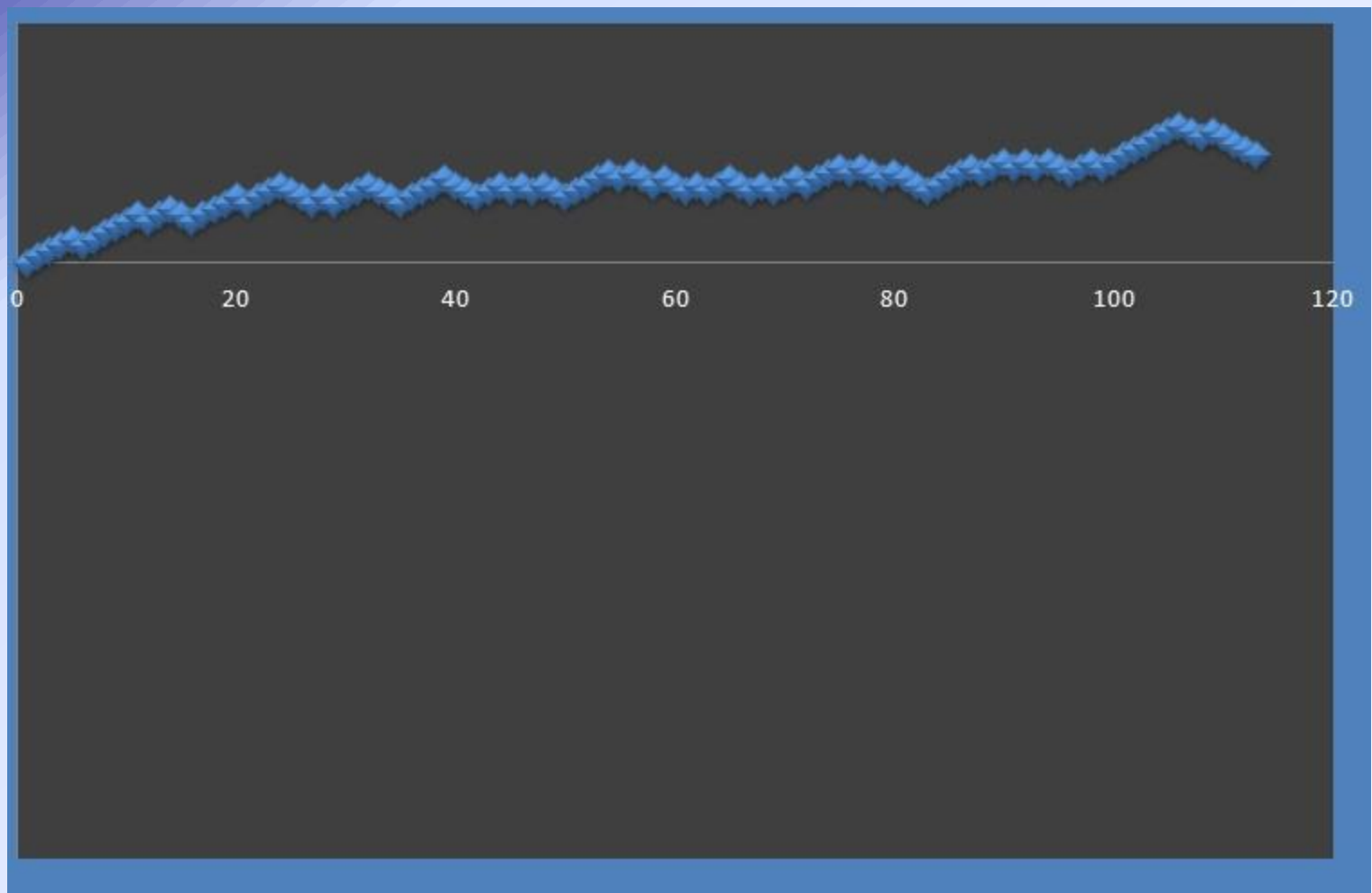


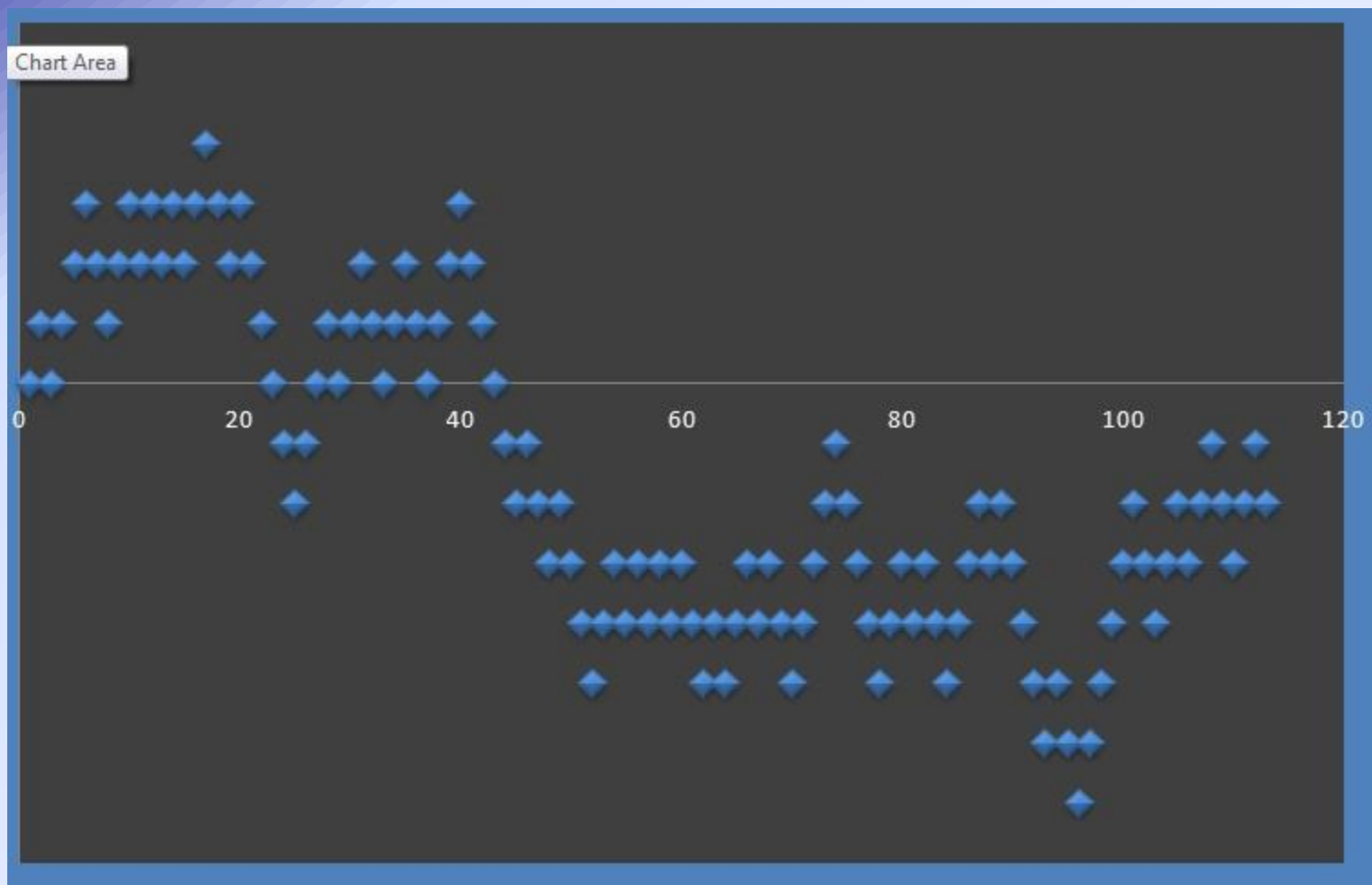


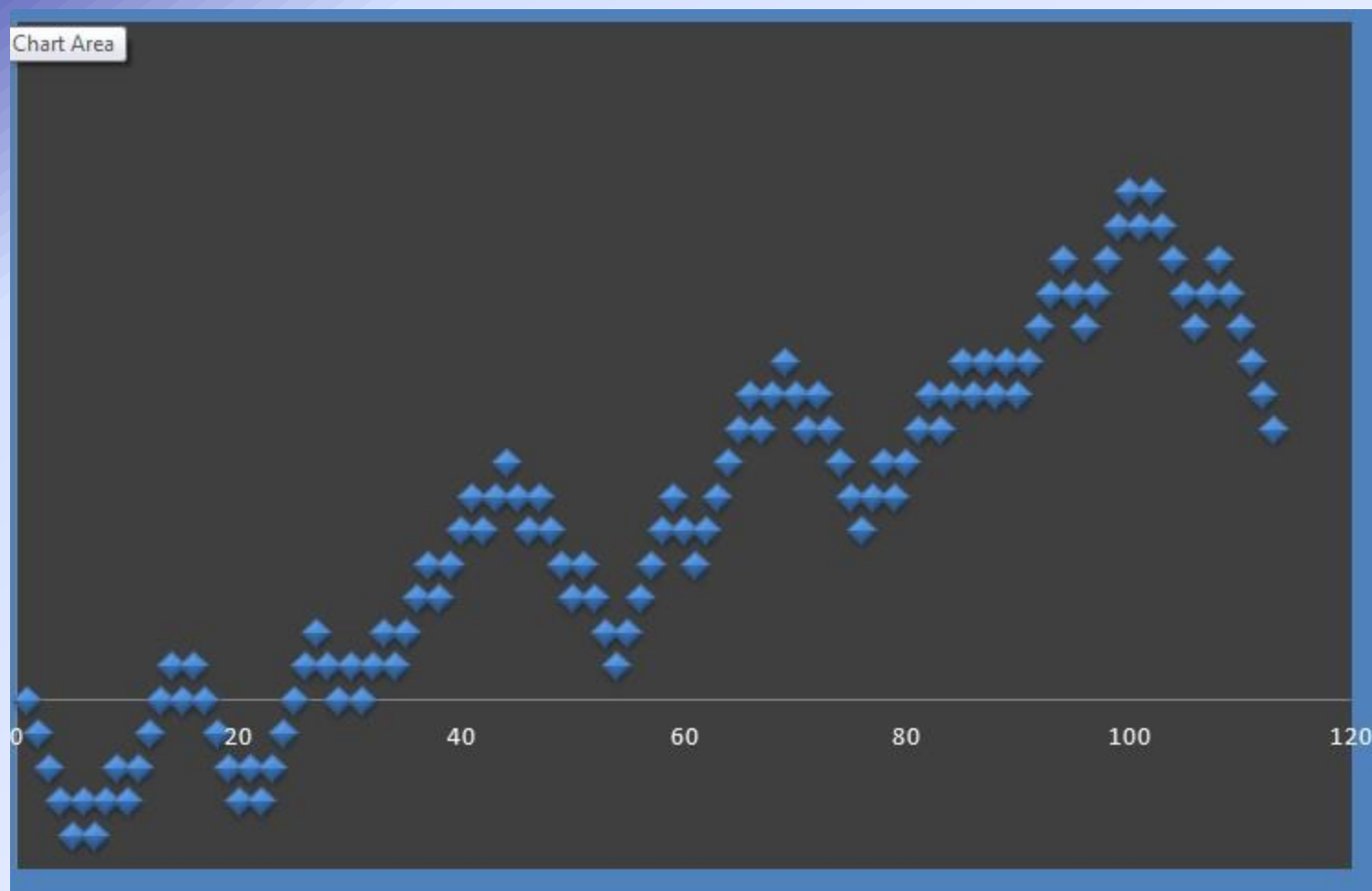


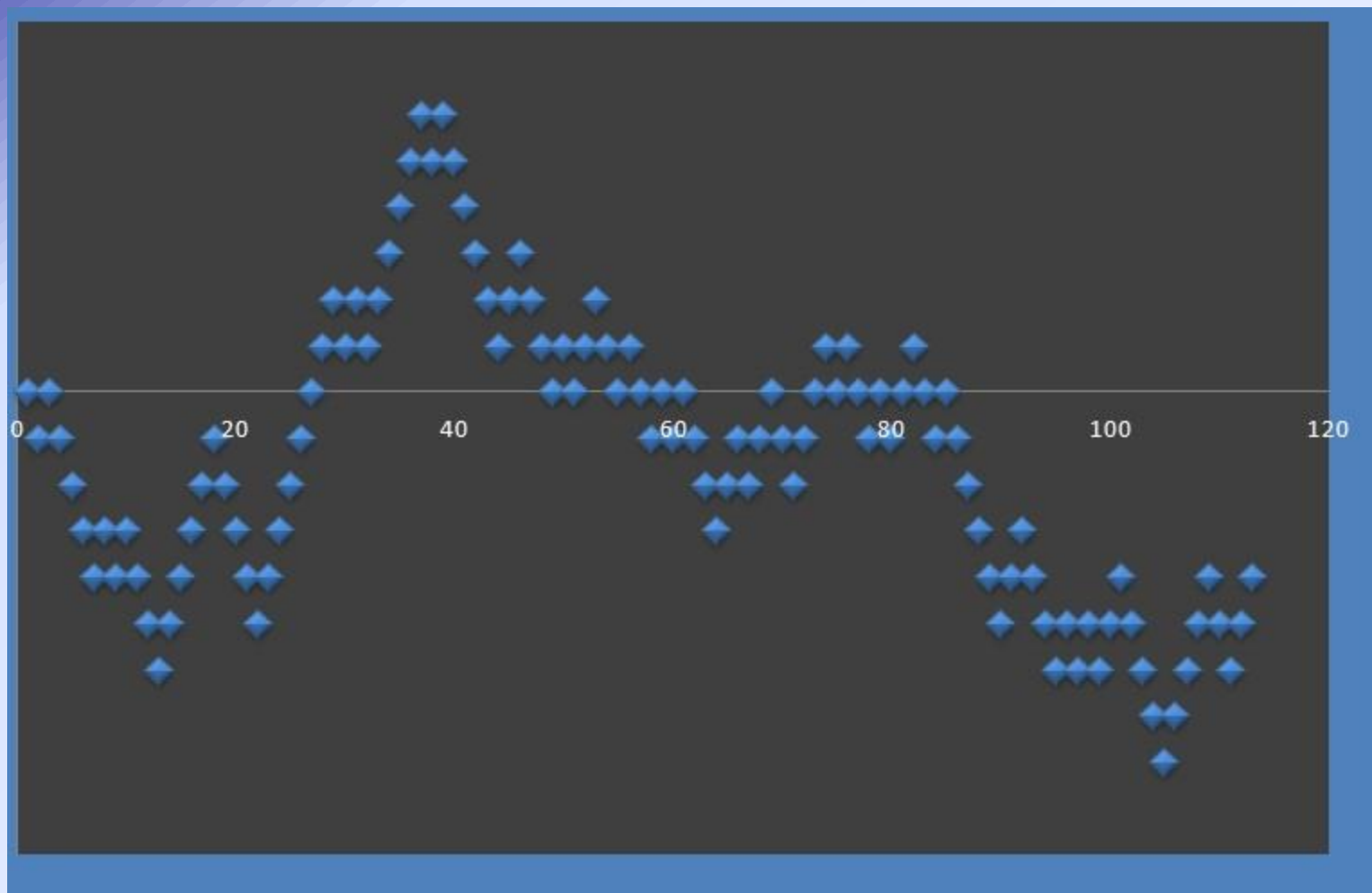


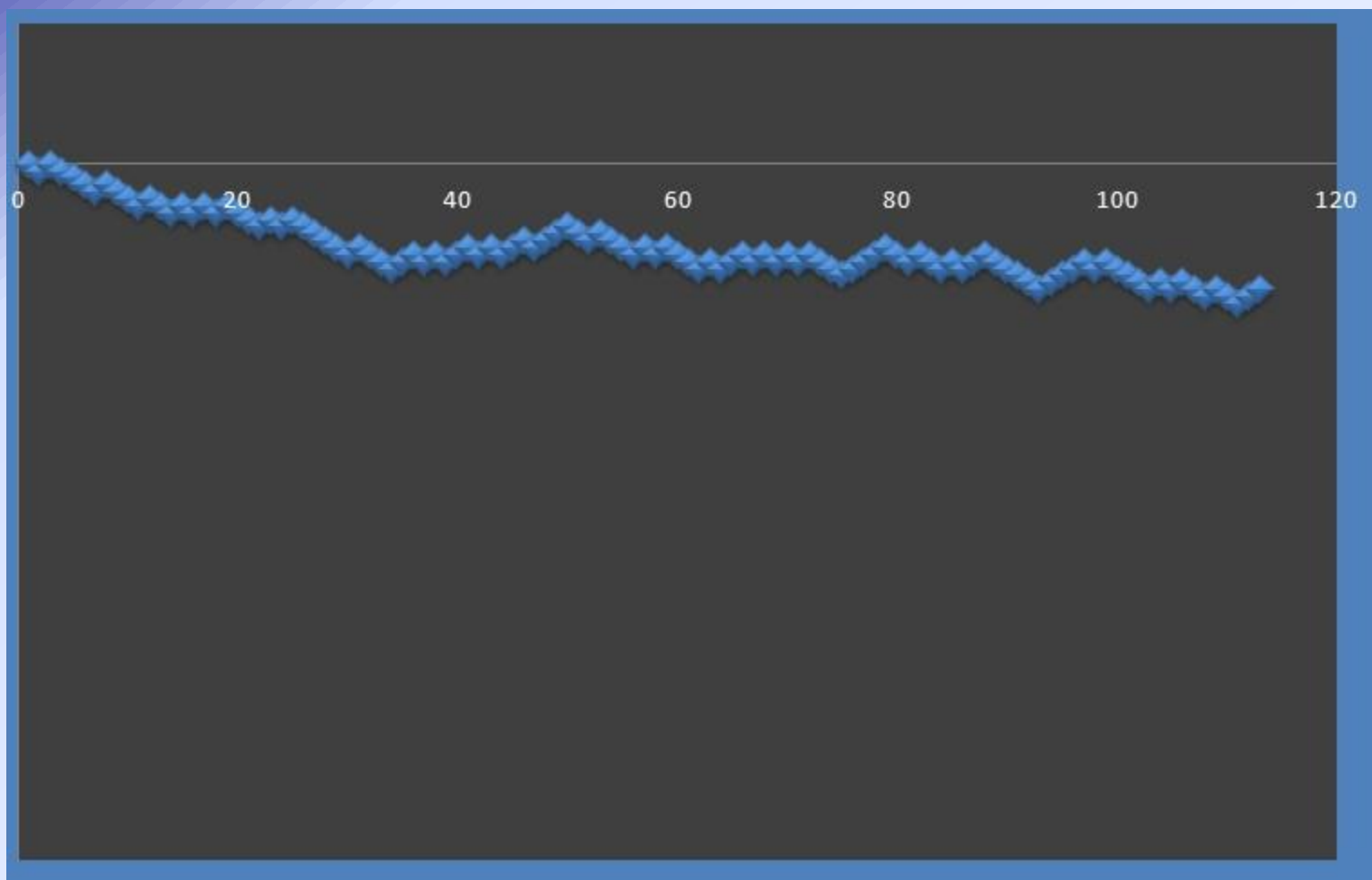


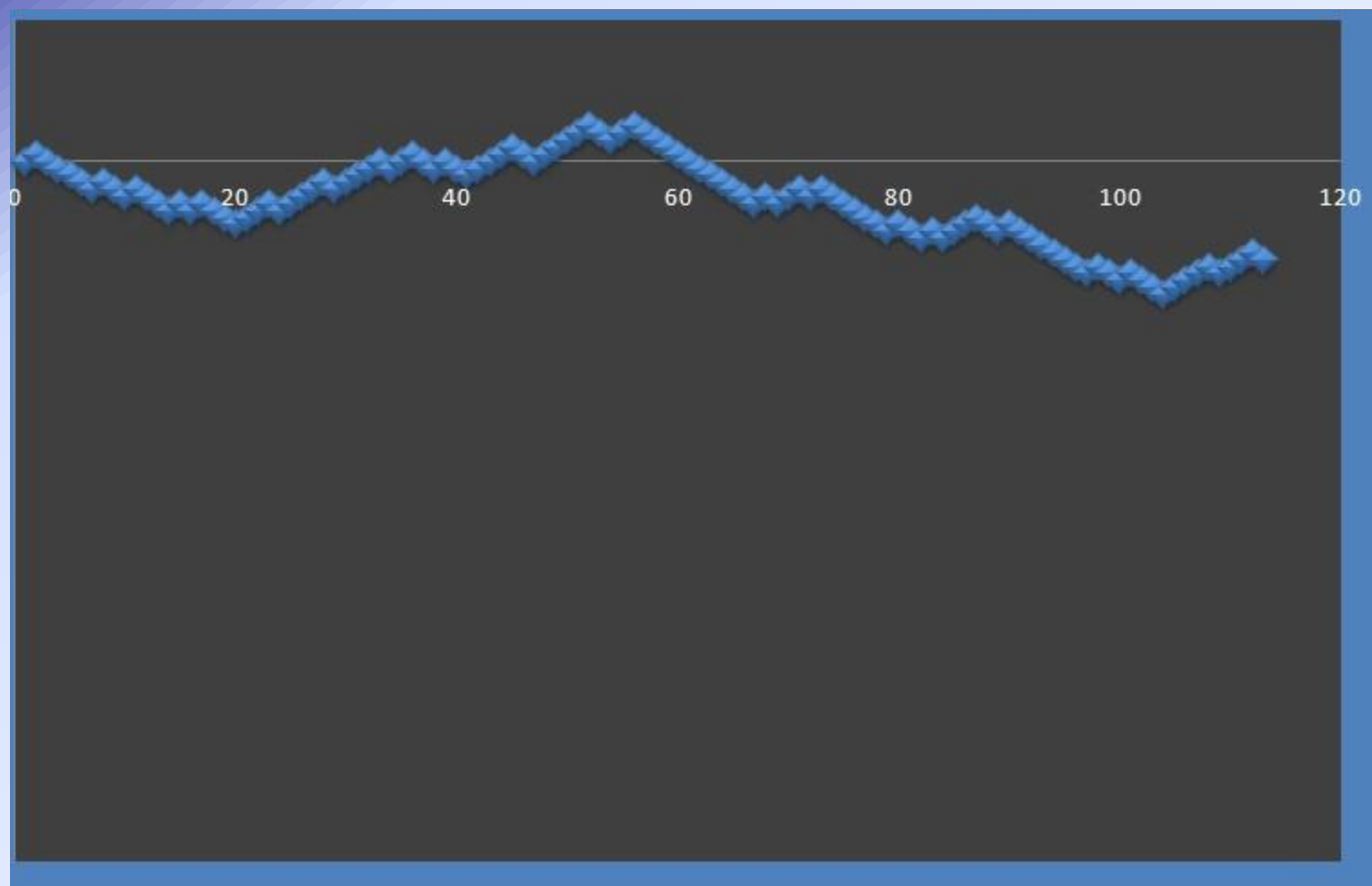












What the Arcsine Law predicts

- 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

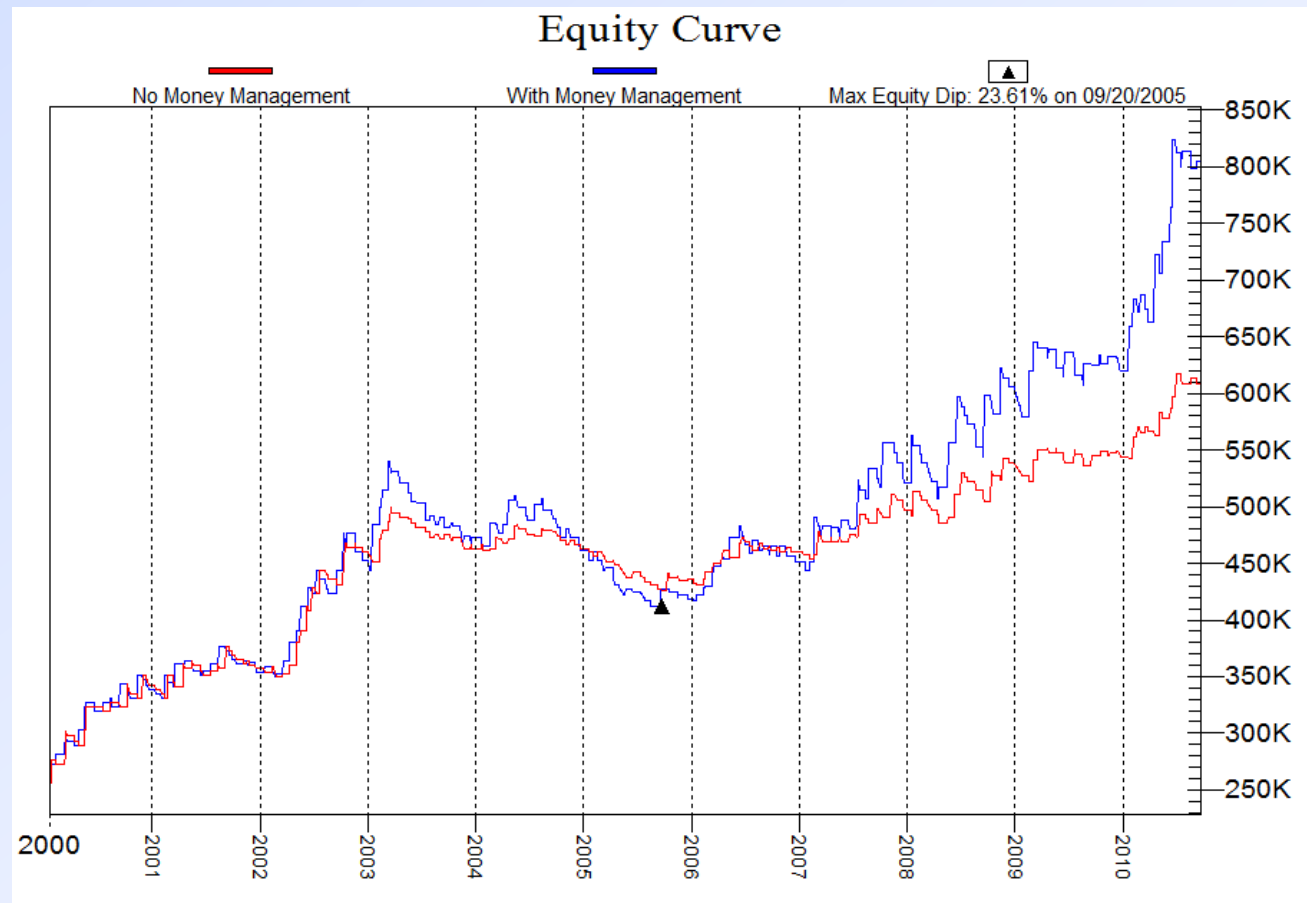
- Leverage a winning streak
- Counter a losing streak as early as possible.

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



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



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

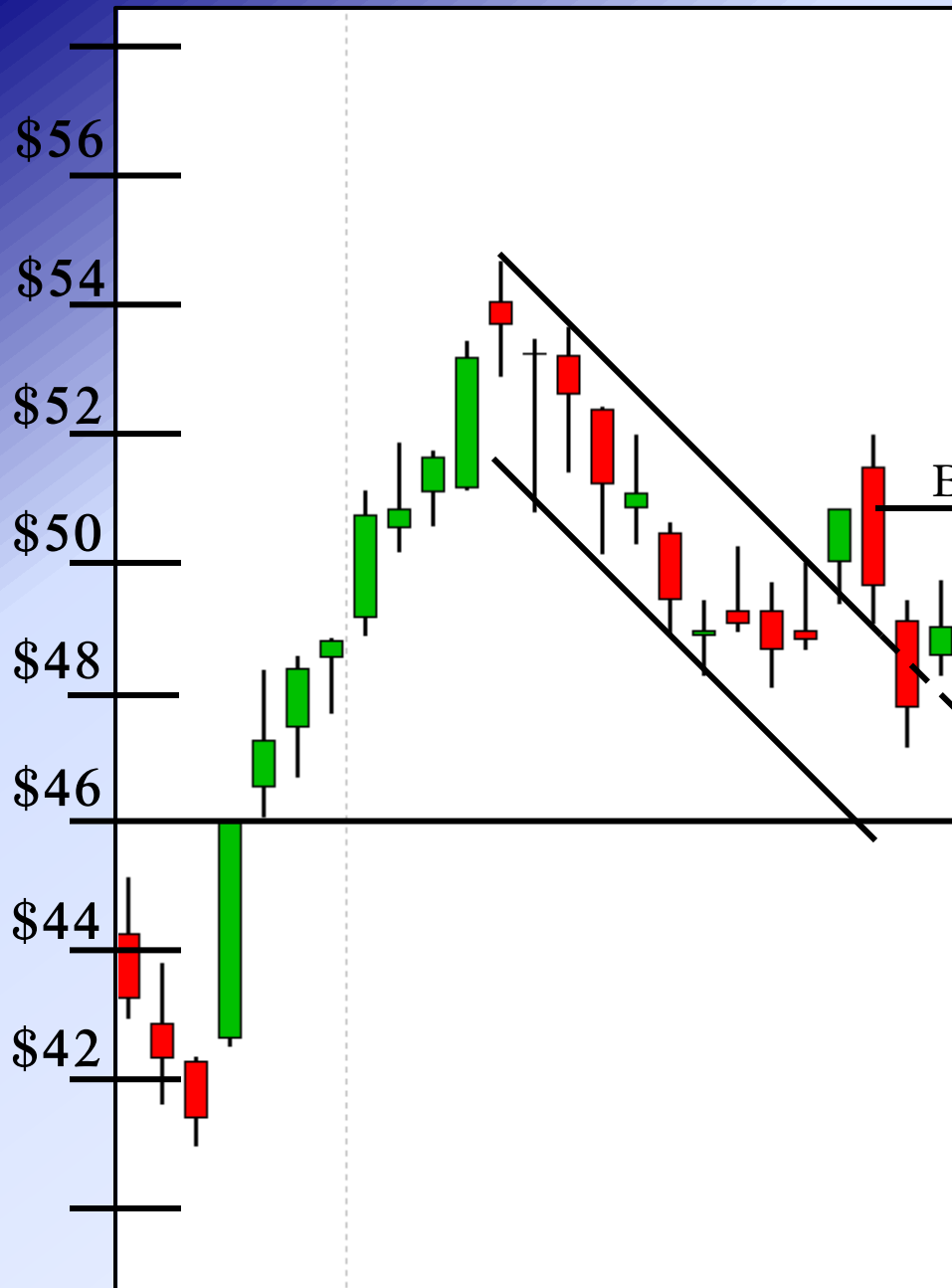
Entry three: 100 shares @ \$47

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

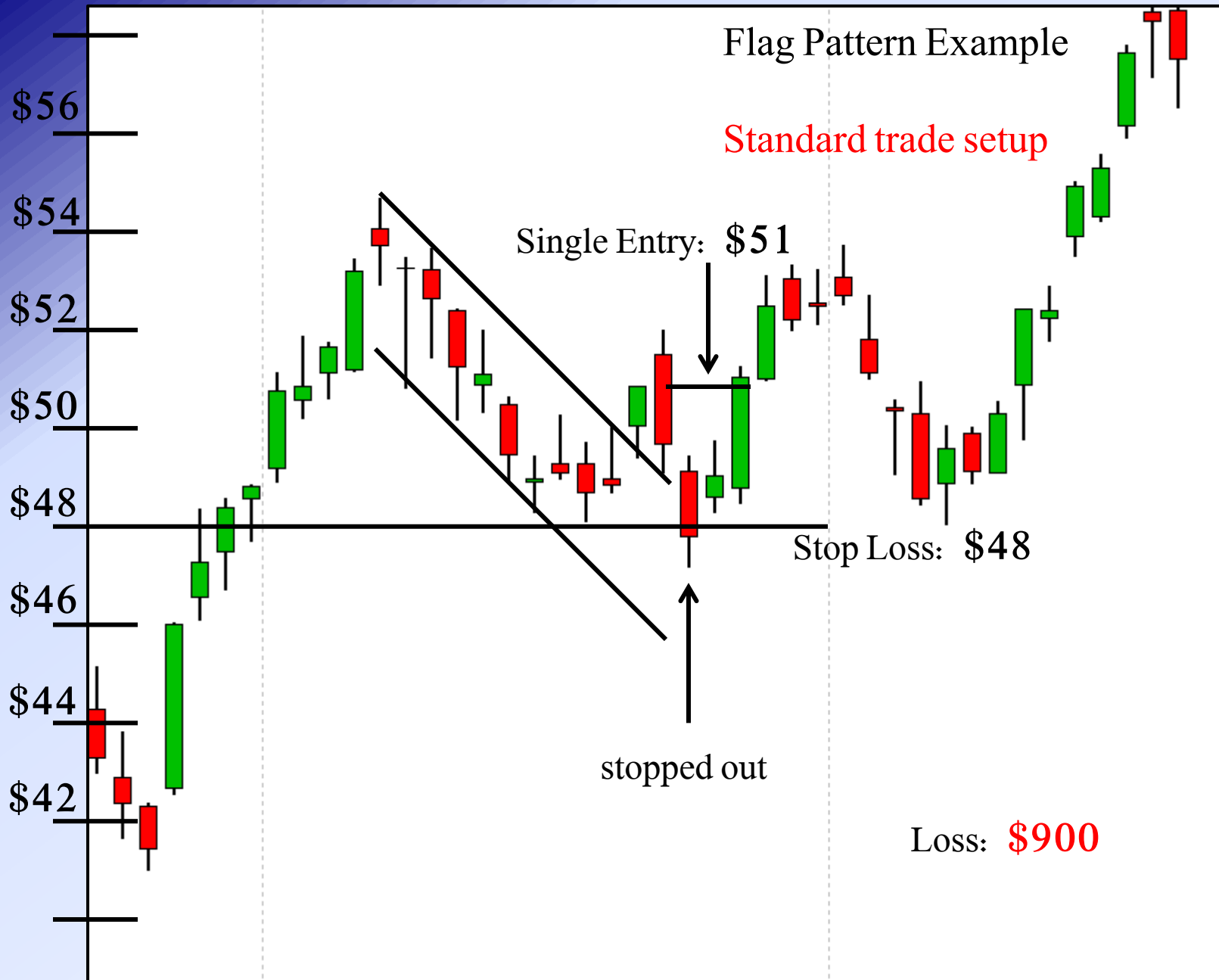
Standard trade setup

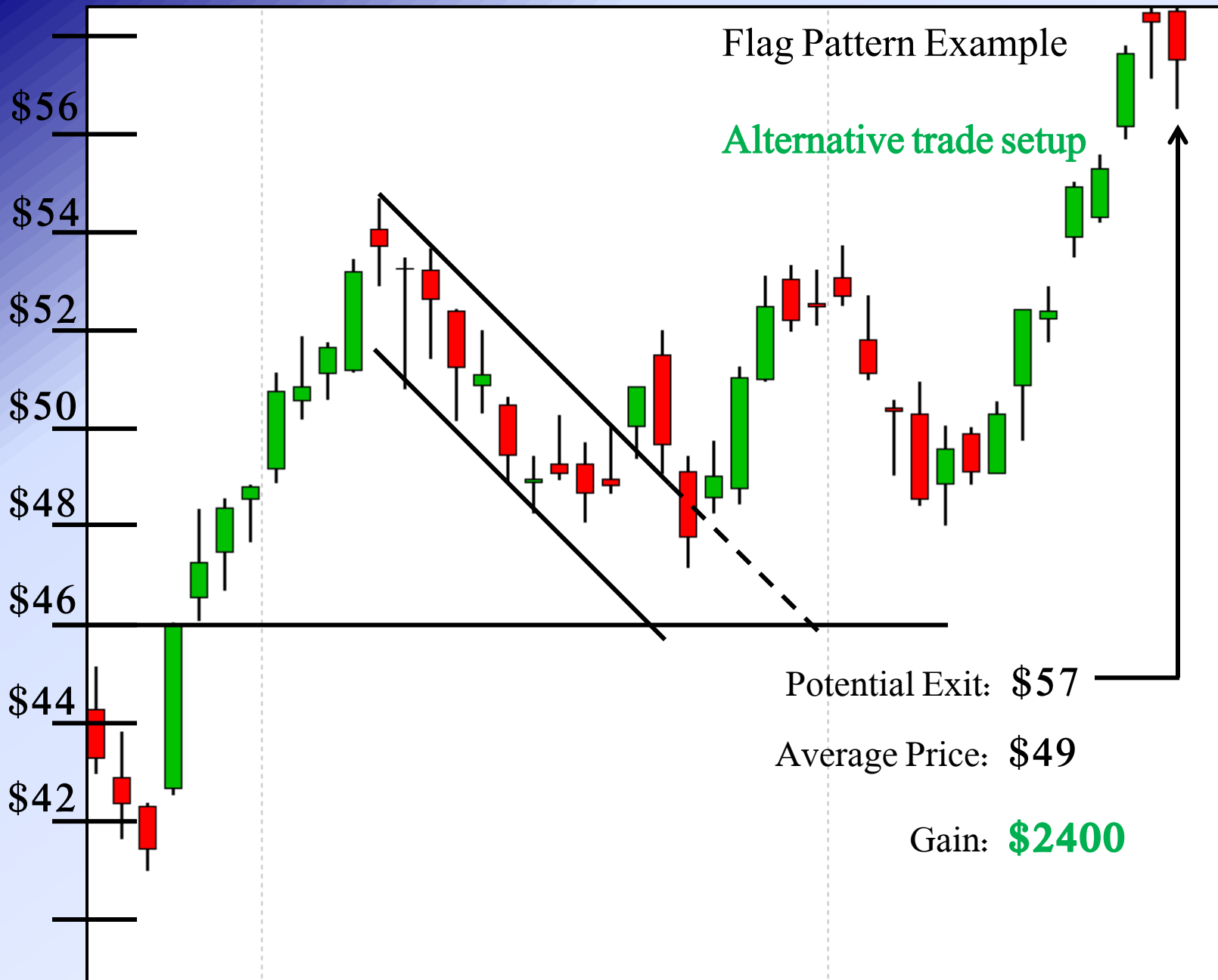
Single Entry: \$51

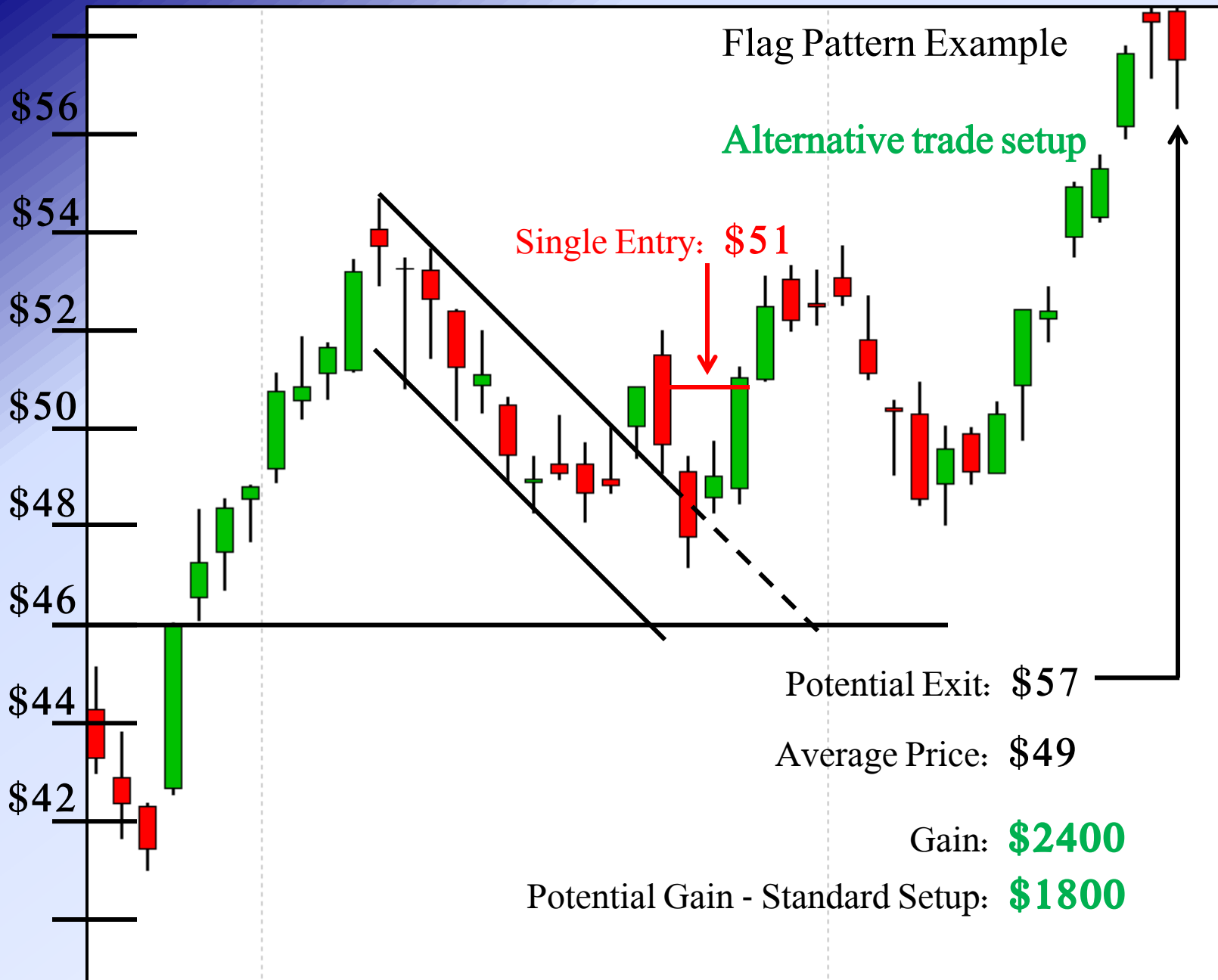
Stop Loss: \$48

stopped out

Loss: \$900







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?

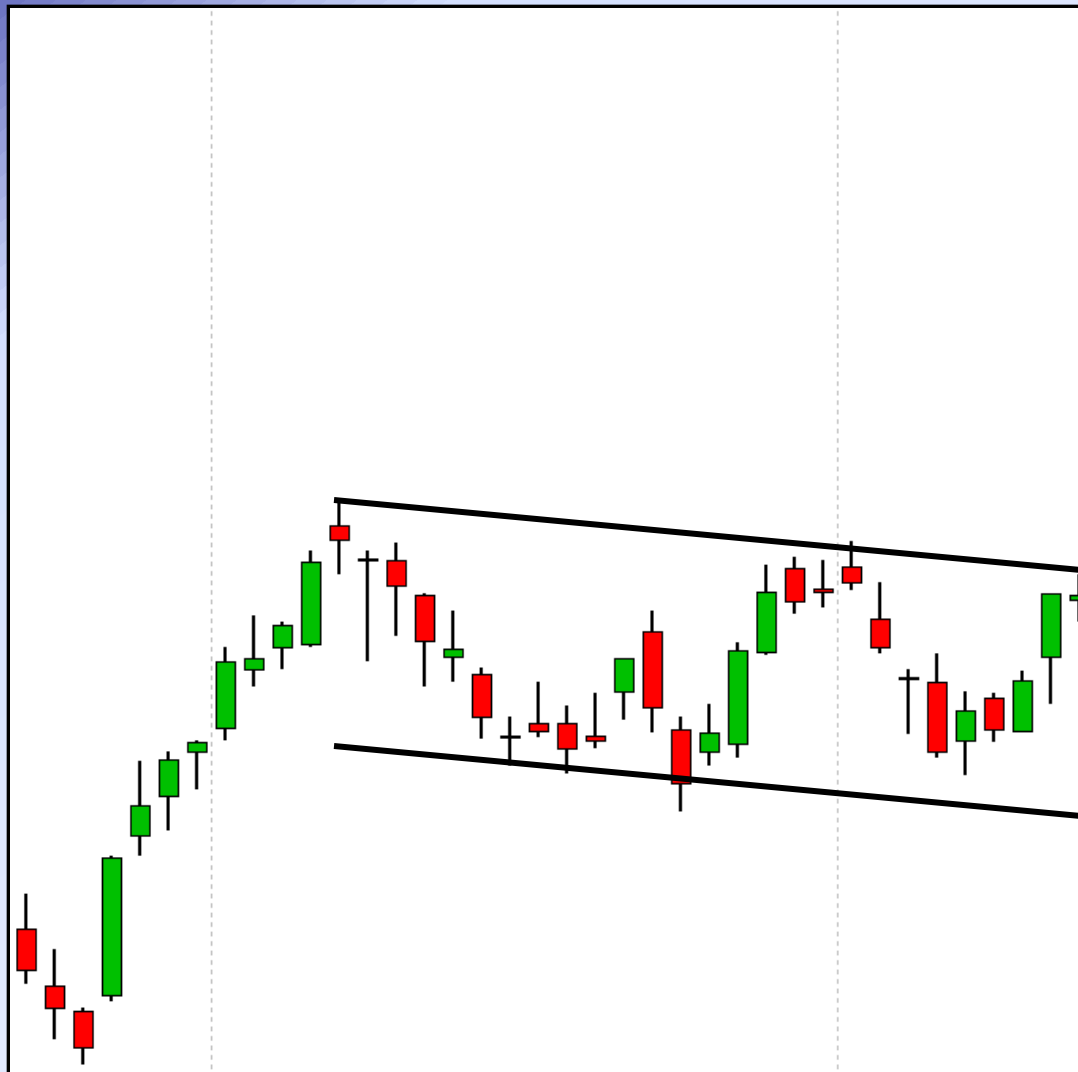


Rectangle Pattern Example

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



Rectangle Pattern Example

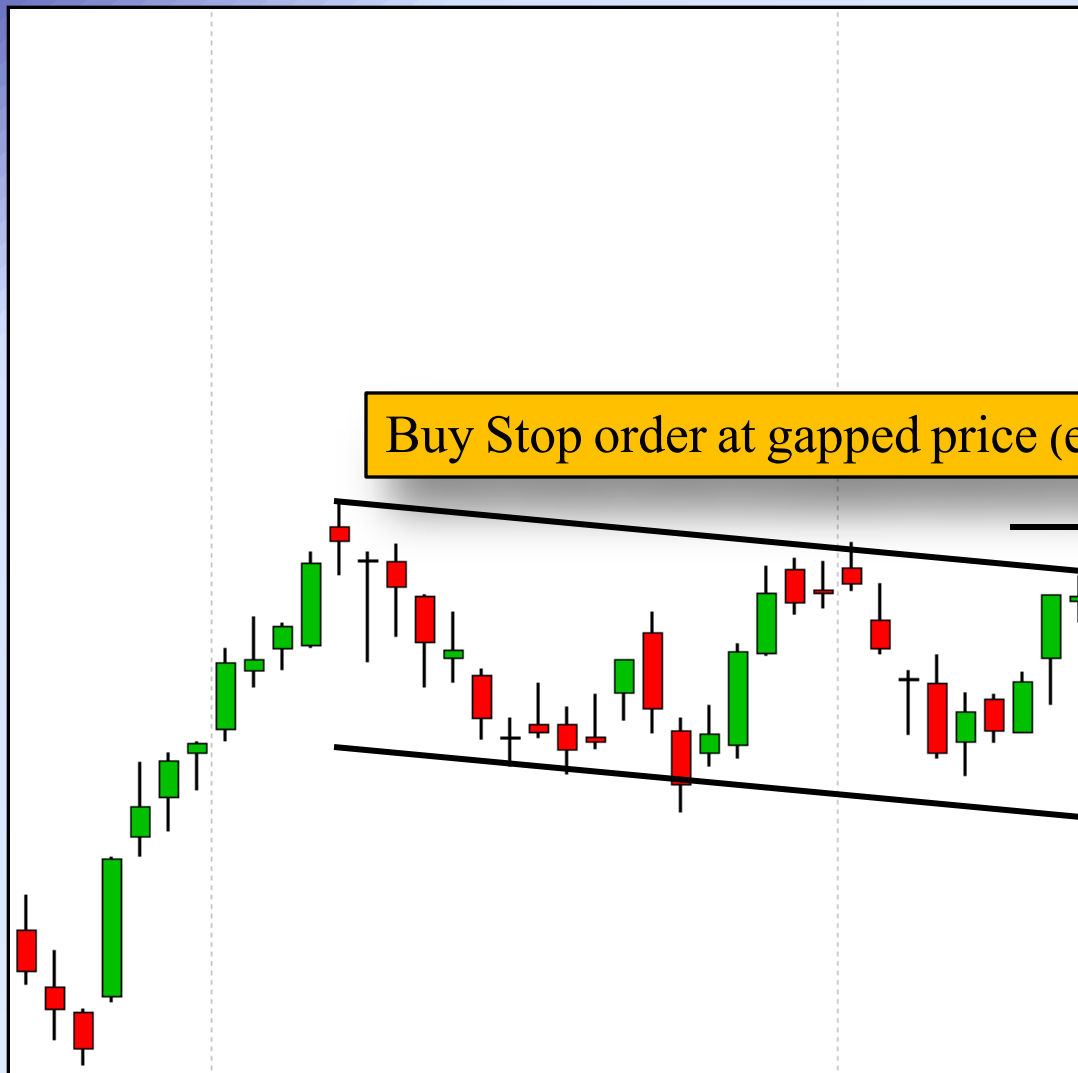


Limit order at breakout price

Rectangle Pattern Example



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

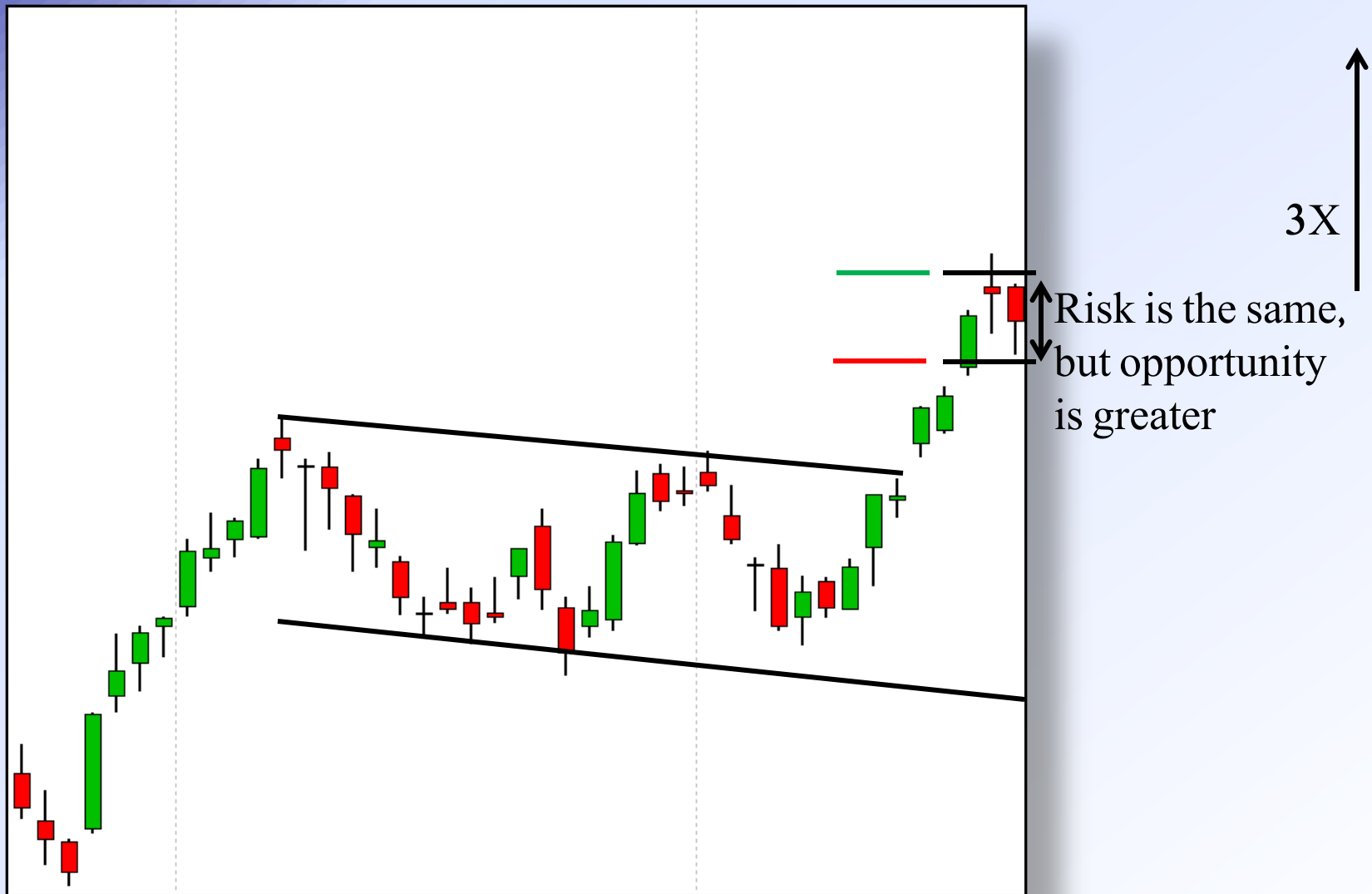
Add final position
of same size

Move stop loss to
second entry price.

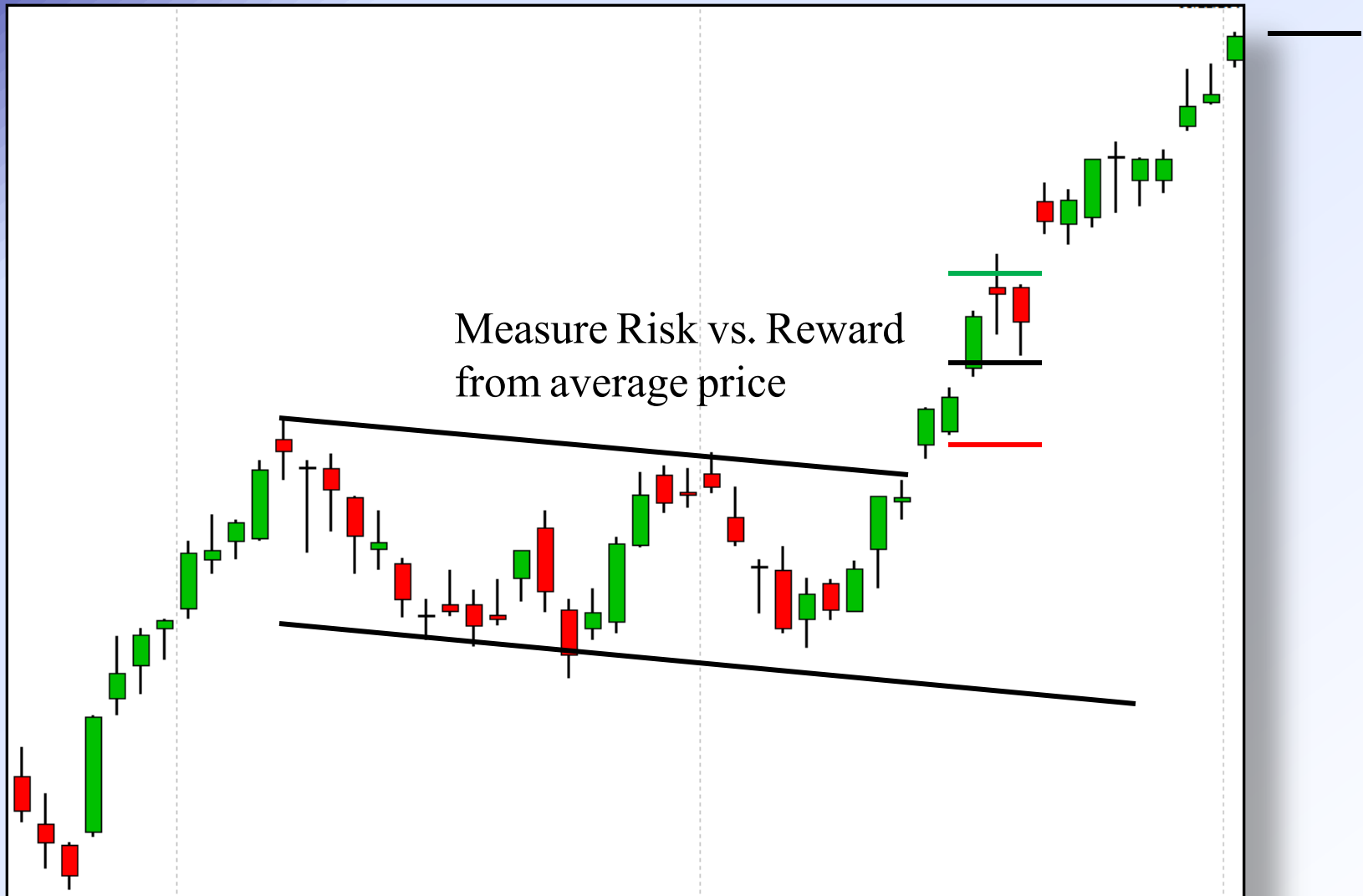
Second entry is
new break-even
price



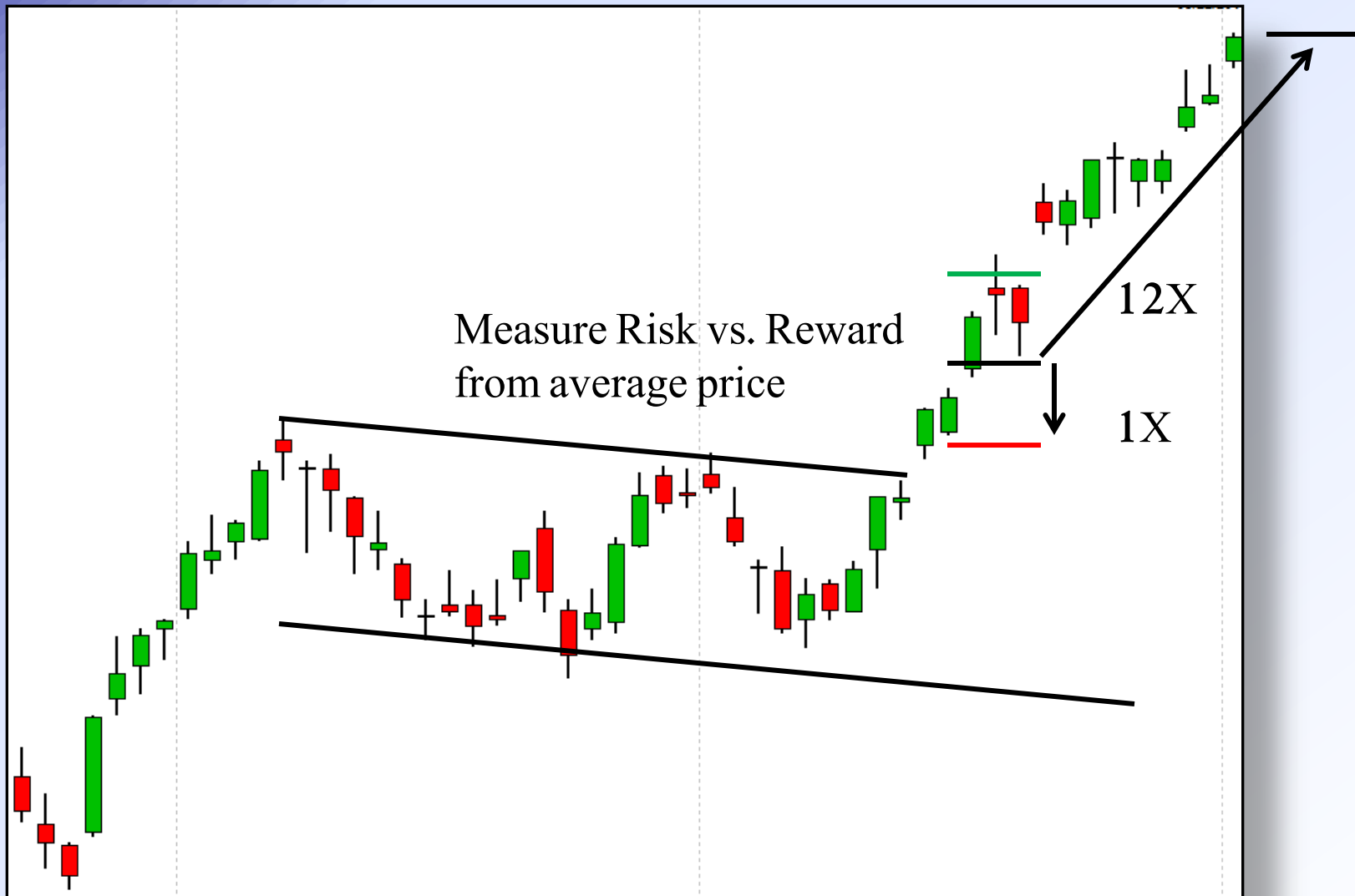
Rectangle Pattern Example



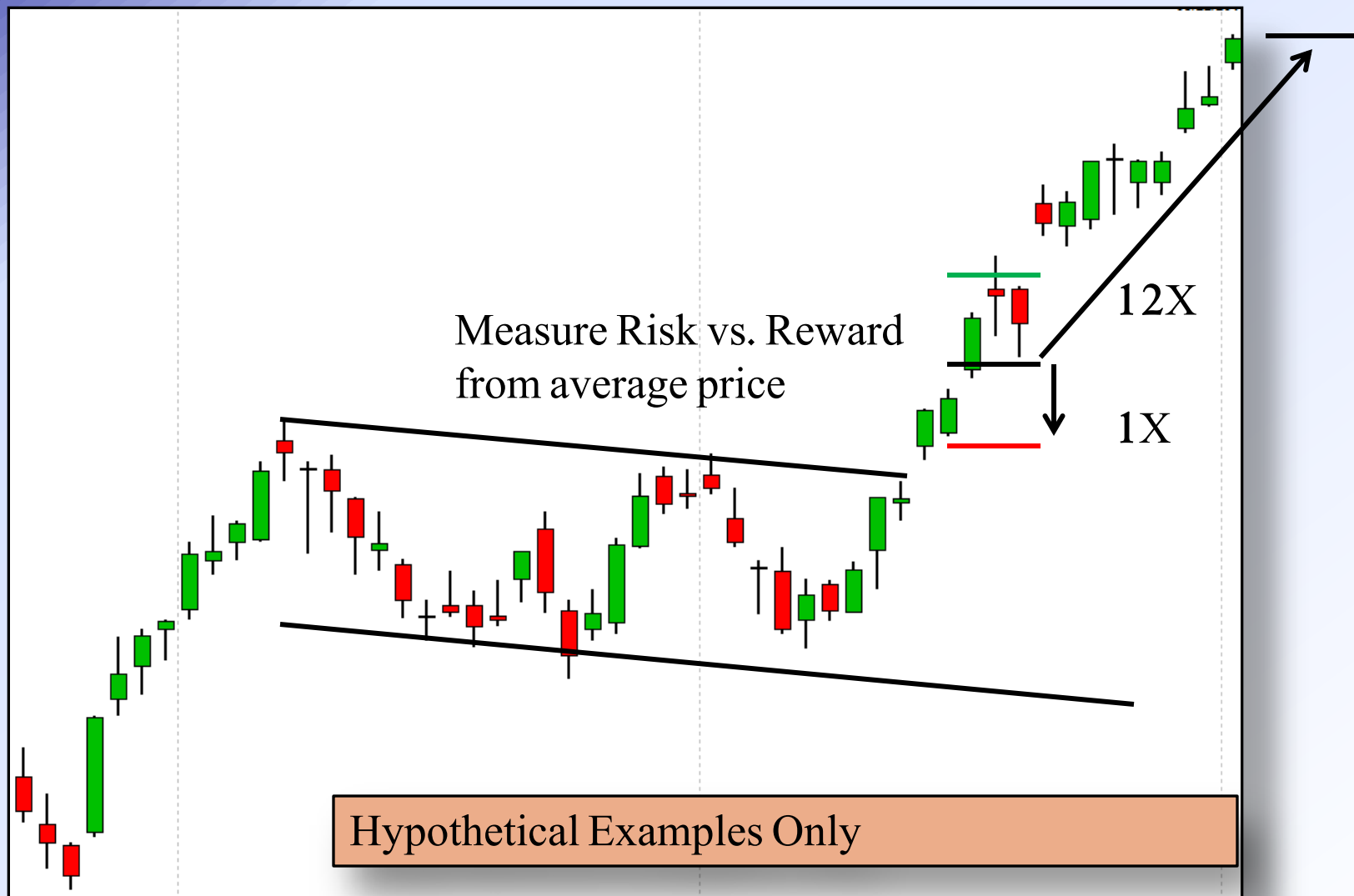
Rectangle Pattern Example



Rectangle Pattern Example

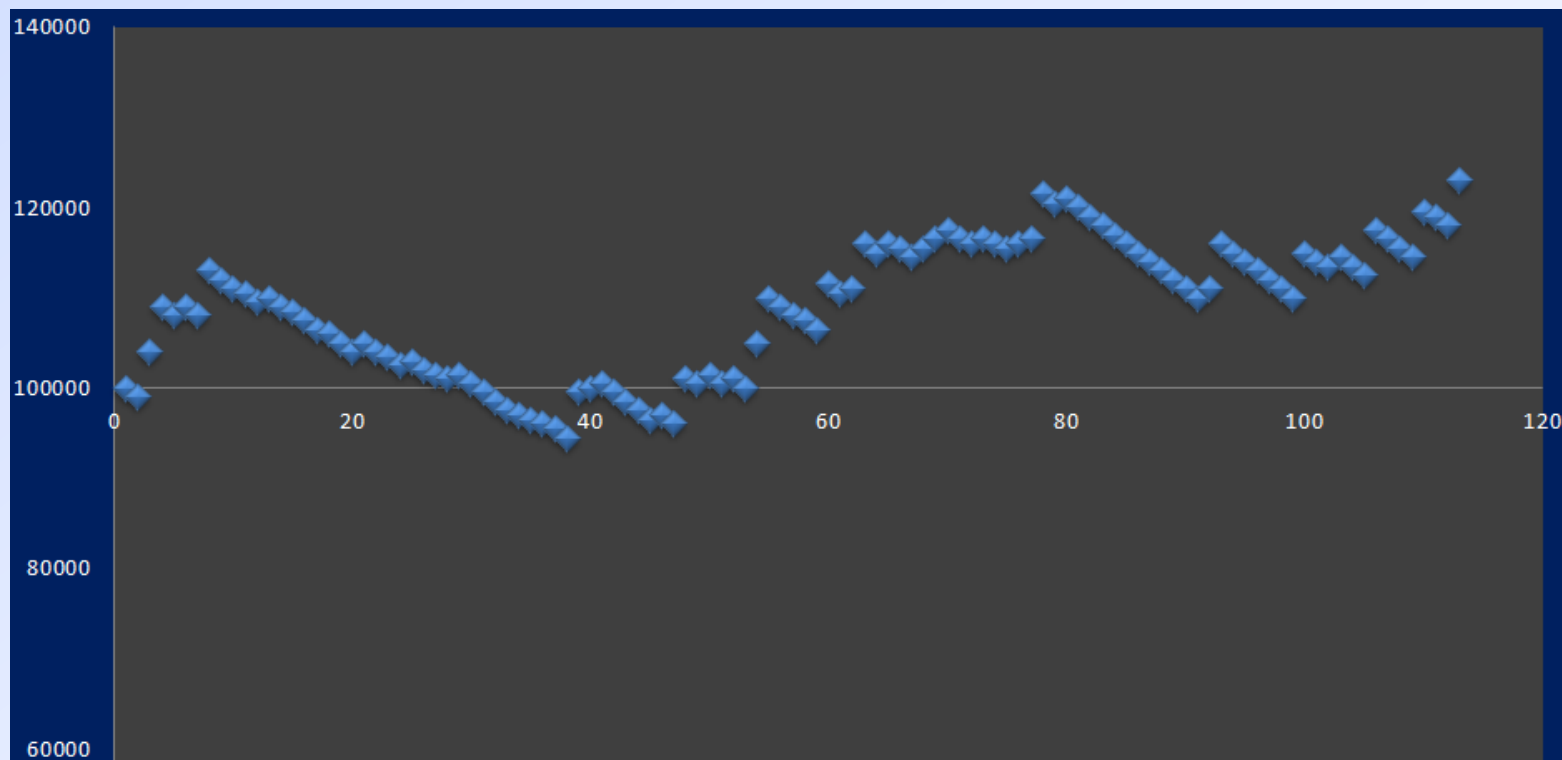


Rectangle Pattern Example



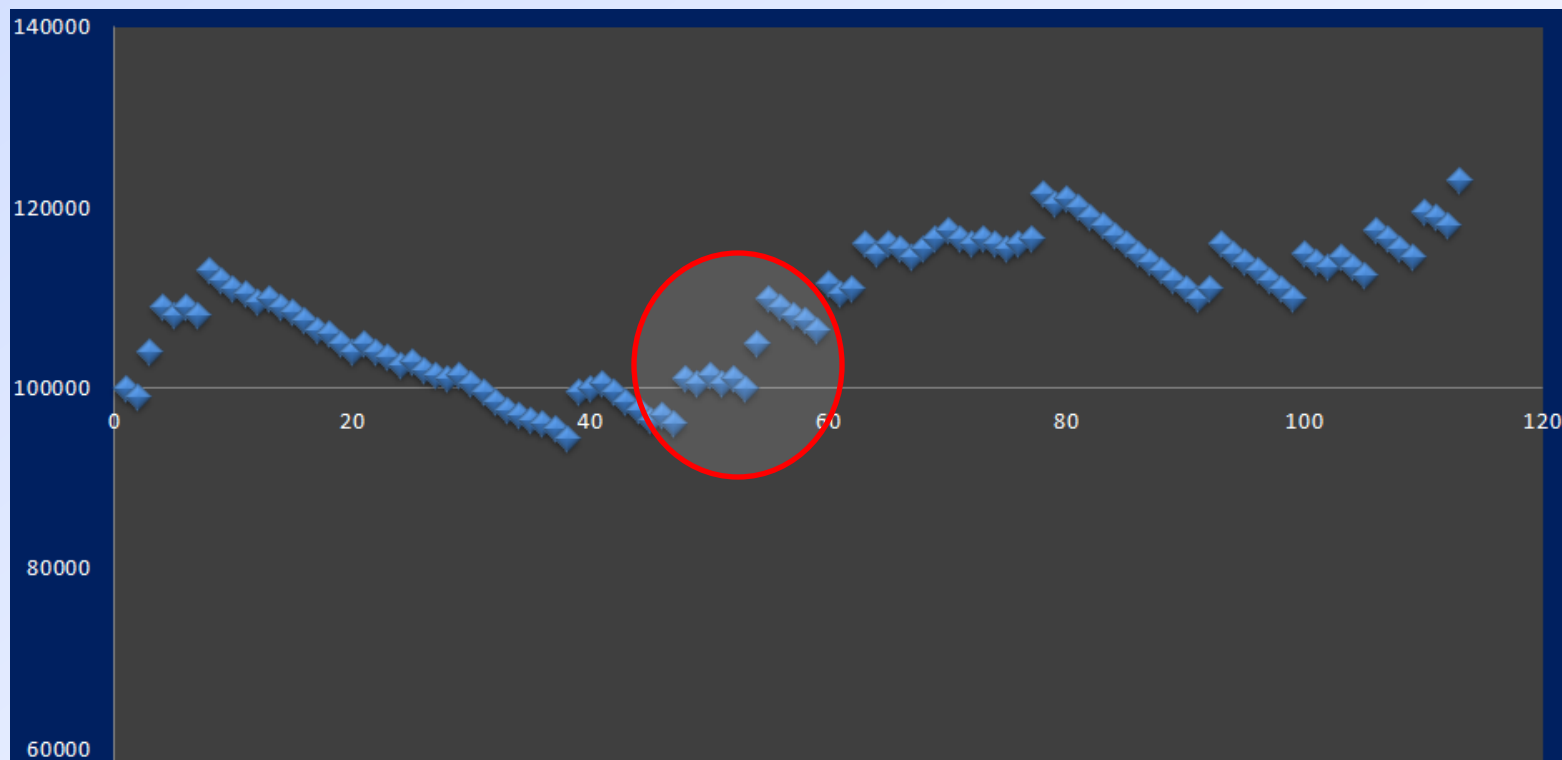
What difference could it make?

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



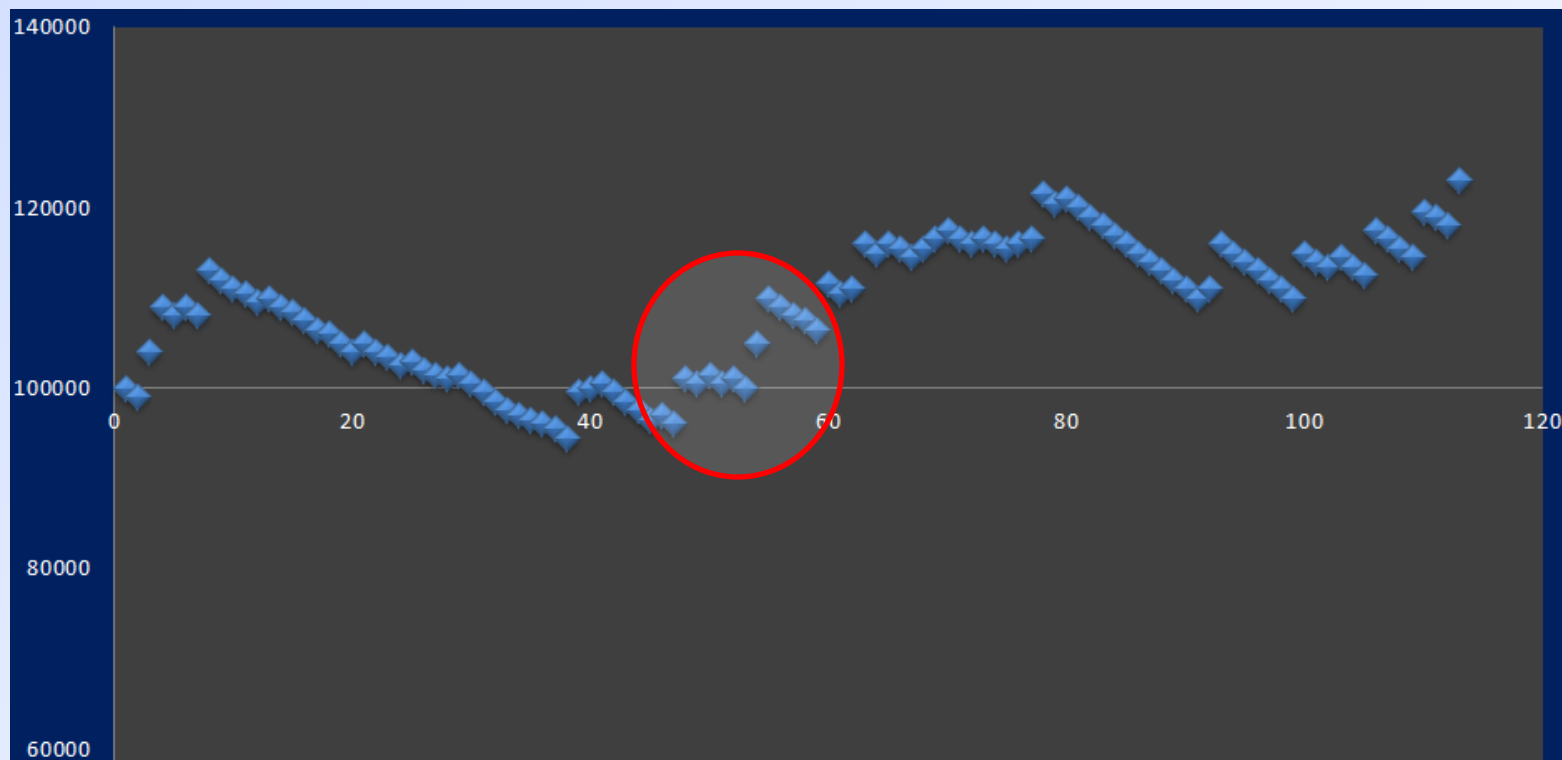
What difference could it make?

- 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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Please send feedback or questions to:
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