



UNITED NATIONS CONFERENCE
ON TRADE AND DEVELOPMENT



UNCTAD
COMMODITIES
BRANCH

UNCTAD Expert Meeting

**"Enabling small commodity producers in
developing countries to reach global markets"**

Organized by UNCTAD Commodities Branch

Email: leone.santana-boado@unctad.org, Web: <http://r0.unctad.org/commodities/>

11 - 13 December 2006

UNCTAD Secretariat Document:

**Survey of the World's
Commodity Exchanges
2005**

UNCTAD Survey of the World's Commodity Exchanges 2005

An extract from the publication **The World's Commodity Exchanges: Past - Present - Future**

Executive summary

"The World's Commodity Exchanges: Past - Present - Future" is a compendium of articles from experts in the field of commodity exchanges around the world. It has been compiled by the UNCTAD Secretariat to be the conference book for the 27th International SFOA Bürgenstock Conference, September 2006.

The articles address major issues facing the contemporary commodity exchange sector, as well as outlining the pressing challenges that have impacted exchanges in each region of the world. A 'themes and issues' chapter discusses the challenges facing developing country exchanges, expanding the exchange 'last mile', merging commodity with financial markets, integrating exchanges with electronic warehouse receipt frameworks, the accounting regime for commodity and derivatives exchanges, and the micro-exchange phenomenon.

For Africa, articles address the challenges and review the progress of exchange development in countries including South Africa, Kenya, Nigeria and Ethiopia, as well as the prospective Pan-African Commodity and Derivatives Exchange. On Asia, articles appraise market structures and catalysts of growth in Japan, China, India, Taiwan Province, Dubai, Indonesia, Thailand and Pakistan. Exchange development is discussed with respect to Russia, Ukraine, Romania, Slovakia and Turkey within the CIS / European Transitional Economies region, whilst Latin American articles look at the experiences of Argentina, Panama, Honduras and the Dominican Republic. The North American articles examine the evolution of self-regulation and clearing, while articles from authors in Western Europe look at the new MiFID regime, emissions trading, exchange systems integration, and insights into the operations of UK- and Scandinavian-based exchanges.

The document also includes statistical data compiled by the UNCTAD Secretariat on the performance of the commodity futures and options sector in 2005, including a definitive list of the world's major commodity exchanges by volume. Further, the UNCTAD Secretariat has reviewed progress made by commodity exchanges in each region during the previous year.

Document Availability

Hard copies are available upon request. Alternatively, an electronic copy in PDF format can be located by following the instructions below:

- Go to: <http://r0.unctad.org/commodities/>
- From there, click on 'documents', then on 'commodities branch database' and finally on 'Emerging Exchanges'
- You will see that the publication is a large document. Therefore, for ease of use, we have included both the complete publication in one file, as well as split into two smaller files.

Testimony for
**The World's Commodity Exchanges:
Past - Present - Future**

Ms. Saliha ASCENSIO, Deputy Managing Director, Istanbul Gold Exchange

"I have received the publication of "The World Commodity Exchanges- Past, Present, Future" enclosed in a mail. I am honored to have the opportunity to contribute the publication of UNCTAD with other distinguished colleagues from all over the world. As I wasn't able to participate to the Burgenstock meeting it was a nice surprise for me to receive the hard copy of the publication and your kind letter.

I presented the book to our chairman Mr ERTAS and he was also very much pleased to have been participated to the publication. As Istanbul Gold Exchange we are working on projects to establish new markets and instruments in Turkey and our future target is to make steps to integrate the international markets. We believe this publication will be a valuable source of information for our Exchange and our members with different point of views.

We will always be pleased to be in contact to corporate and to strengthen our relations for mutual collaboration of future projects. Personally, I will be more than happy to contribute on any subject when needed. I shall look forward to hearing from you again and wish to thank you for your courtesy."

Dr. Alexander BELOZERTSEV, Industry Consultant, Russia

"Many thanks for your up-date and the opportunity to get the electronical version of the publication, - it's a very useful and comprehensive one. I found a lot of interesting information in it - especially on the working relationships between the commodity cash market and futures exchanges (electronical WHRs, clearing procedures, and etc.) We are actively working on these subjects in Ukraine right now. Also, there was a very interesting section devoted to the Asian emerging exchanges which are booming now. In any way, I'm sure, you did a great job for the industry. I wish you to continue your efforts on the commodity exchange subject in the up-coming future."

Dr. Jonathan BUTLER, Project Manager, Xetra Project, Deutsche Börse Systems AG

"Concerning the article, as I always used to reckon when I wrote research papers for mathematical journals: writing interesting articles about interesting subjects is not so difficult; really challenging is writing good engaging articles about slow, un-interesting, un-sexy subjects! (Like in everything, both types of topics do exist even in mathematics: there are a lot of un-sexy topics, but, surprisingly, there are also some very sexy ones!)

First and foremost though, it was a great pleasure and honour to be asked to contribute to what will be a very prestigious publication by UNCTAD. I am eager to support you and the colleagues at UNCTAD in the work you are carrying out in any way that I can."

Mr. Richard HOO, Senior Vice President and Head of Business Development, Taiwan Futures Exchange (TAIFEX)

"Congratulations on the successful launch of your publication "The World's Commodity Exchanges: Past, Present, Future". It should prove to be a very useful reference material for your readers, with so much information in it."

Ms. Krisztina KASZA, General Secretary of the Association of Futures Markers (AFM)

"I would like to thank you for the publication since it is a very important document for many members of our association. I will create a link to the AFM website so that our members and web visitors can easily access the electronic version."

Ms. Naima KAZMI, Research Analyst, National Commodity Exchange Limited, Pakistan (NCEL)

"I humbly thank you for the unique opportunity that allowed me to contribute, on behalf of NCEL, to the joint publication of the United Nations Conference on Trade and Development (UNCTAD) and the Swiss Futures and Options Association (SFOA), "The World's Commodity Exchange: Past, Present, Futures."

The publication presented itself is an informative and educational compendium that highlighted global trends in the futures industry, disseminated interesting commodity news, provided analysis of current market events, and updated the reader on business innovations, activities and new technology all around the world.

In a world progressively shifting towards liberalization and globalization, the significance of research on emerging economies and information dissemination become all the more important. As of late, research into the role of commodities in the global economy has acquired greater importance. In that respect, we found that contributing articles in the publication helped garner a deeper understanding of the dynamics that shape the continuously evolving futures industry and highlighted global initiatives aimed at the development and modernization of emerging markets. The appendices further proved to be excellent corollaries to the articles, succinctly summarizing relevant global statistics in the derivatives industry.

The joint publication of UNCTAD and SFOA facilitates NCEL immensely in demystifying the role that derivatives can play in Pakistan. I hope to be able to circulate the electronic copy of the publication amongst my colleagues here at NCEL and top industry professionals in Pakistan, in an attempt to acclimate individuals and investors on global events transforming the world of commodity derivatives. Thank you once again for the great contributory opportunity. We at NCEL hope that our two organizations maintain correspondence and look forward to future collaboration."

Mr. John MATHIAS, Director of Financial Futures and Options, Global Business Development Manager, Merrill Lynch International

"Dear Leonela and Adam

Congratulations on the success of your publication, "The World's Commodity Exchanges: Past, Present, Future", for this year's Bürgenstock Conference. I was happy to contribute to the book and very pleased with the outcome.

UNCTAD's role in promoting the concept and practice of commodity exchanges in developing countries is important and has made a significant impact for so many of the participants in global commodity and financial sectors, not least the commodity sector participants themselves. For global

investors on the other hand, the work you do provides an essential first step in the development of new markets and new opportunities that will ultimately lead to significant flows of capital into these markets.

The Bürgenstock publication was an excellent example of this. You brought together an impressive range of experts from public and private sector organisations around the world to share their experiences and to demonstrate the difference that commodity exchanges are making to sectoral and wider economic enhancement. This model of information exchange in turn will boost the efforts to establish an echelon of efficient, innovative and robust exchanges in developing countries around the world. That the publication was produced to a high standard of quality in both its content and presentation is also to your credit. I look forward to future publications."

Mr. Kevin POTTER, Founder, Sandbox Technologies, South Africa

"In my view, the overall product was of a very high standard with many of the contributors well known in this niche global area. I have little input for improvement other than I was massively impressed by the breadth and depth of the paper and can only extend my congratulations to your team and all concerned."

Mr V. SHUNMUGAM, Chief Economist, Multi Commodity Exchange of India Ltd (MCX)

"The UNCTAD publication on "World's Commodity Exchanges: Past, Present, Future" takes the commodity industry professionals across the globe to share experiences and developments. This is relevant for India, trying to develop the markets and coming to terms with them, to learn from the experiences of its western counterparts; though the other part of the story is that MCX had beaten key global benchmark exchanges to get in to the top three positions in bullion, which are globally known as major investment commodities. While the introductory paper succinctly puts the status of the commodities derivatives industry across to the readers, the theme papers are timely, relevant, and reflect crucial issues facing expansion of industry across political boundaries and to its last mile beneficiary. The regional overviews by the UNCTAD in the publication takes one across various major exchanges around the globe as to their status which no one can find at one single source. The commodities and industry statistics available in this publication are unique to this publication in terms of the "neutrality of the source" and "one stop shop" for the major exchanges related volumes data. I wish that this publication should roll further to gather mass and become as widely quoted as possible. In short, I found this publication to be enlightening, highlighting issues cutting across boundaries, exhaustive in its coverage of the global industry scenario, and unique in providing us with the crucial industry statistics."

Ms. Simona SIMON, Derivatives Market Business Development - Sales, Eurex Frankfurt AG

"Just a short note to say that it was great to see you at Bürgenstock again this year and many many thanks for your support with our publications for the UNCTAD survey book. The publication is excellent with very interesting contributions from all authors. It is a pleasure and honour for our contributions to be included. We hope that what we wrote will be interesting and relevant for the readership. Thanks for thinking of us when it came to finding contributors.

If there is any other way in which we can support and assist your work at UNCTAD which, as you know, we believe is extremely important, please do not hesitate to contact us: ykwtfu (you know where to find us!)."

UNCTAD Survey of the World's Commodity Exchanges 2005

An extract from the publication

The World's Commodity Exchanges: Past - Present - Future

prepared for the

27th International SFOA Bürgenstock Conference

September 6 - 10, 2006

A joint publication of

United Nations Conference on Trade and Development

Swiss Futures and Options Association

Disclaimer

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of the secretariat of UNCTAD concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the broader definition of its frontiers or boundaries.

All substantive content was prepared by Leonela Santana-Boado
and Adam Gross of the UNCTAD Secretariat

UNCTAD
Palais des Nations
8 - 14, Av. de la Paix
1211 Geneva 10
Switzerland

Leonela Santana-Boado:
Tel: +41 22 917 5702
Email: leonela.santana-boado@unctad.org

Adam Gross:
Tel: +41 22 917 5766
Email: adam.gross@unctad.org

PREFACE

This document is the 2005 survey of the world's commodity exchanges prepared by the UNCTAD secretariat. It is an extract from the joint publication between UNCTAD and the Swiss Futures and Options Association (SFOA) prepared for the 27th International SFOA B rgerstock Conference.

UNCTAD has done a great volume of work on developing and applying the innovative instruments that commodity exchanges can offer. As an international organization with considerable accumulated knowledge of commodity sector development, UNCTAD is ideally placed to overcome the trust gap that often still exists between the public and private sectors in developing countries and which hinders investments in trade-related institutions. An organization like UNCTAD brings a measure of impartiality to the discussion on the use of modern risk management and financing tools, and thus helps potential users of these tools to feel more comfortable about such use. Its role is really that of an "honest broker", informing those active in the commodity sector of the new possibilities open to them, assisting in the evaluation of the benefits of new tools and the implications of their use.

Thus, the organization has been able to work productively both with governments and with the private sector, to create on the one hand an environment conducive to commodity exchange success, and on the other, an acceptance that a well-functioning commodity exchange needs a robust and effective regulatory framework. The result has been a complete reversal of old, negative images of commodity exchanges in some countries, and a new partnership-oriented approach between the private sector and exchange regulators.

Nowadays, and contrary to the situation in the late 1990s, many of the world's largest commodity exchanges (in terms of trading volumes) are located in developing countries. These exchanges have proved to be an important corollary to efficient domestic liberalization of the commodity sector, and an important contributor to the competitiveness of a country's agricultural industry.

UNCTAD will continue actively supporting the development of commodity exchanges in interested countries, with a particular focus on the introduction of new instruments that can boost agricultural growth and reduce rural poverty. We believe in the importance of exchanging experiences to learn about successes and innovative mechanisms but as well to avoid past mistakes. We believe in cooperation and the need to provide technical assistance. One of our major roles has been involvement in the creation of a Pan-African Commodity Exchange, a dream in the African Union and the African continent.

There are many further opportunities out there which are yet to be realized and much poverty that could be alleviated if only decision-makers know how to utilize modern financial tools for managing commodity production and trade, particularly the commodity exchange. With the continued support of our stakeholders in government and friends in the industry, we will stand for a brighter future in this domain.

*Leonela Santana-Boado and Adam Gross
United Nations Conference on Trade and Development*

TABLE OF CONTENTS

<u>Chapter</u>	<u>Page</u>
Foreword: Dr Supachai Panitchpakdi, Secretary-General, United Nations Conference on Trade and Development	v
Overview: Commodity exchanges: where are we now and where are we heading?	1
Africa	9
Asia	11
CIS and European Economies in Transition	16
Latin America and Caribbean	19
North America	21
Western Europe	24
Appendices	
Appendix I: Commodity futures and options statistics	26
Appendix II: Total futures and options statistics	29
Appendix III: UNCTAD profile, papers and publications	31

FOREWORD

UNCTAD's involvement with commodity exchanges stems from a mandate that has consistently located commodity sector issues at the heart of international trade and development concerns. As early as the 1970s, UNCTAD studies recognized the potential for market-based price risk management instruments in delivering welfare gains to commodity sector participants, a view that was expounded upon in the 1983 UNCTAD publication "Commodity exchanges and their impact on the trade of developing countries". The gradual liberalization of agricultural trade, and the reduction of government support to agricultural producers outside the OECD, heightened the interest in the use of risk management and other modern financial instruments, including commodity exchanges, in the developing world. In recognition of the substantial development impact of such mechanisms, this issue was formally incorporated into UNCTAD's mandate at UNCTAD VIII (Cartagena, Colombia, 1992).

Subsequently, UNCTAD has carried out a broad-based programme of support for the establishment and strengthening of commodity exchanges in emerging markets. A comprehensive set of analyses, policy papers and market reviews has laid the intellectual foundation for initiatives pursued by governments and private-sector organizations in developing economies worldwide. Hands-on support for the development of commodity exchanges and associated institutions has been provided by the UNCTAD secretariat in such countries as Nigeria, India, Indonesia, Malaysia, Turkey, Kazakhstan, Ukraine and the Dominican Republic. Industry events have been hosted, including UNCTAD's seminal 1998 Lyon "Partners in Development" Summit, which brought together influential thinkers and cutting-edge practitioners to devise a new set of solutions applying market-based instruments to address historic commodity sector ailments. Alliances have been forged with respected industry associations, including the Association of Futures Markets (AFM), the Association of Latin American Exchanges (APBP) and the Swiss Futures and Options Association (SFOA).

Indeed, this publication, launched at the 27th International SFOA Bürgenstock Conference for the derivatives industry in September 2006, is one result of the long-standing collaboration between UNCTAD and SFOA. Its expert articles analyse major issues facing the industry and review the development and impact of commodity exchanges around the world. Leading figures in the global commodity markets have contributed, including mature and emerging exchanges, regulatory bodies, collateral management organizations, industry associations and investor groups.

With some of the world's largest commodity exchanges now located in developing countries, and with new and exciting exchange initiatives being pursued in numerous emerging economies, I trust that the publication will add further momentum to the promotion of commodity exchanges as an effective tool for boosting commodity sector performance and spurring economic development.



Supachai Panitchpakdi
Secretary-General, United Nations Conference on Trade and Development

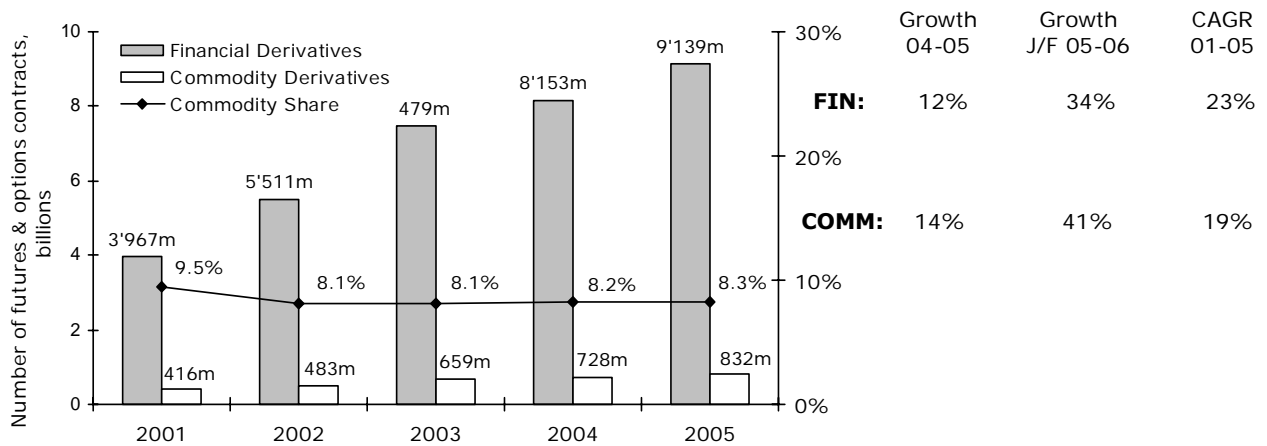
Commodity exchanges: where are we now and where are we heading?

During 2005, global commodity futures and options trading has continued to grow at a healthy rate. It has been a second successive year in which growth outpaced financial futures and options, bringing a reversal to the steady erosion in recent times of commodities' share in overall futures and options trade. Moreover, developing country exchanges, particularly those in China and India, can now clearly be recognised as major

liquidity centres in world commodity markets with eight of the world's top fifteen commodity futures exchanges in 2005 located in Asia.

Although a 14% annual growth rate (see fig 1 below) falls below the 19% compound annual growth rate (CAGR) attained over the last five years, it exceeds the 12% growth rate achieved by financial futures in the same period.

Fig 1: Commodity futures and options performance, 2001-5



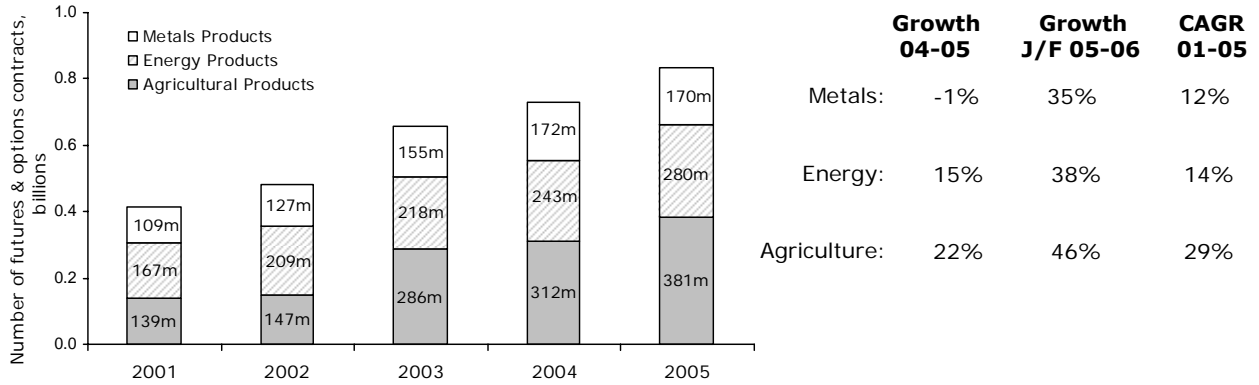
Source: FIA Data, adjusted to include the Indian national commodity futures exchanges

And if there were any lingering doubts about the extent to which the sector is booming, trading data from early 2006 shows that commodity futures trading in Jan-Feb 2006 was an impressive 41% higher than the same period in 2005. This figure easily surpasses the 34% rise in the trading of financial futures, reflecting the continued flow of investor

money into commodities as an asset class.

A disaggregated sector-by-sector perspective (see fig 2 below) reveals, perhaps surprisingly, that agriculture has been leading the commodities charge over the past five years, in volume terms at least.

Fig 2: Sectoral growth, 2001-5



Source: FIA Data, adjusted to include the Indian national commodity futures exchanges

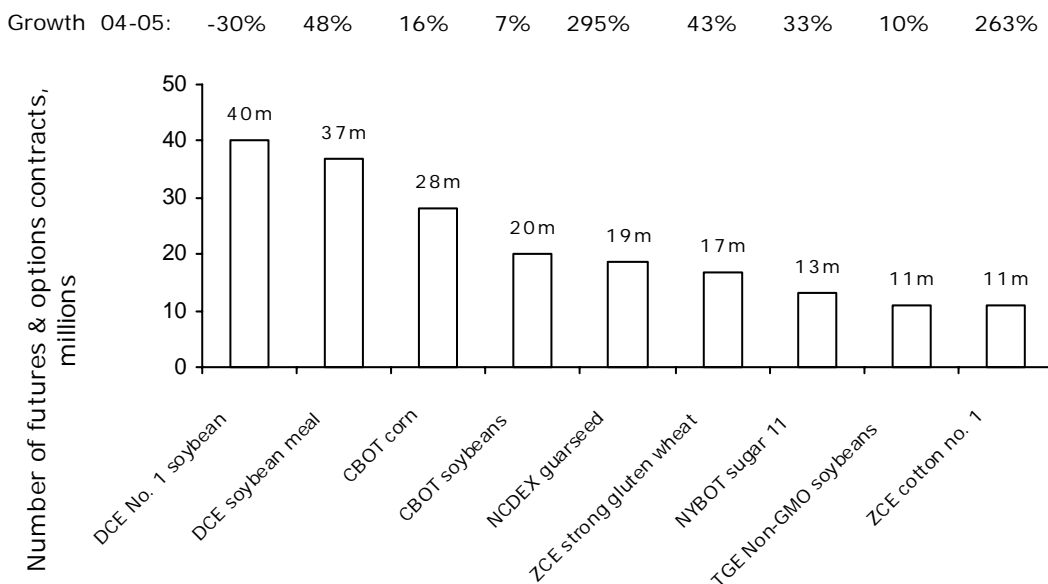
With a 46% rise in agricultural contracts traded in Jan-Feb 2006 compared with the previous year, agriculture continues to be the main growth driver of commodity futures into the current year.

The key factor driving growth in agricultural futures has been the emergence of dynamic markets in China and India. A majority of the population in both these countries still live in rural areas and depend on the agricultural sector for their livelihoods. Thus, sizable agricultural communities are now accessing tools for managing risk and exploring new investment opportunities.

This has resulted in a significant inflow of liquidity into these markets.

Two exchanges merit special mention. China's Dalian Commodities Exchange (DCE) accounted for 99 million - or 26% - of world agricultural futures contracts traded in 2005 and is the largest agricultural futures exchange in the world. Moreover, the DCE lists the world's two largest agricultural commodity contracts by volume, its No. 1 soybeans and soybean meal contracts respectively (see fig 3 below). Agricultural trading at the DCE has exhibited a five-year CAGR of 20% and growth in 2004-5 of 13%.

Fig 3: World's largest agricultural futures contracts



Source: Exchange data (includes all agricultural contracts with volume over 10 million during 2005)

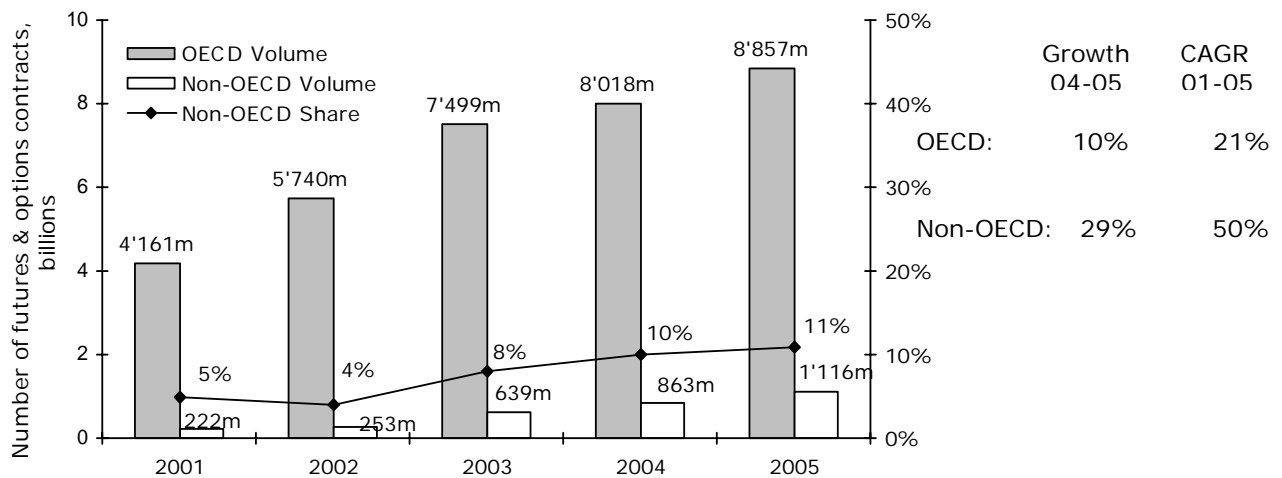
India's National Commodity and Derivatives Exchange (NCDEX) has also undergone a spectacular rise as a hub for agricultural trade in the Subcontinent. Agricultural trading at NCDEX, which stood at 6.5 million contracts in 2004, increased by 562% - a more than six-fold rise - to over 43 million traded contracts in 2005. This made NCDEX the world's third largest agricultural exchange, trading a considerably higher volume of agricultural contracts than NYBOT in only its second full year of operations.

Despite the strong performance of agriculture, most of the attention given to the recent bullish commodity sector performance has invariably focused on metals and energy. Precious and non-precious metals prices hit record highs in early-mid 2006. Crude oil prices continue on an upward trajectory in the face of imbalances between forecasted global supply and demand and there has been

significant volatility induced by geopolitical instability in various producer markets, most notably the Middle East and West Africa. The impact of China and India has also been felt heavily in these sectors, of course, as both countries pursue their energy security and invest heavily in infrastructure development. Thus, it is expected that these sectors will attract into commodity markets high volumes of hedger and investor interest throughout 2006. Trading data from Jan-Feb 2006 bears this out, with energy exhibiting a 38% and metals a 35% rise compared with the same period in 2005. (This can be contrasted with the considerably less impressive rise of 15% and -1% respectively over the course of 2005.)

Another prominent trend to which UNCTAD draws attention is the rapid growth in futures and options trading in emerging markets (see fig 4 below).

Fig 4: Growth of non-OECD Futures and Options Contracts - All futures and options



Source: Calculated on the basis of FIA Data, adjusted to include the Indian national commodity futures exchanges

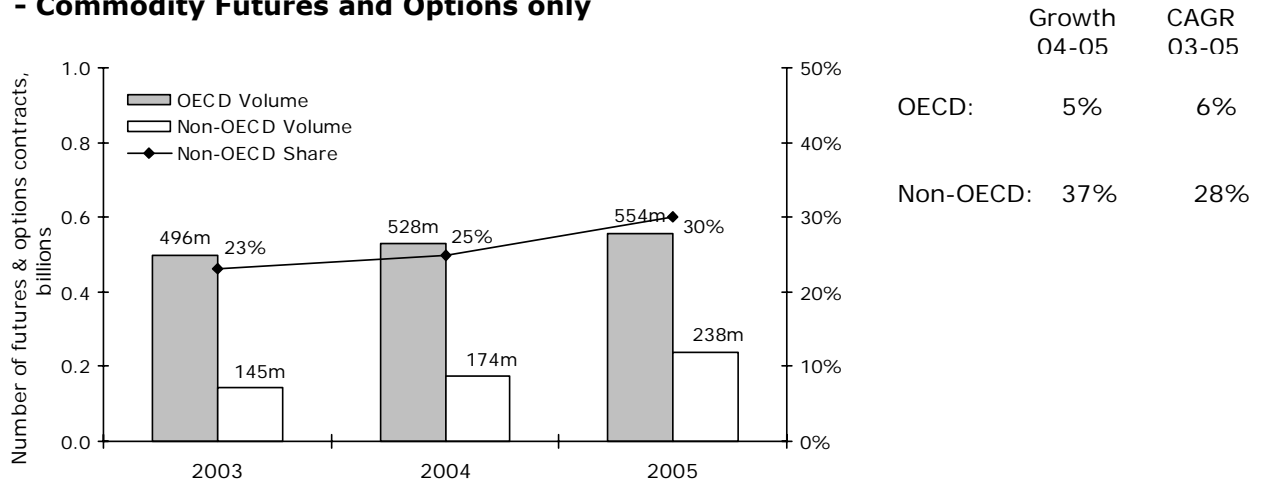
The Organisation for Economic Co-operation and Development (OECD) is a group of 30 developed countries, including North American and Western European states plus some of the more advanced economies from the rest of the world (including Japan, Korea, Australia and some Central European states). Whilst non-OECD volume remains a

relatively small proportion of overall world futures and options trading, it is notable that this proportion has more than doubled over the period. Furthermore, non-OECD markets have recorded a significantly higher growth rate between 2001 and 2005 - a 50% five-year CAGR compared with 21% in the OECD.

When only commodity futures and options are taken into account (see fig 5 below), the divergence in performance between OECD and non-OECD markets is

even wider - a five-year CAGR of 28% for non-OECD markets compares with a sluggish 6% in the OECD.

Fig 5: Growth of non-OECD Futures and Options Contracts - Commodity Futures and Options only



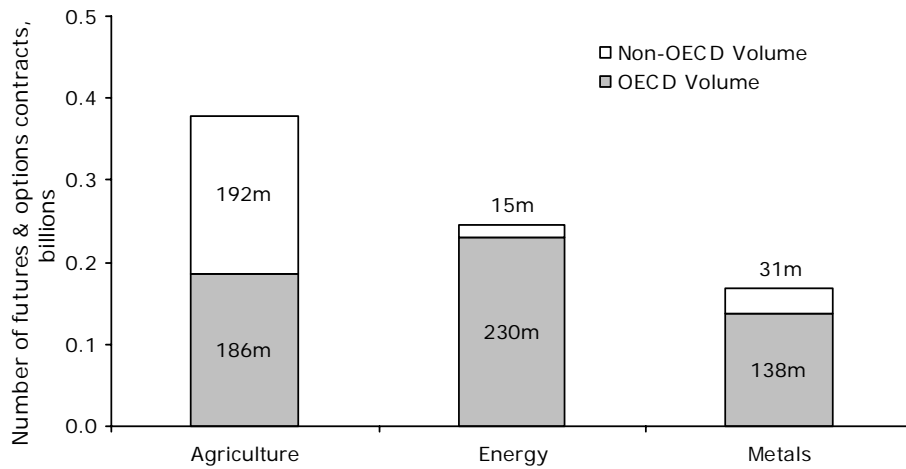
Source: Exchange data (includes only futures exchanges with volume greater than 1 million traded futures and options contracts in 2005)

It is also notable that the non-OECD share has been rising rapidly and now accounts for over 30% of overall global commodity futures and options volume. (Indeed, 30% is likely to be an understatement given the number of smaller, domestic-oriented exchanges throughout Asia, Latin America and CIS/European Transitional Economies

whose volumes are not captured in this data.)

It is agriculture in which the non-OECD presence has impacted most strongly - non-OECD markets now account for more than 50% of agricultural futures and options (see fig 6 below).

Fig 6: OECD / Non-OECD volume by sector, 2005



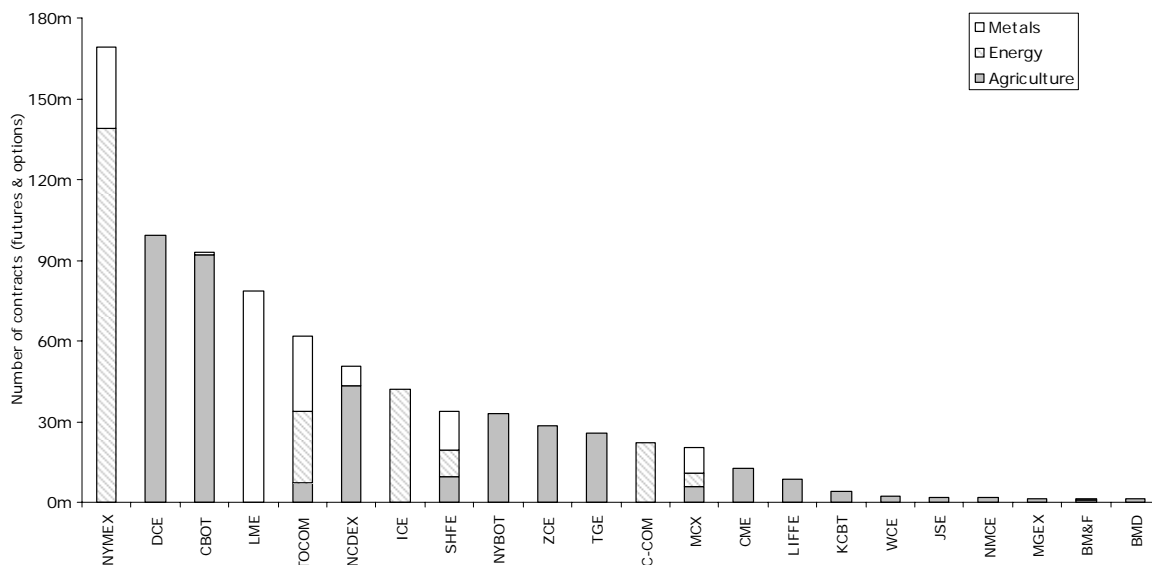
Source: Exchange data (includes only futures exchanges with volume greater than 1 million traded futures and options contracts in 2005)

Whilst the non-OECD share of metals (19%) and energy (6%) remained some way behind in 2005, commodity exchanges outside the OECD are also strengthening their positions in these sectors: Multi Commodity Exchange of India (MCX) in precious metals, Shanghai Futures Exchange (SHFE) in non-precious metals and energy, and RTS in Russia has recently commenced trading of a

Urals oil contract which has significant growth potential.

Of the world's major commodity exchanges, defined here as exchanges trading more than one million futures and options contracts, a majority are now located outside North America and Europe (see fig 7 below).

Fig 7: The world's major commodity futures exchanges, 2005



Source: Exchange data (includes only futures exchanges with volume greater than 1 million traded futures and options contracts in 2005; see annex 1, including for reference of full exchange names)

Note: Volume is measured in number of contracts, but it is recognised that the size of contracts can vary across products and exchanges.

There is a strong Asian presence - ten of the twenty-two major commodity futures exchanges are situated in Asia - with representation also from Africa and Latin America in SAFEX/JSE and BM&F respectively.

Looking forward, the coming years are likely to see substantial further growth in emerging commodity markets. This will be driven by the continued growth of existing exchanges, particularly those in China and India, and also by the rise of other exchanges situated in emerging markets.

In Africa, the Pan-African Commodities and Derivatives Exchange (PACDEX) initiative is stimulating the development of national exchanges in a number of countries, including Nigeria and Ethiopia. These may ultimately be linked together to form a continent-wide market via the Pan-African Commodity Platform which incorporates trading and back-office functions.

In the European transitional economies and the CIS, whilst the Budapest Stock Exchange's MOU with NYMEX to develop a Urals oil contract may not yet have borne fruit, in Russia the development of exchange-traded commodities has become a national priority since it was cited as such by President Putin in his State-of-the-Nation address in May 2006. Within a month of the speech, four oil contracts (Urals oil, diesel oil, aviation oil and black oil) and a gold futures contract had been launched on FORTS, the derivatives arm of the RTS Stock Exchange, and a grain futures contract is also being developed by the National Mercantile Exchange (NAMEX).

In Asia, exchanges in Dubai, Iran, Pakistan, Thailand and Indonesia are among those that may become familiar to global commodity investors in the short or medium term. Additionally, India's Forward Markets Commission, the regulator of the country's commodity exchanges, has been hinting that it may grant national commodity exchange status to new entities which could

provide further competition to the existing three.

Developed world exchanges today provide reference prices for global trade in most physical commodities (Bursa Malaysia being a notable exception with palm oil). However, the rapid increase in commodity consumption by the large, high-growth Asian economies and the prospective opening of the region's exchanges to overseas investors is likely to see the larger Asian exchanges assuming this role for more commodities over the coming years.

Arguably the most fundamental issue that will be faced by commodity exchanges in the coming years is the increasing centrality of information and communications technology as a determinant of exchange success. The transition towards the electronic trading of commodities is now in its latter stages with almost all of the US open outcry exchanges now also trading electronically, or in the case of NYBOT exploring the possibilities. (Exchanges in Europe, Asia and other emerging markets are generally further ahead in this respect.) This movement, itself a remarkable transformation in the way business is done in the commodities space, will trigger a second, continuous revolution powered on the one hand by the inherent tendency of technology to rapidly evolve and on the other by the increasingly fierce competitive global environment in which demutualised, for-profit commodity exchanges are now fighting for business.

The result will be a stream of innovations in products, platforms and functionalities, as well as a fundamental restructuring of the relations between market actors – hedgers, speculators, collateral managers, exchanges, clearinghouses, brokers, regulators, government, infrastructure providers and technology vendors – that transcends national borders and regulatory jurisdictions.

For the exchange, the approaching technology-driven era will have a

profound impact on business strategy and operations in several dimensions:

- Demands of key liquidity providers – market makers and institutional investors – will include ever-faster execution speeds; straight-through-processing as standard; the integration of value-added clearing services into the trading platform; enhanced network resilience and the deployment of cutting-edge security software and disaster recovery systems; the supply by exchanges of more - and more sophisticated - market data as inputs for algorithmic trading tools whose usage has been growing and will continue to grow.
- Connectivity will be a priority as rapid market growth means that bandwidth must expand to accommodate an exponential increase in the number of incoming messages from investors and in the outward supply of market data back from the exchange. In emerging markets, the imaginative deployment of technology will remain a critical means for exchanges to overcome deficiencies in national communications infrastructure and extend geographic reach to bring into the markets marginalised or physically remote users.
- Technology will also provide a major spur for capital market convergence – i.e. the convergence of commodity futures with financial futures and securities markets. This process has been fundamentally investor-driven as sophisticated investors, particularly hedge funds, seek to integrate their commodity market operations with those of other asset classes. Another aspect of capital market convergence that has to be addressed is the regulatory dimension. Yet with issues such as portfolio margining
 - a margining system in which margin levels are derived from the net market risk for a portfolio of positions across markets/asset classes – high on the agenda in Washington D.C., a regime for regulating converged capital markets may not be far off. However, technology will be the critical enabler of capital market convergence – in particular, applications that enable cross-asset class investment portfolio management for traders; and platforms that enable cross-asset class market risk management for the exchanges. Once such systems are in place, there is likely to be a wave of further integration between commodities, financial futures and securities exchanges looking to find ever-greater economies of scale in an era of intense global competition.
- Finally, technology can provide the means for exchanges to foster ever closer relations with their users. Customer relationship management (CRM) systems have been already deployed effectively in industries ranging from financial services to telecommunications to retail to transport and logistics. Such systems could also be used by exchanges as a mechanism to increase the service levels provided to customers. While large traders may be already using algorithms to optimize their trading strategies, algorithms embedded in CRM systems could also maximise the impact of an exchange's marketing efforts. These algorithms would be the basis for the 'data mining' of client trading information, identifying the client's product focus and analysing their trading strategies. Suggestions would then be automatically generated to incentivise greater client participation through marketing mechanisms such as transaction fee pricing that is differentiated both by client and by trading

strategy; and the timely supply of resources to inform/educate/train the client about new opportunities for portfolio diversification and for the use of new trading strategies.

To deliver in all these dimensions, an exchange would need to make significant investments in technology. For most exchanges, faced with so many possibilities yet possessing finite resources, such investments must be highly selective, targeted to those areas where it will generate maximum returns. This selectivity cannot be achieved without first embedding considerations about technology deployment within a broader strategic approach to exchange development that is constructed out of a continuous dialogue with market users about their requirements as well as a

thorough understanding of the changing competitive landscape. For smaller exchanges facing far tighter resource constraints, the development of close, collaborative partnerships with technology developers will be the key to surviving – and thriving – in the technology era.

That said, technology deployment is only a means to an end, and success in the future will remain - as today - contingent upon meeting the foundational value propositions on which investor participation is premised: well-defined contracts in line with the requirements of market users; a smoothly-functioning delivery system; liquid, efficient and transparent markets built on a responsible approach to market risk management.

Africa

Since its absorption of the South African Futures Exchange (SAFEX) in 2001, South Africa's **JSE Exchange** has been the continent's largest and most active commodity and derivatives exchange. The JSE traded 51 million futures and option contracts in 2005 (2 million agricultural contracts and 49 million financial contracts – including single stock contracts) making it the world's 18th largest commodity futures exchange and the 24th largest derivatives exchange overall.

SAFEX was established in 1988 and has become one of the leading emerging markets. For a long time SAFEX only traded financial futures, but the creation of the Agricultural Markets Division in 1995 led to the introduction of a range of agricultural futures and options contracts for commodities. Currently, SAFEX offers contracts for white and yellow maize, bread milling wheat, sunflower seeds and, since 2002, soya beans. SAFEX is widely recognised as the price discovery mechanism for maize in the Southern African region and has also proved an efficient and effective price risk management facility for the grain industry. SAFEX prices are quoted in several neighbouring countries.

An important recent development in the African commodities exchange space has been the ongoing process of establishing a **Pan-African Commodities and Derivatives Exchange (PACDEX)**. The PACDEX model will comprise a hub in Botswana managing a common exchange and back-office platform that can link together various national exchanges and warehouses to facilitate regional trade in contracts across the agricultural, metals, energy and currency sectors. The establishment of an African commodity exchange has been strongly supported by the African Union, with AU Ministers of Trade declaring it a priority in the Arusha Plan of Action on African Commodities of November 2005. The Plan of Action was subsequently endorsed by Heads of State at the 6th AU Summit in Khartoum in

January 2006.

Nigeria's **Abuja Securities and Commodity Exchange (ASCE)** started electronic trading in securities in 2001. However, the Government stepped in to reorient the exchange towards agriculture with a view to boosting sector performance and promoting commercial farming. Agricultural spot trading commenced in July 2006 with listed products including maize, soybean, cocoa, cotton and ginger, although most of the early trade has focused on the former two commodities.

The **Kenya Agricultural Commodity Exchange (KACE)** was set up in 1994 to provide the basic services of a commodity exchange. The products meant to be traded were agricultural commodities like cereals, dairy products and cotton. Faced with fragmented markets, government intervention and significant infrastructural deficiencies, trade has always been minimal however. Instead, focus has been on information dissemination with KACE acting as a provider of paid-for price information, a business model supported by private sector partnerships and aid donor funding (see the article by Thomas Barasa below).

The **Malawi Agricultural Commodity Exchange (ACE)** originated in September 2004 from a public/private partnership with support also coming from academia and the NGO sector. A marketing information system was first developed with an information hub receiving price, volume and trade information on 45 commodities from trading centres around the country. This is then assessed, integrated and disseminated back to those centres. Subsequently, the information hub has begun to facilitate trade between centres as exchange staff link buyers and sellers in different markets who have submitted bids and offers.

There is a **Ugandan Commodity**

Exchange (UCE) but currently it only regulates commodity warehouses on behalf of the government. It is looking at the possibilities to introduce an electronic trading platform for warehouse receipts.

Exchange formation has been strongly advocated recently in Ethiopia with the release of a high-level report in November 2005 that recommended "an integrated commodity exchange development initiative which will include developing all the components of the system, including the warehouse receipts system"¹. Also, in South Africa, a study was commissioned in early 2005 to examine the feasibility of establishing a Pan-African Metals and Minerals Exchange, potentially to be situated in Johannesburg with the possibility of trade in diamonds, gold, platinum and cobalt

amongst other commodities. Reportedly, the study found that the metals and mining industry felt no need for such an exchange.

Elsewhere, the **Zambia Agricultural Commodity Exchange (ACE)** and the **Zimbabwe Agricultural Commodity Exchange (ZIMACE)**, exchanges launched in the mid 1990s subsequent to agricultural market liberalization, have both foundered on government interventions in their core maize markets. Three different initiatives in Ghana never found sufficient business support. In Egypt, discussion on the reintroduction of the Alexandria Cotton Exchange, abolished by the Government in the 1950s, is revived from time to time. In Cote d'Ivoire, there is a "Bourse" for cocoa and coffee but it has so far not managed to develop any real business. **Africanlion**, a web-based coffee exchange based in East Africa, has not built up volumes.

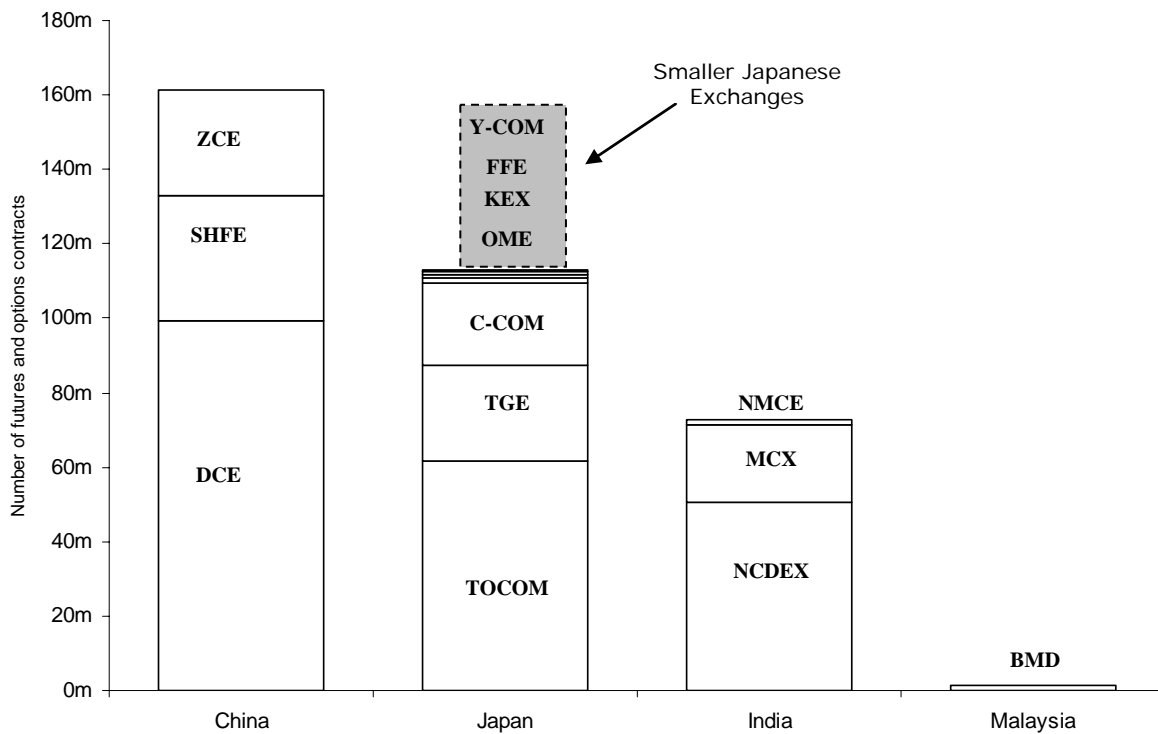
¹ Eleni Z. Gabre-Madhin and Ian Goggin, "Does Ethiopia need a commodity exchange? An integrated approach to market development", Ethiopian Development Research Institute Policy Working Paper No. 4, p22

Asia

Asian derivatives exchanges accounted for 34% of total world futures and options volume in 2005. In commodity derivatives only, however, this number

was slightly higher at 44%. Moreover, ten of the world's major commodity exchanges are now located in Asia (see fig 1 below).

Fig 1: Asian Commodity Exchanges, 2005



Source: exchange data (includes only futures exchanges with volume greater than 1 million traded futures and options contracts in 2005)

Just over 75% of Asian volume, and 26% of world volume, was contributed by the **Korea Exchange (KRX)**, the entity that emerged from a triple merger in early 2005 between the country's three leading exchanges - the Korea Stock Exchange (KSE), the Korea Futures Exchange (KOFEX) and the Kosdaq Stock Market. Almost all of this volume came through trading of KRX's KOSPI 200 stock index contract - the world's most traded derivatives contract by volume - a contract whose growth had been initially driven largely by retail participation (although now institutional and foreign investors account for the

major share of trading). Whilst KOFEX had earlier shown interest in listing commodity derivatives, launching gold futures and signing an MOU with TOCOM to diversify into energy products, the former did not become liquid and the latter has not yet borne fruit within the merged KRX entity.

Japan's commodity exchanges have gone through a process of consolidation since the early 1990s. Of 17 exchanges in 1994, only 7 remained in 2005. A new phase of consolidation occurred in 2006 with the smallest exchange by volume, **Yokohama Commodity Exchange (Y-COM)** being merged into the **Tokyo Grain Exchange (TGE)** in April. The

fourth largest exchange, **Osaka Mercantile Exchange (OME)** is in the process of merging with **Central Japanese Commodity Exchange (C-COM)**, the third largest exchange, and discussions are also underway about a possible merger between the fifth and sixth largest exchanges, **Kansai Commodities Exchange (KEX)** and **Fukuoka Futures Exchange (FFE)**.

The largest Japanese exchange is the **Tokyo Commodity Exchange (TOCOM)**, which has emerged as an influential exchange on a par with exchanges in New York, Chicago and London, dealing in gold, silver, and platinum futures as well as several energy products. TOCOM traded 62 million contracts in 2005, making it the 4th largest commodity futures exchange in the world (and the 23rd largest futures exchange overall). The second largest futures and options exchange in Japan is the TGE which trades a range of agricultural commodities, with nearly 26 million contracts traded in 2005 making it the world's 11th largest commodity futures exchange (and the 34th largest futures exchange overall). In early 2004, TGE launched the world's first vegetable index futures contract, a cash-settled contract reflecting the daily average weighted price per kilogram of 14 vegetables at prominent markets in the country. C-COM, formed in 1996 by the amalgamation of three other exchanges, is the third largest exchange and in 2005 traded 22 million contracts, mainly in energy futures, and was the world's 12th largest commodity futures exchange (and the 38th largest futures exchange overall).

The three large Japanese exchanges have all experienced declining trading volume in 2005 with TOCOM's decreasing by 17%, TGE's by 1% and C-Com's by 34%. This across the board drop in volume represents the retrenchment caused by the so-called Japanese 'big bang', structural changes in Japanese commodity markets that have led to fundamental shifts in the way the sector operates. Major changes have included the introduction of a common clearing house - the **Japan**

Commodity Clearing House (JCCH) - across all the Japanese exchanges with JCCH operating as a central counterparty to all trades; a tougher regime for safeguarding customer assets; and stronger regulation of FCMs in their dealings with clients.

Chinese commodity markets also went through a period of consolidation in the mid-1990s as the China Securities Regulatory Commission (CSRC) intervened with two rectifications following a series of scandals. The first reduced the number of exchanges down to fifteen, and the second in 1999 further reduced the number to just three.

The **Dalian Commodity Exchange (DCE)** is the world's largest agricultural commodity exchange, the largest market for soybeans and also non-transgenic soybeans and the second largest commodity exchange overall. The soybean futures price in the DCE has become an important reference price for China's soybean production and distribution and many international traders take the DCE soybean price as a benchmark. In 2005, DCE traded 99 million lots representing growth of 13% over 2004. DCE launched soybean oil futures in January 2006, with an impressive 7.1 million contracts traded by end of June. More recently, DCE has submitted proposals to the regulators for the launch of plastic (polythene), rice and live pig futures, and also, interestingly, for a temperature index which would become China's first weather derivative.

The **Shanghai Futures Exchange (SHFE)**, formed in 1999 after the merger of three exchanges, deals primarily in industrial products, offering futures contracts in copper, aluminium, natural rubber and fuel oil. In 2005, SHFE's trading volumes dipped to 34 million lots, an annual decline of 17%, and the exchange is now 8th largest commodity exchange in the world, having been 6th in the previous year. Trading in energy products was banned in China in 1994 after concerns about speculation, and has been slow to

recover due to uncertainty over physical delivery arrangements and a lack of major players. However, August 2004 saw the launch of SHFE's fuel oil contract. This grew rapidly to nearly 3 million traded contracts by year end 2004 and nearly 10 million contracts by year end 2005, the increase in volumes compensating to some extent for the significant declines in SHFE's copper (-42%), aluminium (-69%) and rubber (-2%) contracts.

The **Zhengzhou Commodity Exchange (ZCE)**, China's third largest exchange, traded 29 million lots in 2005, an overall increase of 17% over the year, making it the world's 10th largest commodity exchange. ZCE trades two forms of wheat and, since June 2004, cotton. In its first seven months trading through to year end 2004, cotton trading had reached almost 3 million contracts, only 160,000 short of NYBOT's annual cotton volume (although it should be noted that ZCE's cotton contracts are approximately one fifth of the size of NYBOT's). In the following year, resembling a remarkably similar growth profile to SHFE's fuel oil contract, ZCE cotton went from strength to strength, increasing to 10.9 million contracts. This easily surpassed NYBOT at 3.8 million, in so doing becoming the world's 9th largest agricultural futures contract. Whilst cotton volumes have taken a disappointing downturn in 2006, its lost volumes have been compensated by the newly-listed white sugar contract which, from launch in January 2006, has quickly picked up volume, trading over 8 million contracts in first half 2006.

The **Taiwan Futures Exchange (TAIFEX)**, created in 1998, continued to grow rapidly in 2005 reaching 93 million traded contracts. This represented a 2005 growth rate of 57% which came on the back of 104% growth in 2004 and over 300% growth in 2003. This sustained upward trajectory has helped it to become the world's 18th largest derivatives exchange. During 2005, TAIFEX only traded financial futures. In March 2006, however, gold futures were launched, a cash-settled contract based on London Gold Market Fixing prices.

In India, rapid market growth has occurred in recent years across both financial and commodity derivatives sectors. The **National Stock Exchange of India (NSE)**, incorporated in 1992, has risen dramatically to become the 14th largest derivatives exchange in the world with 132 million equity index and single stock contracts traded in 2005 and an annual growth rate of 75% over 2004 volumes. However, this is positively snail-paced compared with the growth levels achieved by two of the new national multi-commodity exchanges founded in 2003.

Mumbai's **National Commodities and Derivatives Exchange (NCDEX)**, with its focus broadly on agriculture, has seen volume growth in 2005 of 390% (see the article by Madan Sabnavis below). This surge saw the exchange trade an annual 50 million contracts in only its second full year of operations - a remarkable achievement enabling it to become already the world's sixth largest commodity exchange by volume and the third largest agricultural futures exchange after DCE and CBOT.

Multi Commodity Exchange of India (MCX), also located in Mumbai, traded 20 million contracts in 2005 and attaining an even faster growth rate of 678% during the year. Volume was more evenly distributed across the agriculture, metals and energy sectors, but in turnover terms, however, the majority of MCX's 2005 trading has been concentrated in bullion and crude oil. With prices of both commodities rising sharply towards the end of 2005 - as well as those of non-precious metals in which MCX also has the greatest liquidity - MCX had actually overtaken NCDEX in monthly turnover by November.

Ahmedabad's **National Multi Commodity Exchange (NMCE)**, the first of the national commodity exchanges to commence trading, has not enjoyed similar levels of success however - volumes fell in 2005 by 57% as trade further shifted to the Mumbai-based exchanges.

These new exchanges, contrary to the older single-commodity exchanges, are all demutualised, with permanent recognition to trade any permitted commodity, and they have blazed a trail in the establishment of hi-tech, low-cost, web-based trading. This has contributed enormously to their rapid expansion.

The size of market achieved so rapidly by the national commodity exchanges is all the more spectacular when the limitations still in place on India's commodity markets are taken into consideration. Options, index trading and financial futures remain off-limits to the exchanges, although the market expects that at least the former two will be permitted reasonably soon. Domestic banks and mutual funds and foreign investors are still barred from participating in these markets. The timeframe for their entry remains the subject of some debate, but clearly such an event would see a further significant inflow of liquidity pushing growth even higher than the current astronomical levels. Also on the regulatory front, there have been suggestions recently that the Forward Markets Commission, the regulator of India's commodity exchanges, may grant national commodity exchange status to new entities which could provide further competition to the existing three.

There also remain 19 regional exchanges actively trading commodity futures contracts in India. The largest of the traditional Indian commodity exchanges is the National Board of Trade (NBOT) situated in Indore, with trade focused on oilseed futures. Two of the other better-known traditional commodity exchanges are the Bombay Commodity Exchange (formerly the Bombay Oilseeds and Oils Exchange), founded in 1950, and the International Pepper Futures Exchange, in 1997.

Significant activity has been taking place in Dubai in the last two years. The **Dubai Gold and Commodity Exchange (DGCX)** was announced in November 2004 and commenced trading one year later with the launch of its gold contract. Silver was subsequently

introduced in March 2006 and currency futures (Euro, Pound Sterling and Japanese Yen) followed in June. Steel, freight, cotton and energy products are all being considered for future launch. A second Dubai-based project, the **Dubai Mercantile Exchange (DME)**, was announced following a memorandum of understanding between Dubai Development and Investment Authority and NYMEX. It is scheduled to commence trading in late 2006 focusing on commodities such as crude oil, natural gas, electricity futures and metals such as aluminium and (perhaps) gold. Since the debacle for NYMEX with its open outcry in London, the DME will have an electronic market but with all trading stations located in one large floor at the exchange.

Other active Asian markets include **Bursa Malaysia Derivatives**, the product of multiple takeovers and mergers. Trading 2.5 million contracts in 2005 (the world's 22nd largest commodity futures exchange), Bursa Malaysia Derivatives offers eight futures contracts including two commodity contracts and provides the reference price for world palm oil trade. It is also notable for being one of a small number of developing country exchanges open to international users.

Singapore is home to the **Singapore Exchange (SGX)**, formed in 1999 by the merger of two well-established exchanges, the Stock Exchange of Singapore (SES) and Singapore International Monetary Exchange (SIMEX). It traded 26 million contracts in 2005, the world's 32nd largest exchange, and concentrates on financial instruments. SGX has partnered with CBOT to form the **Joint Asian Derivatives Exchange (JADE)** with trading on CBOT's electronic platform and clearing through SGX's Derivatives Clearing House. JADE will be launched in September 2006 with a rubber futures contract, and a crude palm oil contract is expected to be launched later in the year. The **Singapore Commodity Exchange (SICOM)** is much smaller in scale and offers rubber futures contracts.

The **Sydney Futures Exchange (SFE)** commenced trading in 1960 as the Sydney Greasy Wool Futures Exchange and by 1964 had become one of the world's leading wool futures markets. It is the largest financial futures exchange in the Oceania region with an annual turnover of 63 million contracts and was the world's 22nd largest futures exchange in 2005. In Indonesia, the **Jakarta Futures Exchange (JFX)**, formed in 1999, began trading coffee and palm oil in 2001. Due to difficulties with these contracts, trading was suspended in 2002 and JFX now trades gold and olein. There are plans to launch cocoa, pepper, rubber and plywood futures and options on futures at a later date. The **Agricultural Futures Exchange of Thailand (AFET)** has been operating since May 2004 and offers contracts in rubber, rice, latex and tapioca. The **Thailand Futures Exchanges (TFEX)** commenced trading in April 2006 with an futures contract on the country's leading stockmarket index, the SET50.

There is one main commodity exchange in Iran, the **Teheran Metals Exchange (TME)**, inaugurated in September 2003, which trades spot and forward contracts mostly in steel but with smaller volumes of iron, aluminium, copper and zinc. Two further initiatives are on the horizon for establishing futures exchanges in Iran: the **Agriculture Commodity Exchange** (inaugurated in September 2004 but not operational) and an oil exchange, provisionally known as the **Iran Oil Bourse (IOB)**, to be located

on the Gulf island of Kish offering Euro-denominated trade in fuels and petrochemicals.

Other developments in Asia include preparation for the launch of **National Commodity Exchange Limited (NCEL)** of Pakistan. NCEL was incorporated in 2002, although numerous institutional and legal problems have meant that trading is not scheduled to commence until the last quarter of 2006 with gold and a range of agricultural contracts. In March 2006, Gulf Energy signed MOUs with the Qatar Financial Centre Authority and Qatar Financial Centre Regulatory Authority to establish the **International Mercantile Exchange (IMEX)**, a dedicated energy trading platform to be located in Qatar which will examine the possibility of trading in natural gas among other things. For some time, Abu Dhabi has been planning the **Saadiyat Financial Futures and Options Exchange** as one of four exchanges comprising its ambitious US\$ 3.3 billion Saadiyat Market project. Aluminium and financial futures are the likely contracts should this project come to fruition.

In **Sri Lanka**, the Government has been looking at the possibilities of an exchange for both domestically traded and export commodities, including tea, and is now actively promoting the emergence of forward trading of a range of vegetables. In **Vietnam**, a law is currently being drafted establishing the legal framework within which transactions through a national commodity exchange can take place.

CIS and European Economies in Transition

The **Budapest Stock Exchange (BSE)** of Hungary is the largest derivatives exchange in the region and the 41st largest derivatives exchange in the world. In 2005, it traded 9 million financial futures contracts - an increase of more than 100% on 2004 - with 85% of volume coming from trade in currency futures. In October 2005, BSE absorbed the **Budapest Commodity Exchange (BCE)**, Hungary's agricultural commodities exchange (although it also traded financial futures in addition to its grains and livestock contracts). In its 10 months of trading as an independent exchange, BCE traded 570,000 contracts in 2005, a fall of over 50% compared with full year 2004 volume. Now operating as the Commodity Section of the BSE, the former BCE's commodity markets have all but dried up in 2006 with the exchange reporting only 3000 commodity derivatives contracts traded by the end of June. Both BSE and BCE had signed an MOU with NYMEX in April 2005 with a view to jointly developing a Urals crude oil futures contract to be traded in Budapest. As yet, this contract has not been brought to market.

In Poland, the **Warsaw Stock Exchange (WSE)** is the second largest derivatives market in the region, trading 5.6m mainly stock index futures contracts in 2005 which makes it the world's 43rd largest futures exchange. The much smaller **Warsaw Commodity Exchange (WGT)** was founded in 1995 and deals in futures and options for agricultural products (milling wheat, feed wheat and live hogs) as well as some currency and interest rate futures. WGT also boasts the largest spot commodity market in Europe, introduced in 2001 and powered by Poland's largest B2B trading platform. The WGT is part of the Polish Commodity Exchange network which comprises some 18 exchanges spread throughout the country.

In the **Czech Republic**, there are five commodity exchanges trading not only the agricultural products normally found

in exchanges operating in liberalized economies but also timber, ores, paper products and construction materials. These exchanges, the most prominent being in Brno and Prague, are all limited to trading in the spot market - other types of contract are not currently permitted under Czech law, although this may change within the next two years. In **Slovakia**, the Bratislava Commodity Exchange trades a diverse array of spot and forward contracts for agricultural, industrial and timber products, with plans also to introduce trade in electricity and EU emissions allowances, the latter subject to being granted EU approval. There is also a trade in warehouse warrants for agricultural products. In **Slovenia**, an electronic exchange, the Exchange of Ljubljana, started trading in 1995. It offers a range of currency futures contracts and two grain futures contracts. Trade has been quite limited so far.

Other commodity exchanges have been created since 1990 in **Romania**, **Bulgaria** and **Yugoslavia**. Most of these focus on organising trade for immediate physical delivery. However, futures contracts are traded on foreign currencies (Euro, dollars, etc) and interest rates at **Romania's Sibiu Monetary Financial and Commodities Exchange**, founded in 1997, and at the **Romanian Commodities Exchange (RCE)**, opened in 1992, where spot and forward trade in grains, oil products and some metals are also offered.

Only in mid-2006 has Russia introduced commodity futures contracts. Four energy contracts - Urals oil, diesel oil, aviation oil and black oil - and a gold contract have been launched on **FORTS**, the derivatives arm of the **RTS Stock Exchange**, following President Putin's State-of-the-Nation address to the Russian Duma in May 2006. In this, he cited as a national priority the establishment of exchange-traded energy futures contracts. This is widely viewed as a means by which the influence of the

now freely-convertible Rouble can be extended. These contracts are still in their early stages, however, and financial futures still account for the vast majority of Russian derivatives.

The electronic futures and options exchange, FORTS remains the fastest growing of the Russian markets. The **Moscow Inter-bank Currency Exchange (MICEX)** is also trading currency futures, but through its **National Mercantile Exchange (NAMEX)** subsidiary, plans to introduce grain futures trading soon. Between 2002 and 2004, NAMEX has facilitated trading for government grain procurement interventions bringing together traders in six of Russia's regional commodity exchanges in the sale of 4.4 million tons of grain. Lower volumes are also being traded at two exchanges in St. Petersburg, the **Commodity and Stock Exchange 'St. Petersburg'** and the **St. Petersburg Currency Exchange (SPCEX)**, the latter also a subsidiary of MICEX. Separately, some 45 regional commodity exchanges operate across Russia. Most are located in Russia's major provincial centres and operate cash markets only. Many participate in auctions by federal or regional government entities. These auctions are a means for the state either to support prices in strategic commodities such as grains and coal or to regulate access via quota to scarce resources (for example, the **European Asian Exchange**, registered in Moscow, is an entity involved in the auction of fish stock quotas).

In Ukraine, there is currently no futures and options trade, either in commodity or financial derivatives. The **Ukrainian Interbank Currency Exchange (UICE)** runs occasional cash auctions in some energy items, such as gas and heating oil, but the exchange is not yet fulfilling its potential, with much of the currency trade taking place on the domestic inter-bank currency market. Recently, the Ukrainian government announced its intention to develop a **Ukrainian Futures Exchange (UFEX)**, but this has yet to come to fruition. Approximately 30 agricultural exchanges exist around the

country. Some have tried to develop spot markets, though without much success despite some support from US agencies. The activities of many of these regional entities are limited to the registration of cash contracts for export, essentially fulfilling a bureaucratic rather than a trading function.

Both the **Belarussian Currency and Stock Exchange (BSCE)** and the **Kazakhstan Stock Exchange (KASE)** deal in a small number of futures contracts on foreign currencies, the latter also trading a futures contract on the yield of Kazakhstan international securities. There are also fourteen registered commodity exchanges in Kazakhstan, organized on a regional basis, of which four are operational. All are members of the Exchange Union of Kazakhstan, which is inactive. Even on the largest exchange, the **Kazakh International Commodity Exchange (KICE)**, the volume of real trade is very small; virtually all of its income is from the registration of transactions that take place outside of the exchange; and most of these (voluntary) registrations are by the Food Contract Corporation, a major shareholder in the exchange. KICE tried to introduce futures contracts in 1996, but this failed.

The **Uzbek Commodity Exchange (UZEX)** of Uzbekistan trades cotton, metals, oil products, and other raw materials via auctions. Some work has been done in Kyrgyzstan on the possibilities for introduction of a commodity exchange for locally-traded agricultural commodities.

Exchanges have existed for a long time in Turkey. Around 20 of them engage in active commodity spot and, to some extent, forward trade (others are called exchanges, but in fact, only act as centers for the registration of commodity trade transactions). The oldest, in Izmir, traces its origin back to 1891. These exchanges act as physical trading centers, to which ranges of commodities are brought for inspection and immediate sale, and in which forward contracts are agreed on. Some of these exchanges have been appraising the possibility of

introducing more sophisticated forms of trade, based on warehouse receipts and even futures contracts.

In 1995, the **Istanbul Gold Exchange (IGE)** was launched, and its futures and options division - Turkey's first derivatives market - followed in 1997. However, there has been no futures trading at IGE since 2001. In early 2002, the **Turkish Derivatives Exchange**

(TurkDEX), headquartered in Izmir, was finally granted regulatory approval to introduce futures contracts after years of effort. It started electronic trading of financial, cotton and wheat futures in February 2005, and at a later stage gold. By year end, 1.8 million contracts had been traded on TurkDEX, 90% of which were currency futures. However, the exchange's commodity contracts have not yet become liquid instruments.

Latin America and Caribbean

Latin America's largest and most important commodity exchange is the **Bolsa de Mercadorias & Futuros (BM&F)**, in Brazil. Although created only in 1985, by 2005, 200 million contracts were traded - a volume growth of 9% over 2004 - making it the world's 11th largest futures exchange. This ranking was actually low compared with previous years – in 1997 BM&F was the 4th largest exchange – but the Brazilian devaluation severely impacted trading volumes. Although Brazil's coffee futures currently accounts for over 100 million US\$ worth of trade per month, trading in agricultural contracts can hardly be compared to the main commodity futures markets in New York and Chicago.

There are 29 other commodity exchanges operating in Brazil, spread throughout the country.¹ They trade largely in commodities for immediate or forward delivery, but an electronic network which links most of the country's exchanges also makes it possible to trade in futures contracts.

Argentina has a long tradition in futures markets, but their activities have from time to time been circumscribed by detailed government regulation which has limited the use of exchange services. The national exchange network consists of 11 markets, which trade mostly in agricultural commodities, including one of the world's oldest commodity futures exchanges, the **Bolsa de Cereales** dating back to 1854. Its futures market, **Mercado a Término de Buenos Aires (MATba)**, which was founded in 1909, temporarily suspended operations during the 2002 Argentinean economic crisis. Having achieved a volume of 246,000 contracts in 2000, MATba's 2005 turnover stood at 135,000 - annual

growth of 59% subsequent to a 116% annual rise in 2004. The larger **Mercado a Término de Rosario (ROFEX)** traded 13.4 million contracts in 2005 - also a significant rise on the previous year of 64%. The majority of ROFEX volume is in financial futures, though it did trade 180,000 agricultural futures and options contracts in maize, soybeans and wheat.

Although Mexico is Latin America's second biggest economy, it has only introduced a futures exchange comparatively recently in 1998. The **Mexican Derivatives Exchange (MexDer)**, which trades financial futures only, has experienced rapid growth. With 210 million contracts traded in 2004, MexDer had become the world's 9th largest futures exchange. However, 2005 proved a poor year for MexDer - a near 50% decline in volume reduced MexDer to 108 million contracts and the 15th largest derivatives exchange. This was the result of a combination of factors - greater stability in interest and exchange rates, the imposition of higher margin and capital adequacy requirements by the Central Bank and an increase in withholding tax on foreign investors. Early indications from 2006 show a dramatic recovery - driven in part by the reduction of the withholding tax and the introduction of the FIX protocol. 95 million contracts had already been traded by end of April, representing a 69% growth on 2005 levels. Volume now stands at 140 million for the first half of the year.

The exchanges in **Bolivia, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Honduras, Nicaragua, Panama, Peru** and **Venezuela** were created mostly in response to the liberalisation of domestic trade as a mechanism for the organisation of domestic agricultural trade flows. The oldest of these, in Colombia, dates from 1973, and the Ecuador exchange dates from 1986, while all the others have been established since 1992. Most of the

¹ They are listed on the website of Banco do Brasil, which provides their electronic trading network: <http://www.agronegocios-e.com.br/leilao/informacoes.lei> A few of the exchanges are not active; three quarters do not have their own website.

products traded are agricultural (with some processed products traded in a few countries), but the Government of Colombia is examining the possibility of introducing a commodity exchange for emeralds. The trading possibilities offered by the exchanges vary widely. Most provide a forum for trade in physical commodities but some, such as the Agricultural Exchange of Venezuela, also enable forward trading. In Colombia and Venezuela, the exchanges also trade the "credit" part of warehouse receipts and have arranged livestock securitizations to improve rural financing. The Colombian exchange, **Bolsa Nacional Agropecuaria**, has been exploring the possibility to act as a "gateway" into international exchanges.

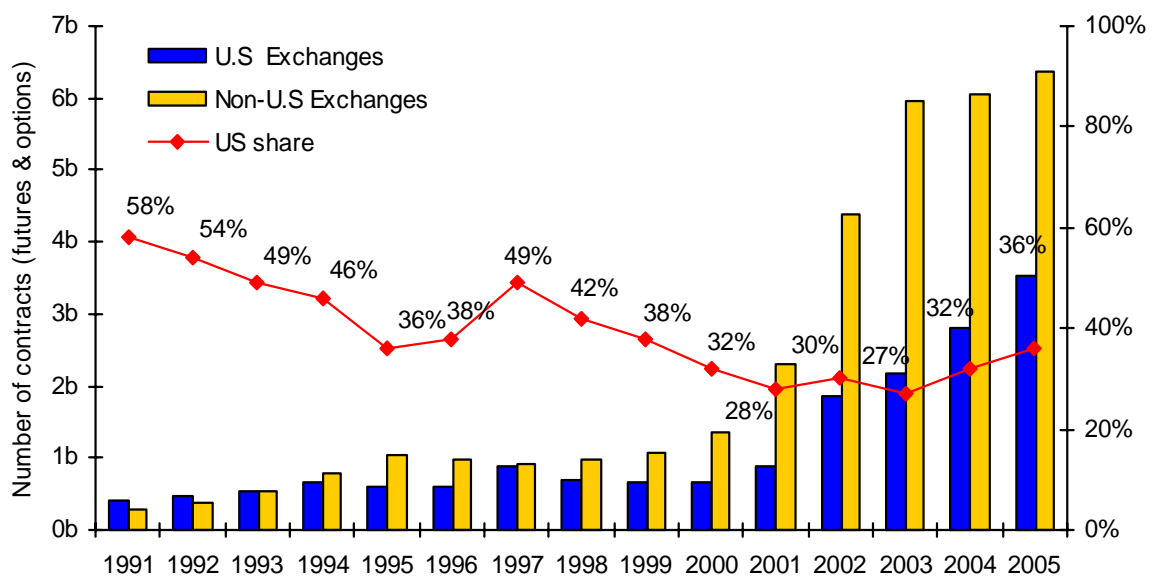
A major private sector group in Chile proposed the creation of a commodity futures exchange in the late 1980s. The proposed exchange would trade in domestic food grains and fishmeal. In 1993, the Government included the establishment of an exchange in its programme (and adopted a law to make it possible), but a significant step forward was only made in 2003, when an Argentinean consultancy firm was recruited by the Ministry of Agriculture to do a feasibility study. Following this study, an exchange, **Bolsa de Productos de Chile**, was formally established in March 2005 and trades wheat, corn and wine.

North America

Futures exchanges in the USA have experienced a revival since the millennium with volume growth of 21% in 2005, coming on the back of 22% growth in the previous year. This compares favourably with 5% and 2% growth respectively of non-US exchanges in the same periods. As a result, the U.S. has seen its share of

global futures and options trading rise from an all-time low of 27% in 2003 to 36% in 2005. This represents a significant reversal of fortune after a long period of decline that commenced in 1991 - a time when U.S. exchanges alone accounted for more than half of world futures trade (see figure 4 below).

Fig 1: US share of world futures trade, 1991 - 2005



Source: FIA data

Historically, organized trading in futures began in the USA in the mid-19th century with maize contracts at the **Chicago Board of Trade (CBOT)** and a bit later, cotton contracts in New York.¹ The start for the new exchanges was difficult. For example, in the first years of CBOT, weeks could go by without any transaction taking place, and even the provision of a daily free lunch did not entice exchange members to actually come to the exchange. Trade only took

off in 1856, when new management decided that the mere provision of a trading floor was not sufficient, and to invest in the establishment of grades and standards as well as a nationwide price information system.² While these exchanges have continued to deal in commodities, for most trade in financial futures has become increasingly important since the early 1980s.

Founded in 1874, the **Chicago Mercantile Exchange (CME)** was the world's 3rd largest futures exchange in 2005, with 1.1 billion contracts traded and accounting for 11% of world volume, although only 12 million of

¹ While this preceded futures exchanges in Europe, forms of rice futures trading have been reported in China 6,000 years ago. In ancient Greece, Aristotle described the use of call options by Thales of Miletus on the capacity of olive oil presses (Aristotle, *Politics* 1259 a 6-23). The first organized futures market was the Osaka Rice Exchange, in 1730.

² Bob Tamarkin, *The Merc, The Emergence of a Global Financial Powerhouse*, HarperBusiness, 1993.

these contracts were for commodities. CME experienced significant growth in 2005 - no other exchange among the world's ten largest derivatives exchanges came close to matching the 35% that CME achieved. In recent years, CME has broadened its commodity portfolio, supplementing its traditional livestock contracts with fertilizer, ethanol and butter futures, as well as non-standard products, particularly its suite of weather indices, the most recent addition to this being a snowfall index contract on New York City and Boston launched in February 2006. CME has been a major actor in promoting a new platform for exchange cooperation, the Globex Alliance, through which it has tied up with five other exchanges (BM&F, Euronext, MEFF, SIMEX and the Montreal Bourse). Members of each exchange benefit from trading privileges and direct access to the electronically traded products of all of the Globex markets through one single technical access point. Globex trade, at 772 million contracts in 2005, now accounts for more than 70% of CME volume, a share that has been rapidly increasing as growth on its traditional open outcry system stagnates. (Globex share of 2004 trade stood at 58%).

The CBOT, founded in 1848, was once the largest futures exchange in the world. By 2005, it had fallen to fifth place after KOFEX, Eurex, CME and Euronext.liffe. During this year, it traded 675 million contracts (7% of total world volume) of which 93 million - or 14% - were for agricultural commodities and metals. Like CME, CBOT added a successful electronic trading system to its entrenched open outcry operations; its e-cbot system now accounts for more than two thirds of total volume. As a sign of the integration of world futures markets, e-cbot is powered by LIFFE Connect. CBOT grain and soyabean prices set the reference for most of world trade.

The **New York Mercantile Exchange (NYMEX)** traded 205 million contracts in 2005 and accounted for 2% of world futures volume (and over a fifth of world commodity futures volume). Contrary to

CBOT and CME, for whom commodities now represent a small proportion of overall volumes, NYMEX remains a pure-play commodity exchange, and is the largest commodity exchange in the world by some distance. Its 169 million energy and metals contracts places it well ahead of the second-placed Dalian Commodity Exchange (DCE) which traded 99 million agricultural contracts. Moreover, NYMEX's 2005 growth rate of 25% was exactly double that achieved by the Chinese exchange. NYMEX crude sets the world benchmark price for oil, as do the bullion prices of its COMEX division. In recent years, NYMEX has expanded its portfolio to include contracts on electricity, oil and gas inventory, freight and emissions.

Each of these three large commodity exchanges has faced a competitive challenge from a strong rival in recent years. The **Intercontinental Exchange (ICE)**, via its ICE Futures London subsidiary, launched electronically-traded WTI crude futures in February 2006 to compete with the NYMEX contract which is traded only by open outcry during normal hours. Whilst the battle is still in its preliminary stages, ICE Futures can point to early success - by June 2006, it had captured over 20% of the market with volume continuing to grow rapidly by the month. This comes on top of NYMEX Europe's failure to make a dent in ICE Future's Brent crude market in London. Thus, after a strong 2005, 2006 will be a critical year for the exchange and may see further changes to exchange operations in addition to the migration of its 'side-by-side' energy contracts from the NYMEX ACCESS to the CME Globex system.

In contrast however, the other large US exchanges appear to have fared better in their respective skirmishes. In February 2004, Eurex opened up **Eurex US** to challenge CBOT's dominant position on US Treasury Futures. The following month Euronext.liffe launched a 'basis trading facility' for the Eurodollar market that threatened CME's established Eurodollar trade. Neither challenge has succeeded - Eurex US volume fell precipitously in 2005 by 64%

and both cases are mired in legal action with both European challengers claiming foul play by the US incumbents.

The United States has a considerable number of other institutions that feature among the world's major derivatives exchanges. The largest of these trade exclusively financial futures and include the **Chicago Board Options Exchange (CBOE)**, the sixth largest exchange in 2005 with 468 million contracts traded, the **International Securities Exchange (ISE)**, the seventh largest with 449 million, the **American Stock Exchange (AMEX)**, the tenth largest with 202 million, and the **Philadelphia Stock Exchange (PHLX)**, the twelfth largest with 163 million. Of the exchanges that trade commodities, the **New York Board of Trade (NYBOT)**, with 33 million contracts traded in 2005, is the world's ninth largest commodity exchange and sets worldwide reference prices for several key commodities (in particular, cocoa, coffee, cotton, sugar and frozen concentrated orange juice). The **Kansas City Board of Trade**

(KCBT) and **Minneapolis Grain Exchange (MGEX)** serve mostly the domestic market; the first traded 4 million contracts in 2005, the latter 1.4 million. Since December 2004, contracts of both KCBT and MGEX have been hosted on e-cbot (the exchanges have also kept their open outcry floors).

While the exchanges in Canada are old, they do not feature prominently among the global markets. The largest is the **Bourse de Montreal (MX)**, founded 1874 and currently ranked 30th in the world with 29 million traded contracts. The country's agricultural futures exchange, the **Winnipeg Commodity Exchange (WCE)**, is ranked 48th in the world. In December 2004, the same year that it celebrated its 100th anniversary of futures trading, the exchange became the first in North America to give up its open outcry floor and move to an electronic trading system (in effect, it started trading on Chicago Board of Trade's electronic trading platform, e-cbot).

Western Europe

Two giants of the derivatives world reside in Western Europe. **Eurex**, is the world's second largest futures exchange, the result of the merger between the German DTB (Deutsche Terminbörse) and the Swiss Exchange Soffex in the autumn of 1998. In 2005, it accounted for 13% of world volume, trading 1.2 billion contracts (a growth of 17% over 2004). Eurex was directly introduced electronically and its consequent advantages in cost, speed and efficiency forced many of its competitors to introduce electronic trading platforms as well, either operating the two systems on a side-by-side basis (as at the CME or the LME) or to replace open outcry altogether (as at Euronext.liffe or the IPE).

Euronext.liffe, the world's fourth largest exchange, was also established in 1998 as a pan-European "one company, three centres" structure following the merger of Amsterdam Exchange, Brussels Exchange and MATIF of France. This created the first totally integrated cross-border single currency derivatives market. Further acquisitions included the London International Financial Futures Exchange (LIFFE) in 2001 and Portugal's Bolsa de Valores de Lisboa e Porto Exchange in 2002. In 2005, Euronext.liffe accounted for 8% of world volume, trading 758 million contracts (a fall of 4% on 2004). Of the different parts of Euronext, LIFFE is a major commodity futures exchange in its own right, trading a range of agricultural commodities both for the world and the EU market. It supplies the reference price for the world's Robusta coffee trade.

A second United Kingdom-based exchange to have been taken over by a foreign entity is the International Petroleum Exchange (IPE), formerly the third biggest UK exchange. It has now been renamed **ICE Futures** subsequent to its acquisition by the Atlanta-based Intercontinental Exchange (ICE). It ranked 26th worldwide and traded 42

million contracts in 2005, a rise of 18% on 2004. Having been acquired by ICE, the IPE changed from an open outcry market to an electronic system, a move rewarded by large gains in trading volumes. Somewhat ironically, however, it started facing competition in September 2005 in its flagship Brent crude contract when **NYMEX Europe** moved its Dublin open outcry trading floor, created in 2004, to London. It would not be long before the next twist in the story - NYMEX Europe announced the closure of the \$20 million London trading floor and the adoption of all-electronic trading in June 2006 having made minimal inroads into ICE Futures' Brent crude volumes. Since April 2005, ICE Futures has also listed ECX Carbon Financial Instruments, a mechanism for emissions trading whose marketing is managed by the **European Climate Exchange (ECX)** situated in Amsterdam and cleared through LCH Clearnet.

The **London Metal Exchange (LME)** thus remains Britain's only independent major commodity exchange. Founded in 1877, the LME specialises in non-ferrous metals and was the world's fourth largest commodity exchange in 2005 and the 19th largest futures exchange overall. The LME's role in discovering world metal prices is still predominant. However, some analysts had been suggesting that the competing Shanghai Futures Exchange may now be leading, rather than following, LME in the price discovery of copper in particular. However, contrasting performances between LME and SHFE in 2005 - volume at the former increasing by 9% whilst volume at the latter decreased by 17% - may weaken such claims.

Other European derivatives exchanges include the **OMX** group of Nordic and Baltic exchanges, headquartered in Sweden. OMX was the world's 16th largest futures exchange in 2005 with a volume of 104 million contracts. OMX has also supplemented its trading operations with business lines providing

market information and technology solutions. At the end of 2003, trading ceased at the OMX-run Pulpex, an exchange offering paper pulp futures, as a result of inadequate participation in the market.

Two other mid-sized Western European exchanges which focus on financial futures are **MEFF Renta Variable** of Spain, the world's 27th largest derivatives exchange and the **Italian Derivatives Market (IDEM)**, the world's 33rd largest. Both these exchanges experienced healthy growth in 2005 with the former growing 40% to a volume of 40 million contracts and the latter by 42% to 26 million contracts. MEFF focuses on the trading of Spanish 10 year Notional Bonds, on its equity index, IBEX 35 and since 2001 single stock futures with which it had great success. IDEM is exclusively equity derivatives focused, with trading on the S&P/MIB index and single stocks. In 1999, MEFF and IDEM formed Euro GLOBEX, a pan-European network which brought the exchanges together with MATIF and MONEP (both now incorporated in Euronext Paris) in an alliance to interconnect trading systems and allow single-screen access to the products of participating exchanges.

In Germany, the exchange formerly known as Warenterminbörse Hannover (WTB) has been transformed into the **Risk Management Exchange, Hannover (RMX)** as of April 2006. Created in the late 1990s, WTB offers agricultural futures contracts for the EU market with a focus on potatoes and a smaller volume of livestock. Its volume remains small, with 25,000 contracts traded in both 2005, a decline of 25% compared with 2004.

With the reduction of government controls over electricity generation and distribution in Europe, several exchanges have been created in recent years to act first as a forum for electricity trade, and then, as a forum for transferring price risk: **Nord Pool** in Scandinavia, **OMEL** in Spain, APX (since renamed **Endex**) in the Netherlands, **EEX** in Germany (EEX absorbed a rival exchange in Germany, LPX, in 2002), **EXAA** in Austria, **Powernext** in France, **GME** and **IPEX** in Italy and **UKPX** in the UK.

Of these, EEX, Endex, Nord Pool and Powernext have introduced futures contracts (electricity futures can be physical – delivery is obligatory – or financial – the contract will be cash-settled; unlike other futures contracts which are either one or the other the two types of contract often trade in parallel). Interestingly, IPE, which tried to emulate the NYMEX's success with electricity futures, failed to mobilize sufficient liquidity and withdrew its contracts in 2002; it tried again in September 2004, but a year later trade was still elusive.

The most developed of the electricity futures exchanges is Nord Pool, the Nordic Power Exchange with headquarters in Norway. It was founded in 1993 and is jointly owned by the Norwegian and Swedish national grid companies; it also is linked to the Danish and Finnish grids. It is the world's major multinational exchange for trading power, offering spot and derivatives trade (futures and options as well as a clearing facility for over-the-counter trade). Germany's EEX is growing fast, however, and introduced physical delivery futures in France in 2005.

Appendix I: Commodity futures and options statistics

Table 1: The world's major commodity futures exchanges, 2005

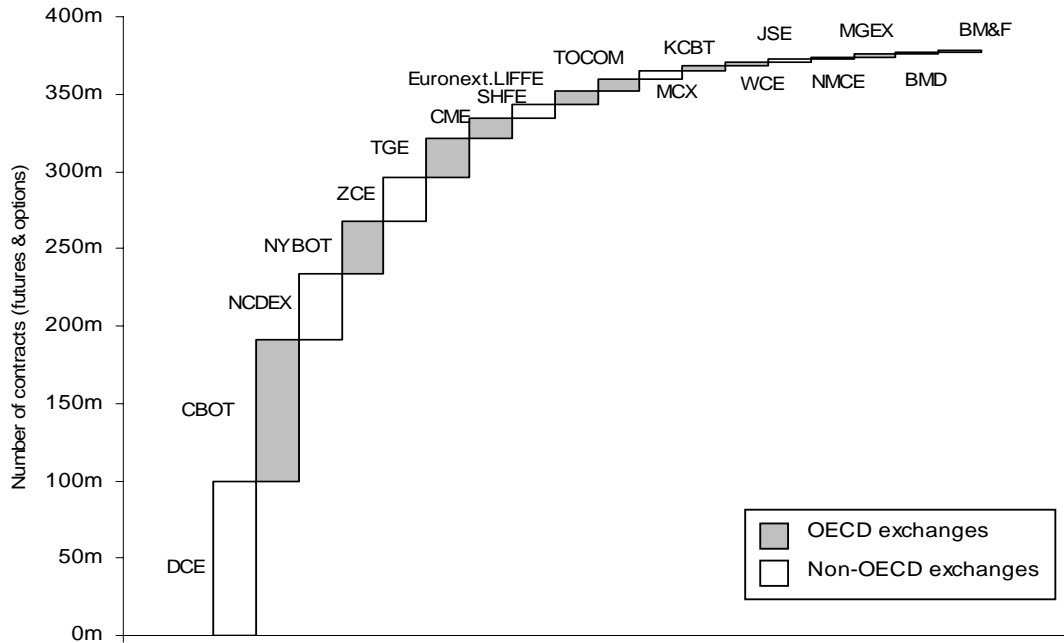
2005 Rank	2004 Rank	Exchange		Energy		Metals		Agriculture		Total F&Os
				Futures	Options	Futures	Options	Futures	Options	
1	1	New York Mercantile Exchange (NYMEX, US)	2005 volume Annual change (%)	112'307 16%	26'636 22%	26'104 10%	4'166 -29%			169'213 14%
2	2	Dalian Commodity Exchange (DCE, China)	2005 volume Annual change (%)					99'175 13%		99'175 13%
3	3	Chicago Board of Trade (CBOT, US)	2005 volume Annual change (%)			1'266 74%		75'518 11%	16'354 -4%	93'138 8%
4	5	London Metals Exchange (LME, UK)	2005 volume Annual change (%)			70'445 5%	8'184 73%			78'629 9%
5	4	Tokyo Commodity Exchange (TOCOM, Japan)	2005 volume Annual change (%)	26'732 -32%		27'892 -17%	34 -47%	7'156 313%		61'814 -17%
6	12	National Commodity & Derivatives Exchange (NCDEX, India)	2005 volume Annual change (%)	132 N/a		7'278 92%		43'287 562%		50'698 390%
7	7	ICE Futures (formerly IPE, UK)	2005 volume Annual change (%)	41'937 18%	118 60%					42'055 18%
8	6	Shanghai Futures Exchange (SHFE, China)	2005 volume Annual change (%)	9'810 248%		14'477 -48%		9'503 -2%		33'790 -17%
9	9	New York Board of Trade (NYBOT, US)	2005 volume Annual change (%)					24'486 19%	8'663 15%	33'150 18%
10	11	Zhengzhou Commodity Exchange (ZCE, China)	2005 volume Annual change (%)					28'473 17%		28'473 17%
11	10	Tokyo Grain Exchange (TGE, Japan)	2005 volume Annual change (%)					25'567 -1%	8 -79%	25'575 -1%
12	8	Central Japan Commodity Exchange (C-COM, Japan)	2005 volume Annual change (%)	21'950 -34%						21'950 -34%
13	17	Multi Commodity Exchange (MCX, India)	2005 volume Annual change (%)	5'218 N/a		9'625 314%		5'648 1740%		20'491 678%
14	13	Chicago Mercantile Exchange (CME, US)	2005 volume Annual change (%)					11'558 26%	943 -3%	12'502 23%
15	14	Euronext.LIFFE (EU)	2005 volume Annual change (%)					8'054 15%	445 -14%	8'499 13%
16	16	Kansas City Board of Trade (KCBT, US)	2005 volume Annual change (%)					3'690 30%	264 4%	3'954 28%
17	18	Winnipeg Commodity Exchange (WCE, Canada)	2005 volume Annual change (%)					2'047 1%	29 68%	2'077 2%
18	19	SAFEX/JSE (South Africa)	2005 volume Annual change (%)					1'320 -10%	452 4%	1'771 -6%
19	15	National Multi-Commodity Exchange (NMCE, India)	2005 volume Annual change (%)					1'592 -56%		1'592 -57%
20	20	Minneapolis Grain Exchange (MGEX, US)	2005 volume Annual change (%)					1'390 1%	32 -5%	1'422 1%
21	22	Brazilian Mercantile & Futures Exchange (BM&F, Brazil)	2005 volume Annual change (%)			4 33%	98 -67%	1'038 4%	24 -56%	1'164 -14%
22	21	Bursa Malaysia Derivatives (BMD, Malaysia)	2005 volume Annual change (%)					1'159 -16%		1'159 -16%

Source: Exchange data

All volume expressed as number of contracts (in '000s); includes all commodity futures exchanges with volume greater than 1 million traded futures and options contracts in 2005

Fig 1: Leading agricultural commodity futures exchanges, 2005

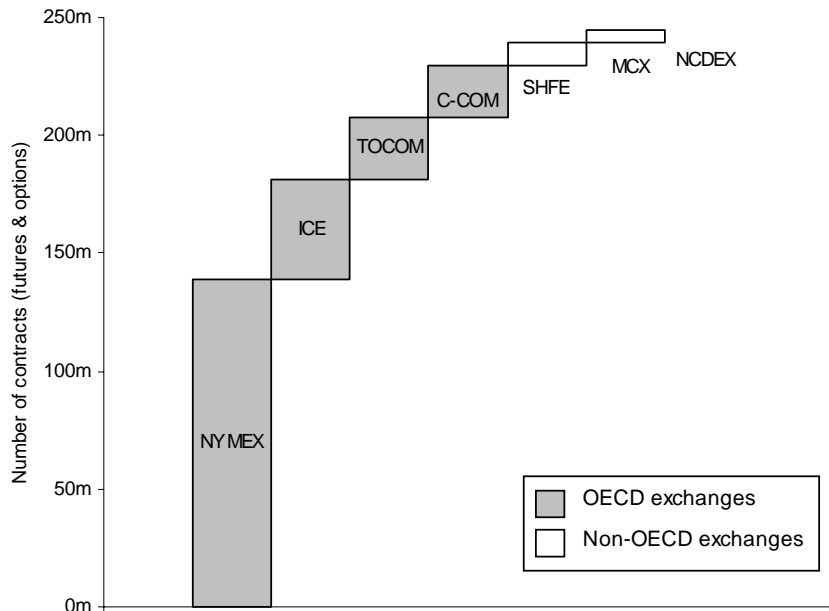
Total contracts: 377m



Source: Exchange data; includes all commodity futures exchanges with volume greater than 1 million traded futures and options contracts in 2005

Fig 2: Leading energy commodity futures exchanges, 2005

Total contracts: 245m

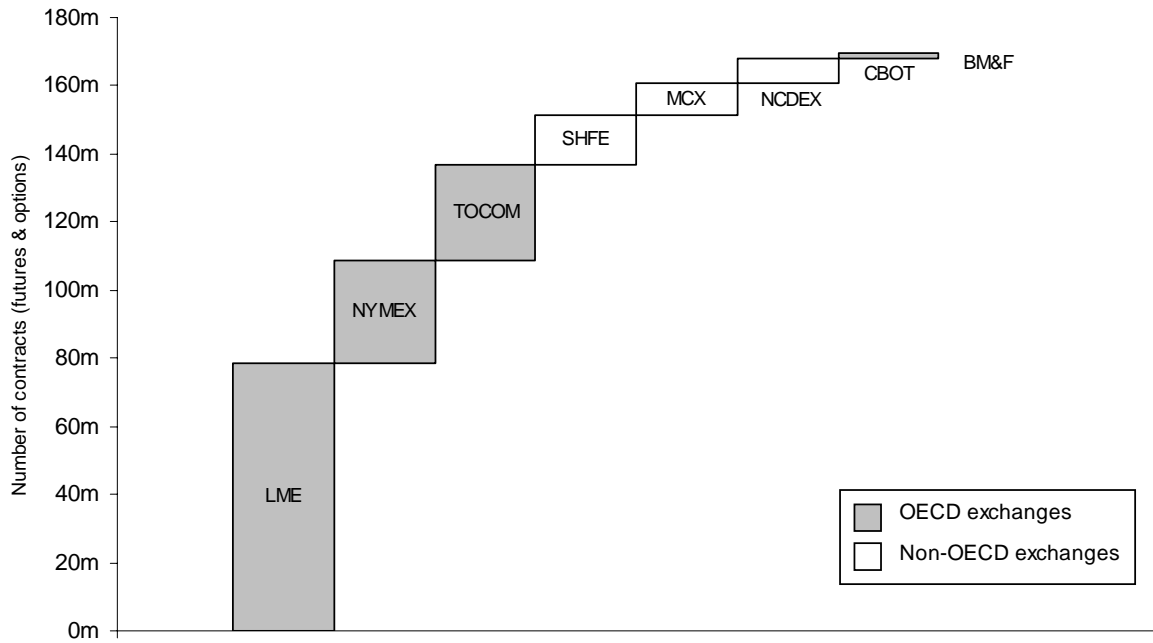


Source:

Exchange data; includes all commodity futures exchanges with volume greater than 1 million traded futures and options contracts in 2005

Fig 3: Leading metals commodity futures exchanges, 2005

Total contracts: 170m



Source: Exchange data; includes all commodity futures exchanges with volume greater than 1 million traded futures and options contracts in 2005

Appendix II: Total futures and options statistics

Rank 2005	Rank 2004	Exchange	Country	2001 Volume	2002 Volume	2003 Volume	2004 Volume	2005 Volume	Change 2004-5
1	1	KFE	Korea	205.1	186.0	2912.9	2'586.8	2'593.1	0.2%
2	2	EUREX	Germany	12.6	14.5	1'014.9	1'065.6	1'248.7	17.2%
3	3	CME	US	0.1	2.1	640.2	805.3	1'090.4	35.4%
4	4	EURONEXT.LIFFE	EU	97.9	101.6	695.0	790.4	757.9	-4.2%
5	5	CBOT	US	2.6	1.6	454.2	600.0	674.7	12.4%
6	6	CBOE	US	2.3	1.1	283.9	361.1	468.2	29.7%
7	7	International Securities Exchange	US	27.8	30.0	245.0	360.9	448.7	24.3%
8	8	Bovespa	Brazil		90.9	177.2	235.3	268.6	14.1%
9	12	NYMEX	US	260.3	343.9	137.2	161.1	204.6	25.4%
10	10	American Stock Exchange	US	0.2	N/A	180.1	202.7	201.6	-0.5%
11	11	BM&F	Brazil	306.7	267.6	120.8	183.4	199.4	8.7%
12	13	Philadelphia Stock Exchange	US	411.7	558.4	112.7	133.4	162.6	21.9%
13	14	Pacific Exchange	US	0.5	0.5	86.2	103.3	144.8	40.2%
14	17	National Stock Exchange of India	India		13.3	43.1	75.1	131.7	75.3%
15	9	Mexican Derivatives Exchange	Mexico		84.3	173.8	210.4	108.2	-48.6%
			Sub Total	1'327.8	1'695.9	7'277.2	7'874.8	8'703.2	
			Total	4'382.7	5'993.4	8'137.6	8'866.5	9'899.8	

Source: Calculations made on the basis of information published by the Future Industry Association

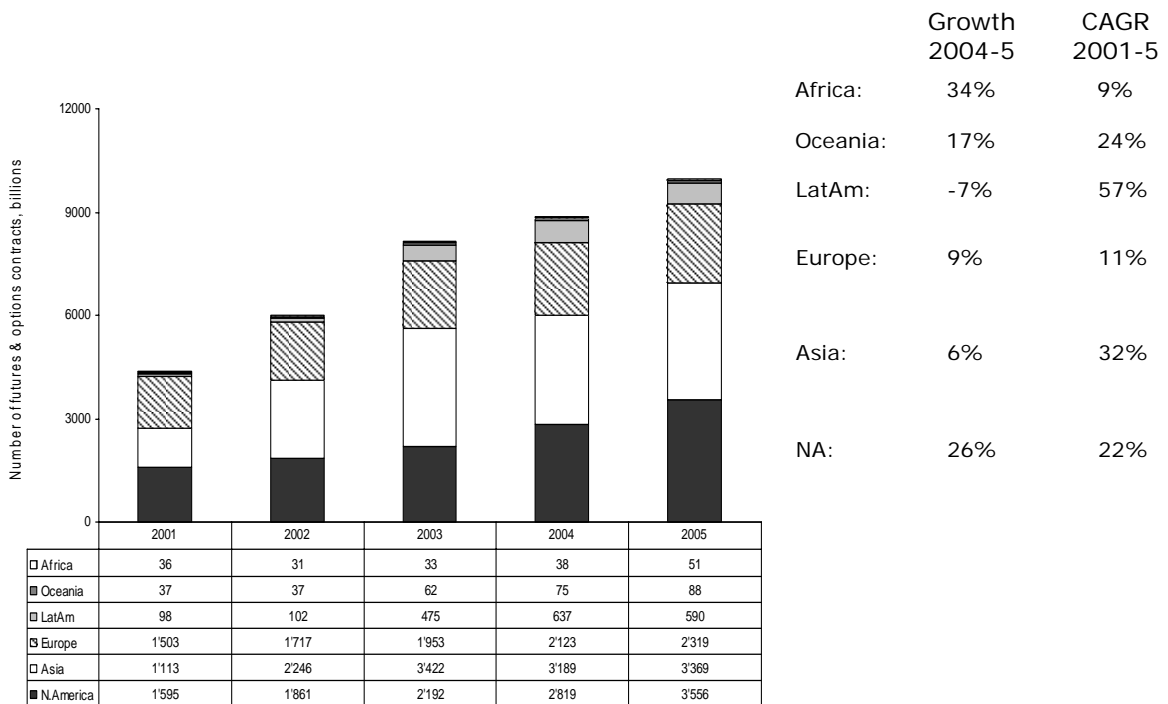
Note: where blank, data is unavailable

Rank 2004	Rank 2003	Exchange	Country	2001 Share of world volume	2002 Share of world volume	2003 Share of world volume	2004 Share of world volume	2005 Share of world volume
1	1	KFE	Korea	4.7%	3.1%	35.8%	29.2%	26.2%
2	2	EUREX	Germany	0.3%	0.2%	12.5%	12.0%	12.6%
3	3	CME	US	0.0%	0.0%	7.9%	9.1%	11.0%
4	4	EURONEXT.LIFFE	EU	2.2%	1.7%	8.5%	8.9%	7.7%
5	5	CBOT	US	0.1%	0.0%	5.6%	6.8%	6.8%
6	6	CBOE	US	0.1%	0.0%	3.5%	4.1%	4.7%
7	7	International Securities Exchange	US	0.6%	0.5%	3.0%	4.1%	4.5%
8	8	Bovespa	Brazil		1.5%	2.2%	2.7%	2.7%
9	12	NYMEX	US	5.9%	5.7%	1.7%	1.8%	2.1%
10	10	American Stock Exchange	US	0.0%	N/A	2.2%	2.3%	2.0%
11	11	BM&F	Brazil	7.0%	4.5%	1.5%	2.1%	2.0%
12	13	Philadelphia Stock Exchange	US	9.4%	9.3%	1.4%	1.5%	1.6%
13	14	Pacific Exchange	US	0.0%	0.0%	1.1%	1.2%	1.5%
14	17	National Stock Exchange of India	India		0.2%	0.5%	0.8%	1.3%
15	9	Mexican Derivatives Exchange	Mexico		1.4%	2.1%	2.4%	1.1%
			Sub Total	30.3%	28.3%	89.4%	88.8%	87.9%
			Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: Calculations made on the basis of information published by the Future Industry Association

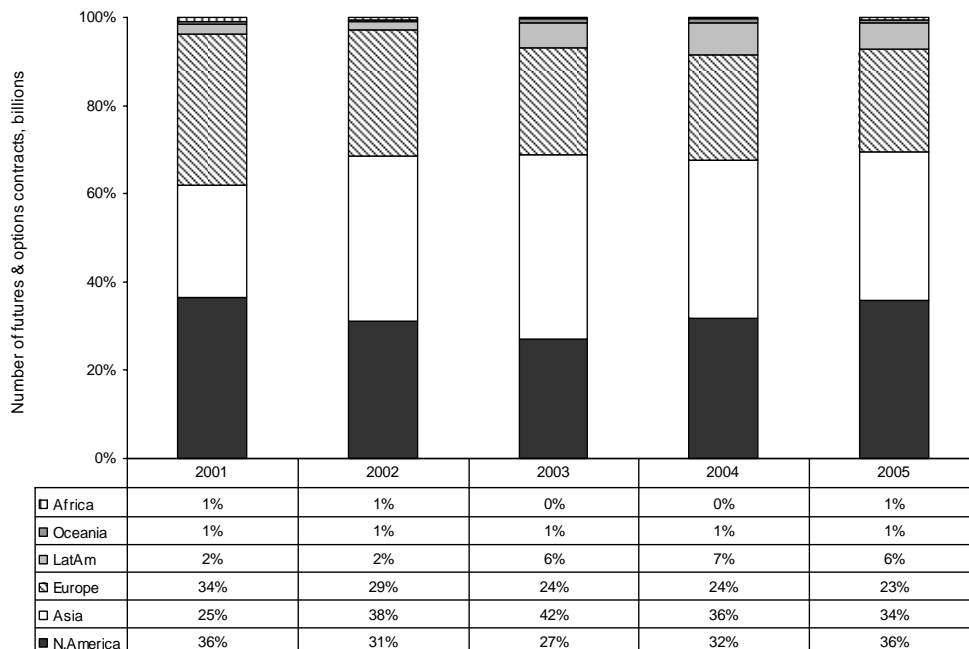
Note: where blank, data is unavailable

Fig 1: Total futures and options - Volume by region 2001-2005



Source: Calculated on the basis of FIA Data, adjusted to include the Indian national commodity futures exchanges

Fig 2: Total futures and options - Regional share, 2001-2005



Source: Calculated on the basis of FIA Data, adjusted to include the Indian national commodity futures exchanges

CONFÉRENCE DES NATIONS UNIES
SUR LE COMMERCE ET LE
DÉVELOPPEMENT



UNITED NATIONS
CONFERENCE ON TRADE
AND DEVELOPMENT

Appendix III: UNCTAD profile, papers and publications

Profile

Established in 1964 as a permanent intergovernmental body, the United Nations Conference on Trade and Development (UNCTAD) is the principal organ of the United Nations General Assembly in the field of trade and development. It is the focal point within the United Nations for the integrated treatment of development and interrelated issues in the areas of trade, finance, technology, investment and sustainable development.

UNCTAD's main goals are to maximize the trade, investment and development opportunities of developing countries, and to help them face challenges arising from globalization and integrate into the world economy, on an equitable basis. UNCTAD pursues its goals through research and policy analysis, intergovernmental deliberations, technical cooperation, and interaction with civil society and the business sector.

UNCTAD's membership currently stands at 192 member states. Many intergovernmental and nongovernmental organizations have observer status and participate in its work. The Secretariat is located in Geneva, Switzerland; and its 400 staff members form part of the United Nations Secretariat.

More information can be found at: www.unctad.org

Papers and Publications

"Commodity Exchanges and their impact on the trade of developing countries", UNCTAD, 1983 (TD/B/C.1/248)

"Contribution to the improvement of the functioning of commodity markets, analysis of ways of improving the efficiency and use of existing mechanisms for the management of risks arising from commodity price fluctuations", UNCTAD, 1993, (TD/B/CN.1/10)

"A survey of commodity risk management instruments", UNCTAD, 1993 (UNCTAD/COM/15)

"Analysis of ways of improving the efficiency and use of existing mechanisms for the management of risks arising from commodity price fluctuations", UNCTAD, 1993 (TD/B/CN.1/10)

"Technical and regulatory conditions influencing participation in, and usage of, commodity exchanges by both buyers and sellers of commodities", UNCTAD, 1993 (UNCTAD/COM/16)

"Risk distribution after liberalization of commodity marketing and problems of access to risk management markets for developing country entities - illustrated by the case of coffee in Africa", UNCTAD, 1994 (TD/B/CN.1/GE.1/2)

"Counterpart and sovereign risk obstacles to improved access to risk management markets: Issues involved, problems and possible solutions", UNCTAD, 1994 (TD/B/CN.1/GE.1/3)

"Feasibility study on a worldwide pepper futures contract", UNCTAD, 1995 (UNCTAD/COM.64)

"Guidelines for facilitating access to risk management markets through the stimulation of local and regional exchanges: The case of cotton in the Near East/CIS/Pakistan", Dr Sebahatin Gazanfer, 1995 (UNCTAD/COM/65)

"Minerals and fuel price risks in Southern Africa and possibilities for risk management", UNCTAD, 1995 (UNCTAD/COM/69)

"New types of non-trade related participation in commodity futures markets", UNCTAD, 1996 (UNCTAD/COM/83)

"Company control and management structures: The basic requirements for a sound use of market-based risk management instruments", UNCTAD, 1996 (UNCTAD/ITCD/COM/Misc.1)

"Managing price risks in India's liberalized agriculture: Can futures markets help?", World Bank/UNCTAD, 1996 (World Bank Report no. 15453-IN)

"Price risk management in the fuels sector: A manual", UNCTAD, 1996 (UNCTAD/COM/Misc.100)

"Price risk management in the metals sector: A manual", UNCTAD, 1996 (UNCTAD/COM/Misc.101)

"Emerging commodity exchanges: from potential to success", UNCTAD, 1997 (UNCTAD/ITCD/COM/4)

"Government policies affecting the use of commodity price risk management and access to commodity finance in developing countries", UNCTAD, 1997 (UNCTAD/ITCD/COM/7)

"An integrated approach to the management of production and marketing risks in the primary sector of developing countries", UNCTAD, 1997 (UNCTAD/ITCD/COM/8)

"The feasibility of a tropical plywood futures contract", UNCTAD, 1998 (UNCTAD/ITCD/COM/12)

"A survey of commodity risk management instruments", UNCTAD, 1998 (UNCTAD/COM/15/Rev.2)

"Examination of the effectiveness and usefulness for commodity-dependent countries of new tools in commodity markets: risk management and collateralized finance", UNCTAD, 1998 (TD/B/COM.1/EM.5/2)

"New strategies for a changing commodity economy: The use of modern financial instruments", Selected papers prepared for the "Partners for Development" Summit organised by UNCTAD and the City of Lyon, 9-12 November 1998

"The global trading village: mutual benefits for the international online trading community and developing countries", UNCTAD, 21st Bürgenstock Meeting, 2000

"The role played by risk management and clearing systems in the economy of future

exchanges and ECNs", Jean-Francois Casanova, 21st Bürgenstock Meeting, 2000

"Online brokerage: Status and trends", Christian Imo, 21st Bürgenstock Meeting, 2000

"Overview of the world's commodity exchanges, 2001", UNCTAD, 22nd Bürgenstock Meeting, 2001

"Farmers and farmers' associations in developing countries and their use of modern financial instruments", UNCTAD, 2002 (UNCTAD/ITCD/COM/35)

"Commodity exchanges around the world", UNCTAD, 23rd Bürgenstock Meeting, 2002

"Mobile trading comes of age", Julian Roche, 23rd Bürgenstock Meeting, 2002

"A primer on new techniques used by the sophisticated financial fraudster: with special reference to commodity market instruments", UNCTAD, 2003 (UNCTAD/DITC/COM/39)

"Overview of the world's commodity exchanges, 2004", UNCTAD, 2005 (UNCTAD/DITC/COM/2005/8)

"Progress in the development of African commodity exchanges", UNCTAD, 2005 (UNCTAD/DITC/COM/2005/9)