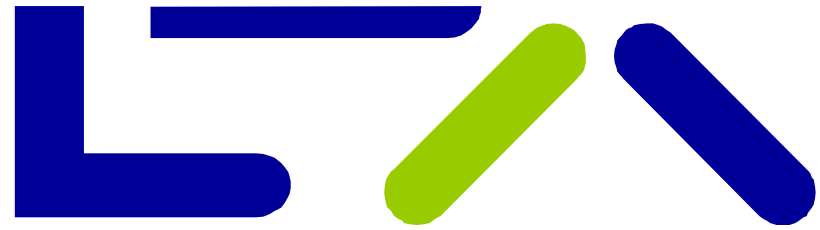


*X-pand into the Future*

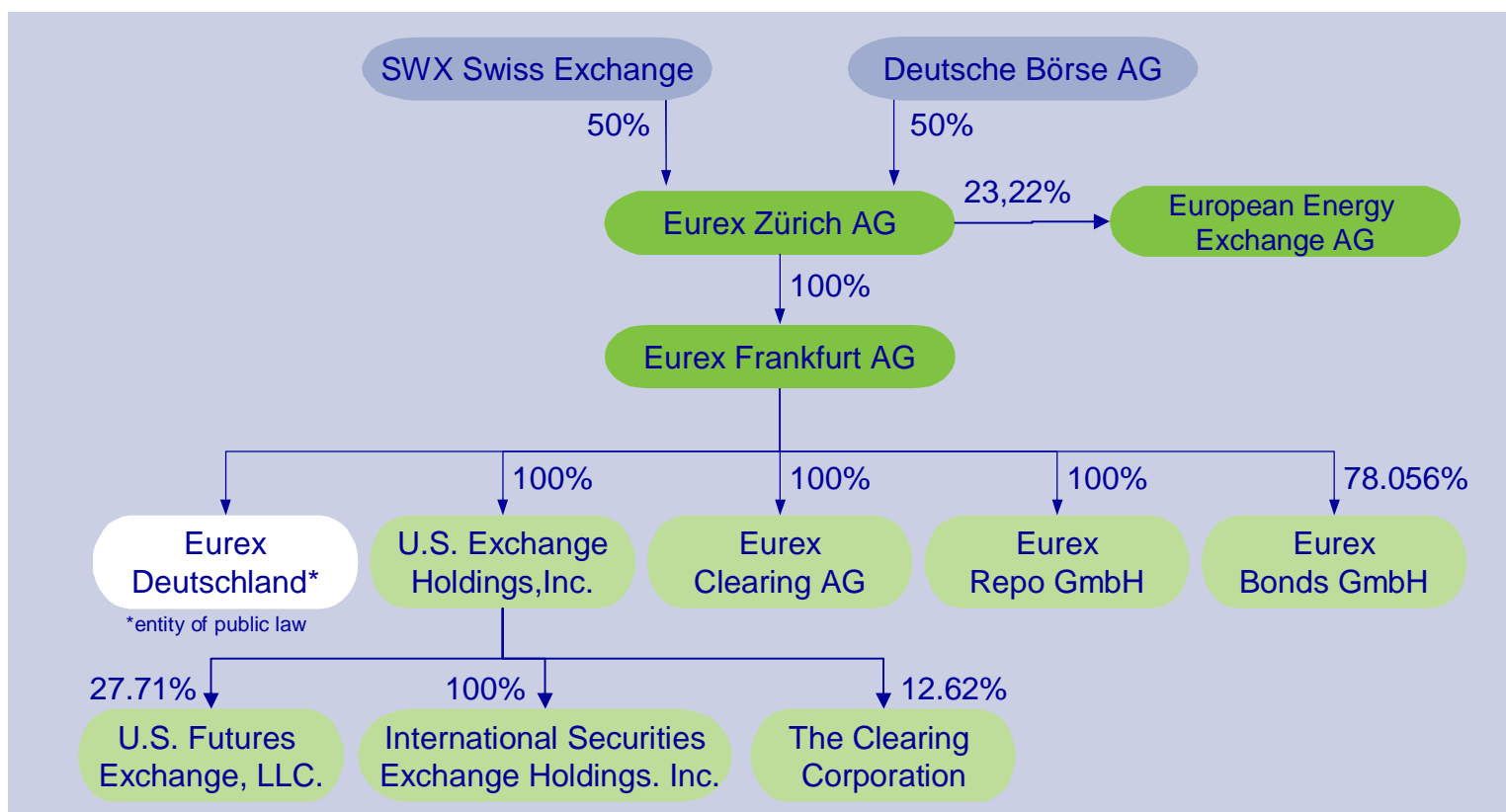


## Introduction of Eurex

Simon Ting

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## Eurex Ownership Structure

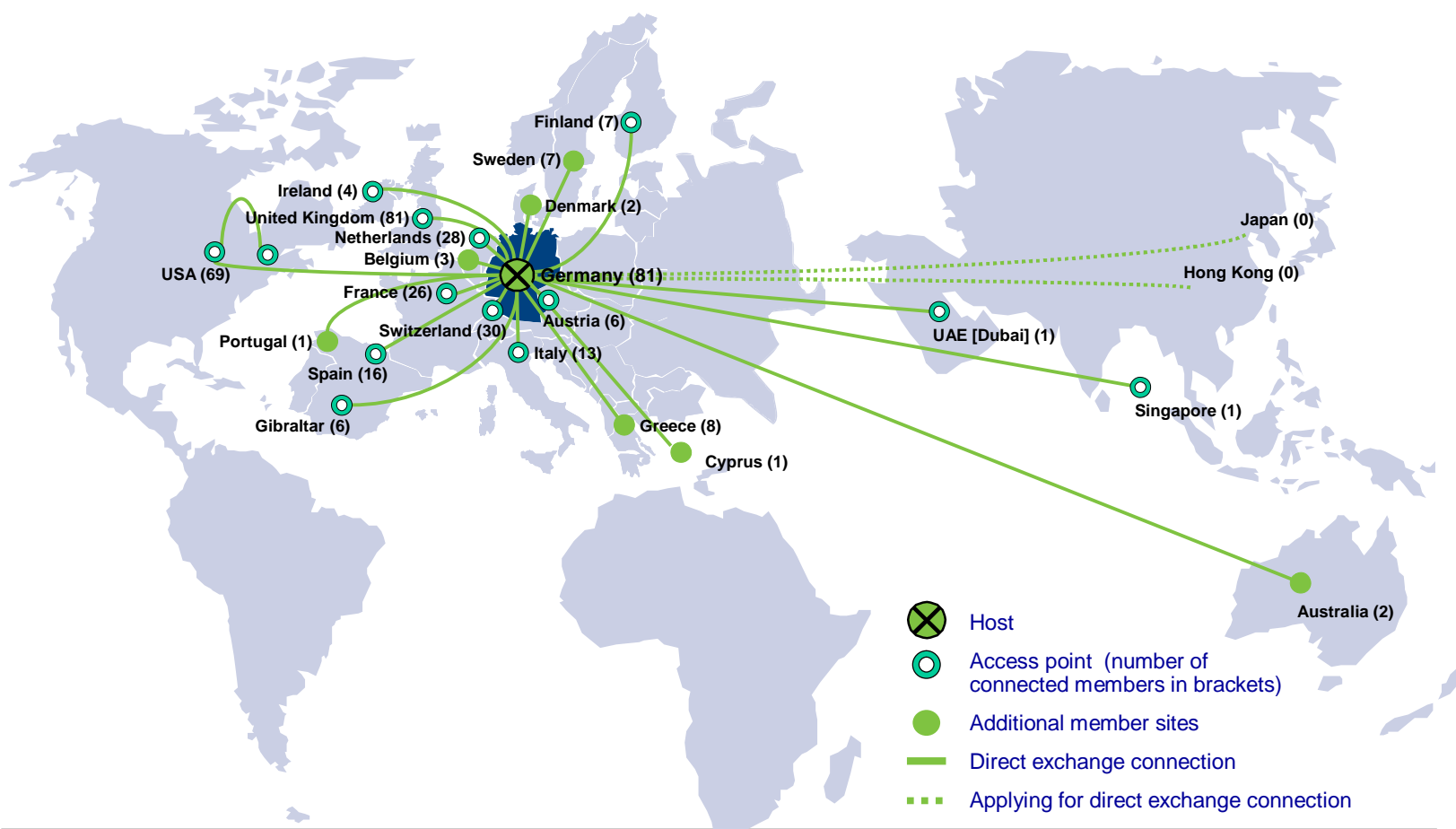


- n Eurex Zürich AG is a public company and owned in equal parts by Deutsche Börse AG and SWX Swiss Exchange.
- n Eurex Frankfurt AG operates the Eurex Exchanges, Eurex Clearing and the electronic communication networks Eurex Bonds and Eurex Repo.

## Milestones

- 1988      Opening of the Swiss Options and Futures Exchange SOFFEX, the very first fully electronic derivatives exchange
- 1990      Opening of Deutsche Terminbörse DTB, based on the SOFFEX system
- 1996      MoU between SOFFEX and DTB to form the European Derivatives Exchange Eurex, (EuropeanExchanges)
- 1998      Start of Eurex; End of 1998 Eurex is Europe`s biggest and worldwide the second biggest derivatives exchange as per traded contracts.
- 1999      Eurex becomes the derivatives exchange with the highest turnover worldwide
- 2000      August 27: a/c/e is created [Alliance/CBOT/Eurex]  
October: Eurex launches Eurex Bonds
- 2001      July 16: Eurex launches Eurex Euro Repo
- 2003      Total 2003 Eurex trading volume exceeds 1 billion contracts for the first time
- 2007      March: Most successful month in Eurex history with 199 million contracts traded

# 394 Eurex Members in 22 Countries 8951 Registered Traders



## Products Traded at Eurex

Standardized derivatives (futures and/or options) on financial products

- n A future is a standardized contract between two parties. The parties agree to exchange a defined asset at an agreed price at a certain point in time in the future.
  
- n An option is a contract between two parties. The buyer of an option purchases - against payment of the option price (premium) - the right, to buy (Call) or sell (Put) a defined amount of a certain financial product at an agreed price until, or at, a certain point in time in the future.

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## Products Traded: Option (Example)

n Against payment of the option price (premium), the buyer of an option acquires the right...

		Example
...to buy	> call option	a call
...or to sell	> put option	a put
...a set quantity	> contract size	100 shares
...of a specific instrument	> underlying	Daimler Chrysler
...at an agreed price	> exercise price	50 EUR
...on or by specified date*	> last trading day	Mar 17, 2006

\* “American-style” options may be exercised on any trading day during the life of contract, while “European-style” options may be exercised only on the last trading day

# Eurex Product Range

Equity Derivatives	Equity Index Derivatives (Futures and Options)	Volatility Index Futures	EXTF Derivatives	Interest Rate Derivatives		Credit Derivatives
				Fixed Income	Money Market	
Options/LEPOs on 54 German shares	Dow Jones (EURO) STOXX 50® Index	VDAX-NEW® Futures	DAX® EX Futures & Options	Euro-Schatz Futures	One-Month EONIA Futures	iTraxx® Europe 5-year Index-Futures
Options/LEPOs on 36 Swiss shares	DAX®	VSMI® Futures  VSTOXX® Futures	Dow Jones EURO STOXX 50® EX Futures & Options  iShares Dow Jones EURO STOXX 50® Futures & Options	Euro-Bobl Futures  Euro-Bund Futures	Three-Month EURIBOR Futures  Options on Three-Month EURIBOR Futures	iTraxx® Europe HiVol 5-year Index-Futures  iTraxx® Europe Crossover 5-year Index-Futures
Options/LEPOs on 11 Scandinavian shares	SMI®					
Options/LEPOs on 22 Dutch shares	Dow Jones STOXX® 600 Index					
Options/LEPOs on 10 Italian shares	Dow Jones STOXX® Mid 200 Index		XMTCH on SMI® Futures & Options	Euro-Buxl® Futures		
Options/LEPOs on 42 French shares	Dow Jones EURO STOXX® Sector Index Futures			CONF Futures		
Options/LEPOs on 10 US shares	Dow Jones STOXX® 600 Sector Index			Options on Euro-Schatz Futures		
Options/LEPOs on 5 Spanish shares	Dow Jones Global Titans 50 <sup>SM</sup> Index			Options on Euro-Bobl Futures		
Options/LEPOs on 4 Russian ADRs	Dow Jones Italy Titans 30 <sup>SM</sup> Index			Options on Euro-Bund Futures		
Options/LEPOs on 16 Austrian shares	TecDAX®					
Futures on 457 equities of leading European and national indexes such as Dow Jones STOXX 600®, Dow Jones (EURO) STOXX 50® Index, DAX® and SMI® and 16 Futures on all index components of the RDxt index	MDAX® (Futures only)					
	SMIM® (Futures only)					
	OMX Helsinki 25					
	RDxt® USD (Futures only)					

## Equity Options at Eurex

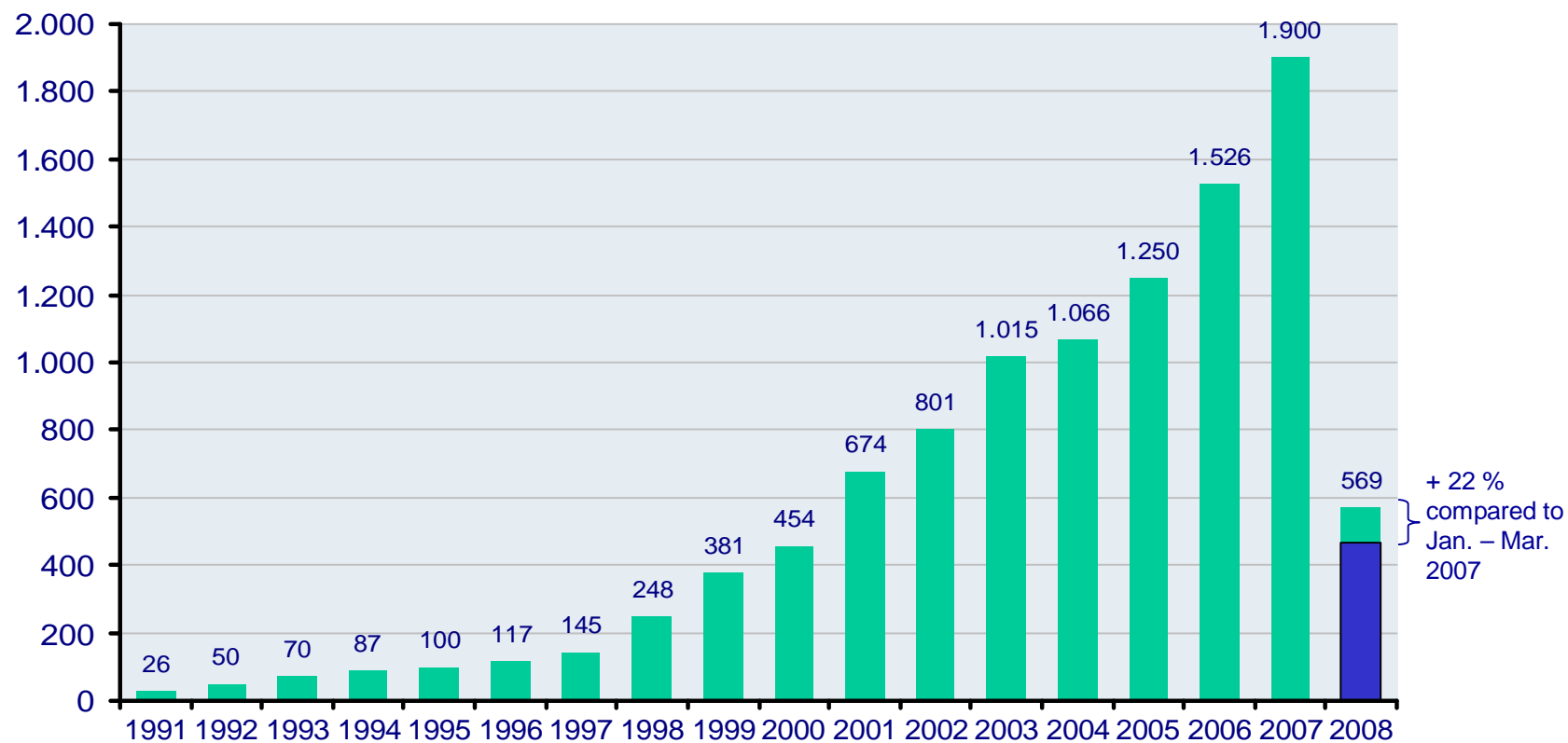


- n 54 German equity options and LEPOs
- n 36 Swiss equity options and LEPOs
- n 11 Scandinavian equity options and LEPOs
- n 22 Dutch equity options and LEPOs
- n 42 French equity options and LEPOs
- n 10 Italian equity options and LEPOs
- n 5 Spanish equity options and LEPOs
- n 16 Austrian equity options and LEPOs

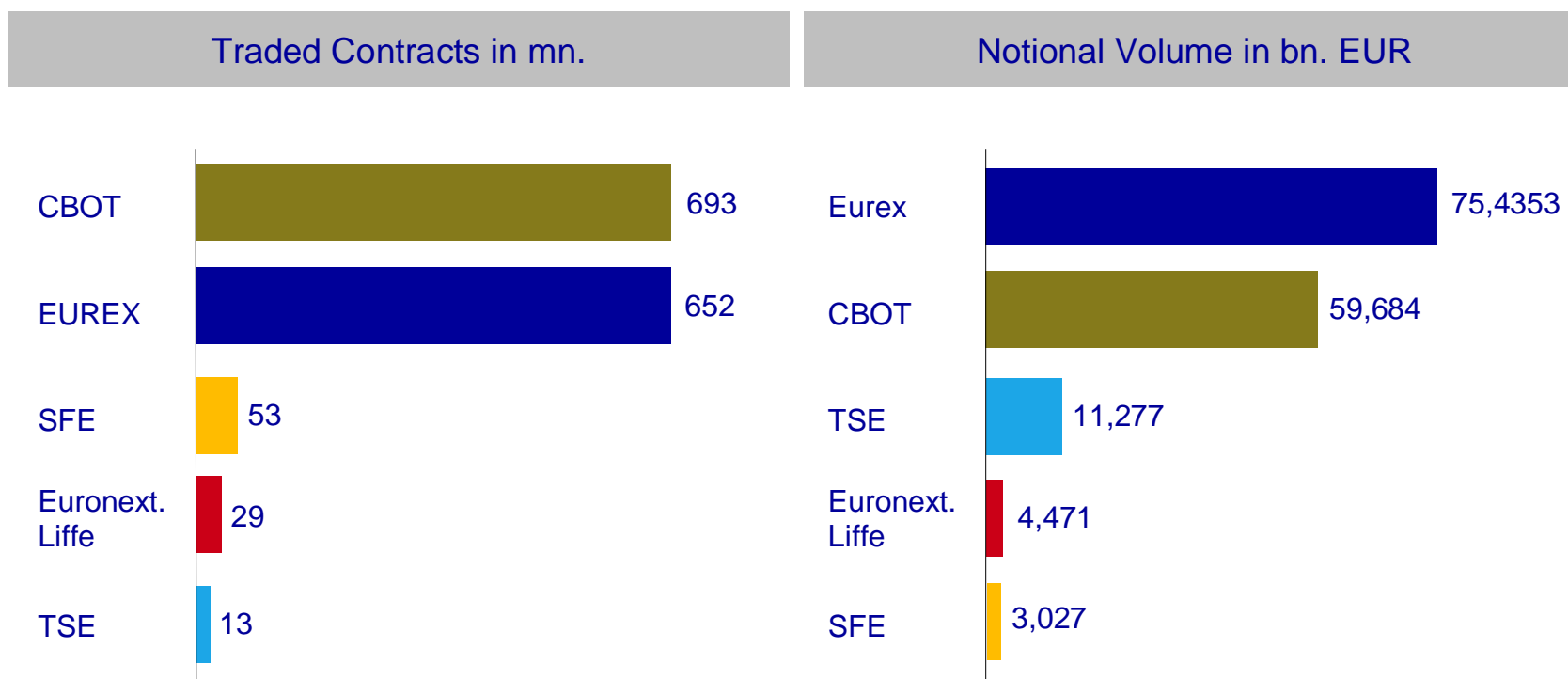
98% coverage  
of the  
DJ EURO STOXX 50<sup>®</sup>  
market capitalization

- n This makes Eurex the ideal place to trade both the DJ (EURO) STOXX 50<sup>®</sup> index derivatives as well as options on the underlying components

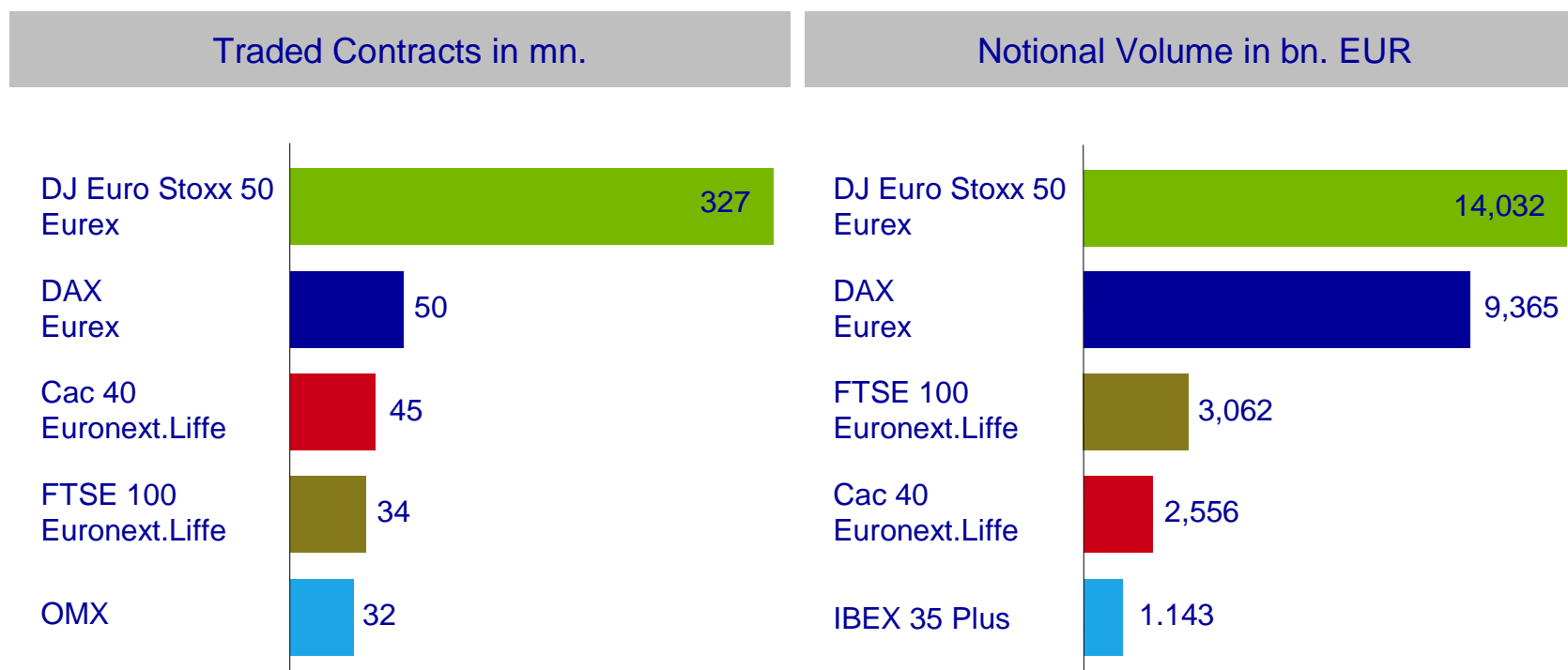
## ... Contributing to a Strong Growth in Contract Volume



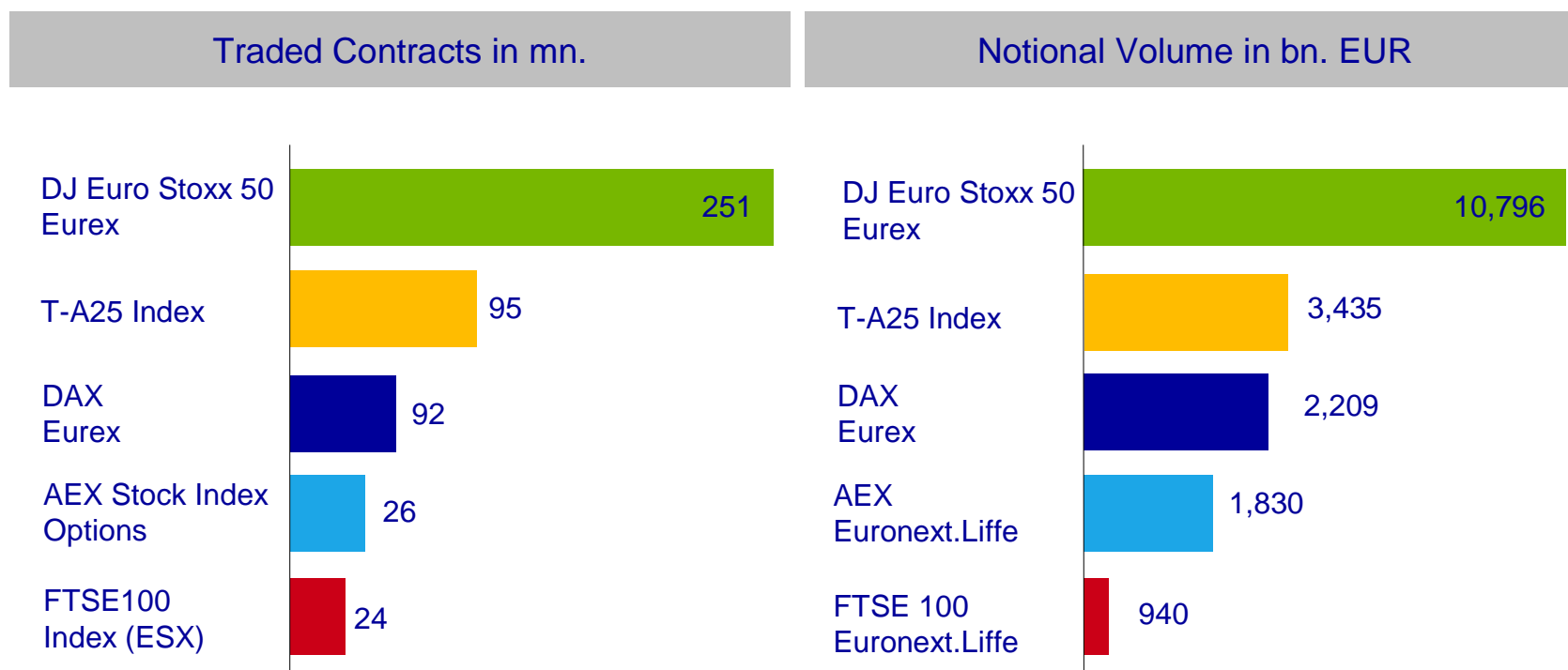
## Exchange Traded Capital Market Futures: Traded Contracts and Notional Volume in 2007



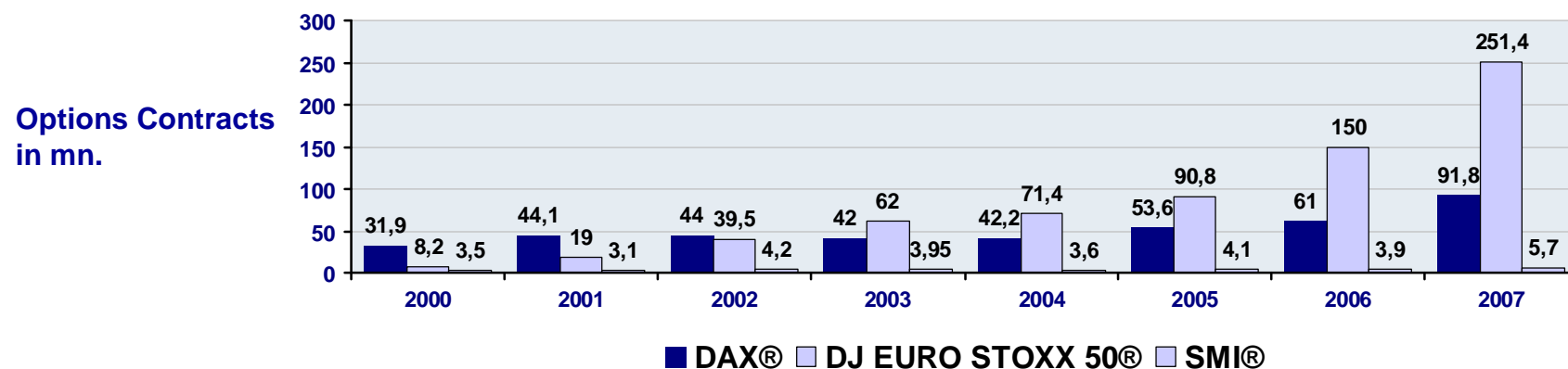
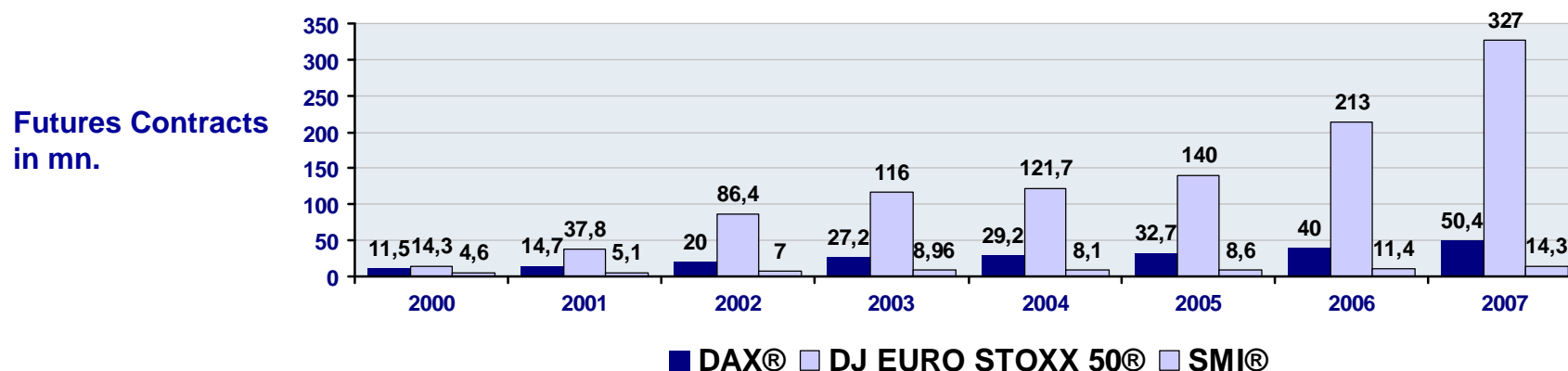
# Major European Index Futures: Traded Contracts and Notional Volume in 2007



# Major European Index Options: Traded Contracts and Notional Volume in 2007



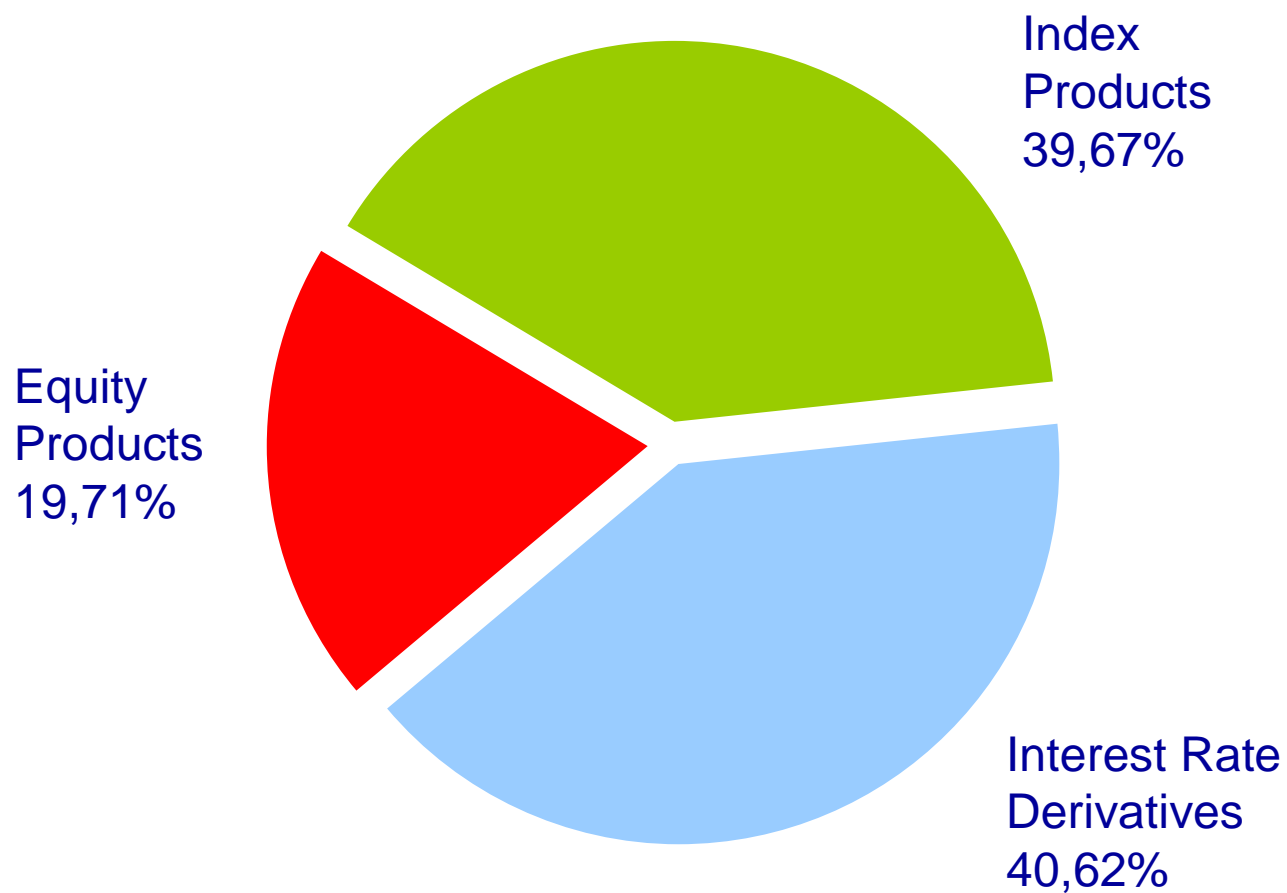
## Development of Benchmark Index Futures and Options at Eurex



## Eurex Key Contract Underlyings

Contract	Underlying
Euro-Bund (FGBL)	Notional government bond issued by the FRG with 8.5-10.5 years to maturity and a (notional) 6% coupon
Euro-Bobl (FGBM)	Notional government bond issued by the FRG with 4.5-5.5 years to maturity and a (notional) 6% coupon
Euro-Schatz (FGBS)	Notional government bond issued by the FRG with 1.75-2.25 years to maturity and a (notional) 6% coupon
DAX® Futures (FDAX)	DAX Index (top 30 German stocks by free-float market cap.)
DAX® Options (ODAX)	DAX Index (top 30 German stocks by free-float market cap.)
DJ EURO STOXX® 50 Index Futures (FESX)	DJ EURO STOXX® 50 Index (top 50 Eurozone stocks by free-float market cap)
DJ EURO STOXX 50 Index Options (OESX)	DJ EURO STOXX® 50 Index (top 50 Eurozone stocks by free-float market cap)

## Eurex Total – Traded Contracts 2007



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# Application of Equity Management Tools

## n Characteristics

- a./ Correlation Coefficient                      from +1 to -1
- b./ BETA
- c./ Systematic Risk – Overall market risk, economic or political
- d./ Unsystematic Risk – Company or sector-specific risk  
Can be minimized through DIVERSIFICATION
- e./ Risk Based Margining  
-- serves to cover the maximum losses expected on 1 Exchange trading day
- f./ Spread Margin – Why spread margin is lower?  
-- a higher correlation on the components (or legs)
- g./ Leverage !!!

---

## Application of Equity Management Tools

n Equity/ Equity Index Futures

= Underlying Instrument + Funding cost – Dividend payments

n Hedging Ratio

Number of futures contracts

=  $-1 \times (\text{Market value of portfolio} / \text{index level} \times \text{contract size}) \times$   
Portfolio Beta factor

e.g. Holding a well-diversified German stock portfolio of  
EUR3 million with a Beta of 1.15, DAX futures @7,600.00  
and you wish to hedge half of your portfolio

=  $-0.5 \times (3,000,000 / 7,600 \times 25) \times 1.15 = -9.07$

Therefore, short hedge 9 DAX futures contracts

---

## Application of Equity Management Tools

n Calculation of Beta factor of a equity portfolio relative to the DAX Index:

<i>Shares</i>	<i>Issue</i>	<i>Entry Price</i>	<i>Current Price</i>	<i>Beta Factor</i>	<i>Mkt Value</i>
1,900	VOW	94.00	108.96	0.89	207,024
1,200	DBK	110.00	116.65	1.24	139,980
900	BAY	49.00	51.20	0.87	46,080
Total portfolio value					393,084

Answer:

$$0.89 \times 207,024/393,084 + 1.24 \times 139,980/393,084 + 0.87 \times 46,080/393,084 = 1.0123$$

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## Application of Equity Management Tools

### n Return on a Portfolio

On May 18 2007, you hold the following equity portfolio which you established on Jan.02 2007:

<i>Issue</i>	<i>Shares</i>	<i>Price on Jan.02</i>	<i>Price on May 18</i>	<i>Return on Share</i>
Daimler	2,000	47.60	64.40	35.29
Nestle	500	269.68	291.07	7.93
Allianz	600	640.00	765.00	19.53
Swiss Re	800	64.74	69.55	7.43
Siemens	1,800	75.93	93.50	23.14
Vivendi	80,000	2.13	2.12	(0.05)

DJEuroSTOXX50 Index has rally by 7.14% since Jan.02 2007 and is currently trading at 4,480.81.

Calculate the return on your equity portfolio. How did your portfolio perform compare with the benchmark index?

## Application of Equity Management Tools

Answer:

The return on an equity portfolio is derived from adding the individual returns on shares held according to their weighting:

<i>Issue</i>	<i>Shares</i>	<i>Old Price</i>	<i>Old Value</i>	<i>New Price</i>	<i>%Port</i>	<i>Return</i>	<i>Weighted</i>
DCX	2,000	47.60	95,200	64.40	9.9	35.29%	3.49%
NESN	500	269.68	134,840	291.07	13.8	7.93%	1.09%
ALLZ	600	640.00	384,000	765.00	39.5	19.53%	7.71%
SCR	800	64.74	51,792	69.55	5.3	7.43%	0.39%
SIE	1,800	75.93	136,674	93.50	14.0	23.14%	3.24%
VVDA	80,000	2.13	170,400	2.12	17.5	(0.50%)	(0.08%)
<i>Total</i>			972,906	1,126,875	100.0		15.82%

The return of the portfolio is 15.82%, indicating that it has over-performed the benchmark index by 8.68%

## Trading Opportunity With Equity Index Futures

### n Outright Trading

- Based on FUNDAMENTAL or TECHNICAL
- Greater market risk

### n Inter-market

- Cross index trading
- Inter-commodity trading
- Depends on correlation coefficient, usually smaller risk

### n Intra-market

- Intra-commodity trading
- The simultaneous long and short different contract months
- Generally speaking , the smallest risk

---

## Inter-Index Spread (DAX vs Dow Jones)

- n 1% movement of DAX  
=  $7,600 \times 25 \times 1\% = \text{EUR } 1,900$
  
- n 1% movement of Dow Jones  
=  $13,500 \times 5 \times 1\% = \text{USD } 675$
  
- n Ratio of contract  
DAX : DJIA  
=  $1,900 \times 1.35 : 675 = 2,565 : 675$   
= 1 : 3.8 (10 DAX to 38 mini-DJIA)

---

## Inter-Index Spread (DAX vs Dow Jones)

- n Ratio of contract with volatility  
DAX x Volatility : DJIA x Volatility  
= 2,565 x 1.10 : 675 x 1.07  
= 2,822 : 722  
= 1 : 3.9 (10 DAX to 39 mini-DJIA)

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## Inter-Index Spread (EURO STOXX vs S&P)

n 1% movement of DJ EURO STOXX50  
=  $4,400 \times 10 \times 1\% = \text{EUR } 440$

n 1% movement of S&P500  
=  $1,500 \times 50 \times 1\% = \text{USD } 750$

n Ratio of contract  
SX5E : eMini-S&P  
=  $440 \times 1.35 : 750 = 594 : 750$   
=  $1.26 : 1$  (5 SX5E to 4 eMini-S&P)

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## Inter-Index Spread (EURO STOXX vs S&P)

n Ratio of contract with volatility

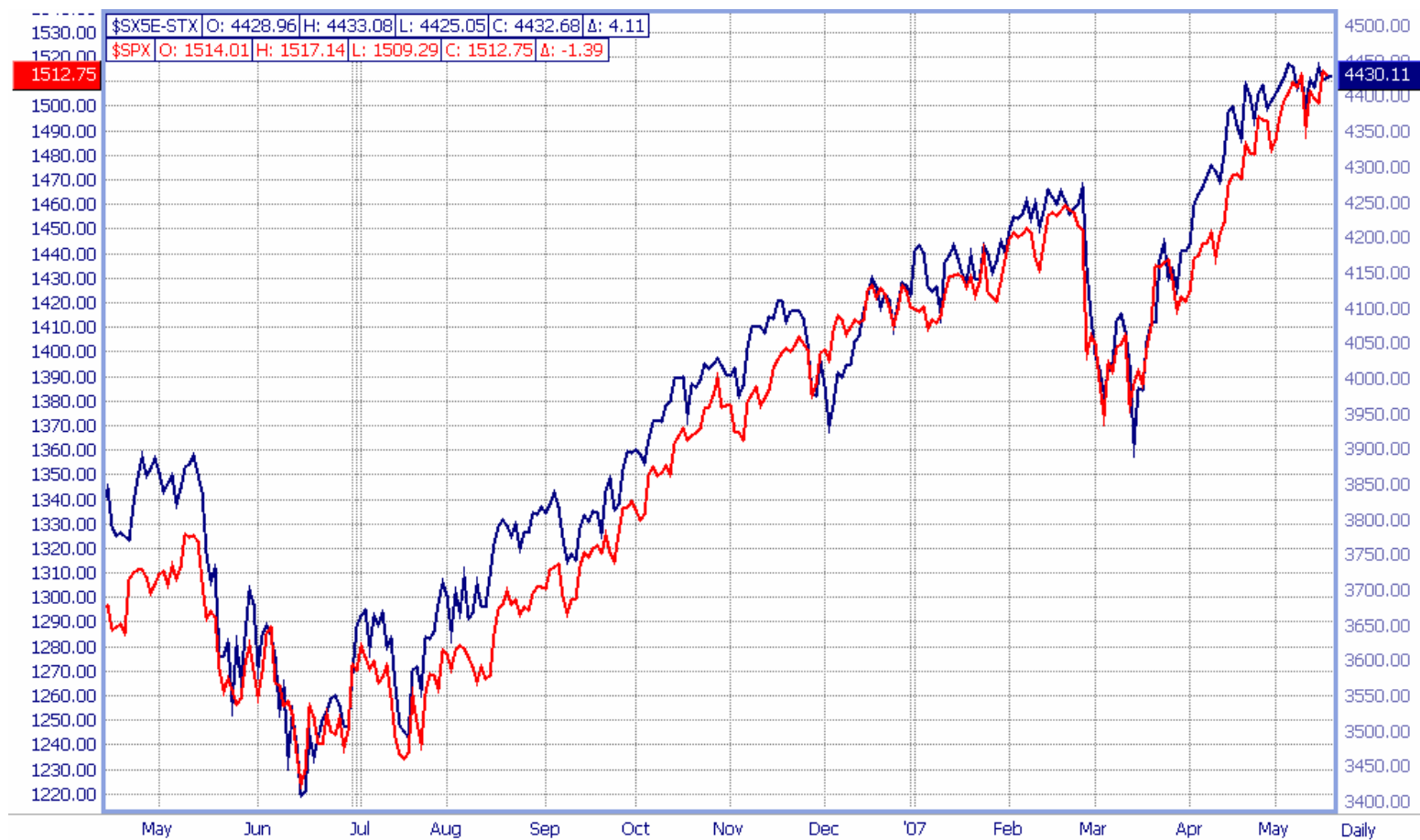
DJ EURO STOXX50 x Volatility : eMini-S&P500 x Volatility

= 594 x 1.09 : 750 x 1.08

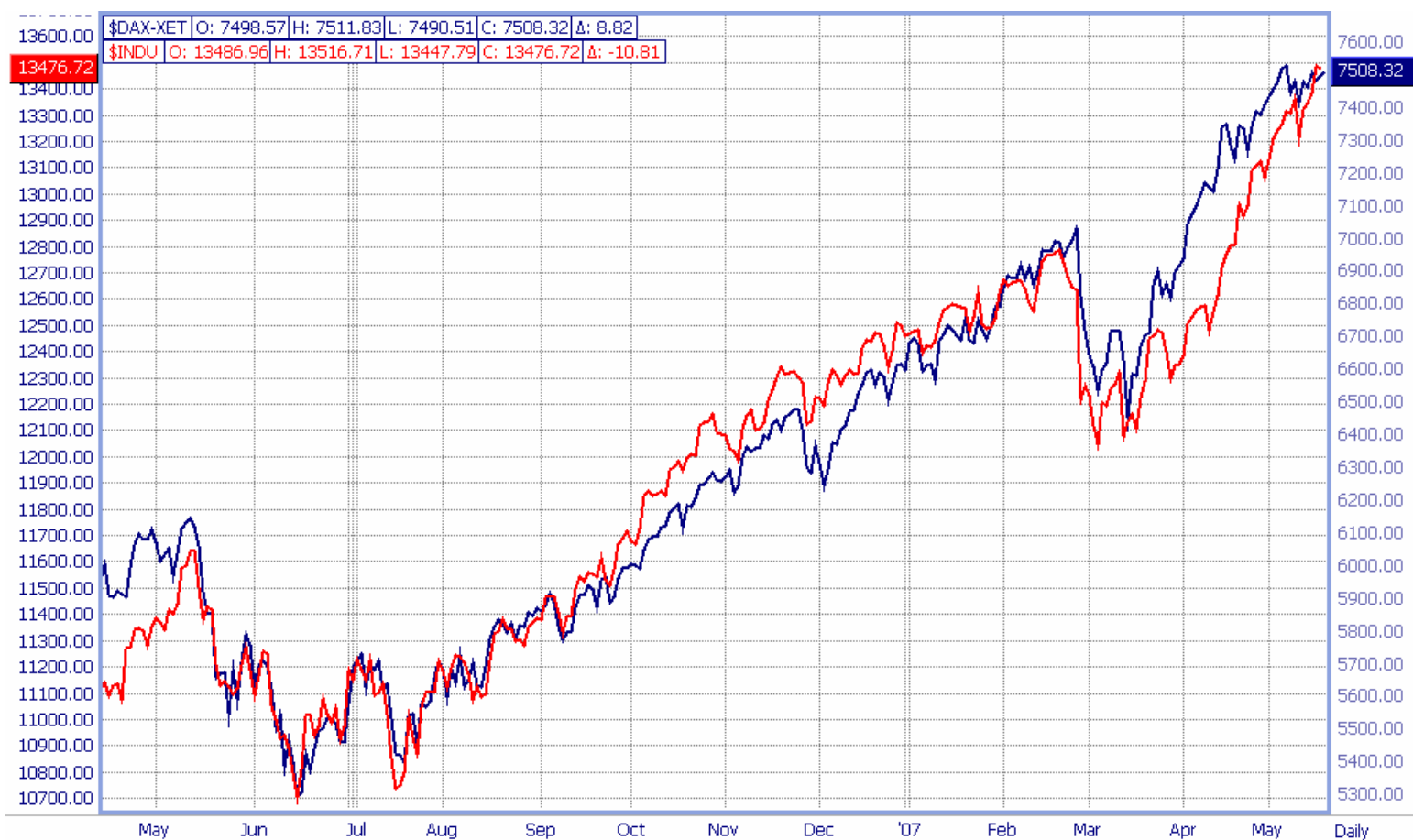
= 647.5 : 810

= 1.25 : 1 (5 SX5E to 4 eMini-S&P)

# Correlation (EURO STOXX vs S&P)



# Correlation (EURO STOXX vs S&P)



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