

IOMA
Derivatives Market Survey
2004



Conducted by WFE
With the help of Stephen Wells,
ISMA Centre, Reading University

May 2005



As of December 2004, the members of IOMA / IOCA were:

American Stock Exchange	LCH.Clearnet
Athens Derivatives Exchanges	London Metal Exchange Ltd. (LME)
Australian Stock Exchange	MEFF
Bolsa de Valores do São Paulo (BOVESPA)	Mercado Mexicano de Derivados (MEXDER)
Borsa Italiana SpA	New York Board of Trade (NYBOT)
Bourse de Montréal	New York Mercantile Exchange (NYMEX)
Bursa Malaysia Clearing	NOS Clearing ASA
Bursa Malaysia Derivatives	OMX Exchanges
Canadian Derivatives Clearing Corp.	Osaka Securities Exchange
Chicago Board of Trade (CBOT)	Oslo Børs
Chicago Board Options Exchange	Pacific Exchange (PCX)
Chicago Mercantile Exchange (CME)	Philadelphia Stock Exchange (PHLX)
China Zhengzhou Commodity Exchange	SFE Corporation Limited
Copenhagen Stock Exchange	Singapore Exchange
Eurex	Sydney Futures Exchange (SFE)
Euronext	Taiwan Futures Exchange (TAIFEX)
Euronext.Liffe	Tel-Aviv Stock Exchange
Hong Kong Exchanges and Clearing	The Clearing Corporation
International Petroleum Exchange (IPE)	The Options Clearing Corporation, Inc.
International Securities Exchange (ISE)	Tokyo Stock Exchange
Korea Stock Exchange	Wiener Börse AG

Every effort has been made to ensure that the information in this Survey is accurate at the time of printing, but the Secretariat cannot accept responsibility for errors or omissions.



International Options Market Association

2004 Derivatives Market Survey

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INTRODUCTION

This report is a result of the annual survey conducted by WFE for the International Options Markets Association (IOMA) derivative exchanges. The subject is the trading of derivatives products, and it covers 43 exchanges. Some of these exchanges trade a wide range of derivative contracts, while many specialise in a single area of the market. The survey results were analysed into 6 groups representing underlying assets:

- Single equity
- Equity indices
- Short-term interest rates
- Long-term interest rates
- Currencies
- Commodities

The survey was compiled from questionnaire responses sent to IOMA members, data from exchange websites, and data supplied by FOW TRADE data. The author wishes to thank exchanges which responded to the questionnaire, and especially exchange staff who gave further assistance in response to enquiries.

In this report, we intend to pay particular attention to the size and growth of individual exchanges, and to expand some of the analyses of concentration presented in earlier work.

The report starts with a brief overview of changes to the structure of the industry during 2004. This is followed by a note on statistical issues that have been addressed during the compiling of the report, and which have affected the results. The section “The Global Derivatives Market” describes the overall developments in derivative volumes. The section “Exchange and Product Trends” examines volumes and value at each exchange within each major product type. It shows changes from 2003 for all exchanges, and focuses on the largest of them.

The study ends with “Concluding Remarks”, which raise further questions for consideration

The findings of this report were presented at the IOMA/IOCA Annual Conference held in Chicago in April 2005.

Stephen Wells
ISMA Center
Reading University
May 2005



THE INDUSTRY STRUCTURE

The year 2004 saw a number of demonstrable modifications in the derivative exchange business. Some exchanges have merged, and others have varied their product mix. In particular:

- The Korean exchanges, KSE and Kofex, were preparing to combine operations as Korea Exchange, and this took effect in January 2005.
- The HEX market has been absorbed into the OMX Exchange Stockholm market.
- The NZFOE has been formally absorbed by the Sydney Futures Exchange

The changes in product mix show no special pattern – the entry into the stock futures sector has not accelerated, though MexDer and Wiener Börse opened these segments. More generally, MexDer has expanded its equity-related business by adding stock options, stock futures, and index options. The full changes are shown in the table below.

Products added or dropped during 2004		
	Added	Dropped
Stock options	MexDer	
Stock futures	MexDer	Singapore Exchange
	Wiener Börse	
Index options	BM&F	
	MexDer	
Index futures	Tel Aviv Stock Exchange CBOE	
STIR options	TIFFE	Singapore Exchange
STIR futures	TAIFEX	
LTIR options	Buenos Aires Exchange	
LTIR futures	TIFFE RTS Stock Exchange	NSE India Athens Derivatives Exchange TAIFEX
Currency options	Budapest Stock Exchange	
Currency futures	TIFFE	
Commodity futures		Singapore Exchange

DATA

As always, we make a number of points relating to the data, and some of the issues it raises, before starting the main commentary.



Data sources

The majority of exchanges responded to the questionnaire, and we wish to express our gratitude to them. For those exchanges which have not responded, some alternative sources were used. In some cases, the exchanges' web sites have been invaluable. In others, we have drawn upon the volume figures collected by FOW TRADE data, either as the main source or as a corroborative source. Some data items are particularly difficult to obtain, especially those for transaction volumes and option premiums. The data and corresponding comments on them are therefore less complete in some areas.

Notional values

Notional value, or underlying value, is an important measure of the economic impact of derivative markets. It is also an important tool in looking across markets that use different contract sizes. However, it is often not easily available. Over the past four years, the number of exchanges returning figures for notional value has increased, but many still do not offer any figures. Those exchanges which do produce figures make clear that the figures are estimates.

Typically, an exchange will use an average price over the year to value the contracts traded. These are, of course, subject to a margin of error, but we believe that even an imperfect though informed estimate gives more information than a "not available". Therefore, where exchanges have not submitted figures, we have made our own estimates using such data as is available from exchange web-sites and other sources. Inevitably again, these are flawed but represent an improvement over nothing. In this report as in others, estimates and approximations must be used.

Korean figures

The Korean exchanges' merger this year has not eased the statistical difficulty that their enormous success in index options presents to statisticians. The fact is that the Korean exchanges' figures – both volume and notional value – totally dwarf the figures for other markets. Therefore, in some parts of the analysis, it can be more revealing to exclude the Korean figures to obtain a better picture of what is happening in other markets. Their success in this business is that noteworthy.

ETFs

Increasingly, stock exchanges have offered exchange-traded funds based on baskets of stocks, and derivative exchanges – particularly in the US – offer derivatives on those ETFs. An example is the QQQQ product based on the Nasdaq 100 index and heavily traded on CBOE, Amex, ISE, and the Pacific and Philadelphia exchanges. This raises the question of whether an ETF based on an index is an equity derivative or an index derivative.



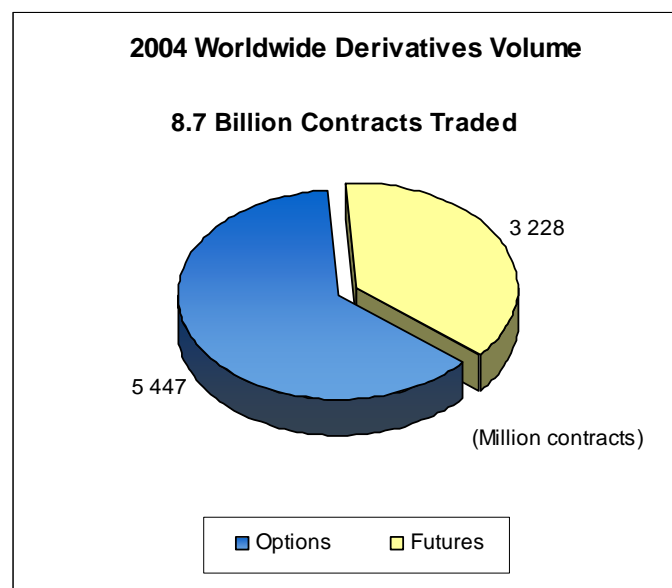
We have taken the view that these are economically closer to index derivatives than single stock derivatives, despite the fact that they are, technically, single stocks. Accordingly, where these have been counted by exchanges as single stock derivatives, we have estimated a reclassification of them into index derivatives.

Trillions

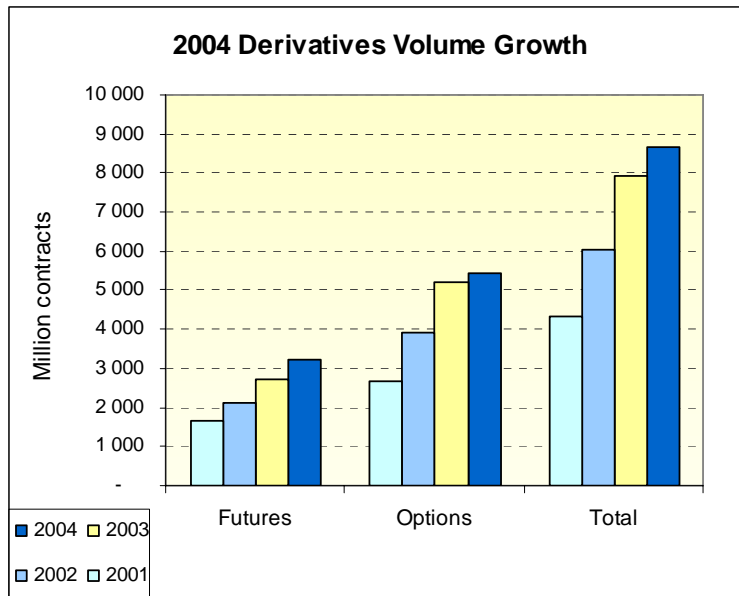
Simply counting in a global industry can be complex. Last year, we adopted millions and billions as the units of measurement in the commentary. For the purposes of this report, a million is 1 000 000. A billion is one thousand million (1 000 000 000).

THE GLOBAL DERIVATIVES MARKET

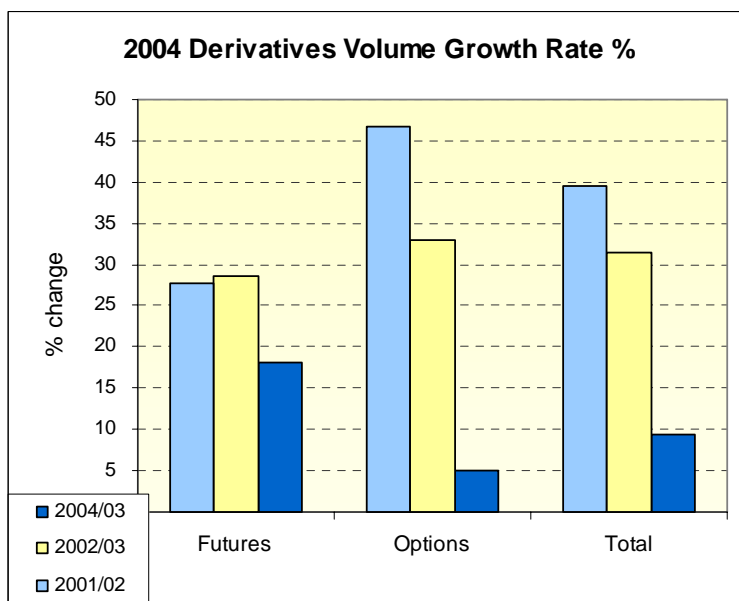
The year 2004 saw continued growth in derivative volumes. The historic record of 7.9 billion contracts of 2003 was again topped, and volumes of 8.9 billion contracts in 2004, 3.2 billion of futures, and 5.4 billion of options, were recorded.



This represents a near doubling of contract volumes since 2001, and continued strong growth in the intervening years.



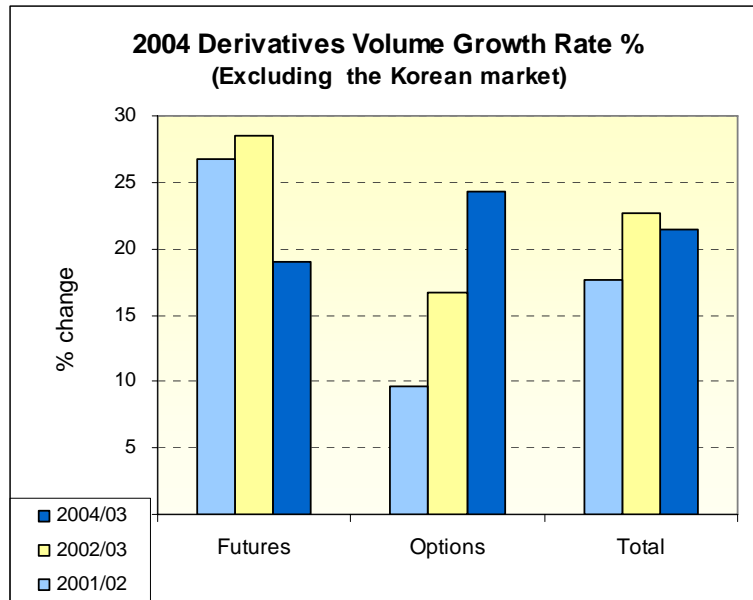
However, the rate of growth has slowed in 2004 for futures, and more sharply so for options. Overall growth in 2004 declined to 9% from 31% in 2003, and growth in options continued to slow, with a mere 5% in 2004 noted.



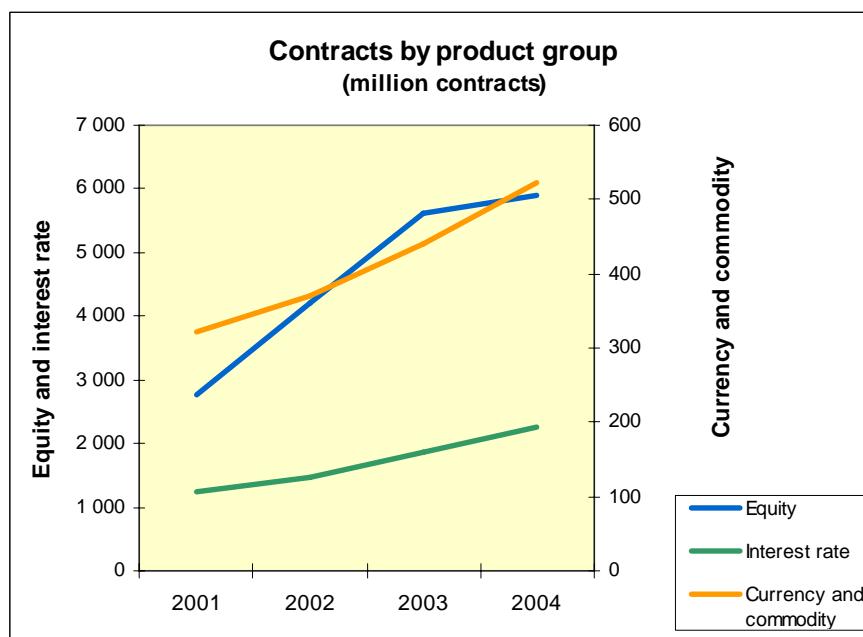
Furthermore, it is worth noting the impact of the Korean exchanges on the options figures. The Korean market saw falls in index options volumes (from extremely high levels) in 2004, and because of the relative size of this market, this dominated the changes in the total picture for the industry. If the Korean market is excluded from the



figures, then the pattern for options is the more familiar one of continued acceleration in growth. Futures, however, still showed a slowing of growth rates in 2004 for the first time in several years.



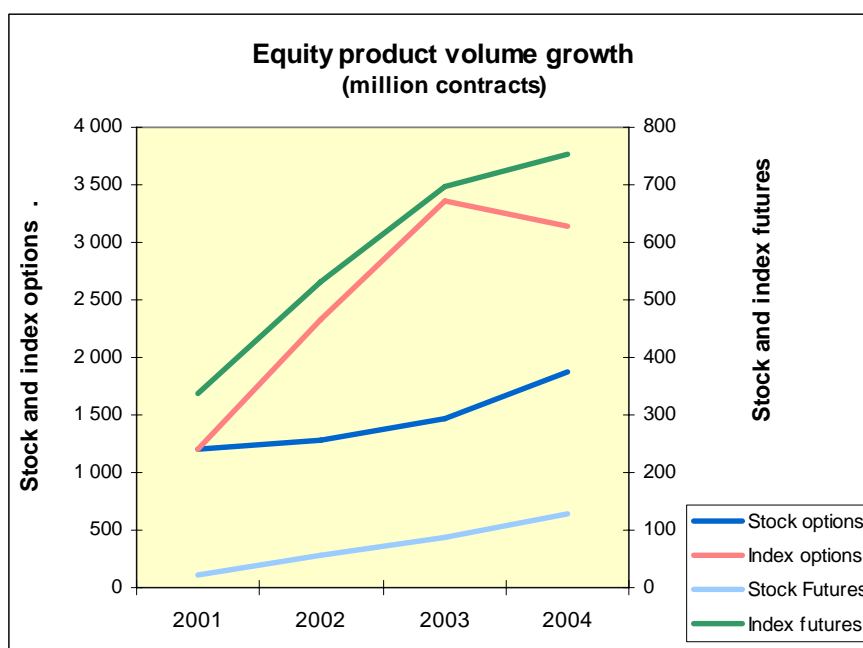
EXCHANGE AND PRODUCT TRENDS





A - EQUITY PRODUCTS

The slowing rate of growth of futures volumes in 2004 has already been mentioned, and the graph below demonstrates this phenomenon. The decline in index options, of course, reflects the lower volumes in the huge Korean business.



➤ Stock Options

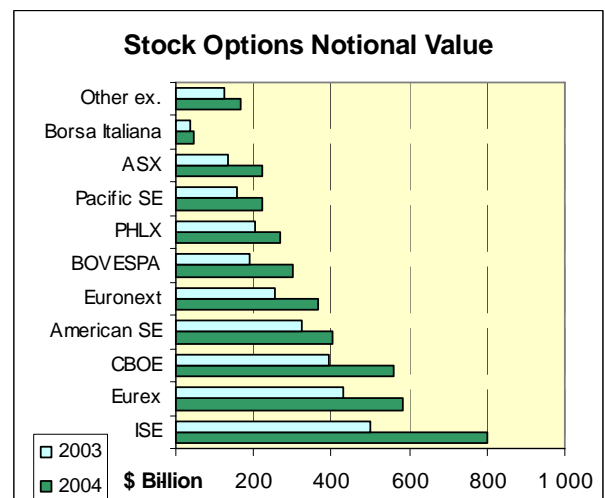
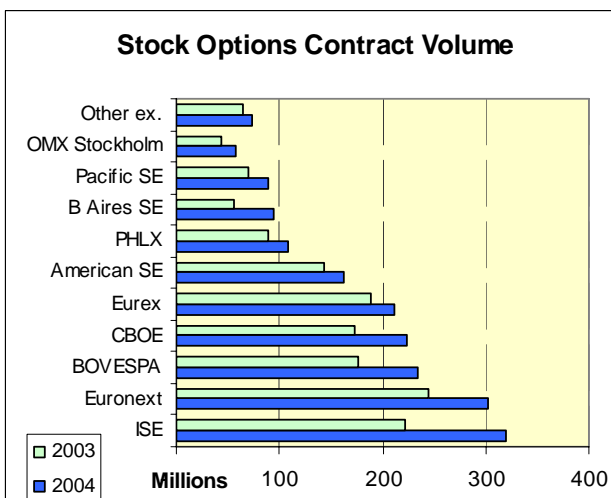
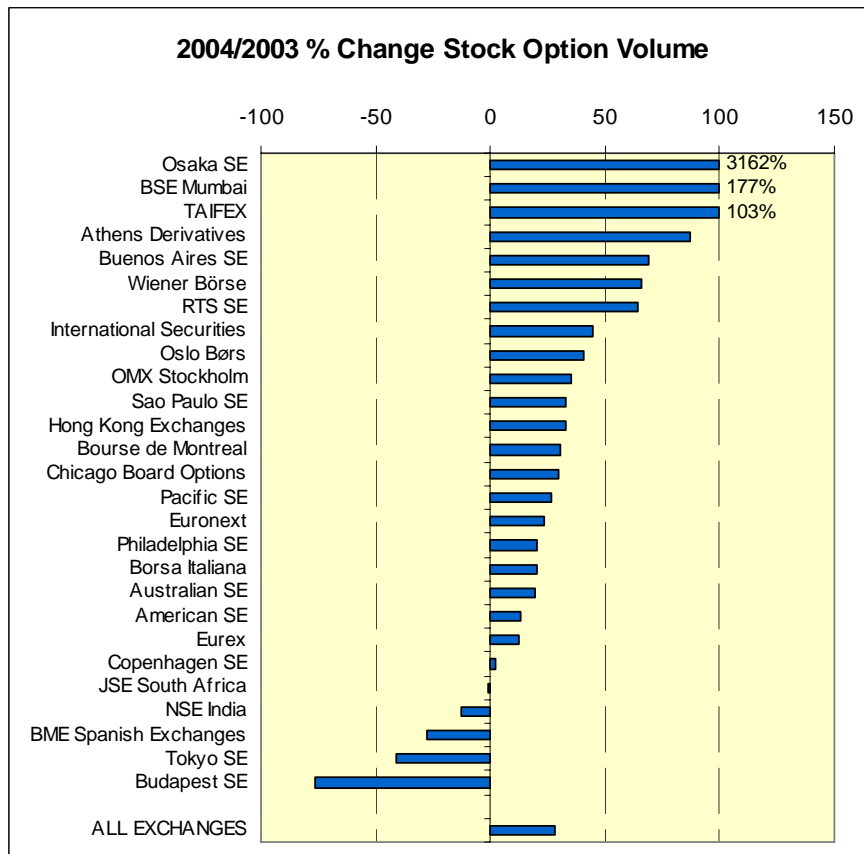
Total stock option volumes increased 27% over 2003 to 1.88 billion contracts. Most member exchanges experienced higher volumes, including some very large percentage increases from low base levels. Notional value increased even more, rising 44% on the back of rising stock prices during 2004.

Among the largest stock option markets, the ISE saw a sharp increase of 45% in contract volumes. Other US exchanges saw volume increases ranging from 10 to 30%, with CBOE gaining 29%. Euronext reversed the sharp decline in stock option volumes it experienced in 2003, but the 24% increase was not enough to bring volumes back to the levels of 2003 (302m in 2004, 323m in 2002). Eurex saw a steady, but below industry average, increase of 12%. The BOVESPA in Sao Paulo continued its rapid growth, up 33%, though that was somewhat slower than the near doubling of stock option volumes in 2003.

The top 5 exchanges for this category represented 96% of contract volumes, and also 96% of notional values. The membership of the top 5 was unchanged last year, but despite the strong recovery of Euronext, its top position was lost to ISE.



Premium turnover rose 18%, somewhat less than the rise in volumes and notional value. This arguably reflected a perception of lower risks. Trading volumes increased slightly at 6%, with increases at CBOE and BOVESPA offset by falls in trade volumes at Euronext and NSE India.





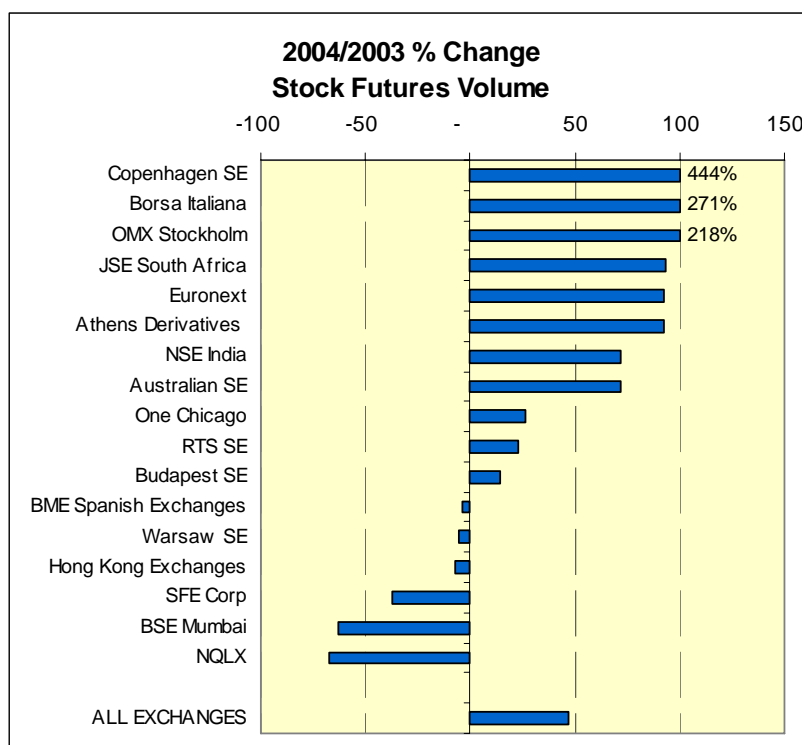
➤ Stock Futures

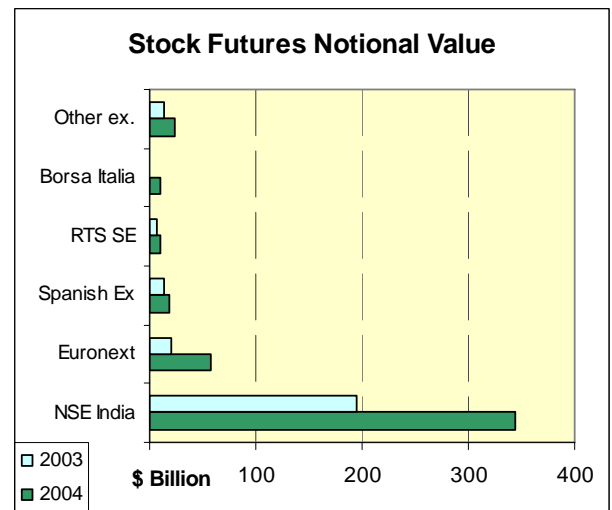
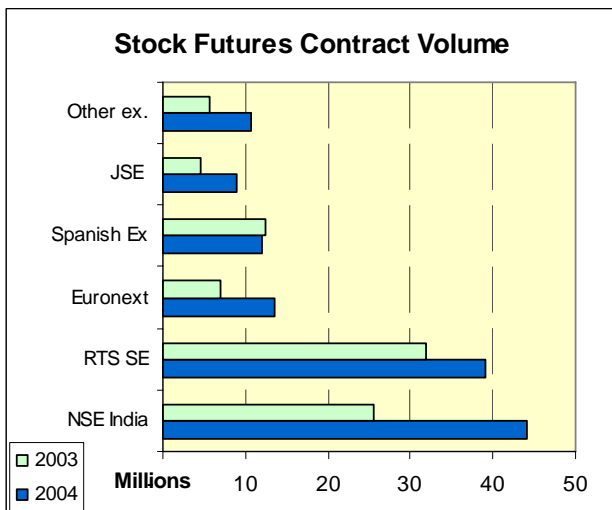
Stock futures have been a strongly growing sector over the last three years. Exchanges that have adopted this product seem to be seeing successful acceptance by investors, and so good volume growth. Volumes in 2004 rose 47%, continuing the rapid development off the back of the 51% increase in 2003.

It is to be noted that, as yet, stock futures are traded at relatively few exchanges. The big two NSE India and RTS account for 62% of global volumes. NSE India had another year of exceptional growth – 72% - making it the largest exchange for trading stock futures, overtaking RTS. The larger underlying contract value of the Indian stock futures means that the Indian exchange makes up 74% of the notional value of stock futures trading. Similarly, NSE India accounted for 95% of transaction volumes in stock futures.

US markets have been slow to adopt stock futures, and the two exchanges that do trade them saw mixed fortunes in 2004. OneChicago volumes increased, and NQLX volumes fell.

In the European time zone, all exchanges that trade stock options, with the exception of Eurex, have introduced stock futures. They saw mixed results in 2004, with Euronext, JSE South Africa, Borsa Italiana and OMX Stockholm recording significant increases, while the BME Spanish Exchanges marked time.





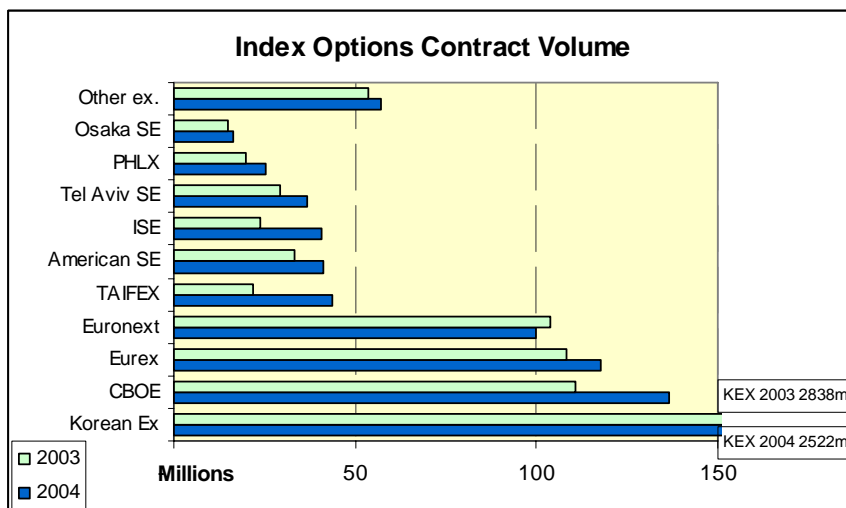
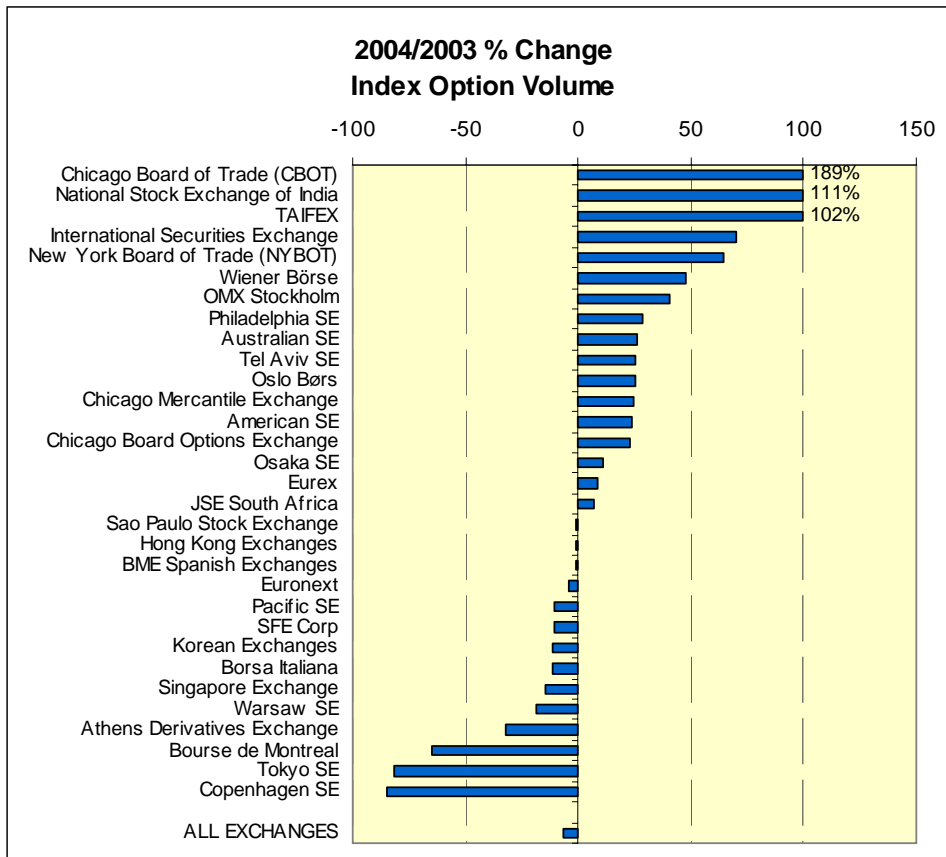
➤ Index Options

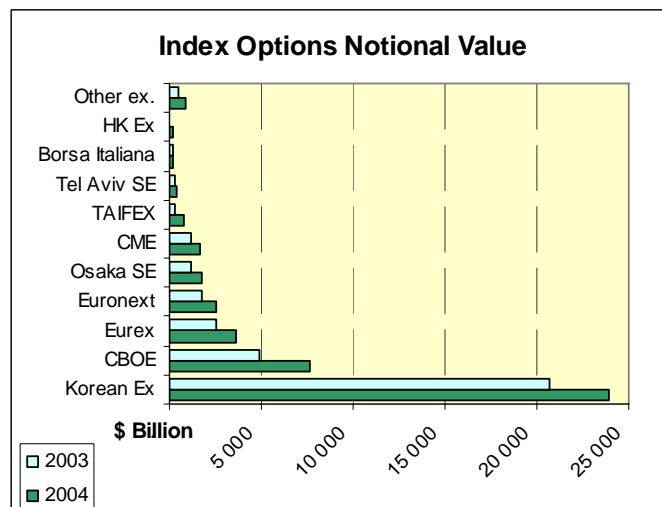
The dominant feature of the index options segment has been the size of the Korean market. The growth of that segment has been powered upwards by the KSE Kospi 200 contract. Last year, the Korean exchanges again set the trend for overall figures for the market, but this time by moving in the opposite direction. The Korean market saw a fall in its volumes of slightly over 300 million contracts, or 11%.

The 2004 figure still substantially exceeded the 2002 volume. Notional value continued to rise (up 15%) on the back of a rising market (up nearly 10%) and in 2004 reached the equivalent of \$US 23,924 billion. To give a context to this number, the market value (excluding investment trusts) of the Korean equity market at the end of 2004 was \$US 398 billion.

The effect of the Korean market's slight reversal was to cause an overall decline in stock option volumes (of which the Korean market represented 85%) of 11%. However, with one other exception, the major exchanges all had rises, with TAIFEX doubling its volumes, and CBOE increasing by 23%. Other US exchanges also moved upwards, though less sharply. The overall picture for markets other than Korea was of an increase of 18% in volumes, and an increase in notional value of 50%.

In Europe, the pattern over the last three years for the two dominant markets, Eurex and Euronext, has been upward at Eurex and downward at Euronext. Eurex has become the larger of the two in this segment.



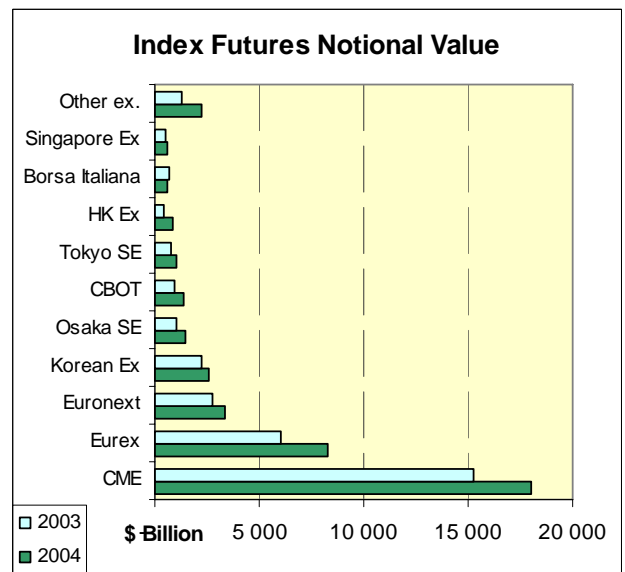
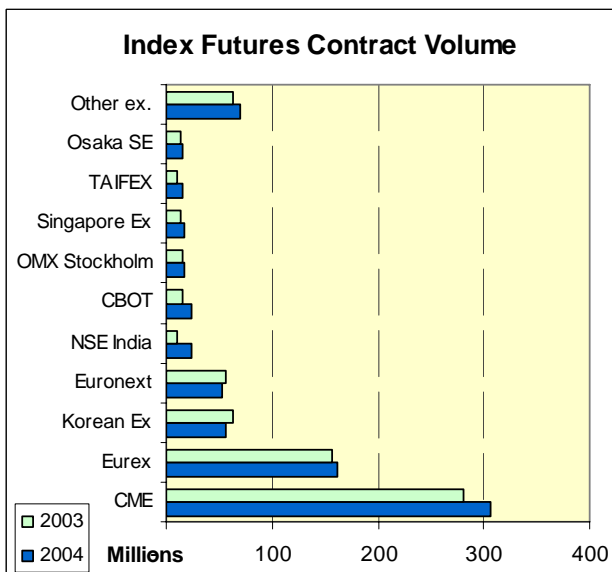
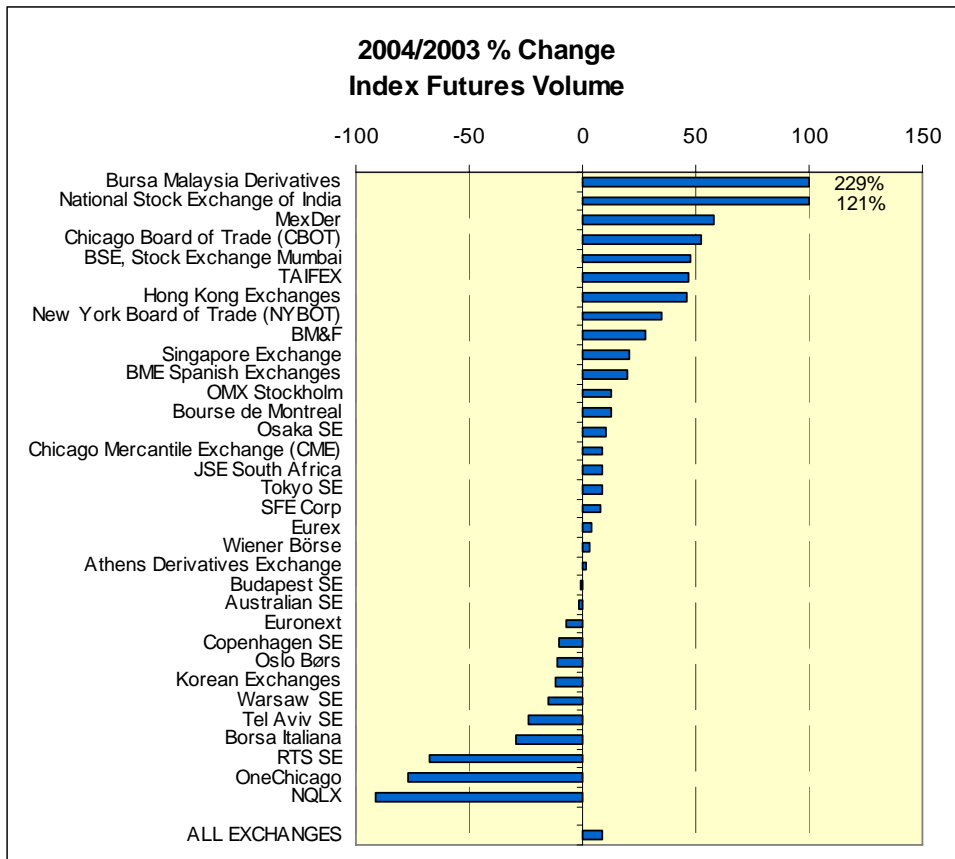


➤ Index Futures

Aggregate volumes in index futures rose 8%, and aggregate notional values rose 27%, again reflecting rising cash markets during 2004, although these percentages were slower than the 30% volume growth in 2003. Index futures are generally seen as more of a professional investor product than are index options, and this is often reflected in a larger contract size.

As with index futures, the bulk of global volume is traded on four exchanges. These are CME (taking the place of CBOE in index options), Eurex, the Korean exchanges, and Euronext. Together, they account for 76% of global volumes, and 80% of notional values. Two exchanges, CME and Eurex, located in the two major zones for professional investment management, the US and Europe, represent over 60% of global activity in index futures.

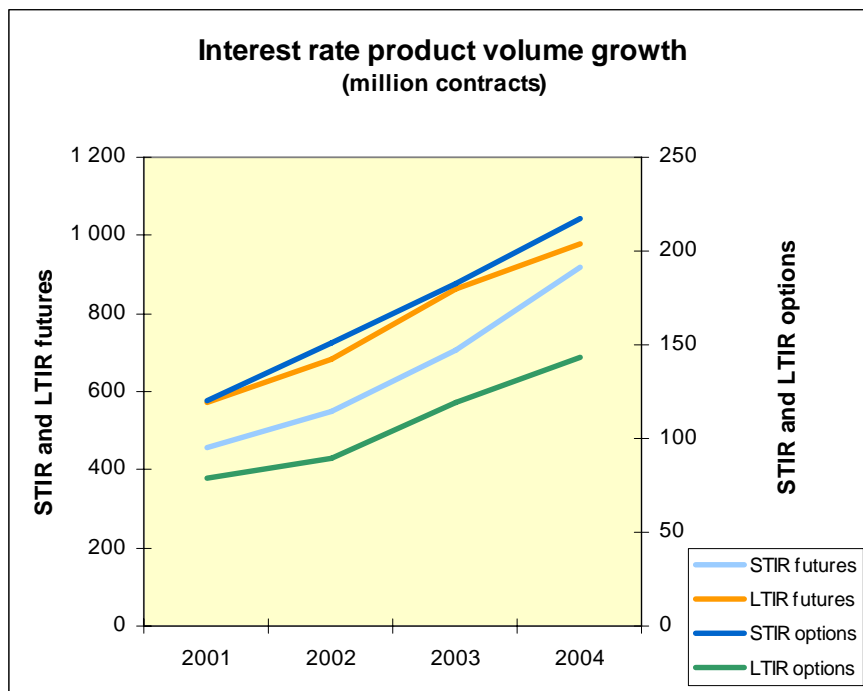
CME and Eurex both saw increases in volumes, albeit at relatively modest rates. The Korean exchanges and Euronext registered small declines. Among the smaller exchanges – those in the top 10, but not the top four by volume – all achieved volume increases in 2004. NSE India reported more than a doubling of volumes, up 121%, mirroring the rapid growth in other sectors of the NSE's derivative market. Other strongly growing exchanges were CBOT (volumes up 52%) and TAIEX (up 47%).





B - INTEREST RATE PRODUCTS

A slowdown in the rate of growth of long term interest rates (LTIR) futures combined with slower growth of index futures to reduce the overall futures growth rate in 2004. This was partly offset by faster growth in short term interest rate (STIR) futures. Interest rate options have grown at similar rates as futures, but at a lower level (note the different scales shown below).



➤ STIR Options and Futures

In earlier reports, we noted the split of interest rate products, with STIR instruments being mainly traded on CME and Euronext, and LTIR instruments mainly on Eurex and CBOT. In STIR futures, CME and Euronext accounted for 57% of global contract volumes, and 85% of global notional value in 2004. CME and Euronext saw healthy rises in volumes – 43% and 19%, respectively.

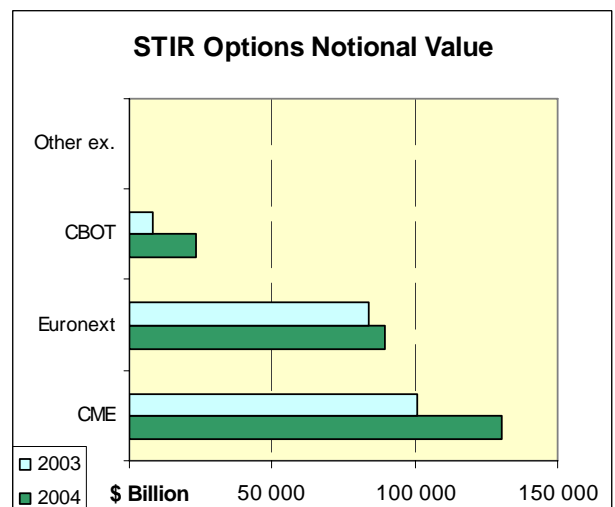
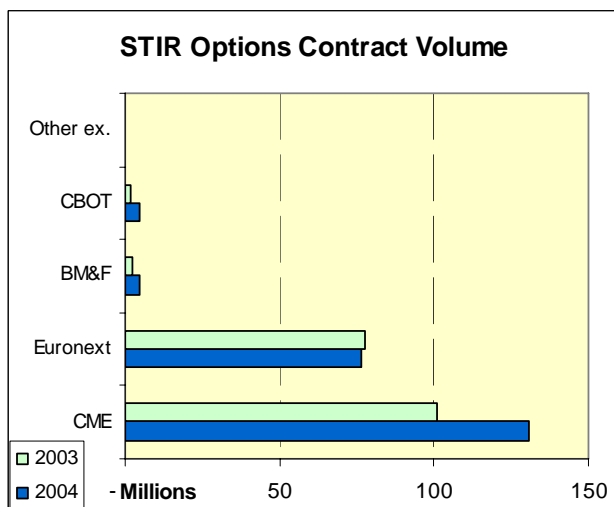
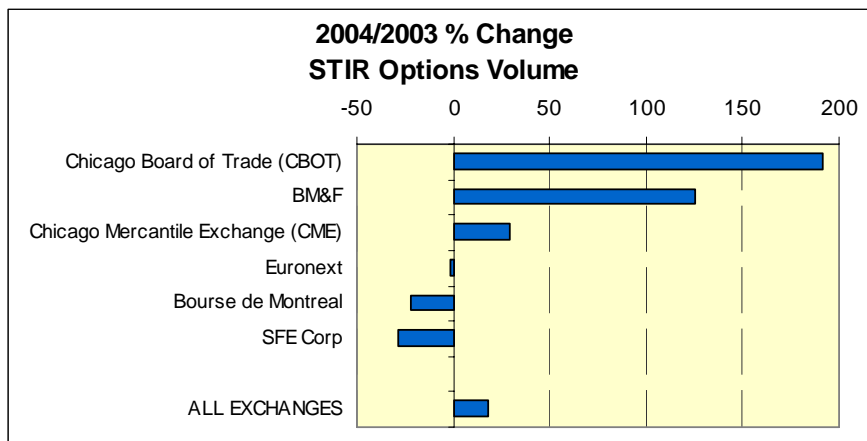
In notional value, the CBOT, with its heavily traded and high value per contract 30-day Fed Funds product, is the only other exchange to figure prominently in global terms. But in contract volumes, CBOT is greatly surpassed by MexDer, which saw a slowing of the rapid growth in its 28-day inter-bank rate contract. Volumes grew 17% in 2004, following a 113% increase in 2003. BM&F saw an acceleration in volume growth, with a 65% rise in 2004 (the notional value figures not available).



Most other exchanges trading STIR futures saw increases in 2004, though the sharp decline in Singapore's Eurodollar futures volumes, and the smaller decline in OMX's STIR contract, ran against the overall trend.

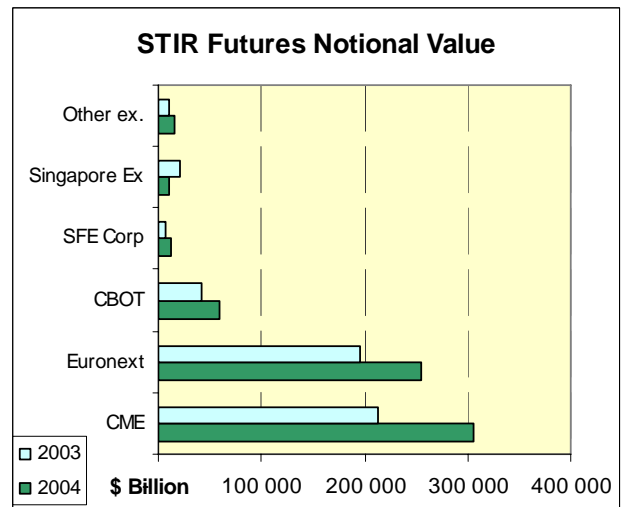
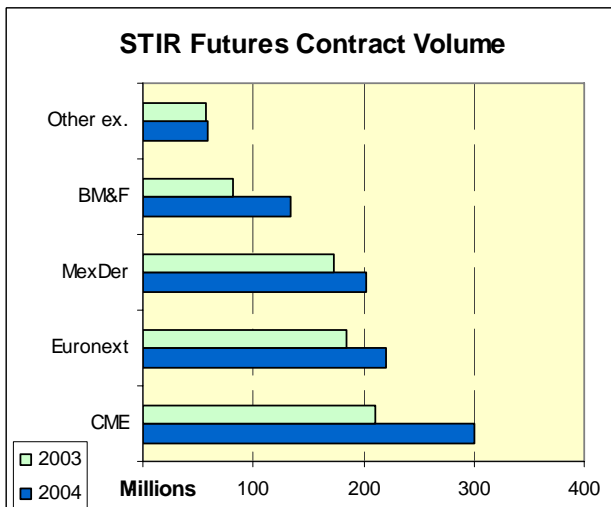
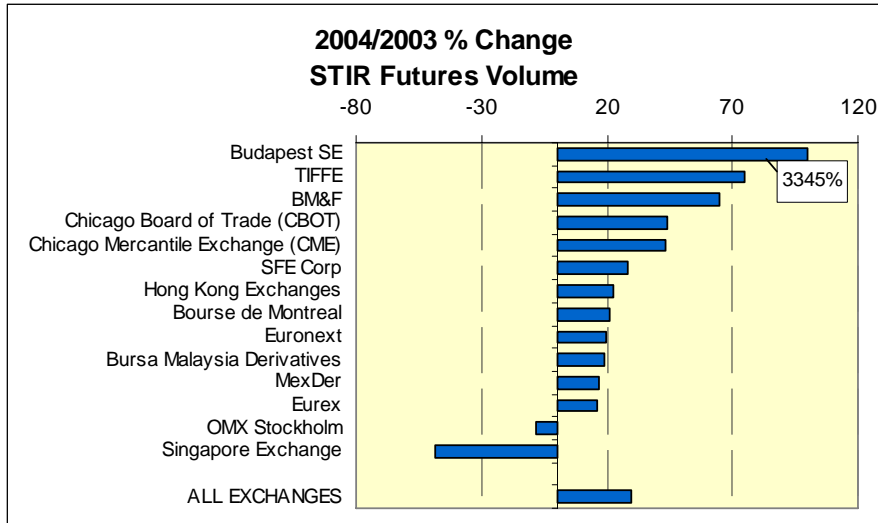
The pattern in STIR options closely mirrors those in STIR futures, with two exchanges making up an even greater share of global volumes – 95%. CME produced a substantial rise in contract volumes - 29% - but Euronext recorded a small decline. BM&F and CBOT both saw big increases, though from relatively small bases, with CBOT more than doubling volumes and BM&F nearly trebling.

STIR Options





STIR Futures



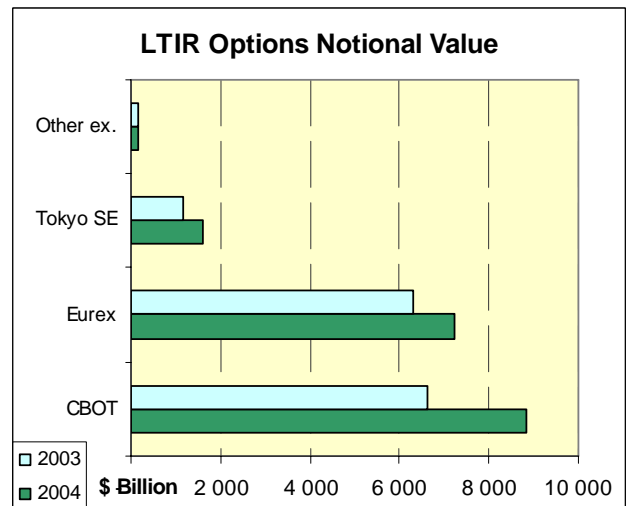
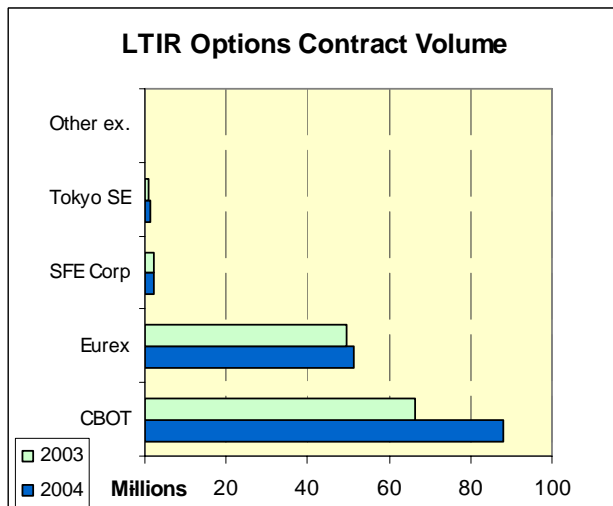
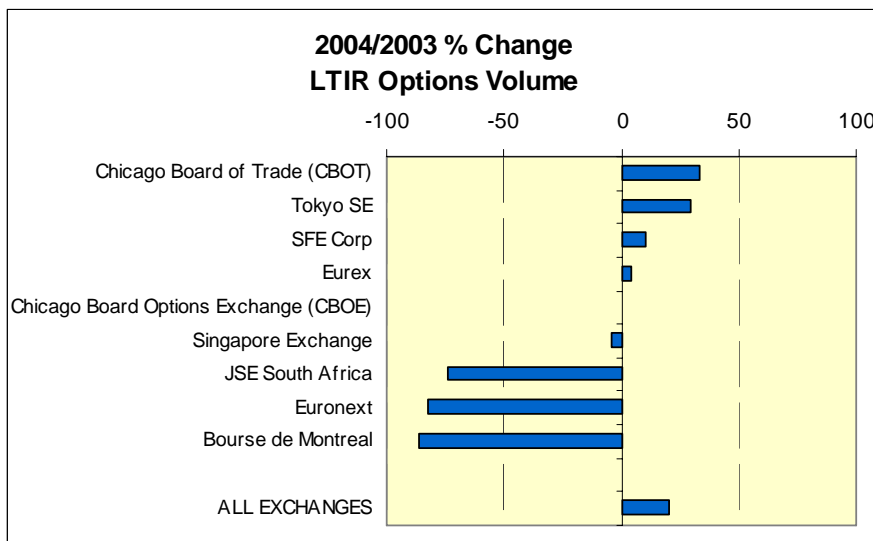
➤ LTIR options and futures

As noted above, the biggest players in the LTIR market are Eurex and CBOT, which when combined made for a joint total of 92% of global volumes in LTIR futures, and 97% of LTIR options. Both of these exchanges saw growth in 2004, though only very slight in Eurex's case. By contrast, LTIR futures volumes on CBOT rose 33% over 2003. Both saw similar growth in LTIR options.



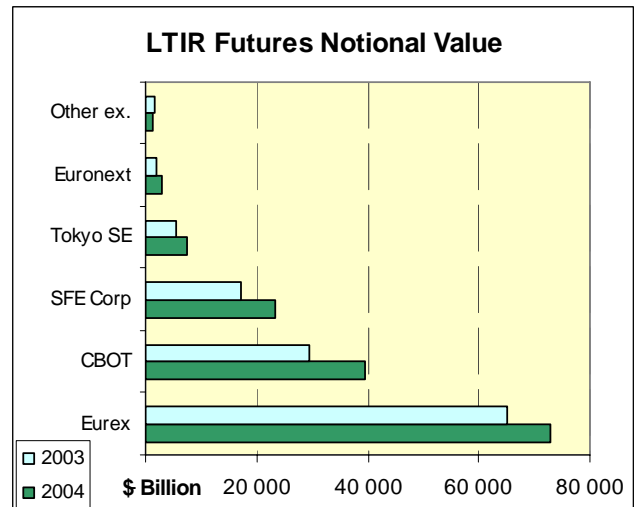
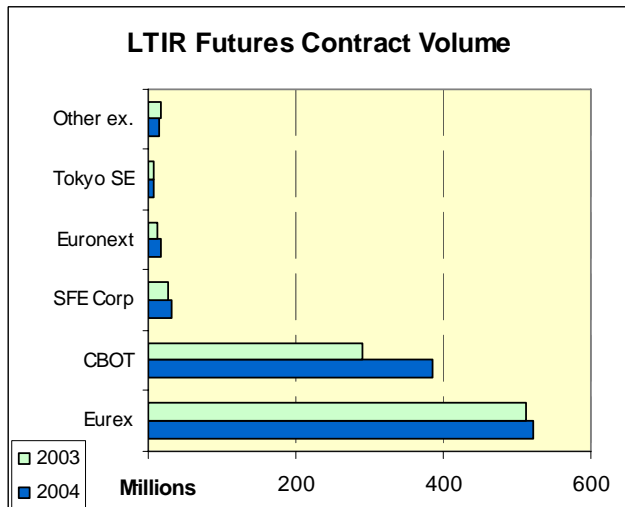
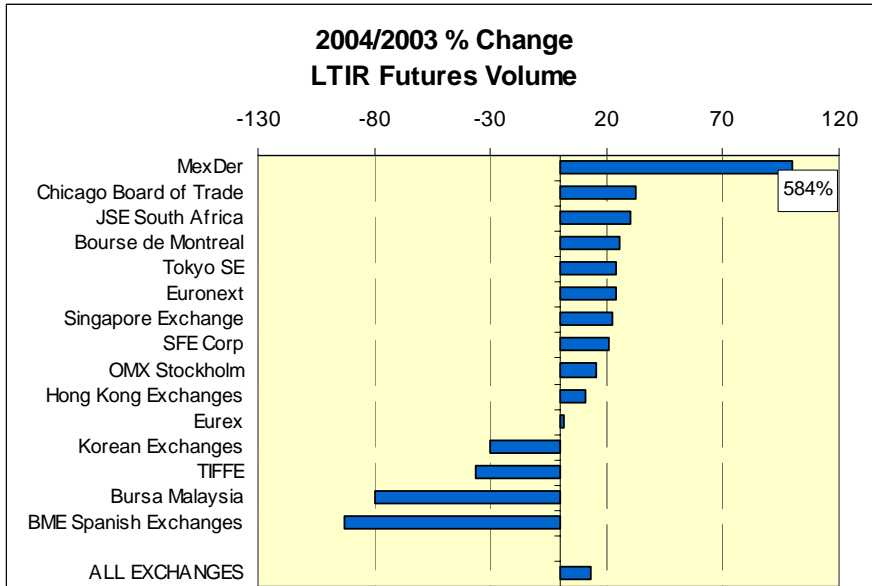
Although considerably smaller, the Pacific rim exchanges saw growth in LTIR futures volumes, with Tokyo Stock Exchange reporting a 24% rise, and Sydney Futures Exchange a 21% rise. By contrast the slowdown in growth in Korean market carried through to the LTIR futures segment, which showed a decline.

LTIR options





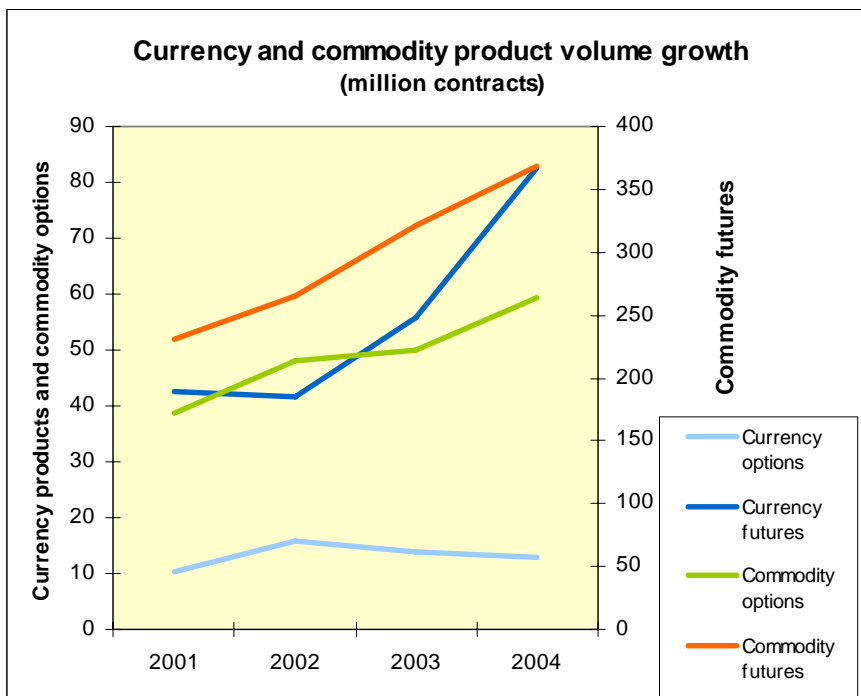
LTIR Futures





C - CURRENCY AND COMMODITY PRODUCTS

The year 2004 saw accelerating growth in currency futures and commodity options, steady growth in commodity futures, and a continued slowdown in currency options.



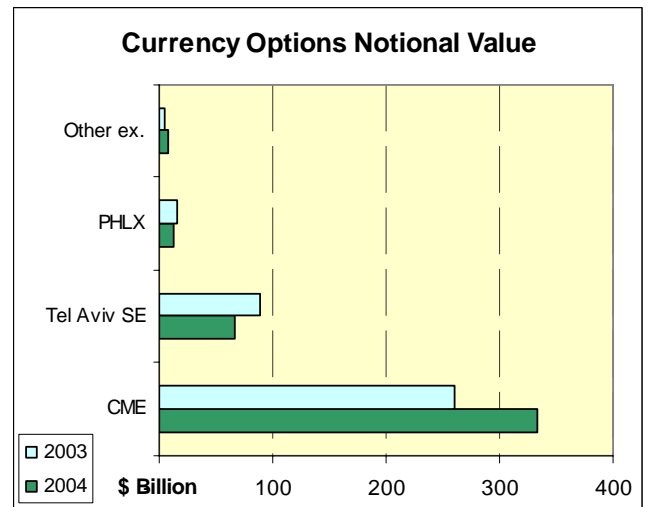
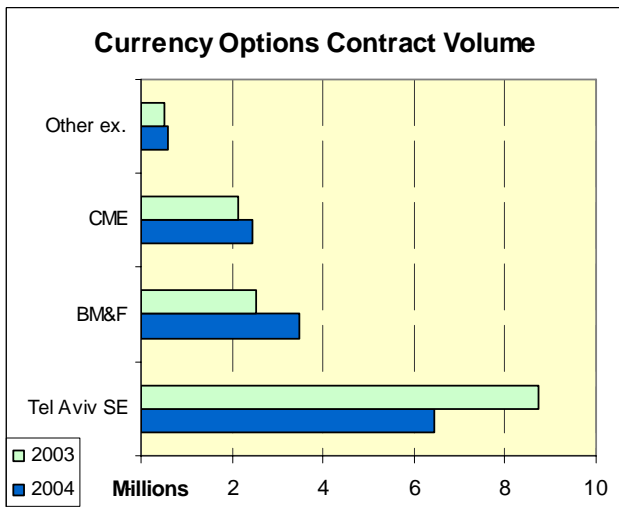
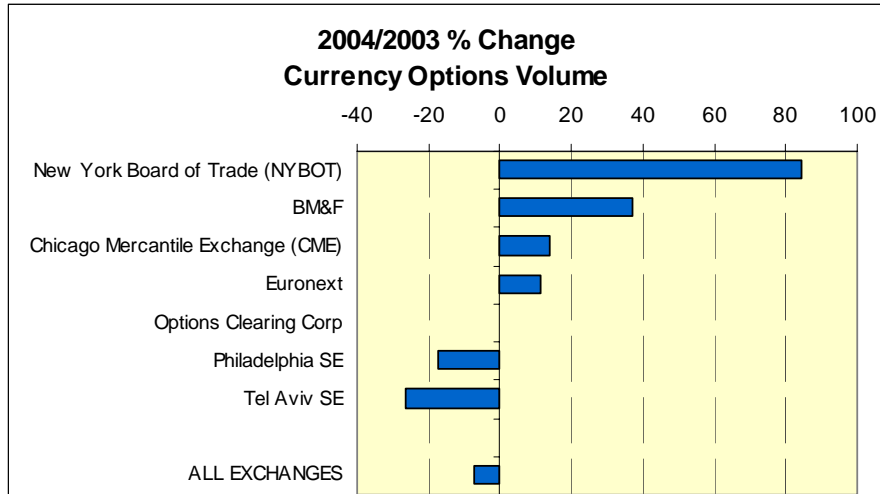
➤ Currency Options and Futures

Currency futures trading volumes are dominated by two exchanges, which represent 89% of global trading. Both the CME and BM&F had significant volume growth in 2004 – 543% and 34% respectively – continuing the growth of the previous year. A number of other exchanges trade currency futures, but their volumes remain relatively small, both relative to these two players, and to the other products traded on those other exchanges.

Currency options are concentrated on three exchanges – the two mentioned above plus the Tel Aviv Stock Exchange, which has the largest volumes of currency options of all. The Tel Aviv Stock Exchange saw a continued decline of currency option volumes in 2004, resulting in a further overall decline in the aggregate figures.

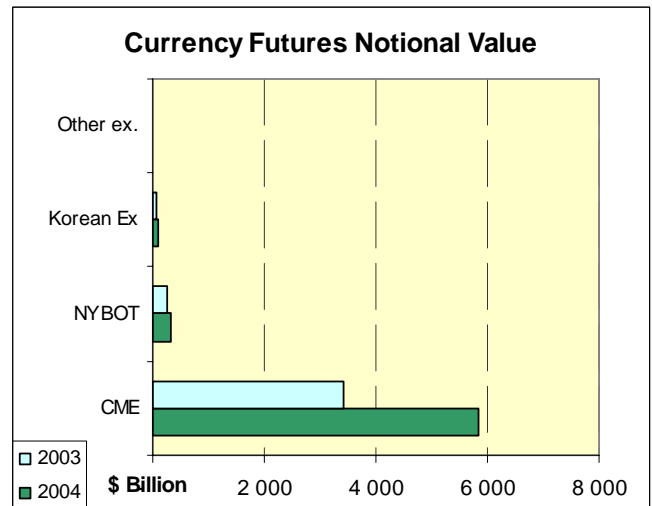
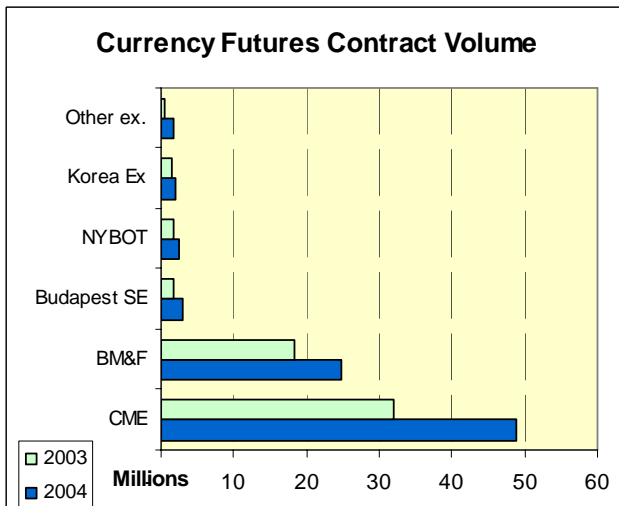
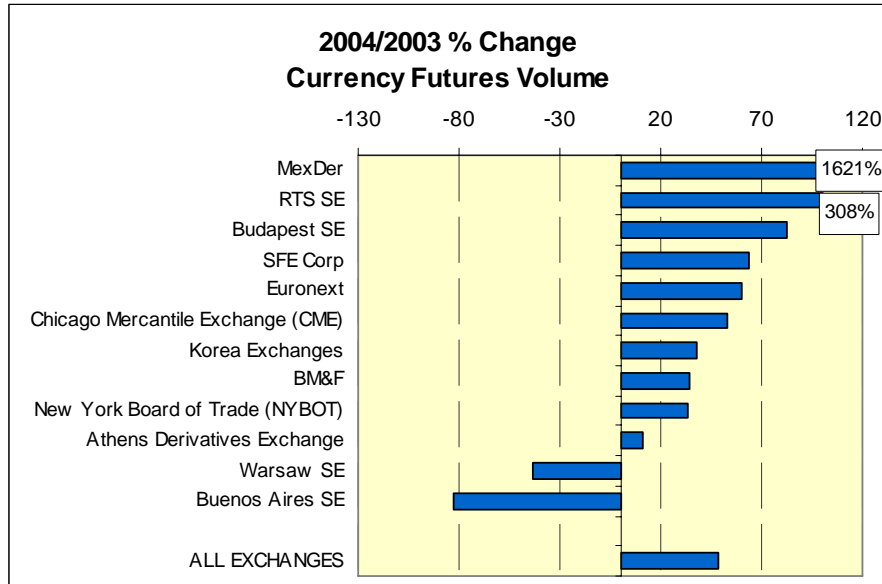


Currency Options





Currency Futures



➤ Commodity Options and Futures

Global volumes rose to 359 million contracts, a rise of 12% over 2003. Global notional values rose by a much faster 31% on the continued rise in oil and other commodity prices during 2004. The growth in volumes was less rapid than the 21% notched up in 2003.

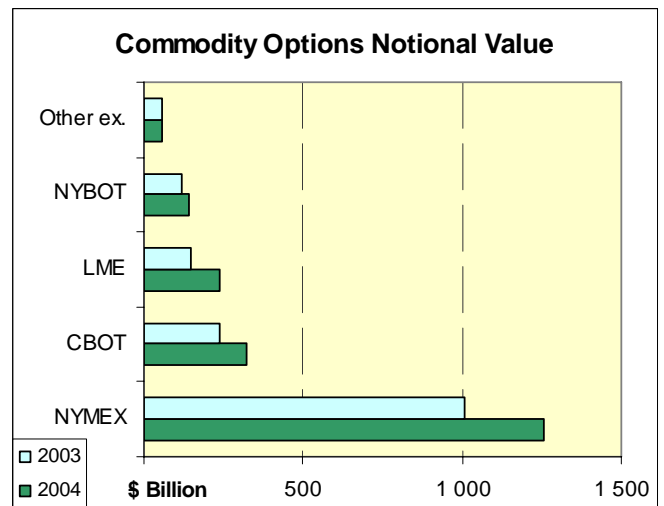
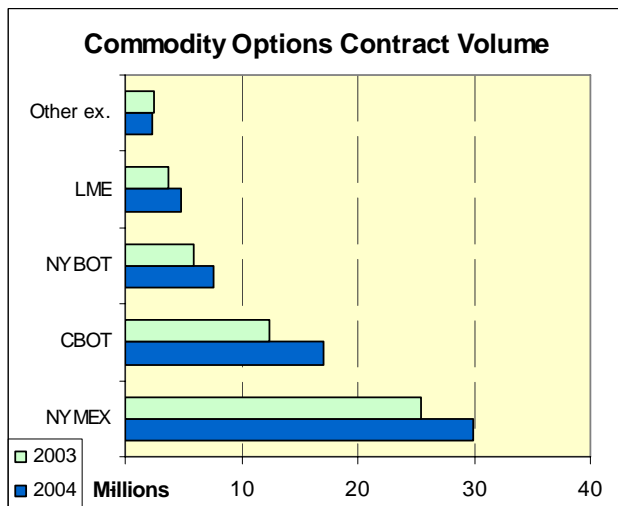
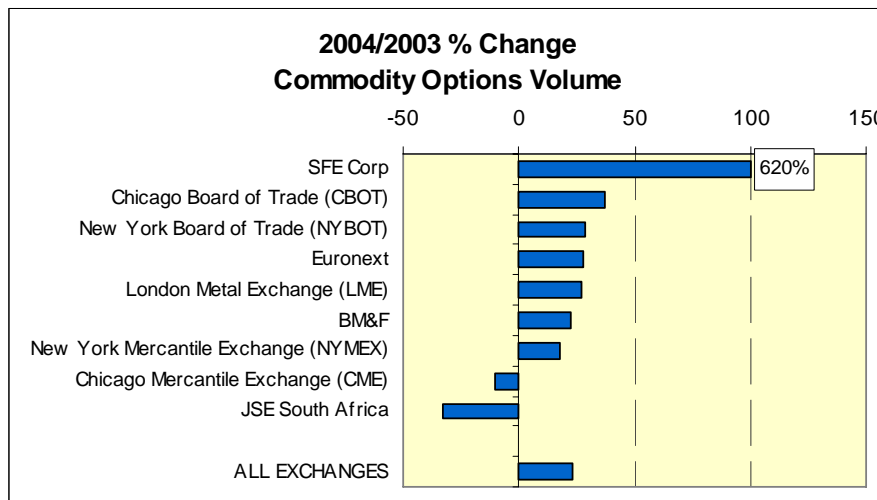


Volumes in the commodity futures segment are dominated by a few exchanges – CBOT, NYBOT, NYMEX and LME. They account for 94% of global volumes, and 98% of global notional value. LME volumes declined slightly in 2004, though notional values rose sharply. Volumes also declined slightly at Zhengzhou Commodity Exchange. The other three saw rises in volumes, topped by NYBOT at 26%, though it remains significantly smaller in volume terms than the other four.

Outside these larger exchanges, CME and Euronext saw increase in volumes, while the JSE experienced a decline.

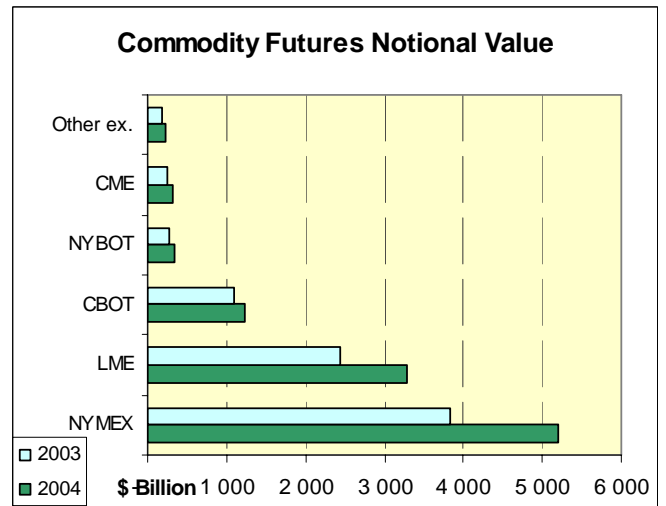
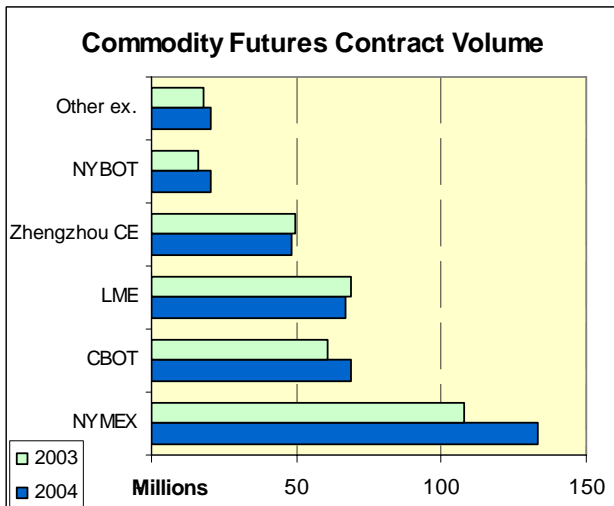
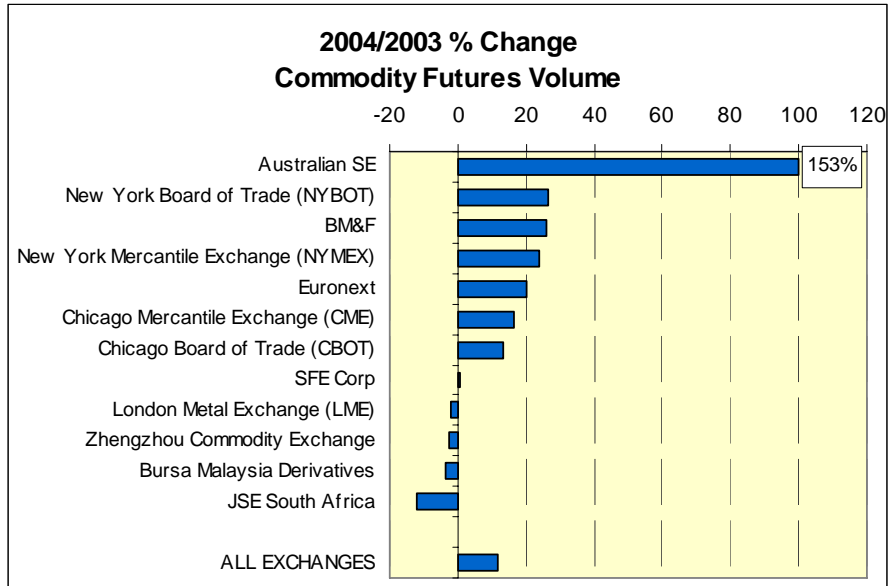
Commodity options showed a similar pattern, with four markets accounting for 96% of volumes and 97% of notional value. All of the top four, and almost all markets trading commodity options, saw increases in volume during 2004. Overall, the growth of volumes was 23%, a sharp acceleration off the volume growth base of 4% in 2003.

Commodity Options





Commodity Futures





CONCLUDING REMARKS

To summarise the key findings:

Derivative volumes continued to grow, but at a slower rate than in recent years. Year-on-year growth in 2004 was 9%, compared to 31% in 2003. However, just as the Korean market was the driver of growth of aggregate volumes in 2003, so its slowdown in 2004 led to the statistical effect of significant total slowing. Other exchanges saw a 21% increase in total contract volumes, only slightly down on growth in 2003. The small slowing of the growth rate in 2004 for exchanges outside Korea reflected an accelerating growth in options, and a slight slowdown in the growth in futures.

Equity products saw:

- Accelerating growth in stock options - 28% growth, up from 15% in 2003. Among the larger exchanges, there were a number of significant volume increases : ISE (45%), BOVESPA (33%) and CBOE (30%). Volumes at Euronext recovered after a fall in 2003.
- Steady growth in index options (excluding the Korean exchanges, which saw a fall in their very large index option volumes). Among the larger exchanges, substantial increases were recorded at Taifex (102%), ISE (71%), Philadelphia (28%) and Tel Aviv Stock Exchange (26%). In Europe, Borsa Italiana, BME Spanish Exchanges, and Euronext recorded declines.
- Marked slowing of growth of index futures - 10% growth, down from 29% in 2003 and 59% in 2002. The two largest exchanges in index futures, CME and Eurex, which jointly account for 60% of global volumes, both saw only single digit percentage increases in 2004.
- Marked slowing of growth of stock futures despite rapid (but slower than 2003) growth in NSE India (72%) and RTS (23%). Two other exchanges witnessed big increases - Euronext (92%) and JSE (93%).

Interest rate products saw:

- Unchanged volume growth in STIR options and futures; futures make up the bulk of interest rate derivative volumes. STIR futures rose 29%, the same as 2003, but faster than the 20% in 2002. The STIR product market is dominated by two exchanges, CME and Euronext. CME had a 43% volume increase in STIR futures, and Euronext a 19% increase. MexDer, which in volume terms is roughly equal to Euronext, registered a 16% increase.
- This year showed a marked slowing of growth in LTIR derivatives. Growth fell to 13% from 26% in LTIR futures, and to 20% from 33% in LTIR options. Like STIR products, LTIR products are dominated by two exchanges, Eurex



and CBOT, which together represent 93% of LTIR futures volumes, and 98% of LTIR options volumes. Eurex registered slow growth of 2% in futures and 4% in options. CBOT showed faster growth, 33% in both options and futures.

Last year, currency and commodity products saw:

- Slowing growth of commodity futures volumes, returning to the 2002 level of 14% growth after 21% in 2003. Commodity options growth accelerated to 19%; commodity option volumes are about 1/6 the level of commodity futures volumes. The US exchanges, CBOT, NYMEX and NYBOT, saw contract volume increases of 13%, 24% and 26%, respectively. LME recorded a small decline in volumes.
- Accelerating growth of currency futures, rising by 48% in 2004 after a 33% increase in 2003. The two largest exchanges, CME and BM&F, which accounted for 84% of global currency futures volumes, both saw increases – 53% and 34%, respectively. Options volumes continued to decline, but at a slower rate than in 2003, which came after a very big 52% increase in 2002. By and large, this reflected the decline in volumes in Tel Aviv Stock Exchange, which is the largest exchange for currency option volumes anywhere.

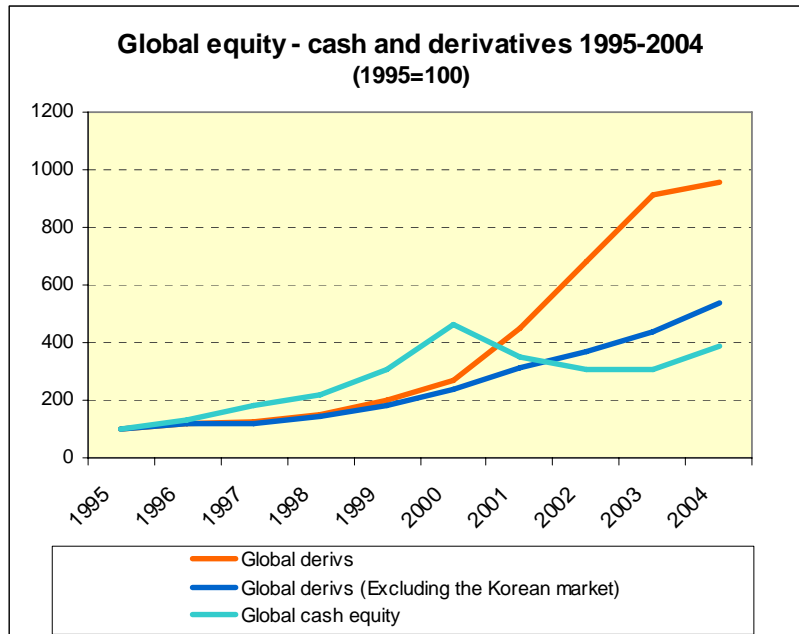
The results raise three questions for the future:

1. What are the next growth products?

If the slower overall growth rate, coupled with slowdowns in some key product areas, most notably index futures, are pointers to the future, then which new products will take the industry forward? Stock futures have been successful in some markets, but 2004 figures suggest that, notwithstanding their newness, their potential to drive markets forward may be limited.

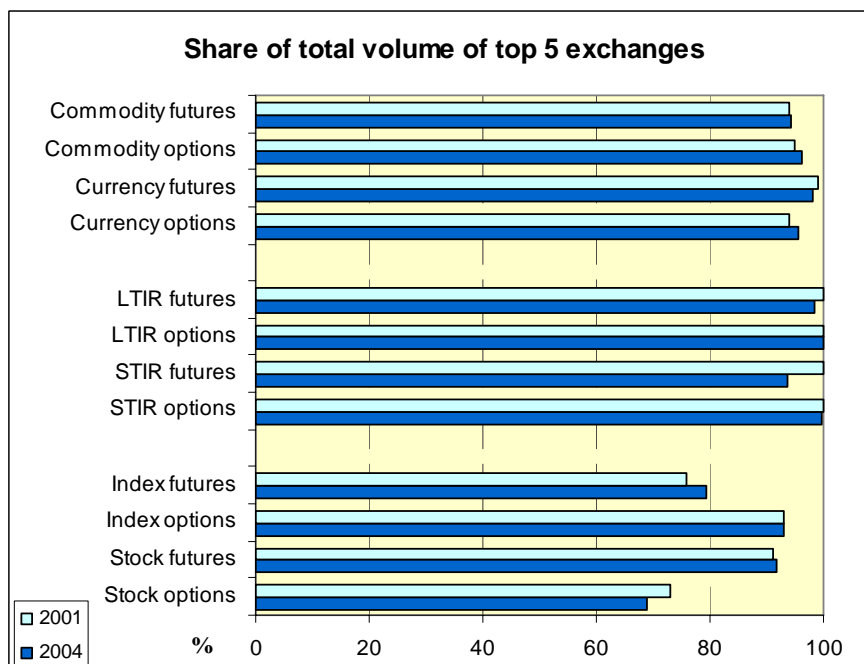
2. Are derivative volumes dependent upon volumes in underlying markets?

From 2001 to 2003, it looked possible that equity derivative volumes were on a growth trajectory that was independent of volumes traded on equity cash markets. This is entirely consistent in the medium term, as it is possible that investors are still adjusting their portfolios to the relatively new derivatives segments. However, as the graph below shows, the renewed growth of volumes in cash equity markets, and the slowing growth of some key equity derivative products, suggests that the relationship between cash and derivative volumes may be reverting to a more traditional pattern linking their trajectories.



3. Will business be increasingly concentrated on a few exchanges?

We have mentioned the concentration of business in a few exchanges for some products, but this is a feature of all derivative products. The graph below shows the share of contract volumes held by the top several exchanges in 2004 by product category.





Interest rate, currency and commodity products are already highly concentrated, in this case with five exchanges accounting for practically all the activity. Equity products show more diversity – no doubt reflecting the fact that the equities of one country, unlike bonds, commodities and currencies, are not perfect substitutes for each other. But even in equity products, the top five exchanges represent 70 to 90% of the global total. Surprisingly, despite the involvement of new exchanges into new products, this picture has changed rather little between 2001 and 2004.



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