Family Business

Lesson 16-17

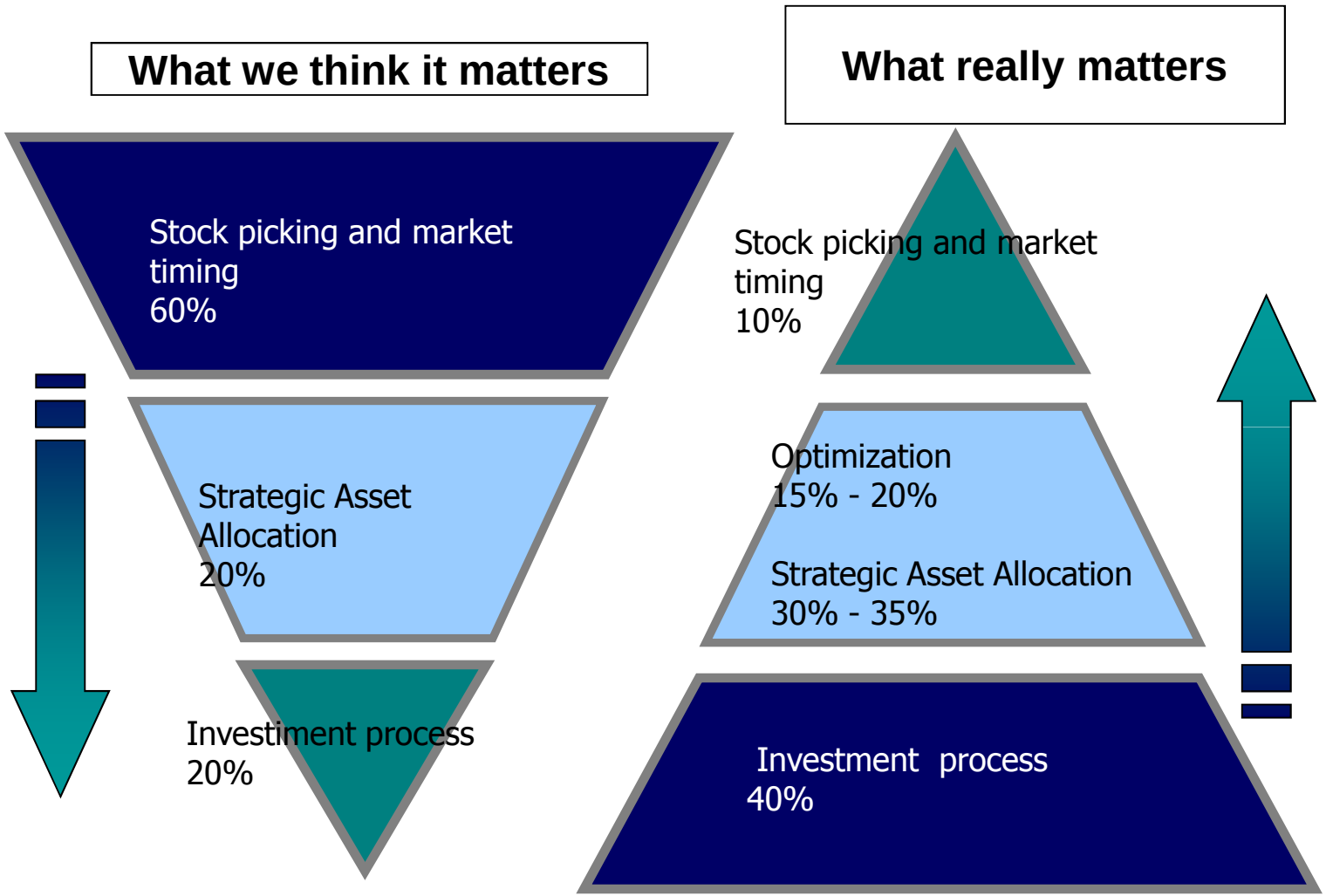
Asset management and investment advisory

Prof. Vittorio de Pedys

Asset management

- Interestingly, and similarly to the rise of private equity, family offices are playing an important role in the emergence of impact investment as a new investment class due to their longer term outlook, lower risk averseness, and institutional freedom

What is really important in portfolio selection?



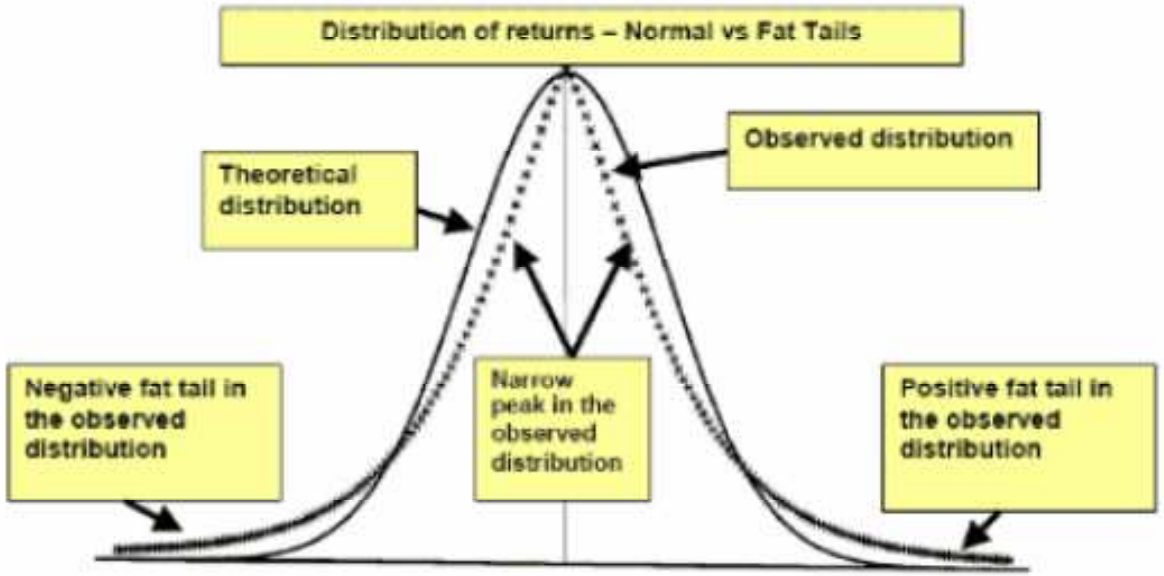
BEWARE BLACK SWANS !

to think that risk factors follow a a normal distribution UNDERVALUES extreme market movements

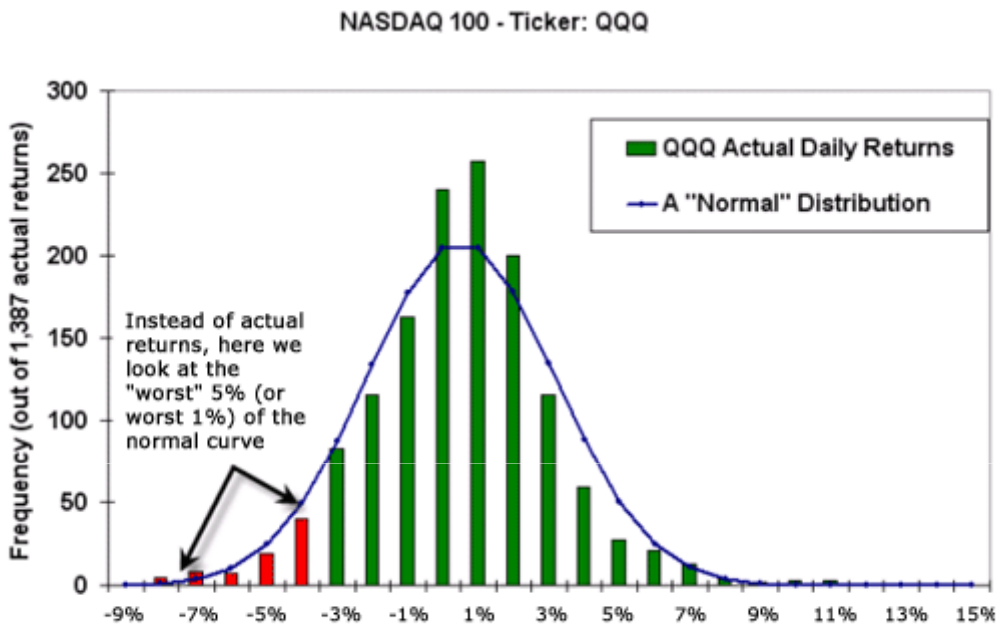
real life distribution have fatter tails and

Empirical evidence show frequent extreme market movements and fatter tails and asymmetry (negative). **Distributions change with time**

Fat tails



Distribution of daily returns

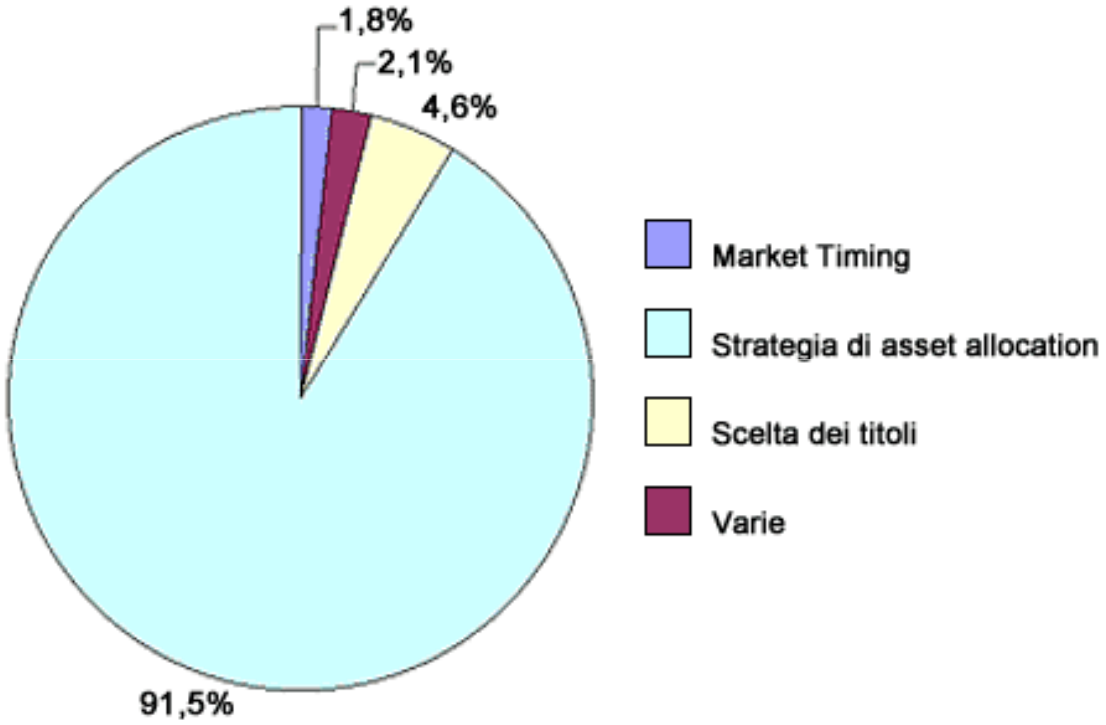


Confidence	# of Standard Deviations (σ)
95% (high)	- 1.65 × σ
99% (really high)	- 2.33 × σ

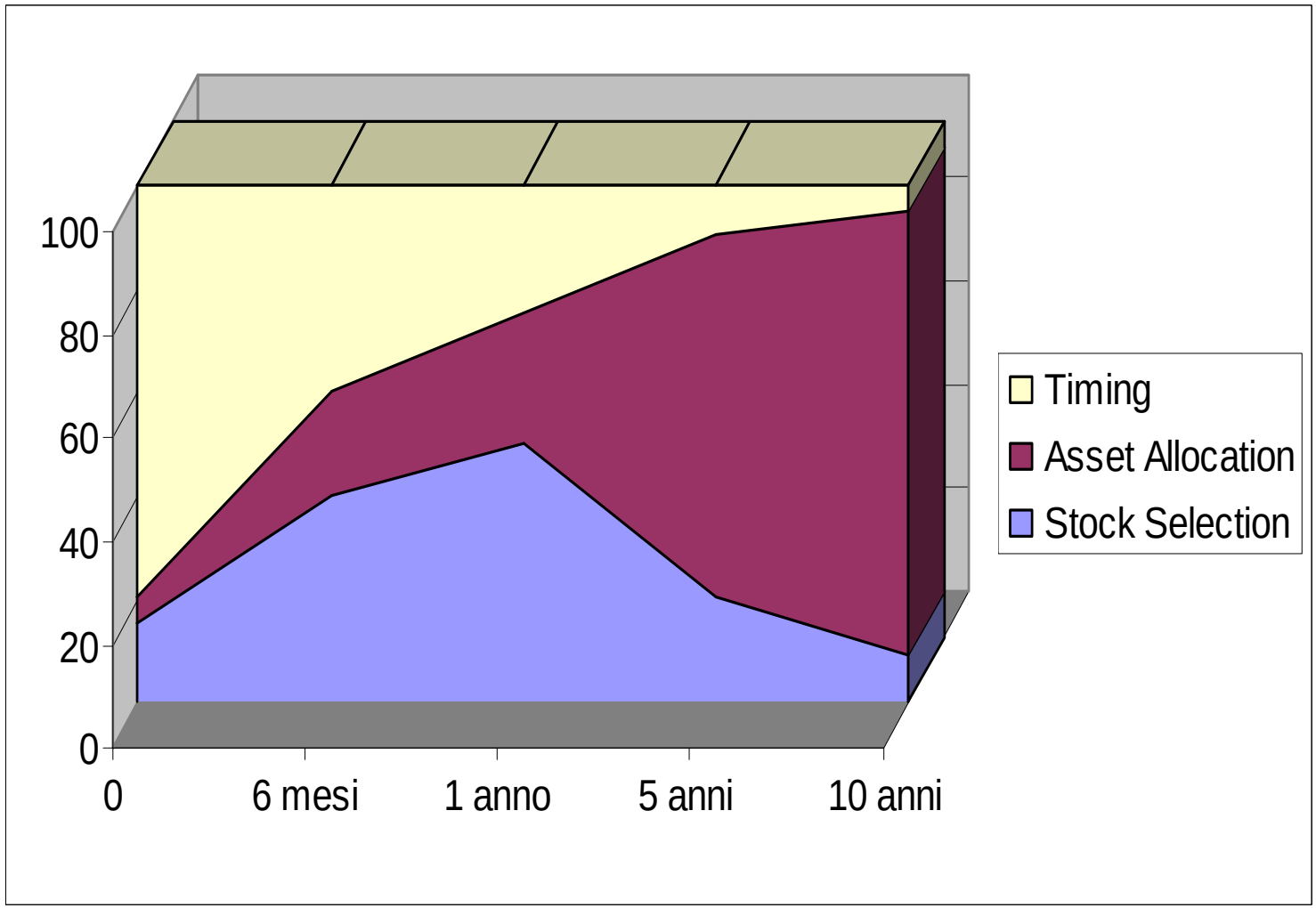
Confidence	# of σ	Calculation	Equals:
95% (high)	- 1.65 × σ	- 1.65 × (2.64%) =	- 4.36%
99% (really high)	- 2.33 × σ	- 2.33× (2.64%) =	- 6.16%

Ibbotson (1997) says that long-term factors which determine PORTFOLIO

PERFORMANCE are as follows

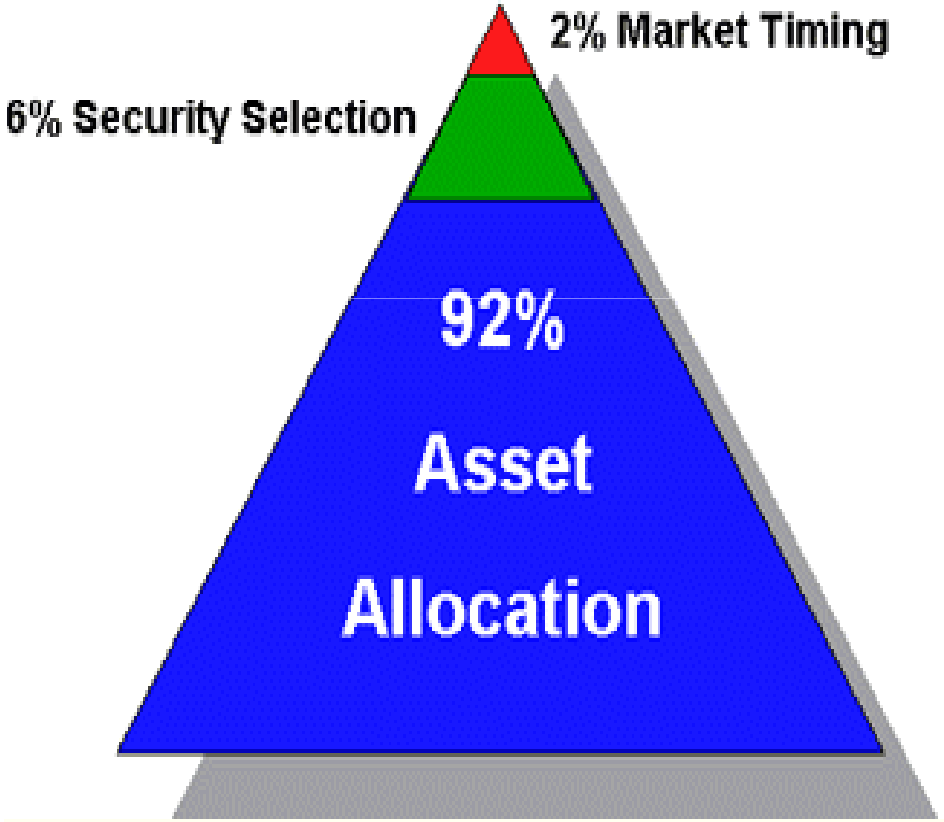


Contribution % to portfolio performance



Factors influencing portfolio behavior

Another study by Brinson, Singer, Beebouwer (1986), concludes that the factors that better explain portfolio variability during time are :

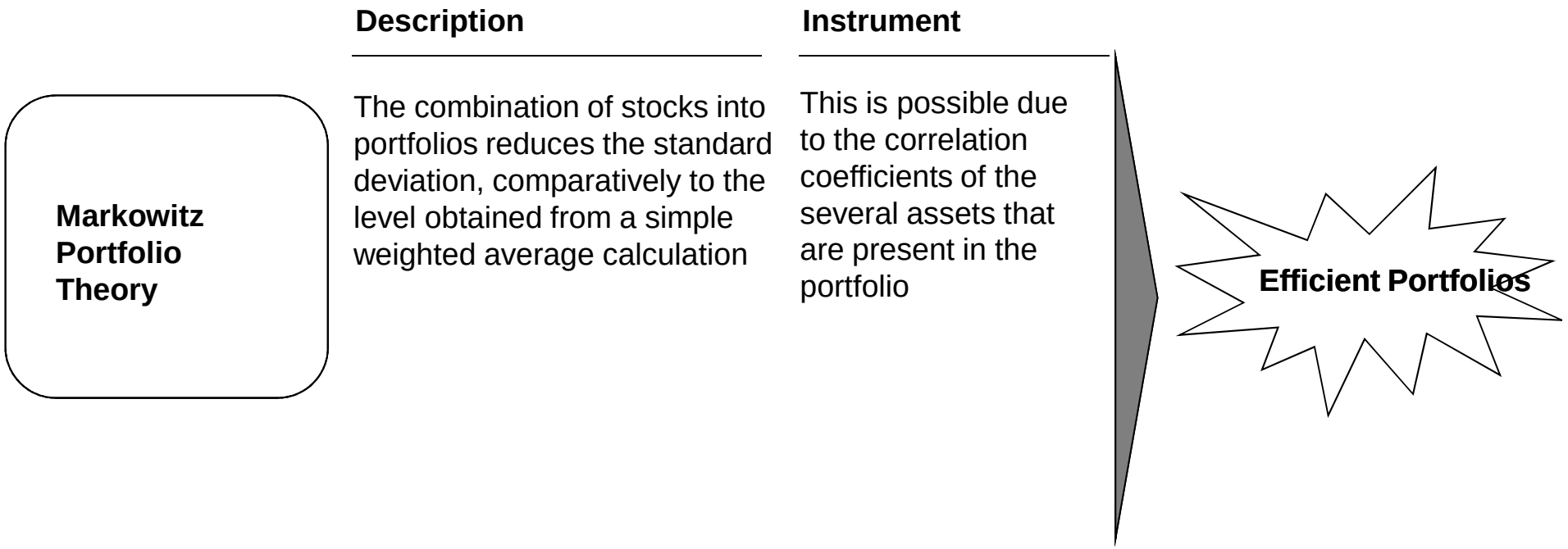


Possible portfolios and frontier

- Diversification is the base of Modern Theory of Portfolio by Markowitz seeking to find efficient combinations

- Efficient portfolios maximise expected return for a given risk (standard deviation) or viceversa minimise risk given an expected return . These portfolios are the efficient frontier .

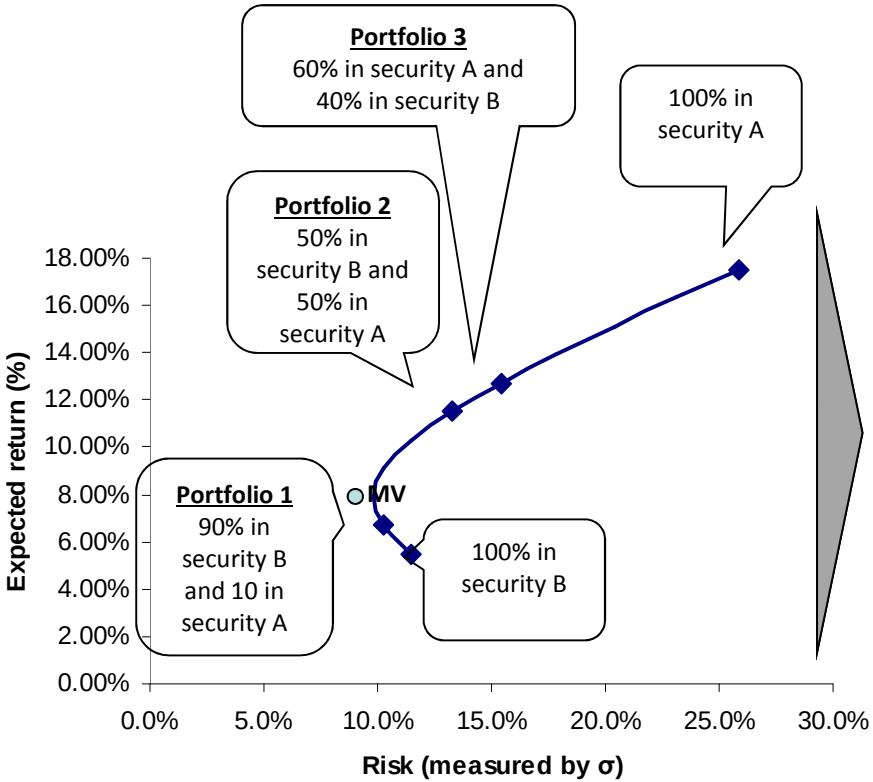
MARKOWITZ PORTFOLIO THEORY SUPPLIES INSTRUMENTS FOR DEVISING THE DIVERSIFICATION OF THE PORTFOLIOS



Investors can choose a portfolio along the curved line when deciding an investment in a portfolio made up of shares A and B

Graphically plotting all the opportunity set, we can produce a curve like this:

The curved line shows how expected return and standard deviation change as you hold different combinations of the 2 shares



Portfolios 1, 2 and 3 represent some of the combinations that an investor can have access to

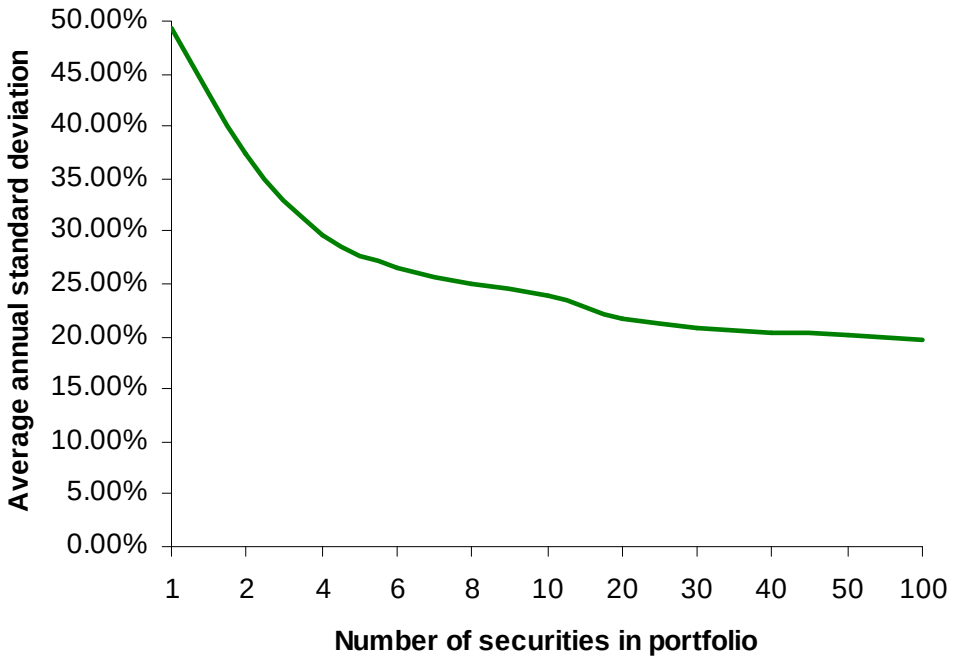
Of particular interest is the point MV, which stands for the **minimum variance** portfolio

By definition, this portfolio has the lowest risk*

** The term minimum variance portfolio is commonly in use and therefore it is used here. This term can be confusing because it is standard deviation, not variance, that is measured on the horizontal axis. The term minimum standard deviation is perhaps more appropriate.*

We have seen the effect of diversification. Does that mean we can keep on diversifying to get rid of all the risk? The answer is that risk will continue to reduce with adding shares into the portfolio – but only up to a certain point

Using the average annual σ of portfolios containing different numbers of randomly selected securities on the NYSE, it can be seen that each additional security in the portfolio can lower its risk, with the σ declines as the number of securities is increased



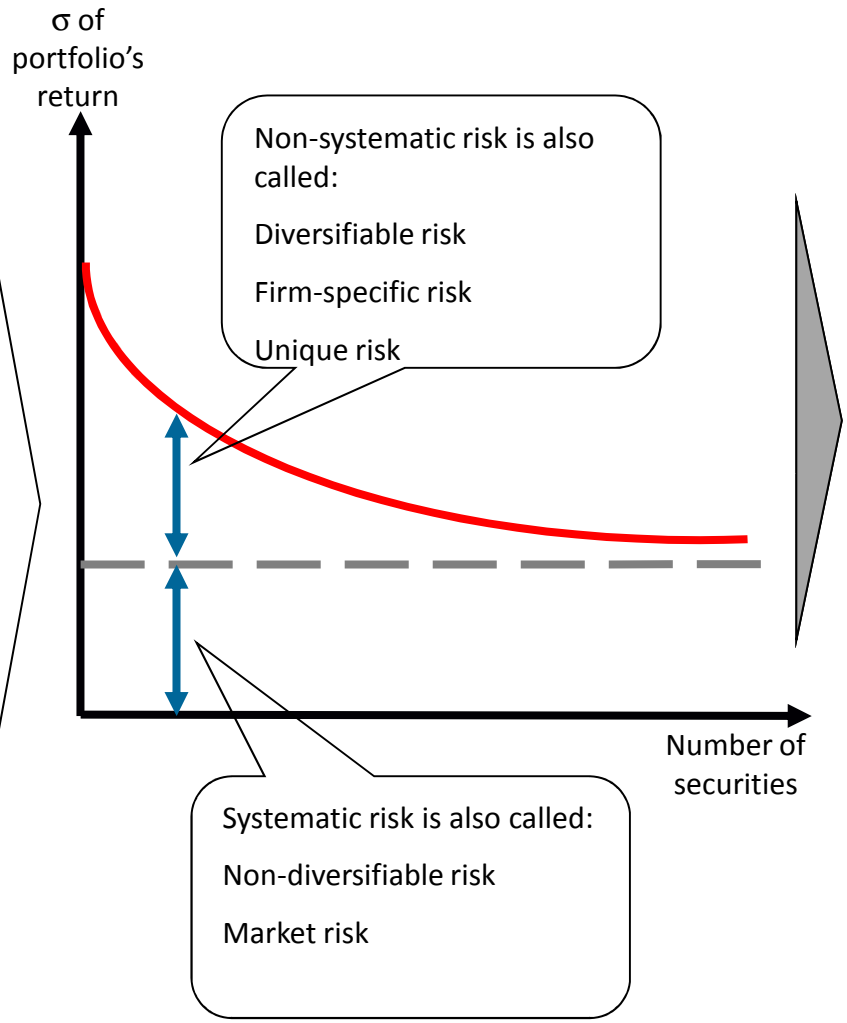
However, the decrease in risk gradually levels off even though more and more securities are added into the portfolio

This shows that we can only go so far with diversification

Source: Statman, Meir (1987) "How many stocks make a diversified portfolio?" Journal of Financial and Quantitative Analysis 22, pp. 353-364

In other words, there is risk that can be diversified away and there is risk that cannot be diversified away

The risk that cannot be got rid off is called **systematic risk** while those risk that can be eliminated is called **non-systematic risk**



We will have therefore 2 types of risk:

Non-systematic risk

Risk that can be eliminated by diversification (hence, diversifiable risk)

Risk that affects at most a small number of assets (hence, firm-specific risk)

Component of total risk which is unique to an asset or firm (hence, unique risk)

Systematic risk

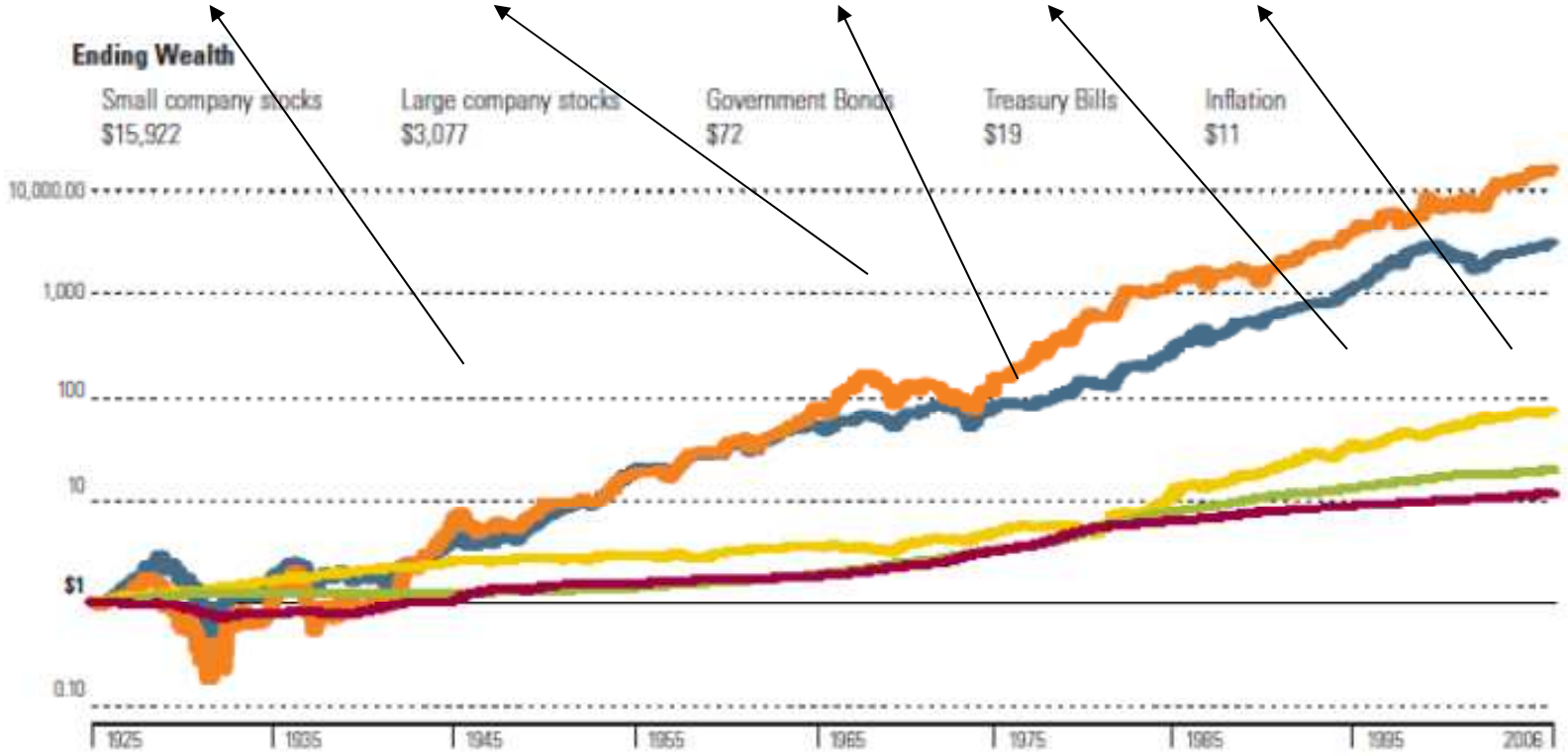
A risk that influences a large number of assets (hence, systematic risk)

Component of total risk which is due to economy-wide factors (hence, market risk)

Cannot be eliminated by diversification (hence, non-diversifiable risk)

Since risk and return go hand-in-hand, it can be expected that a higher return is necessary to compensate a higher level of risk. Therefore, while different types of investment offer different returns …

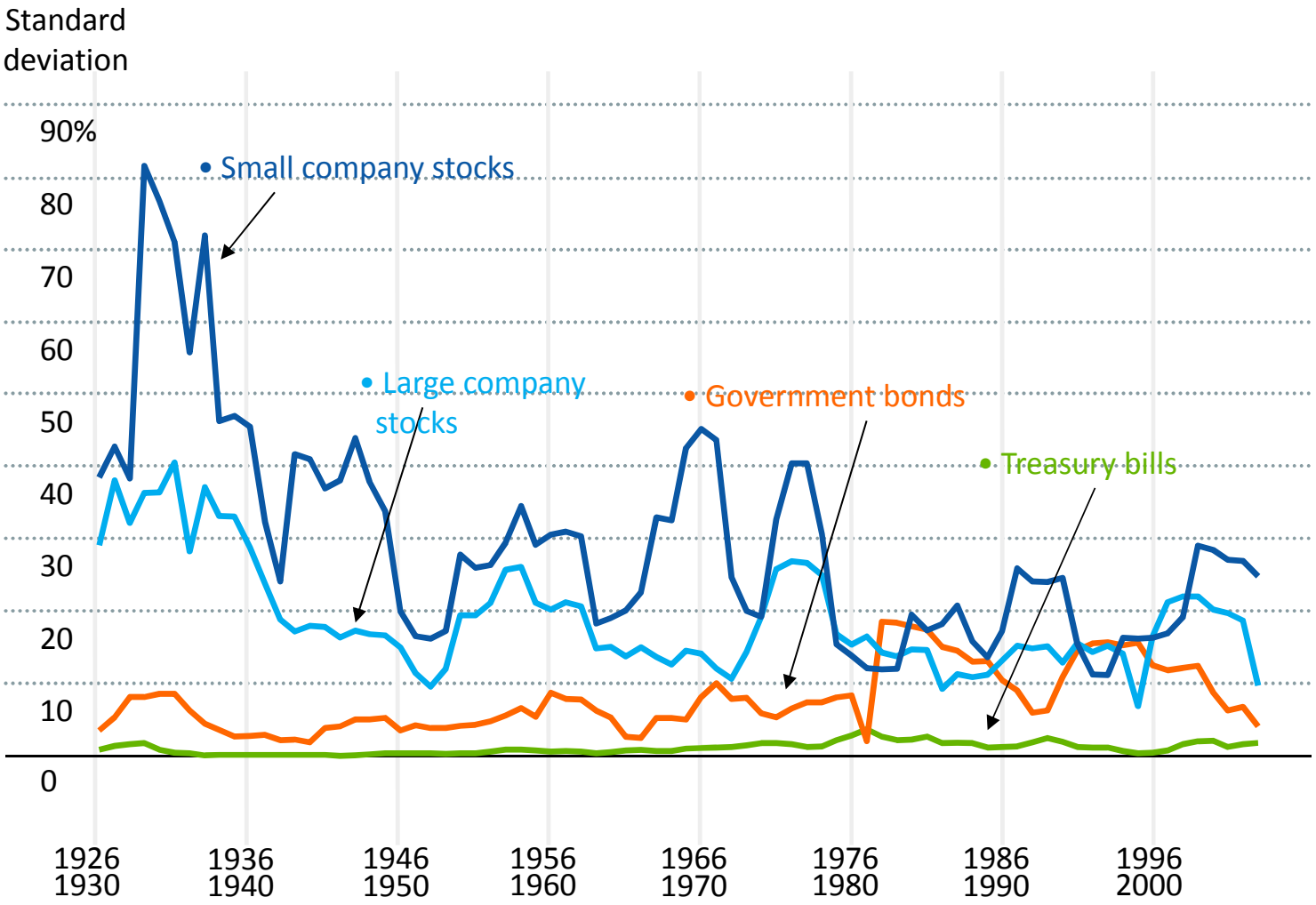
If you invested $1 in 1925, your ending wealth will be very different if the $1 is invested in small company stocks, large company stocks, T-bonds and T-bills



Source : Ibbotson Associates (2006) Stocks, Bonds, Bills, and Inflation 2006 Yearbook

… they carry different levels of risk on returns

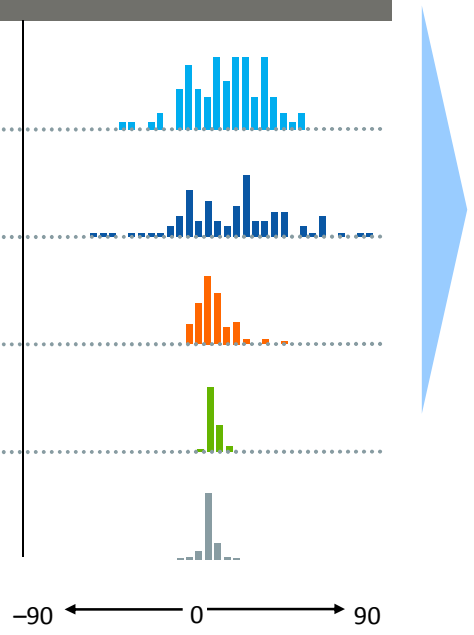
While the common stocks offer a much higher returns than T-bonds and T-bills, the risk of the return associated with common stock is also higher



Source : Ibbotson Associates (2006) Stocks, Bonds, Bills, and Inflation 2006 Yearbook

In short, return is proportional to the risk carried by the asset

	Arithmetic annual return	Risk (standard deviation)	
Large firm stocks	12.3%	20.0%	
Small firm stocks	17.1%	32.6%	
Government bonds	5.8%	9.2%	
Treasury bills	3.8%	3.1%	
Inflation	3.1%	4.2%	



Source : Ibbotson Associates (2006) Stocks, Bonds, Bills, and Inflation 2006 Yearbook

- Small company shares provide on average better return than any other asset classes
- But they also have the highest risk (standard deviation)
- One can also observe that the shares of these companies have a wider distribution (spread) of returns (in other words, greater variability and volatility)
- T-bills, on the other hand, are far less risky buy also yield far less return

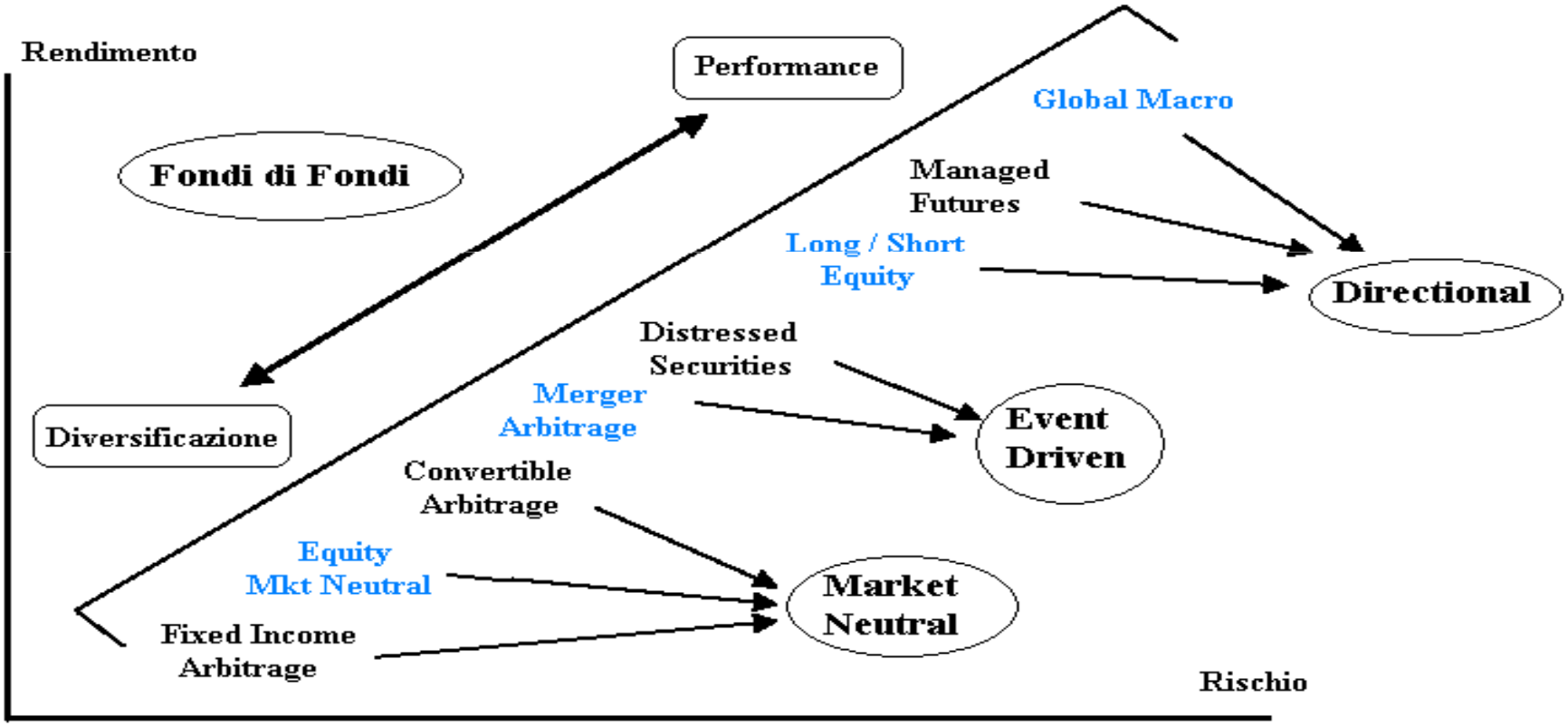
History shows the relationship between risk and rates of return

Financial market has a historic track record of standard deviation from different asset investments. From 1926 to 1999 the rate of return are the follows:

Securities	Nominal Average Annual Retuns	Standard Deviation of Returns	Real Average Annual Returns	Risk Premium
Small company stocks	17,60%	33,60%	14,40%	13,80%
Large company stocks	13,30%	20,10%	10,10%	9,50%
Long term Corporate Bonds	5,90%	8,70%	2,70%	2,10%
Long term Government Bonds	5,50%	9,30%	2,30%	1,70%
US Treasury Bill	3,80%	3,20%	0,60%	0,00%

Statisticians tell us that 2/3 of the time, and event will fall within plus or minus one standard deviation of the expected value (assuming the distribution is normally distributed). Thus for ex. for small stocks given a 14,4% of expected return and a standard deviation of 33,6%, we may anticipate that the actual returns will fall between -19.2% and 48% two thirds of the time

Adding hedge funds to diversify...different strategies



Adding hedge funds? Some examples

DIREZIONALE

L

Traditional strategy
long –only

$\alpha + \beta$

HEDGED

L + S
L>S or L<S

Long and short
Simultaneously

Riduce β

E genera α

ARBITRAGE

L = S

Lond and short
with neutral
market exposure

Pure α

$\beta \cong 0$

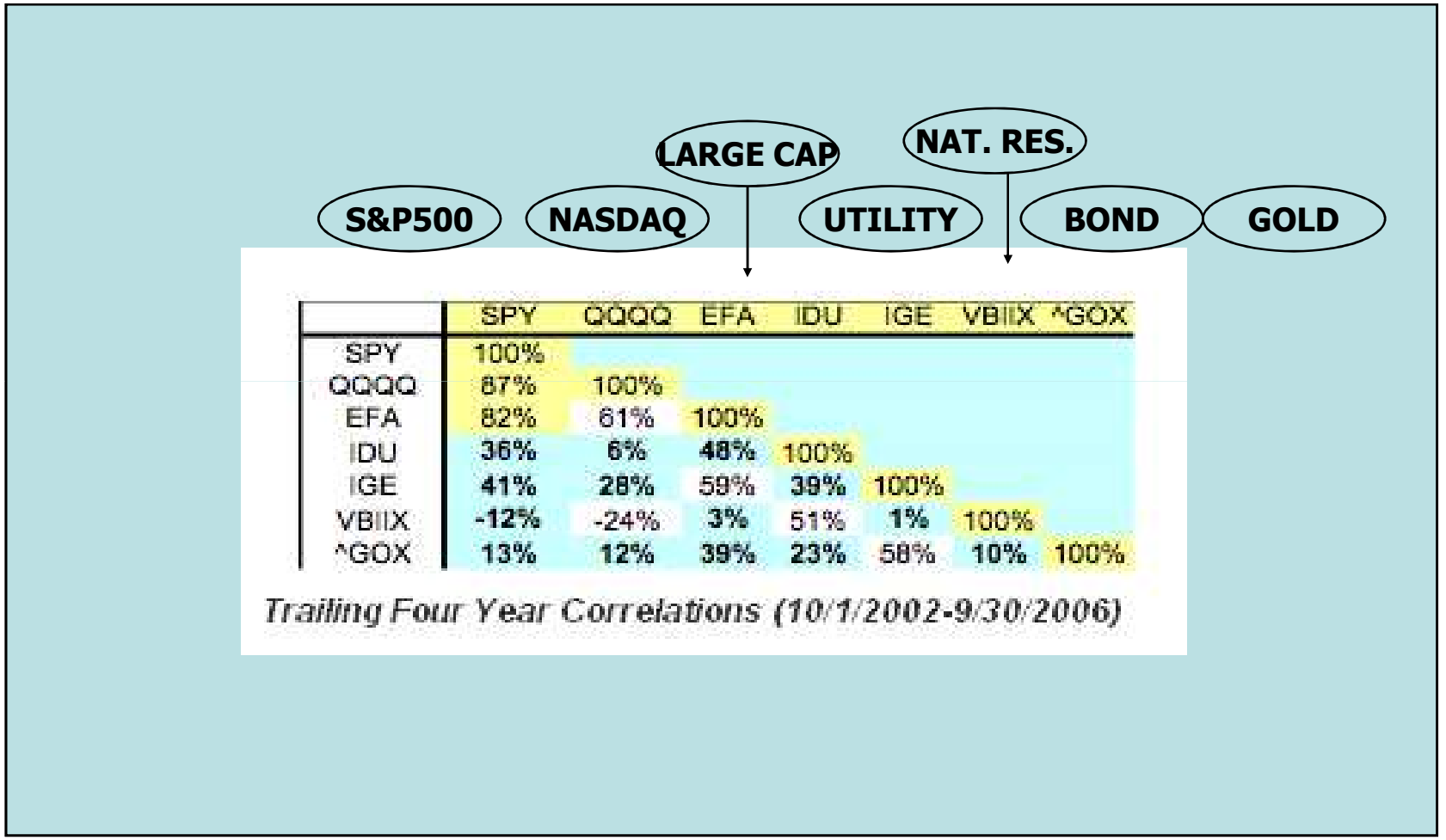
TRADING

L or S

Maximum exposure
to market

Complementary to
Arbitrage

Correlation matrix : an example



	SPY	QQQQ	EFA	IDU	IGE	VBIIX	^GOX
SPY	100%						
QQQQ	87%	100%					
EFA	82%	61%	100%				
IDU	36%	6%	48%	100%			
IGE	41%	28%	59%	39%	100%		
VBIIX	-12%	-24%	3%	51%	1%	100%	
^GOX	13%	12%	39%	23%	58%	10%	100%

Trailing Four Year Correlations (10/1/2002-9/30/2006)

Practitioner's suggestions

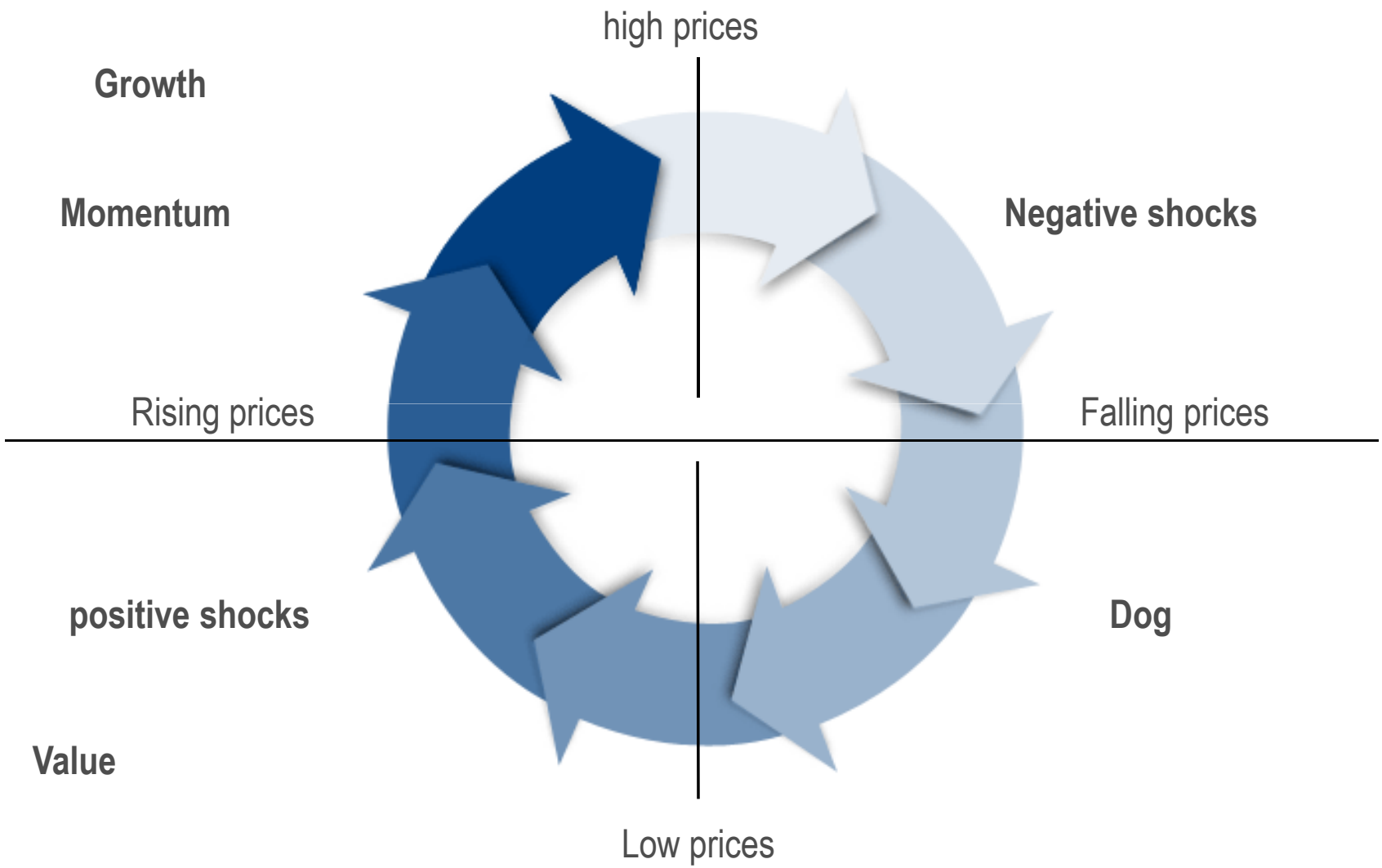
1. Correlations between geographic and sector asset classes are not stable during time

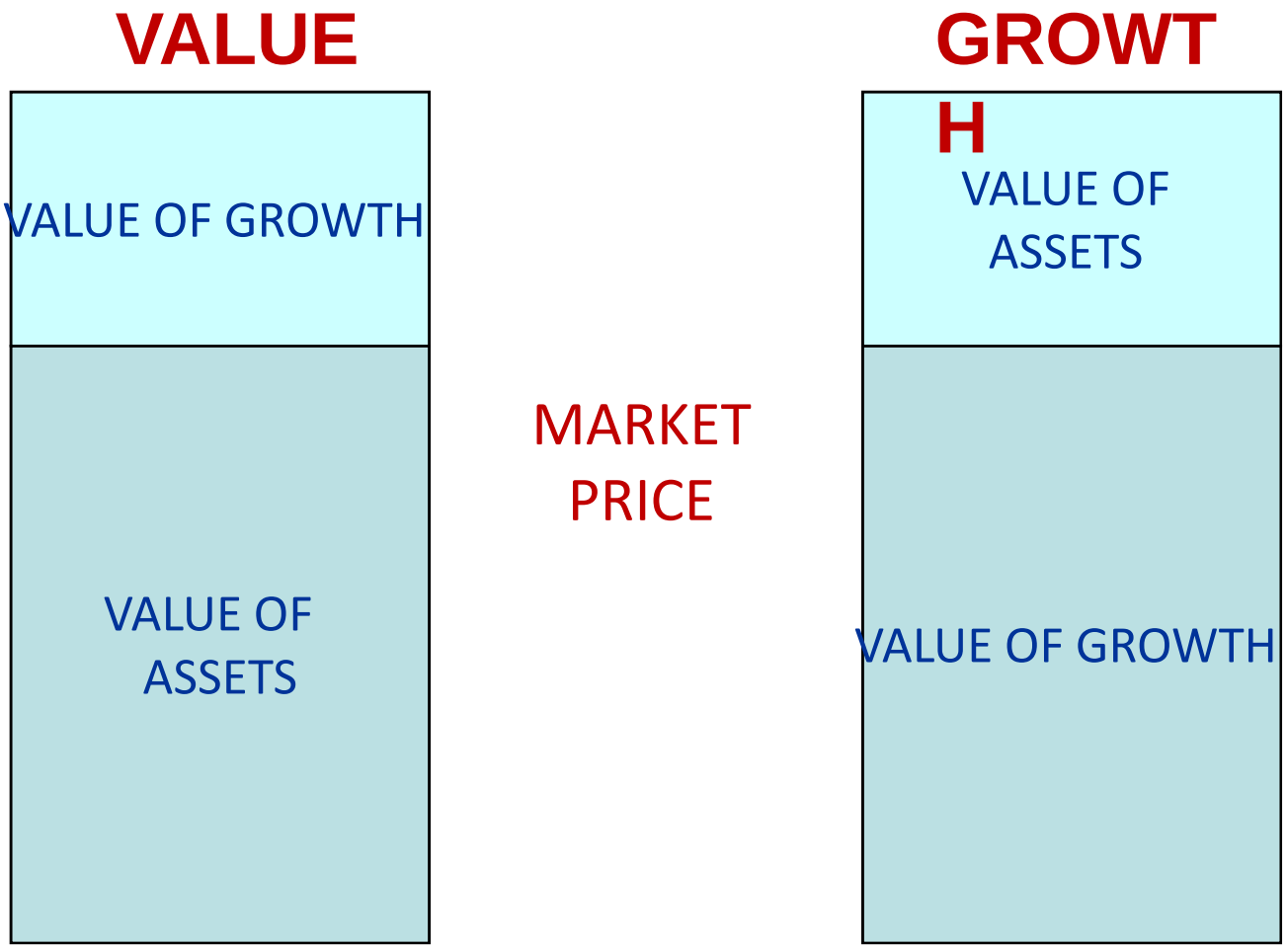
2. Secular trend in correlations is toward an increase (more globalization)

3. Market inefficiencies close and reopen, they change

4. All info is now universally avalilable to all actors (more knowledge)

The cycle of investing process




VALUE
VALUE OF GROWTH
VALUE OF ASSETS
MARKET PRICE
GROWTH
VALUE OF ASSETS
VALUE OF GROWTH

Market timing? No thanks !!

Examples

- An investiment of 1.000 dollars in Standard & Poor's index on 31 december 1978, would have reterurned 26.000 dollars on 31 december 1998, but , excluding the best 15 months the final value would reduce to 7.000 dollars.

- Of 41 months which is the average duration of a bull phase, only 8 months have produced more than 60% of total return .

- To have lost the best 10 months in terms of return of S&P 500 in the period 1960-1998 means to obtain a monthly average return simlar to a short term bond investment.

- The trader or investor that wants to be sucessful with market timing must ne right on 3 times out of 4 just to be in line with competitors who do not trade (SHARPE).