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OVERVIEW OF THE WORLD'S COMMODITY EXCHANGES

Study prepared by the UNCTAD secretariat

Executive summary

As part of UNCTAD's analytical and advisory work on commodity exchanges, this study provides an overview of the world's commodity exchanges and outlines underlying trends in exchange development.

With the liberalization of agricultural trade and the withdrawal of government support to agricultural producers outside the OECD, there is in many countries a new need for price discovery and even physical trading mechanisms, a need that can often be met by commodity exchanges. Hence, recent years have seen the rapid creation and growth of new commodity exchanges in developing countries.

The Asia-Pacific region has enjoyed the greatest success in the advancement of its commodity exchanges – the three Chinese exchanges created in the early 1990s, and the three Indian national multi-commodity exchanges, founded in 2002-2003, are prime examples (all are now among the world's twenty largest). Latin American exchanges are rebounding after a recent period of financial instability, whilst exchanges in Eastern Europe and the former Soviet Union continue to develop in parallel with the region's transition to a market economy. In Africa, the region in which commodity exchanges have fared least successfully to date, a promising pan-African exchange is being developed.

Attention is drawn to three trends: the rationalization or consolidation of commodity exchanges within countries; increased cooperation among exchanges in different countries with the signing of memoranda of understanding; and demutualization, or the tendency to separate exchange management from direct ownership and trading interests.

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Other authoritative publications by the UNCTAD secretariat on the subject of commodity exchanges include "Emerging commodity exchanges: From potential to success" (February 1997); "A survey of commodity risk management instruments" (April 1998); "The global trading village" (Bürgenstock, September 2000); and "Commodity exchanges around the world" (Bürgenstock, September 2002).

Contents

EXCHANGE ACRONYMS

Acronym	Exchange name	Country
AEX	Euronext Amsterdam	Netherlands
ACE	Agricultural Commodity Exchange	Zambia
AFET	Agricultural Futures Exchange of Thailand	Thailand
BCE	Budapest Commodity Exchange	Hungary
BM&F	Bolsa de Mercadorias & Futuros	Brazil
BMD	Bursa Malaysia Derivatives	Malaysia
BRM	Romanian Commodities Exchange	Romania
BSE	Budapest Stock Exchange	Hungary
BXS	Euronext Brussels	Belgium
CBOE	Chicago Board Options Exchange	USA
CBOT	Chicago Board of Trade	USA
C-COM	Central Japan Commodity Exchange	Japan
CME	Chicago Mercantile Exchange	USA
COMMEX	Commodity & Monetary Exchange of Malaysia (now part of BMD)	Malaysia
DCE	Dalian Commodity Exchange	China
DGCX	Dubai Gold & Commodities Exchange	UAE
ICE	Intercontinental Exchange	USA
IPE	International Petroleum Exchange	UK
FC&M	Mercado de Futuros y Opciones sobre Cítricos	Spain
FORTS	Futures & Options on RTS	Russian Federation
JFX	Jakarta Futures Exchange	Indonesia
JSE	Johannesburg Securities Exchange	South Africa
KACE	Kenya Agricultural Commodities Exchange	Kenya
KCBT	Kansas City Board of Trade	USA
KLCE	Kuala Lumpur Commodity Exchange (now part of BMD)	Malaysia
KLOFFE	Kuala Lumpur Options & Financial Futures Exchange (now part of BMD)	Malaysia
KLSE	Kuala Lumpur Stock Exchange (now part of BMD)	Malaysia
KOFEX	Korean Futures Exchange	Republic of Korea
KSE	Korea Stock Exchange	Republic of Korea
LIFFE	Euronext London International Financial Futures Exchange	UK
LME	London Metal Exchange	UK
MATba	Mercado a Término de Buenos Aires	Argentina
MATIF	Euronext Paris	France
MCE	Moscow Commodity Exchange (now closed)	Russia
MCX	Multi Commodity Exchange of India	India
MEFF	Mercado Español de Opciones y Futuros Financieros	Spain
MexDer	Mexican Derivatives Exchange	Mexico

Acronym	Exchange name	Country
MGEX	Minneapolis Grain Exchange	USA
MICEX	Moscow Inter-bank Currency Exchange	Russian Federation
MIF	Mercato Italiano Futures	Italy
MME	Malaysia Monetary Exchange	Malaysia
MX	Bourse de Montréal	Canada
NAMEX	National Mercantile Exchange	Russian Federation
NCDEX	National Commodity & Derivatives Exchange, India	India
NCEL	National Commodity Exchange Limited	Pakistan
NMCE	National Multi-Commodity Exchange of India	India
NYBOT	New York Board of Trade	USA
NYMEX	New York Mercantile Exchange	USA
OMX	OMX Group of Nordic & Baltic Exchanges	Sweden
OSE	Osaka Securities Exchange	Japan
PACDEX	Pan-African Commodities & Derivatives Exchange	Botswana
ROFEX	Rosario Futures Exchange	Argentina
RTS	Russian Trading System	Russian Federation
SAFEX	South African Futures Exchange (now part of JSE)	South Africa
SES	Stock Exchange of Singapore (now part of SGX)	Singapore
SFE	Sydney Futures Exchange	Australia
SGX	Singapore Exchange	Singapore
SHFE	Shanghai Futures Exchange	China
SICOM	Singapore Commodity Exchange	Singapore
SIMEX	Singapore International Monetary Exchange (now part of SGX)	Singapore
SPCEX	St Petersburg Currency Exchange	Russian Federation
SSE	Shanghai Stock Exchange	China
TAIFEX	Taiwan Futures Exchange	Taiwan Province of China
TFX	Tokyo Financial Exchange (formerly TIFFE)	Japan
TGE	Tokyo Grain Exchange	Japan
TOCOM	Tokyo Commodity Exchange	Japan
TurkDex	Turkish Derivatives Exchange	Turkey
UFEX	Ukrainian Futures Exchange	Ukraine
UICEX	Ukrainian Inter-Bank Currency Exchange	Ukraine
WTB	Ukrainian Inter-Bank Currency Exchange	Ukraine
WCE	Winnipeg Commodity Exchange	Canada
WTB	Warenterminerbörse Hannover	Germany
ZCE	Zhengzhou Commodity Exchange	China
ZIMACE	Zimbabwe Agricultural Commodity Exchange	Zimbabwe

Introduction

1. A commodity exchange is a market in which multiple buyers and sellers trade commodity-linked contracts on the basis of rules and procedures laid down by the exchange. In developed countries, such exchanges typically act as a platform for trade in futures contracts, or standardized contracts for future delivery. In the developing world, a commodity exchange may act in a broader range of ways to stimulate trade in the commodity sector. This may be through the use of instruments other than futures, such as the cash or "spot" trade for immediate delivery, forward contracts on the basis of warehouse receipts or the trade of farmers' repurchase agreements, or "repos". Alternatively, it may be through focusing on facilitative activities rather than on the trade itself, as in Turkey where exchanges have served as a centre for registering transactions for tax purposes.

2. Whilst derivatives instruments have become ever more sophisticated in both form and application, it is important not to lose sight of the fact that commodity exchanges perform important functions that benefit the producers, processors, traders and users of commodities in both the developed and developing worlds.

3. As a focal point for trade in a sector, the concentration of buyers and sellers in one place reduces the transaction costs that would have been incurred in the search for a suitable counterparty. The trade that ensues enables the exchange to act as a vehicle for "price discovery", with the price level accurately reflecting the underlying conditions in the market, and "price transparency", as all actors that participate in the market can have equal access to a neutral and authoritative price level. For those exchanges that also offer forward or futures contracts, risk transfer is a fourth function of benefit to market participants: by locking in the price for future delivery, they can "hedge" against unfavourable price movements that may occur before the delivery date.

4. The utility of these functions is central to the foundation of many of the world's most prominent and prestigious exchanges. For example, the London Metal Exchange was founded by metals traders in the City of London at the height of the Industrial Revolution in 1877 to manage their price risk. With goods transported by ship, traders who had purchased large volumes of metal from distant parts of the world faced significant risk as they did not know what price they would obtain for their cargo upon its arrival in London several months later. By negotiating forward contracts in their products at the newly-established exchange, metals traders could hedge the risk of a serious decline in prices whilst the goods were at sea.

5. Another example is the Chicago Board of Trade (CBOT), situated in premises above a flour store for its first four years after being founded in 1848 by a group of Chicago merchants keen to establish a central marketplace for trade. Before that time, farmers all too often had found no buyers for the grain they had transported to Chicago. Given the high transport costs, they had been left with little choice but to dump the unsold produce in the lake.

6. Futures contracts only followed at CBOT in 1865. "In Chicago, where dealing in forward contracts first took on the essential characteristics of a modern futures market, dealing in futures was initially regarded in the grain trade itself as a disreputable speculative business; for more than a decade the Chicago Board of Trade refused to allow such transactions in its quarters."[1]

7. Over time, however, virtually all developed country exchanges moved towards futures trade (a mechanism for risk transfer), as their services in physical trade (spot and forward) became superfluous (most of the exchanges that were not able to make this change

[1] Holbrook Working, "New concepts concerning futures markets and prices", *Selected writings of Holbrook Working*, Board of Trade of the City of Chicago, 1977.

disappeared; the rare exceptions include the Dutch flower auction and a cheese exchange in the United States). The factors underlying this shift have been summarized as follows[2]

- Improvements in communications technology, which made it less important for traders to gather in one place.
- The growing concentration of trade into the hands of a few large firms, making it easier for these firms to gather information directly.
- Because of improving creditworthiness of those active in the commodity exchange, longer-term forward contracts become possible.
- The introduction of a futures market, however small it may be in the beginning, itself reduces the relevance of an exchange as a vehicle for physical trade. This is because the prices generated on the exchange act as a reference for price negotiations between buyers and sellers, and so the latter no longer need to buy or sell the physical goods through the exchange.

Similar factors are likely to influence, in the future, those developing country exchanges which now focus on physical trade: – when their underlying physical markets change (partly because of the impact that the exchange itself has), these exchanges have to evolve in order to survive.

8. Whilst times and technology have moved on and exchanges often perform much broader roles than those for which they were established, the essential functions of commodities exchanges – reduced transaction costs, price discovery, price transparency and risk transfer – remain as relevant today as in the past.

9. Indeed, with the liberalization of agricultural trade and the withdrawal of government support from agricultural producers there is in many countries a new need for risk management, price discovery and even physical trading mechanisms, a requirement that can often be addressed by commodity exchanges.[3]

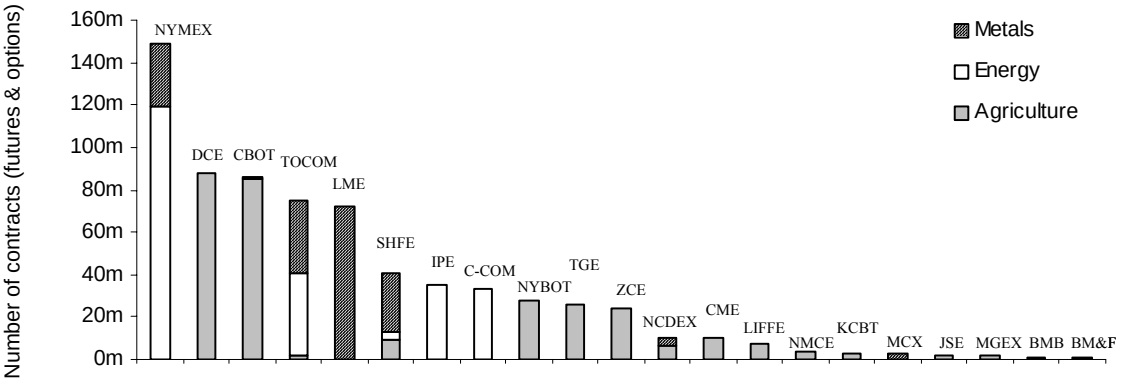
10. Hence, recent years have seen the rapid creation of new commodity exchanges and the continuing expansion of existing ones. At present, there are successful commodity futures exchanges in over 20 countries, including the United States, China, Japan, the United Kingdom, India, South Africa, Malaysia and Brazil (see figure 1 below).

11. A large number of new exchanges were created during the past decade in developing countries. Not all of them have progressed to the level of futures trading, and many have rapidly disappeared. While this report does not discuss in any detail developments regarding Internet platforms for commodity trading, it should be noted that their experiences have been even worse: the vast majority have not survived, and those that did generally did so at a level of operations much below what the initiators had expected (one notable exception is the Intercontinental Exchange, an Internet energy exchange which acquired the "bricks and mortar" International Petroleum Exchange in July 2001).

[2] Holbrook Working, "Economic functions of futures markets", *Selected Writings of Holbrook Working*, Board of Trade of the City of Chicago, 1977.

[3] This is the case not just in developing countries. See for a discussion on the EC, Amir Alizadeh and Nikos Nomikos, *Agricultural Reforms and the Use of Market Mechanisms for Risk Management*, CASS Business School/Futures and Options Association, April 2005. In the USA, the Government created a Risk Management Agency as part of its Department of Agriculture to help farmers shift from reliance on government to use of market mechanisms to deal with risks. As noted in the foreword to the Cass Business School publication, effective risk management strategies can "facilitate smooth adjustment and a soft landing" as reforms are being implemented.

Figure 1. The world's major commodity futures exchanges, 2004



Metals	30	-	0.7	34	72	28	-	-	-	-	-	3.8	-	-	0.1	-	2.3	-	-	-	0.3
Energy	119	-	-	39	-	2.8	36	33	-	-	-	-	-	-	-	-	-	-	-	-	-
Agriculture	-	88	85	1.7	-	10	-	-	28	26	24	6.5	10	7.5	3.6	3.1	0.3	1.9	1.4	1.4	1.0

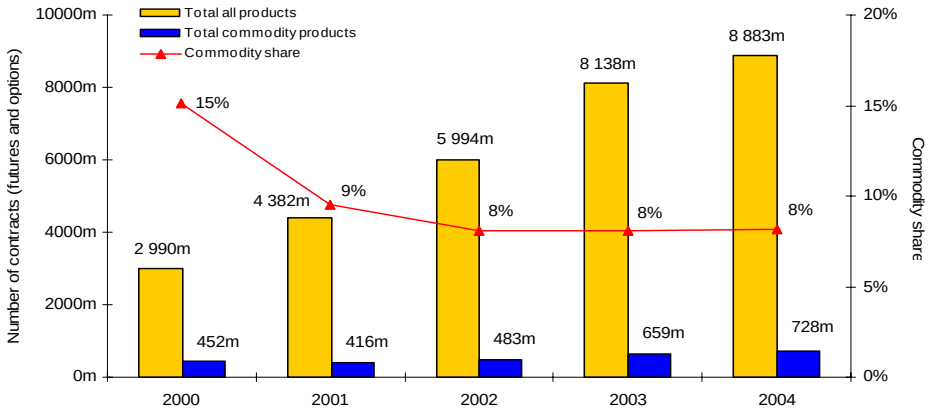
Source: Exchange data (see annex I); see table of exchange acronyms for full exchange names.
Note: Volume is measured in number of contracts, but it is recognized that the size of contracts can vary considerably across products and exchanges

12. This brief report gives an overview of commodity exchanges throughout the world. The description with respect to developed countries focuses on futures exchanges, while the discussion of developing countries includes exchanges that focus on spot and forward trading but which may begin to arrange futures trade in the years to come.

13. The focus is on commodity exchanges in the traditional sense – that is, exchanges trading agricultural commodities, metals or energy products, as opposed to financial products (annex I). These exchanges are, however, described in the context of global futures trade, including financial contracts (annex II). It should be noted that from their introduction in the first half of the 1970s, financial futures quickly outgrew the traditional commodity futures, and this pattern of rapid growth can be seen both in established exchanges in the West and in new exchanges in other countries. For example, the world's largest futures exchange is now the Korea Futures Exchange (KOFEX), which acquired the KOSPI 200 contracts from the Korean Stock Exchange (KSE) in January 2004. KOSPI 200 Futures and Options are stock index derivatives created in 1996. Over 2.5 billion such contracts were traded in 2004 (around 98 per cent of this total is accounted for by options). While trading volumes have declined since a peak of 2.9 billion trades in 2003, this still represents more than a quarter of the world's total futures trade (see annex II). These figures stand in stark contrast to the largest commodity contract – the Chinese Dalian Commodity Exchange's (DCE) No.1 Soy Bean Contract – of which only 57 million were traded in 2004 (a decrease of 4 per cent from 2003).

14. Overall, commodity futures and options now account for only around 8 per cent of total futures and options volume (see figure 2). This number has remained stable over the last four years despite what some commentators have called a "commodity boom" in the face of rapid growth in Asian demand for commodities, underperforming equity markets and low interest rates, and is likely to continue falling once these other investment opportunities become more attractive again.

Figure 2. Commodity futures and options performance, 2000-2004



Source: Calculations made on the basis of information published by the Future Industry Association (adjusted to include volume data provided by Indian national exchanges not captured by FIA).
Note: Compound annual growth rates 2000-2004: commodity products 13%; all products 31%.

15. This report draws attention to **three** trends, the first two of which appear to be closely related. The **first** is the rationalization or consolidation of commodity exchanges within countries. This process can occur as a result of privately coordinated mergers and acquisitions between exchanges, such as that between the Kuala Lumpur Stock Exchange (KLSE) and the Kuala Lumpur Options & Financial Futures Exchange (KLOFFE) and then the KLSE and the Commodity and Monetary Exchange of Malaysia (COMMEX) in Malaysia. Where exchanges do not merge they often share platforms. To give some examples:

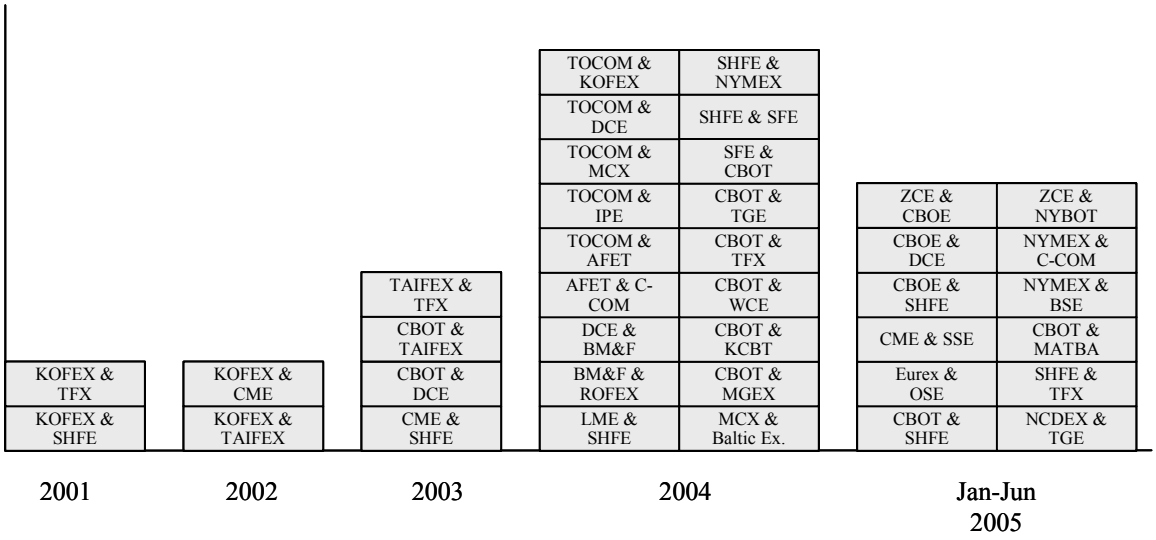
- KSE and KOFEX use the same clearing house and electronic trading system.
- On 29 November 2004, Euronext Amsterdam successfully migrated its derivatives products on to Euronext's derivatives trading system, LIFFE CONNECT. After Brussels, Lisbon and London, Amsterdam is the last of the Euronext exchanges to join the common derivatives trading platform.
- On 1 January 2004, the Chicago Board of Trade (CBOT) also began using LIFFE CONNECT to power its e-cbot system, which it uses in turn to host products from the Kansas City Board of Trade (KCBT), the Minneapolis Grain Exchange (MGEX) and the Winnipeg Commodity Exchange (WCE)[4].
- At about the same time, CBOT completed the switchover of its clearing operations. Henceforth, the Chicago Mercantile Exchange (CME) will provide clearing and related services for all CBOT products: "The CME/CBOT Common Clearing Link brings together two premier financial institutions and provides operating, margin and capital efficiencies, resulting in significant benefits to FCMs and end users of futures products."[5]
- On 13 July, 2004, the New York Mercantile Exchange (NYMEX) and the Tokyo Commodity Exchange (TOCOM) announced that US energy and metals futures contracts would be available in Japan via NYMEX ACCESS, an Internet-based trading platform.

[4] LIFFE, http://www.liffemarketsolutions.com/news/releases/041220.jsp, 20 December 2004
[5] CBOT, *Organizational Profile*, http://www.cbot.com/cbot/pub/page/0,3181,1215,00.html

16. Whereas in the past in developed countries, rationalization was primarily the result of the increasing integration and efficiency of physical markets (which meant that there was no longer a need for many local exchanges), in developing countries rationalization has so far more commonly occurred as a result of regulatory intervention. The intentions have been to prevent duplication of products (China); suspend trading due to "over speculation" (China and India); champion national, multi-commodity exchanges over regional, single-product exchanges (India); or simply locate all trading in one area so as to achieve more economies of scale and facilitate the price discovery mechanism and the introduction of new products. In the future, however, economic forces (the continuing globalization of commodity markets coupled with improving communications technology) are once again likely to drive the process of exchange consolidation.

17. A **second** trend is the increased cooperation among exchanges with the signing of memoranda of understanding (MOUs) between commodity exchanges in different countries (see figure 3 below).

Figure 3. Memoranda of understanding between exchanges, 2001-2005



Source: UNCTAD research.

18. 2004 has seen a large increase in this practice, which started to become significant only around 2001.[6] MOUs serve a variety of purposes but commonly include information sharing for the adoption of "best practices" in the development of contract specifications; clearing and settlement procedures; self-regulation; and even joint listing of products.

19. In these MOUs, one sees an increasing role for developing country exchanges. One significant event in this respect was the joint announcement in November 2004 of the formation of the Dubai Gold and Commodity Exchange (DGCX). Following the earlier signing of a MOU, the Dubai Metals and Commodities Centre will provide 50 per cent of the investment, the Multi Commodity Exchange of India Limited (MCX) 10 per cent, and Financial Technologies (India) Limited – which was responsible for the creation of MCX – 40 per cent.[7] The exchange will commence operations in the second half of 2005. This new

[6] Sporadic earlier instances exist than those mentioned here. In 1995, for example, the Zhengzhou Commodity Exchange (China) signed MoUs with WCE (Canada) and the Japanese Kansai Agricultural Commodities Exchange.
[7] MCX Press Release, 10 November 2004. See MCX website: http://www.mcxindia.com.

electronic exchange will compete directly with another exchange (open outcry) to be set up in Dubai in another joint venture involving the New York Mercantile Exchange, and with the trading screens installed in Dubai by the International Petroleum Exchange which will give direct access to its electronic trading platform.

20. These two trends are best explained by **two** causes, which are again related to each other. The **first** is competitive pressures both from within and between countries, which force exchanges to adopt a demand-driven approach to listing products and to focus on their comparative advantages. Increasing competitive pressures may be attributed to increasing economic globalization and financial openness; that is, the increase in cross-border financial flows that is renewing itself as the economic chaos caused by the Asian financial crisis and the events of 11 September, 2001 begins to recede. The **second** cause is technological advance and in particular the increasing availability and sharply decreasing costs of real-time remote trading platforms. Technical improvement is the vector by which competitive pressures are transmitted, and makes possible the two trends outlined above.[8]

21. The **third** and final trend is demutualization. The tendency to separate exchange management from direct ownership and trading interests (resulting in publicly listed, shareholder-owned companies with freely traded shares) appears to be motivated by concerns about good governance, self-regulation and investor confidence. The trend began with developed country exchanges – the International Petroleum Exchange (IPE) and CME (the first in the United States), both demutualized in 2000 – but developing countries are not far behind. KLSE demutualized in June 2004, claiming that "demutualization of the Exchange will help to project Malaysia and its capital market as forward-looking and able and willing to adapt to changes to keep pace with market demands and needs."[9] One pre-requisite of the Indian national multi-commodity exchanges approved in 2002 was demutualization. The Indian Forward Markets Commission said in October 2004:

> "Plans are afoot to issue guidelines for de-mutualisation of exchanges or amend the Forward Contracts Regulation Act to make it, if necessary, mandatory for every exchange to demutualise. A demutualised commodity exchange can command the confidence of the market, stakeholders and consumers alike."[10]

But existing members may resist giving up the control that they have in a mutualized exchange. Thus while the National Board of Trade – set up in Indore in 1999 to trade soybean (90 per cent of its turnover), mustard seed/rapeseed and crude palm oil – was granted national status on a provisional basis, its members' concerns over the demutualization process later forced it to withdraw its candidature.

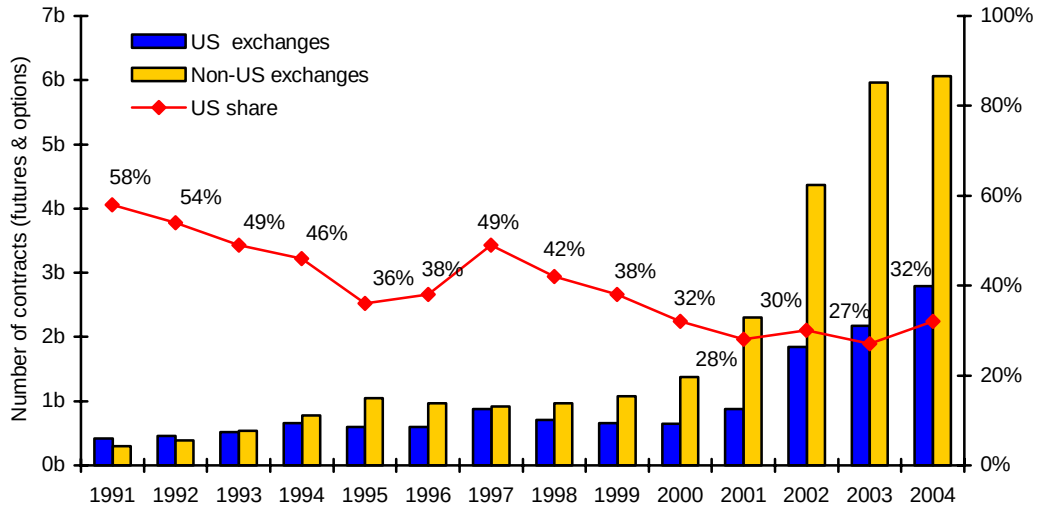
[8] See for a further discussion Claire Williamson, "Structural changes in exchange-traded markets", *Bank of England Quarterly Bulletin*, May 1999.
[9] http://www.bursamalaysia.com/website/aboutus/invt_rel/invt_rel.htm.
[10] http://www.financialexpress.com/fe_full_story.php?content_id=72900.

Chapter I

EXCHANGES IN THE AMERICAS

22. Futures exchanges in the **United States** have experienced a revival since the millennium with a growth of 22 per cent in trading from 2003 to 2004. This compares favourably with the sluggish 2 per cent growth of non-US exchanges in the same period. As a result, the United States has seen its share of global futures and options trading rise from an all-time low of 27 per cent in 2003 to 32 per cent in 2004. This represents a significant reversal of fortune after a long period of decline that began in 1992 – a time when US exchanges alone accounted for more than half of world futures trade (see figure 4).

Figure 4. Annual global futures and options volumes, US and non-US exchanges, 1991-2000



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

23. Historically, organized trading in futures began in the United States in the mid-19th century with maize contracts at the Chicago Board of Trade and a little later, cotton contracts in New York.[11] 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.[12] While these exchanges have continued to deal in commodities, for most trade in financial futures has become increasingly important since the early 1980s.

[11] While this preceeded futures exchanges in Europe, forms of rice futures trading are reported to have existed 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, established in 1730.

[12] Bob Tamarkin, *The Merc: The Emergence of a Global Financial Powerhouse*, HarperBusiness, 1993.

Box 1. Commodity exchange clearing systems

For exchanges that trade in futures and options contracts, a clearing house performs two critical functions: managing the risk of exchange transactions and protecting the integrity of the marketplace.

Today, the practice of "complete clearing" is commonplace[13]. In this system, the clearing house acts as a central counterparty to all exchange trades – as the buyer to every seller and the seller to every buyer. Assuming that the clearing house is sufficiently well capitalized to cover any liability that arises, this minimizes the risk of counterparty default. Clearing houses are also typically responsible for administering the position monitoring and margining processes, regulating delivery of physical goods and reporting an exchange's trading data.

The first clearing house to use the "complete clearing" system was the Board of Trade Clearing Corporation (BOTCC, now "The Clearing Corporation"). BOTCC was founded in 1925 as an independent organization when members of the Chicago Board of Trade (CBOT) voted to separate exchange and clearing functions. Another model is that of the London Clearing House (LCH), an independent public company which, prior to its merger with Clearnet in 2003, acted as a common clearing house for the three major London derivatives exchanges (LIFFE, LME and IPE): those exchanges collectively owned a minority stake of 25 per cent. Japan is also set to follow this model, with the announcement in 2005 of the establishment of a common clearing house to clear trades at all seven of the country's commodity exchanges.

However, not all clearing houses are independent. For example, clearing services at the Chicago Mercantile Exchange (CME), the largest US futures exchange, are provided by an in-house division. Via a Common Clearing Link established in 2003, the CME now also provides clearing services to CBOT.

This points to another trend in the clearing sector, namely the move towards clearing cooperation and integration. As exchanges demutualize to become for-profit enterprises, the selection of the entity to perform the mission-critical clearing function is increasingly driven by hard-headed commercial considerations, namely performance and cost. Thus, for CBOT, when abandoning its 78-year relationship with BOTCC to establish ties with the CME, "the CME/CBOT Common Clearing Link brought together two premier financial institutions to provide operating, margin and capital efficiencies"[14] to the exchange and its users.

The economies of scale achieved by those clearing houses best able to accumulate volume work to drive down per unit costs, not only in operational performance but also in the overheads from developing the next generation of technology necessary to administer an ever-more sophisticated marketplace. With demand for clearing services also coming from over-the-counter markets much larger than the exchange-traded sector, clearing houses that were once subservient to exchange trading operations may, in the near future, find themselves driving the process of cooperation and consolidation in the industry.

Moreover, further competitive pressure is likely to come when developing–country clearing operations are allowed to compete in the international marketplace, with countries such as India already exhibiting advantages in cost and technology development over their developed country counterparts in related sectors.

[13] Although by no means universal – even a futures market as well established as Japan's only introduced "complete clearing" in 2005 (see box 4).

[14] http://www.cbot.com/cbot/pub/page/0,3181,1150,00.html; it is interesting to note that CBOT did not actually demutualize until April 2005. Nevertheless, it is clear that commercial considerations were an important part of its rationale for establishing the "common clearing link".

24. The United States now hosts 12 futures and options exchanges, with the Chicago Mercantile Exchange (CME) being the largest. Four date from the year 2000 or later; this includes the US subsidiary of Europe's Eurex exchange. Two of these exchanges trade purely commodity futures and options, four others trade both commodity and financial futures, one trades emission allowances, and the other five trade a range of financial products.[15]

25. Founded in 1874, the CME was the world's third largest futures exchange in 2004, with 805 million contracts traded and accounting for 9 per cent of world volume, although only 10 million of these contracts were for commodities. CME has been a major actor in promoting a new platform for exchange cooperation – the Globex Alliance – through which it has joined 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 now accounts for more than 60 per cent of CME volume, a share that increases each year as growth in its traditional open outcry system stagnates.

26. The Chicago Board of Trade (CBOT), founded in 1848, was once the largest futures exchange in the world. But by 2004, it had fallen to fifth place after KOFEX, Eurex, CME and Euronext.liffe. That year, it traded 600 million contracts (7 per cent of total world volume, and an exchange record) of which 85 million 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.

27. The New York Mercantile Exchange (NYMEX) traded 161 million contracts in 2004 and accounted for 2 per cent of world futures volume (and over a fifth of world commodity futures volume). Contrary to CBOT and CME, NYMEX is still a pure commodity exchange, and is the largest commodity futures exchange in the world by some distance. Although the Dalian Commodity Exchange (DCE) experienced a huge growth in 2001 and came close to NYMEX's volume, the Chinese exchange's growth rates have since fallen to the (still high) levels seen on the more mature developed country markets. In 2004, it traded only 60 per cent of NYMEX's volume, and thus NYMEX is unlikely to lose its predominant position soon.

28. The United States has several other exchanges that are among the world's major commodity exchanges. The New York Board of Trade (NYBOT) is the world's ninth largest commodity exchange, and sets worldwide reference prices for a number of key commodities (in particular, cocoa, coffee, cotton, sugar and frozen concentrated orange juice). The Kansas City Board of Trade (KCBT) and the Minneapolis Grain Exchange (MGEX) serve mostly the domestic market; the first traded 3.1 million contracts in 2004, 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).

29. While the exchanges in **Canada** are old, they are of fairly minor importance. The largest is the Bourse de Montreal (MX), founded in 1874 and currently ranked 34th in the world, with only 0.2 per cent of world market trade. The country's agricultural futures exchange, the Winnipeg Commodity Exchange (WCE), is ranked 51st in the world. In December 2004, the year in which 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 the Chicago Board of Trade's electronic trading platform, e-cbot).

[15] See http://www.cftc.gov/dea/deadcms_table.htm for an overview. This webpage also lists US exchanges that have become dormant or have been closed down.

30. 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 2004 183 million contracts have been traded – a volume growth of 52 per cent over 2003 – and this made it the world's 11th largest futures exchange. This ranking was actually low compared with previous years – in 1997 BM&F was the fourth largest exchange – but the Brazilian devaluation severely impacted on trading volumes. Although Brazil's coffee futures currently account for over million US$ 100 worth of trade per month, trading in agricultural contracts can hardly be compared with the main commodity futures markets in New York and Chicago.

31. There are 29 other commodity exchanges operating in Brazil, spread throughout the country.[16] 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.

32. **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 Termino de Buenos Aires (MATba), founded in 1909, temporarily suspended operations in 2002 during the Argentine economic crisis. The turnover of MATba, which had achieved a volume of 246,000 contracts in 2000, MATba's stood at 85,000 in 2004; this figure, however, represented an impressive 116 per cent year-on-year increase over 2003.

33. Although **Mexico** is Latin America's second largest economy, it introduced a futures exchange only in 1998. The Mexican Derivatives Exchange (MexDer), which trades financial futures only, has experienced rapid growth, turning over 210 million contracts in 2004, which positioned it as the world's ninth largest futures exchange. Two commodity exchange initiatives in the early 1990s did not come to fruition.

34. The exchanges in **Bolivia, Colombia**, **Costa Rica, the Dominican Republic, Ecuador**, **El Salvador**, **Honduras**, **Nicaragua**, **Panama**, **Peru** and **Venezuela** were created mostly in response to the liberalization of domestic trade as a mechanism for the organization 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 were established after 1992. Most of the 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 securitization to improve rural financing (see box 2). The Colombian exchange, Bolsa Nacional Agropecuaria, has been exploring the possibility of acting as a "gateway" into international exchanges.

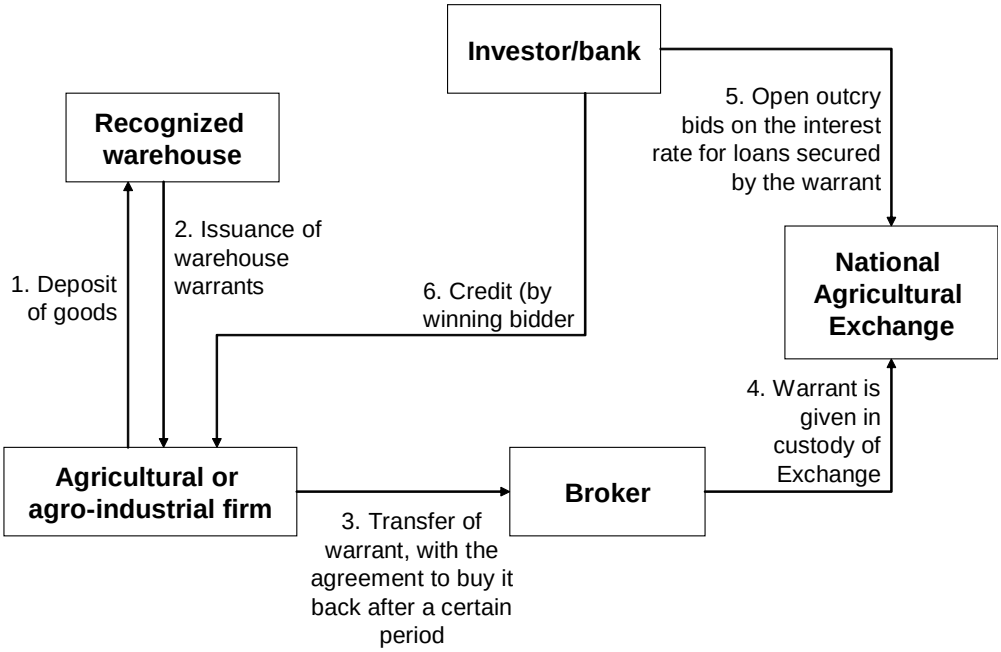
[16] They are listed on the website of Banco do Brasil, which provides their electronic trading network: http://www.agronegocios-e.com.br/leilao/informacoes.lel A few of the exchanges are not active; three quarters do not have their own website.

Box 2. Repo trading: Securing finance for commodity producers in Latin America

Where an economy is to a certain extent disorganized and markets are imperfect, the presence of an exchange can impose discipline on the commodity sector. A well-functioning exchange acts as an "island of excellence", and can extend high levels of performance and integrity attained in its core functions to other areas of commodity-sector activity.

For example, exchanges in Colombia and Venezuela have developed innovative solutions that use exchange functions to provide commodity producers with access to relatively cheap sources of finance through trade in producer repurchase agreements, or "repos" (see diagram 1).

Diagram 1: Exchange-traded agricultural repos



Commodities are stored with accredited collateral managers who take responsibility for quality grading and issue receipts. This receipt is then transferred to an exchange broker and the owner of the commodities signs a repurchase agreement to buy it back at a given price after a certain period. This repo can then be auctioned on the exchange, the purchaser knowing that they would be entitled to a cash sum at a defined point in time with the payment guaranteed by the broker and further underwritten by the physical goods in the storage facility. The sum paid by the winning bidder is then channelled to the commodity producer to invest in production.

Not only does the commodity producer have access to more financing than would otherwise have been available, but also that finance is provided on better terms owing to the reduced level of risk faced by investors.

In 2000, Colombia's National Agricultural and Livestock Exchange (BNA) introduced a similar, albeit more complex, system for structuring repos around future receivables rather than existing stocks. Several series of securities were successfully issued, with strong interest from both producers and investors – BNA expects to issue securities worth some $ 4-5 million every 45 days.

Without the repo trading mechanism provided by the likes of BNA, banks and other lenders would most likely not be interested in exposing their own capital to agricultural credit risks. It can be seen, therefore, that the exchange provides an innovative product to capital market investors whilst securing access for commodity producers to relatively cheap working capital.

35. 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 taken only in 2003, when an Argentine consultancy firm was recruited by the Ministry of Agriculture to carry out a feasibility study. Following this study, an exchange (Bolsa de Productos de Chile) was formally established in March 2005. It expects to start trading, including in futures contracts, before the end of the year.

Chapter II

EXCHANGES IN EUROPE

36. **Europe** is home to the world's second largest futures exchange, Eurex, which resulted from the merger of the German DTB (Deutsche Terminbörse) and the Swiss Exchange Soffex in the autumn of 1998. In 2004, it accounted for 12 per cent of world volume, trading 1,066 million contracts (a growth of 5 per cent over 2003). Eurex was directly introduced electronically (that is, unlike the traditional exchanges, there was no open-outcry floor; rather, the buying and selling of orders was executed directly through a computer system). Driven by advantages in cost, speed and efficiency which their customers have demanded, many of the other major exchanges have since introduced 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).

37. Euronext, established in 1998, was set up as a pan-European "one company, three centres" structure with the merger of Amsterdam Exchanges (AEX), Brussels Exchanges (BXS) and Paris Bourse (MATIF). This created the first totally integrated cross-border single currency derivatives market. In late 2001, the London International Financial Futures Exchange (LIFFE) was also integrated into Euronext, and in February 2002, Portugal's Bolsa de Valores de Lisboa e Porto Exchange merged with Euronext to become Euronext Lisbon. The integrated derivatives business of the combined entity is now known as Euronext.liffe. In 2004, Euronext.liffe accounted for 9 per cent of world volume, trading 790 million contracts (an increase of 14 per cent on 2003). 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 for the EU market. MATIF, and to a much lesser extent AEX, also trade a number of commodities.

38. The **United Kingdom** hosts three major futures and options exchanges. The largest is LIFFE, now part of Euronext. LIFFE experienced a difficult time around the turn of the millennium – its 2001 volumes were similar to those it had reached in 1997 because of the "capture" by Eurex of a significant volume of LIFFE's trading in Bund futures. However, since its integration into Euronext, LIFFE's trading volumes have grown rapidly, both in commodities (from 5.2 million contracts in 2002 to 7.5 million in 2004) and overall (from 254 million contracts in 2002 to 387 million in 2004).

39. The London Metal Exchange (LME), founded in 1877, specializes in non-ferrous metals, and was the 19th largest futures exchange in 2004, accounting for 0.8 per cent of global turnover; it is also the world's fifth largest commodity futures exchange. The LME's role in discovering metal prices is still predominant. Volumes on the competing Shanghai Futures Exchange (SFE) are, however, rapidly increasing, and some analysis suggests that SFE is now leading, rather than following, LME in price discovery in a number of metals.

40. The third largest British exchange, the International Petroleum Exchange (IPE), was formed in response to changes in oil marketing and pricing practices in the late 1970s. It ranked 26th worldwide and traded 36 million contracts in 2004. In July 2001, IPE was the first "bricks and mortar" exchange to be taken over by a new electronic market, the Atlanta-based Intercontinental Exchange (although location clearly does not mean much for an Internet-based market). Soon after, it changed from an open outcry market to an electronic system, which was rewarded by large gains in trading volumes. Interestingly, in September 2005 it started facing competition in its flagship Brent crude contract and on its home ground (whatever this means for an electronic exchange), when NYMEX Europe moved the open outcry trading floor that it had created in Dublin in 2004 to London.

41. In **Spain**, the main activity of MEFF is the trading, clearing and settling of futures and options contracts on Spanish 10-year Notional Bonds and on its equity index, IBEX 35. In 1999, MEFF joined the Euro GLOBEX, a pan-European network bringing together the Spanish exchange with IDEM, MATIF, MONEP and MIF in an alliance to interconnect trading systems and allow single-screen access to the products of participating exchanges. In 2001, MEFF introduced single stock futures, a market in which it traded triple the amount of its closest competitor in this area, LIFFE. As a result, MEFF had the third largest gain - 185 per cent - in trading volumes amongst futures exchanges in 2001. An exchange in Valencia, FC&M, introduced an orange futures contract in 1996, but volume in this contract never picked up; the FC&M exchange is now looking at electricity futures. The introduction of olive oil futures was also considered by an industry group in the late 1990s.

42. More or less in a virtual world, but with its headquarters in **Sweden**, is the OMX group of Nordic and Baltic exchanges. It provides financial derivatives, with a volume large enough to make it the world's 15th largest futures exchange in 2004. 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.

Box 3. Electricity exchanges

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: Nordpool 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 United Kingdom.

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 is also 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, introducing physical delivery futures in France in 2005

43. In **Germany**, the Warenterminbörse Hannover (WTB), created in the late 1990s, offers a range of agricultural futures contracts for the EU market with a particular focus on potatoes (indeed, the WTB hopes to capture most of Euronext Amsterdam's potato futures volume when commodity derivatives cease to trade on the Dutch exchange). Its volume remains small and stable, with 33,000 contracts traded in both 2003 and 2004.

44. Several countries with economies in transition have domestically oriented futures exchanges. In **Poland**, the Warsaw Commodity Exchange, founded in 1995, deals in futures and options in agricultural products and currency. It is part of the Polish Commodity Exchange network, composed of 18 exchanges spread throughout the country. In **Hungary**, the Budapest Commodity Exchange (BCE), created in 1989, which trades in financial futures as well as grains and livestock, has been quite successful, ranking as the world's 44th futures exchange in 2004. However, its commodity futures volume has been falling in recent years, not just in relation to its financial futures but also in absolute terms. The BCE will soon merge with the Budapest Stock Exchange (BSE), and following an agreement with NYMEX in April 2005, plans to introduce trading in Ural Crude Oil by early 2006. 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.

45. 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 EU emissions allowances (subject to being granted EU approval). There is also a trade in warehouse warrants for agricultural products.

46. Other commodity exchanges have been created since 1990 in **Romania**, **Bulgaria** and **Yugoslavia**. Most of these focus on organizing 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, opened in 1992, where spot and forward trade in grains, oil products and some metals are also offered.

47. At the beginning of the 20th century, there were over a hundred commodity exchanges in **Russia**, the oldest of which had a heritage extending back to the time of Peter the Great at the start of the 18th century. Most of these disappeared in the decade after the Russian Revolution, although the last one was not closed until 1931. The collapse of the Soviet Union saw an upsurge in the number of new exchanges – according to one estimate, more than 700 exchanges were created between 1989 and 1993. Most were simply cash markets, and functioned as brokerage houses without any reliable clearing systems. The first futures contract, on US dollars, was launched by the Moscow Commodity Exchange (MCE) in late 1992, and was quite successful in the period 1993–1996. However, the market was undermined by a serious financial scandal at the MCE in 1996 and the exchange ceased operations soon after. Two years later, "all trading evidently stopped [in the Russian Federation] in the turmoil associated with the financial crisis of August 1998".[17]

48. In the Russian Federation today, only financial futures and options are traded, mainly stock futures on large Russian corporations. The fastest-growing market is the screen-based futures and options exchange FORTS – created in August 2001 after the merger of the derivatives division of the St. Petersburg stock exchange and the Moscow-based electronic stock market RTS (Russian Trading System). The Moscow Inter-bank Currency Exchange (MICEX) is also trading financial derivatives, with much smaller volumes 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 a subsidiary of MICEX.

[17]A.E Peck, "The development of commodity exchanges in the former Soviet Union, Eastern Europe and China", *Australian Economic Papers*, 2001, vol. 40, issue 4, pp. 437-460.

49. Currently, there are no active exchange-traded commodity futures or options in the Russian Federation. However, the National Mercantile Exchange (NAMEX), also a fully owned subsidiary of MICEX, is attempting to develop the commodity trade by organizing the State grain procurement operations across the country using the MICEX electronic network. Separately, some 45 commodity exchanges operate across the Russian Federation's. Most are located in the 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 quotas to scarce resources (for example, the European Asian Exchange, registered in Moscow, is an entity involved in the auction of fish stock quotas). There have also been several attempts in recent years by large commercial entities to establish energy trading platforms, notably SibNeft in 2000. However, these efforts have floundered on the basis of mutual distrust amongst the Russian Federation's oil majors, as well as complexities in the domestic price formation system for oil, in which regional government involvement plays a significant role.

50. In **Ukraine**, there is currently no futures and options trade, either in commodity or financial derivatives. The Ukrainian Interbank Currency Exchange (UICEX) runs occasional cash auctions in some energy items, such as gas and heating oil, but the exchange remains generally stagnant, particularly since the Central Bank has oriented the currency trade away from the exchange to 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.

51. In **Kazakhstan**, the Kazakhstan Stock Exchange deals in a small number of futures contracts on foreign currencies. There are also fourteen registered commodity exchanges in the country, 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 derived from the registration of transactions that take place outside 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.

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

53. Another country where exchanges have existed for a long time is **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 centres for the registration of commodity trade transactions). The oldest, in Izmir, traces its origin back to 1891. These exchanges act as physical trading centres, 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 studying the possibility of introducing more sophisticated forms of trade, based on warehouse receipts and even futures contracts. In 1997 the Istanbul Futures and Options Exchange was launched to meet the demand for future gold products in Turkey. It is Turkey's first derivatives market, but remained largely inactive. After years of efforts, in early 2002, the Turkish Derivatives Exchange (TurkDex), headquartered in Izmir, was finally granted regulatory approval to introduce futures contracts. It started trading financial, cotton and wheat futures in February 2005.

Chapter III

EXCHANGES IN ASIA-PACIFIC

54. Asian derivatives exchanges accounted for 36 per cent of the world's derivatives trading volume in 2004 (see annex II). Its rapid growth will probably continue and in a few years Asia is likely to account for the bulk of global derivatives trade.[18]

55. In 2004, the **Republic of Korea** accounted for just over 80 per cent of the total Asian futures and options trade. This figure is explained by the existence of KOSPI 200 Futures and Options. KOSPI derivatives enjoyed enormous growth from 1996, peaking at 331.2 million contracts in April 2003. Volumes declined thereafter and only 161.75 million contracts were traded in January 2004. In that same month, all the KOSPI contracts plus single stock options were transferred from the Korean Stock Exchange (KSE) to the Korea Futures Exchange (KOFEX). This move propelled KOFEX overnight from the 37th to the world's most active derivatives market. KSE does not trade commodity futures and while KOFEX lists gold, the trade is relatively minor. To promote the risk management aspects of its activities, KOFEX has signed a MoU with the Tokyo Commodity Exchange (TOCOM) and plans to diversify into energy products, with oil contracts aimed at small-scale hedgers such as local refineries and gasoline distributors. In order to facilitate the diversification process and consolidate the Republic of Korea's regional standing, a KOFEX-KSE merger is under consideration.

56. **Japan** is the location of the world's first organized futures market, the Osaka Rice Exchange, which was established in 1730. However, the evolution of the Japanese marketplace has been considerably divergent from that of Western markets in several respects: firstly, trade in commodities still makes up the bulk of futures trade in Japan with financial futures accounting for less than 30 per cent of total volume;[19] secondly, the structure of Japan's commodity futures markets remains distinct from that of its financial futures sector, with separate regulatory frameworks and trading practices.

57. Whilst the financial futures market experienced a "big bang" in the 1980s, the commodities sector "resisted reform and suffered from deficient monitoring and compliance".[20] As late as 2003, for example, no Japanese commodity exchange acted as a central counterparty for trades conducted in its exchange; this means that every transaction left both buyer and seller exposed to significant risk. However, the collapse of a large brokerage firm, Tokyo General, in 2004 led to the fundamental transformation of the sector's regulatory framework (see box 4), encapsulated in an amendment to the country's Commodities Exchange Law that came into effect on 1 May 2005.

58. Commodity exchanges have gone through a process of consolidation since the early 1990s, with only seven remaining in 2005 (down from 17 in 1994). Most of the trade takes place in metals and agricultural produce. The largest is TOCOM, created in November 1984, through the consolidation of three existing exchanges: the Tokyo Textile Commodities Exchange, the Tokyo Rubber Exchange and the Tokyo Gold Exchange. In the 24-hour global trading environment, TOCOM 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 other precious metals. TOCOM traded 75 million contracts in 2004, making it the fourth largest commodity futures exchange in the world (and the 18th largest futures exchange

[18] Futures Industry Association, *Outlook 05 Issue*, http://www.futuresindustry.org/fimagazi-1929.asp?a=971.
[19] FIA data.
[20] Futures Industry Association, "Japan: The big bang, finally", *Futures Industry Magazine*, May/June *2005,* http://www.futuresindustry.org/fimagazi-1929.asp?a=1041

overall).

Box 4. Regulation: Creating an appropriate framework for the commodity futures market in Asia

Whilst a properly functioning derivatives industry can be an integral component of a country's capital market structure, periodic financial crises[21] have demonstrated that a robust framework of regulatory oversight is necessary in order to ensure the integrity of these markets.

Regulation serves a number of essential functions: to ensure that contracts are well specified and their terms fulfilled, to protect investors from unscrupulous practices, and to guard against attempts to manipulate the market by both domestic and foreign investors. (Regulating foreign investors requires exchanges and regulators to establish working relationships with their foreign counterparts for the purposes of vetting the suitability of foreign investors wishing to enter the market, and allowing for a system of effective sanctions should market regulations be breached.) These regulatory functions can be carried out both by exchange self-regulation and by oversight by an independent or a governmental regulatory agency, ideally with the two activities structured to complement each other.

Two examples from Asia point to differing approaches in commodity futures market regulation.

In Japan, 2005 has seen a radical transformation of the country's regulatory framework for commodity futures trade. This was in part prompted by events at a large brokerage, Tokyo General, where misuse of customer funds, inadequate protection against counterparty risk and the false reporting of data led to the collapse of the firm and resulted in significant customer losses. An amendment to the country's Commodities Exchange Law, which came into effect on 1 May 2005, has resulted in wholesale reform of the industry, with many of the changes introduced to directly address the challenges posed by the Tokyo General affair.

Most critically, a common clearing house will be established to act as a central counterparty for trading at all seven Japanese commodity exchanges (prior to the amendment, only TOCOM had set up its own clearing house – in mid-2004). This clearing house will be jointly controlled by all exchanges and augmented by a new law to separately designate clearing and non-clearing members. Other important reforms include higher minimum capital requirements with an "early warning system" in place to flag potential breaches before they occur, new rules to ensure that brokers meet tightened customer fund segregation requirements and stricter procedures governing the customer sales conduct of FCMs in a market characterized by a heavy volume of retail transactions.

China's approach to futures market regulation has been conditioned by the history of uncontrolled growth and then crisis following the initial emergence of its futures markets in the early 1990s. At least 10 major scandals occurred in domestic exchanges between 1994 and 1997, which, coupled with losses of over $1 billion by Chinese traders active in overseas futures markets,[22] prompted two market rectifications by the regulator, the China Securities Regulatory Commission (CSRC), over a seven-year period between 1993 and 2000.

[21] Crises hit not only emerging markets such as the Russian Federation and China in the mid-1990s. The Barings, LTCM, Enron and Tokyo General scandals also rocked established British, American and Japanese markets over a similar period.

[22] W. Xueqin, and M. Gorham(2002); "The Short Dramatic History of Futures Markets in China", *Global Financial Markets*, Spring 2002.

Box 4 (continued)

During these rectifications, the number of exchanges, brokerages and futures contracts was slashed, and whole classes of contract were removed – most notably, financial futures after two back-to-back scandals involving bond futures contracts at the Shanghai Stock Exchange in 1995. A common set of exchange rules were drawn up, and the exchanges were brought much more under the control of the CSRC. Finally, the activities of Chinese traders overseas were strictly curtailed whilst China's markets remained closed to foreign investors.

In contrast to the "big bang"-style revolution that characterized the re-regulation of Japanese markets, the process of liberalizing these now-tightly regulated Chinese futures markets has been cautious and evolutionary, an approach assisted by the futures industry's exemption from China's WTO accession commitments to open its markets.

The cautiousness of the Chinese approach is typified by the experience of the three commodity exchanges when seeking to introduce new commodity futures contracts (leaving aside the question of financial futures and exchange-traded options, both of which are currently banned in China). After the rectifications, there were only 12 futures contracts trading on the three remaining exchanges. Since that time, the introduction of new contracts has been limited to just one per exchange – a new corn futures contract at DCE, fuel oil at SHFE and cotton at ZCE, all three introduced in 2004. The process has been laborious, in terms of the research and development effort required for each contract and also in terms of obtaining approval from the CSRC and other State agencies with an interest in the sector – "for some products, over 10 ministries and commissions have to weigh in before a new contract gets a green light".[23] (Compare this with India, where each of the new national exchanges already trades more than 30 contracts less than two years after their establishment, with many more in the pipeline.)

Second largest futures and options exchange in Japan is the Central Japan Commodity Exchange (C-COM), formed in 1996 by the amalgamation of three other exchanges. In 2004, C-COM traded 33 million contracts, mainly in energy futures, and was the world's eight largest commodity futures exchange (and the 27th largest futures exchange overall). A third large Japanese commodity exchange is the Tokyo Grain Exchange (TGE), trading a range of agricultural commodities, with nearly 26 million contracts traded in 2004, making it the world's 10th largest commodity futures exchange (and the 32nd largest futures exchange overall).

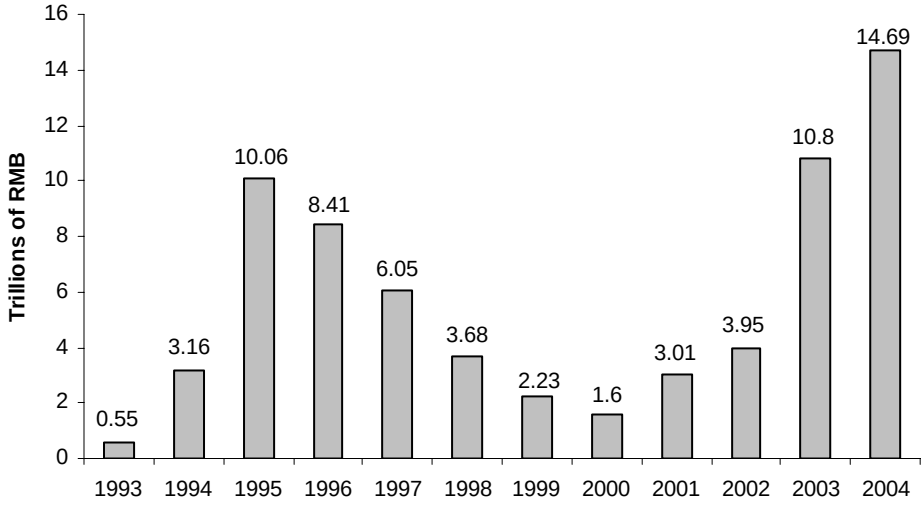
59. Like the Russian Federation, **China** had dozens of commodity exchanges at the beginning of the 20th century. These mostly disappeared during the 1930s, and after a long wait, the first commodity exchange was re-established in 1990. More than 40 had appeared by 1993, as China accelerated the transformation from a centrally planned to a market-oriented economy. The main commodities traded were agricultural staples such as wheat, maize and in particular soybeans, which have long been considered strategically important by the Chinese Government, for both economic development and political stability. The China Securities Regulatory Commission (CSRC) intervened with two "rectifications" following a series of scandals in the mid-1990s (see box 4). The first reduced the number of exchanges to 15, and the second – in 1999 – further reduced the number to just three: the Dalian Commodity Exchange (DCE), the Zhengzhou Commodity Exchange (ZCE) and the Shanghai Futures Exchange (SHFE), formed from the merger of three Shanghai-based exchanges – the Metal, the Commodity, and the Cereals & Oils Exchanges.

60. The growth profile of the industry has followed its changing regulatory dynamics (see figure 5), with notional value in precipitous decline as the market underwent a radical

[23] "China: The fall and rise of Chinese futures, 1990-2005", *Futures Industry Magazine*, May/June 2005, http://www.futuresindustry.org/fimagazi-1929.asp?a=1038.

restructuring in the mid- to late 1990s. Since 2000, however, the market has exhibited healthy year-on-year growth which has propelled its three exchanges towards the top ranks of the world's commodity futures exchanges – in 2004, DCE was the second largest commodity futures exchange, SHFE the sixth largest and ZCE the eleventh largest.

Figure 5. Notional value of futures traded on Chinese exchanges



Source: FIA data.

61. The DCE is the world's largest soybean futures market as well as the largest futures market for non-transgenic soybeans. 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 2004, DCE traded 88 million lots (58 per cent of the national total volume) with a nominal value of RMB 5.1 trillion yuan (35 per cent of the national total turnover). Trading volume and nominal value were respectively 17 per cent and 28 per cent greater than in 2003.

62. 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, while new plywood and long-grained rice contracts are in preparation. Trading in energy products was banned in 1994 after concerns about speculation, and has been slow to recover owing to uncertainty over physical delivery arrangements and a lack of major players. Nonetheless, in 2004, trading volumes topped 40 million lots (27 per cent of the national total and up 1% from 2003) and nominal value reached RMB 8.4 trillion yuan (57 per cent of the national total), representing an annual increase of 39 per cent.

63. ZCE was until recently trading in mungbeans (green beans), small red beans and peanut kernels. In 2000, the Chinese regulatory body sought to stamp out attempted manipulations and focus the activities of ZCE, and so increased the required margin rate for mungbeans from 10 per cent to 20 per cent while reducing that of wheat from 10 per cent to 5 per cent. As a result, commodity trading other than in wheat virtually ceased. Cotton trading began at the start of June 2004 and trading volumes have increased rapidly each month. In the seven months to December, cotton trading had almost reached 3 million contracts, only 160,000 short of NYBOT's cotton volume over 12 months (although it should be noted that ZCE's cotton contracts are approximately one fifth of the size of NYBOT's). With the successful launch of new wheat contracts, ZCE is in effect a two-commodity exchange. In 2004, it registered a trading volume of almost 25 million lots (16 per cent of the national volume) with a nominal

value of RMB 1.2 trillion yuan (8 per cent of the national turnover). Trading volume decreased by -3 per cent from 2003 yet nominal value increased by 46 per cent over the same period.

64. The future of the Chinese commodity exchanges is to a large extent dependent on developments in its regulatory framework. Three issues will be of paramount importance in the years to come: firstly, the reintroduction of financial futures, currently banned in China, although the DCE and SHFE are researching Treasury bond, stock index and other financial futures, and recent statements by the CSRC have indicated that their reintroduction is being actively contemplated; secondly, the introduction of exchange-traded options: again, development of prospective options contracts by all three exchanges is already at an advanced stage and thirdly, allowing access for foreign investors to Chinese markets: plans were announced in 2005 to allow limited access for overseas institutional investors to China's commodity exchanges via joint ventures between Mainland Chinese brokerages and the Hong Kong or Macao subsidiaries of overseas brokers.[24] On 12 September 2005, the first such joint venture was announced between Jingyi Futures of China and the Hong Kong subsidiary of Refco, an international brokerage.[25] It remains to be seen how substantial a step like this will be in terms of opening up Chinese derivatives markets to foreign investors, although it should be noted that the large global investment banks are already active in the country's equities and bond markets under the country's Qualified Foreign Institutional Investor (QFII) scheme.

65. In Taiwan Province of China, the fast-growing Taiwan Futures Exchange (TAIFEX), created in 1998, increased its trading volume by 104 per cent in 2004, building on an increase of over 300 per cent in 2003, which helped it to become the world's 20th largest exchange. At present, TAIFEX only trades financial futures, although there has been talk of introducing agricultural futures.

66. Commodity markets have a long history in **India**. The first organized futures market, for various types of cotton, appeared in 1921. In the 1940s, trading in forward and futures contracts as well as options was either outlawed or rendered impossible through price controls. This situation remained until 1952, when the Government passed the Forward Contracts Regulation Act, which controls all transferable forward contracts and futures. During the 1960s, the Indian Government either banned or suspended futures trading in several commodities.

67. Government policy slackened in the late 1970s and trade in commodities futures was fully legalized in April 2003. Options trade is still prohibited, however: no exchange or person can organize or enter into or make or perform options in goods. The market expects that the Government will nonetheless permit options trading soon: the upper house of the Indian Parliament passed a Bill on options in the early part of 2004, although further development is still pending. The Union Budget of 2004-5 further liberalized the position of commodity exchanges. It is planned to allow mutual funds and foreign institutional investors to participate in the commodity market; widen the definition of commodities to include also commodity indices and weather derivatives; change the Banking Regulation Act to allow banks to operate in commodity exchanges; and allow set-offs on trading losses in the derivatives market.

68. With the establishment of national multi-commodity exchanges in 2002/3, the Indian situation changed dramatically. There are three such exchanges: the National Commodity & Derivatives Exchange, Mumbai (NCDEX), the National Multi-Commodity Exchange, Ahmedabad (NMCE) and the Multi Commodity Exchange, Mumbai (MCX). These new exchanges, contrary to the older single-commodity exchanges, are all demutualized, with permanent authorization to trade any permitted commodity, and have blazed a trail in the

[24] "Trendlines" *Futures Magazine*, vol. XXXIV, no. 9, July 2005 http://www.futuresmag.com/library/2005/07/05_0705trendlines.pdf

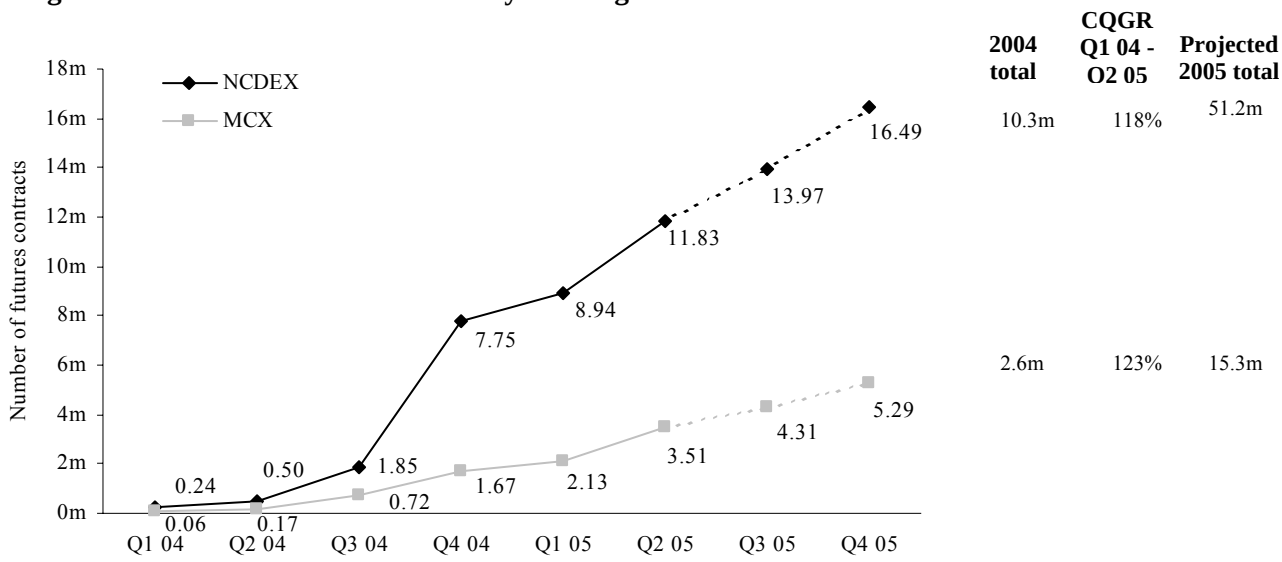
[25] *People's Daily Online*, 14/09/05, http://english.people.com.cn/200509/14/print20050914_208456.html

establishment of hi-tech, low-cost, web-based trading. This has contributed enormously to their rapid expansion (see figure 5). They are also looking abroad, through Memoranda of Understanding with other national exchanges (the first result of this is the formation of the new Dubai Gold and Commodity Exchange, in which MCX holds a 10 per cent stake, and the company that set up MCX, Financial Technologies (India) Ltd, another 40 per cent). Many of the contracts traded are unique to India; some are clearly domestic-oriented but others (such as precious metals, raw jute, pepper, grains and oilseeds) have the potential to take on international importance.

69. The national exchanges have also brought about important improvements to the country's infrastructure, improvements that have facilitated the initial take-off in India's futures trade and laid the basis for future growth. For example, they have been credited with the unilateral introduction of workable warehouse receipt systems, thereby improving the financial viability of the Indian commodities trade. Most importantly, the activities of the national exchanges have been tailored to address the needs of a country of vast geographical size, with a large, dispersed and often poor rural population (see box 5).

70. Commodity trading has experienced exponential growth in two of the new exchanges since the turn of 2004 (see figure 6).

Figure 6. Growth of India's commodity exchanges



Source: Exchange data; projections made on the basis of compound quarterly growth rates during period Q1 2004 to Q2 2005.[26]

From a first quarter volume of 0.24 million contracts, NCDEX had facilitated the trade of over 10 million contracts by the end of the year. If the current growth rate is maintained, trading at NCDEX, which already has attained a turnover of 20 million contracts in the first half of the year, could top 50 million contracts, which would make it the world's sixth largest commodity futures exchange in 2004. MCX had a turnover of 2.6 million contracts in 2004. However, if it continues to enjoy the same explosive levels of growth, trading could exceed 15 million contracts in 2005, a total that would have made it the world's 12th largest commodity futures exchange in 2004. The third national exchange in Ahmedabad, the first to begin trading, has not enjoyed similar levels of success, with volumes falling as trade shifted to the Mumbai-based exchanges. The first quarter 2005 volume was under 0.5 million contracts, compared with 1.9 million contracts traded over the same period the previous year.

[26] NCDEX Compounded Quarterly Growth Rate (CQGR): 118%; MCX CQGR: 123%.

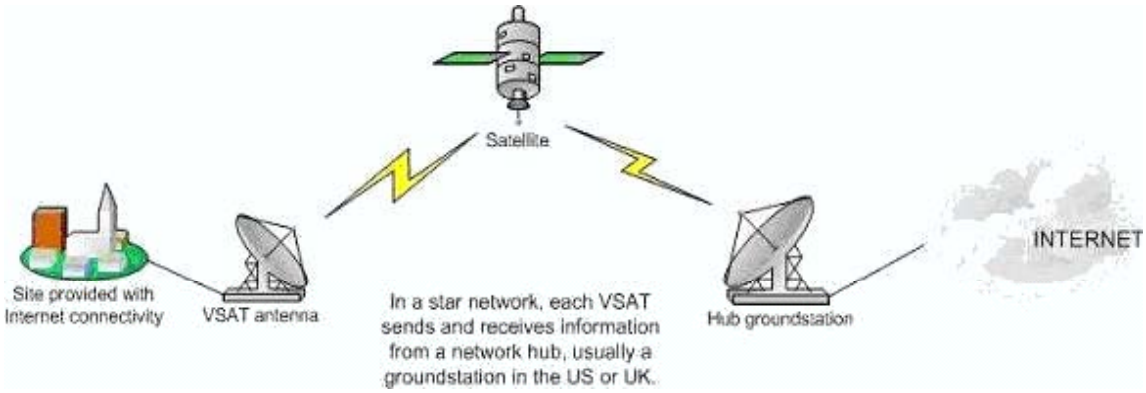
Box 5. Connecting marginalized commodity producers to the market in India

In developing countries, commodity exchanges typically operate in environments with significant deficiencies in the enabling infrastructure. Such deficiencies exaggerate the disadvantages already faced by commodity producers in rural locations remote from major urban centres. In these contexts, exchanges can play an important role in overcoming infrastructural obstacles and connecting marginalized producers to the market.

The installation of price tickers in remote local markets by the Indian multi-commodity exchanges is one illustration of this, extending the exchanges' price transparency function across the country at large. "Spreads between spot prices of commodities in mandis (local agricultural markets) and commodity exchanges will soon shrink with the exchanges planning to have price tickers in all mandis…MCX has already started putting up price tickers in mandis and plans to cover most of the [country's] 5700 mandis."[27] The presence of such price tickers can further assist commodity producers by enabling their cropping patterns to be more in tune with market conditions as they will be at the time of the next harvest: producers can determine what crops to sow on the basis of the futures price rather than the currently available price level.

Another example is the use of VSAT (or very small aperture terminal) technology to link remote users with the exchange on a real-time, interactive and permanent basis through a satellite connection (see diagram 2).

Diagram 2. Using a satellite network to link users to the exchange



The equipment is relatively simple and costs are relatively low. Moreover, these systems can function in difficult environments, and add-ons are available to ensure a permanent electricity supply. For smaller users, access to the exchange can be channelled through a broker in a nearby town or village, such as a rural bank branch. NCDEX, for example, has over 4,800 terminals: "Most of our members and their terminals are located even in smaller towns… This dispersal of points of trading terminals helps people from all over the country access their exchange for hedging their price risk."[28]

These technology-driven solutions facilitate the establishment of business models specifically designed to bring previously marginalized commodity producers into the market. With large populations of this kind also situated in China, Latin America and Africa, such models are likely to have application throughout the developing world.

[27] "Price tickers to come up in all mandis soon", *Financial Express*, India, 27 August 2005.
[28] NCDEX, *The Future of Commodity Derivatives*, http://www.ncdex.com/Knowledge/PDFs/Corporate Brochure_English.PDF

71. All of the traditional exchanges have now been surpassed in terms of volume and importance by the new national exchanges. The largest of the traditional Indian commodity exchanges is the National Board of Trade (NBOT), situated in Indore. It trades in oilseed futures, and its volume stood at just over 350,000 contracts in 2003 with a similar level of trade again achieved in 2004. 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, founded in 1997.

72. Private-sector groups in **Pakistan** have long been calling for the re-establishment of a cotton exchange, which last operated in Karachi in the 1930s. The National Commodity Exchange Limited (NCEL) was incorporated in 2002, although numerous institutional and legal problems have meant that trading is not scheduled to commence until mid-2005 (As of August 2005, NCEL was still awaiting approval to commence trading from the national regulator.) Like Thailand's AFET, discussed below, it uses an electronic trading system provided by a UK technology vendor, Patsystems (Patsystems is also responsible for the operating systems of four of Japan's commodity exchanges). The exchange is planning to make gold its first tradable commodity. However, given the development of a new gold exchange in Dubai and with gold also traded on all three of India's national exchanges, NCEL may struggle to achieve sufficient liquidity. As Pakistan is the world's largest exporter of cotton yarn, cotton futures, which would give the country greater exposure in international markets, is another priority commodity for NCEL. However, this has proved controversial and the country's Security and Exchange Commission has yet to provide a green light in this area. Along with rice, sugar, wheat and cotton seed oil cake, NCEL also hopes to introduce financial futures at a later stage.

73. 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 **Viet Nam**, a law is currently being drafted establishing the legal framework within which transactions through a national commodity exchange can take place.

74. The Agricultural Futures Exchange of **Thailand** (AFET) began operating in May 2004 and is the country's sole commodity futures exchange, offering contracts in rubber and rice. Trading volumes have been slow to take off (only $120 million in 2004). To address the situation, the exchange introduced tapioca starch futures in March 2005 and plans to introduce shrimp later in the year. It will also upgrade its technology to allow the participation of international investors.

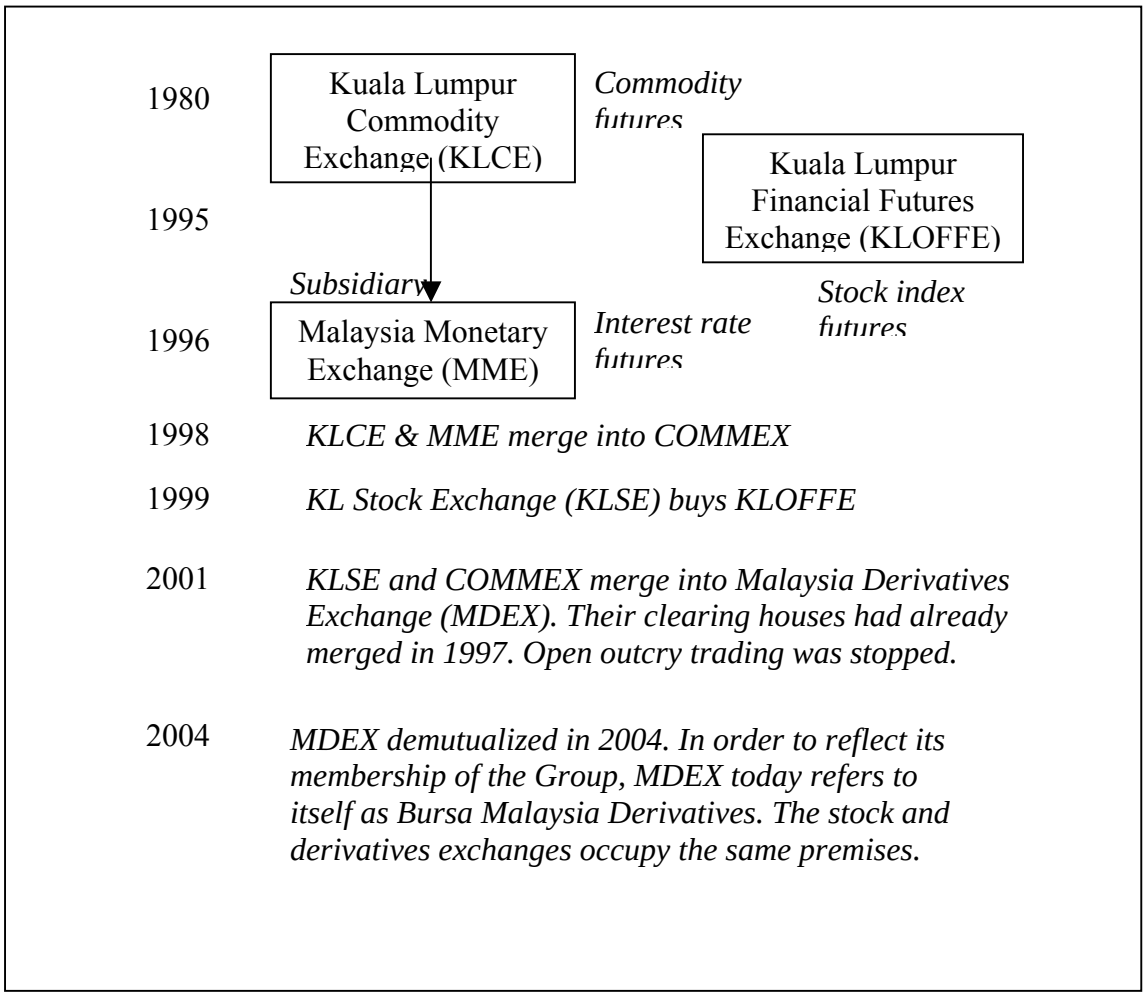
75. **Australia**, **Singapore and Malaysia** all have active commodity futures exchanges. The Sydney Futures Exchange (SFE), began trading in 1960 as the Sydney Greasy Wool Futures Exchange and by 1964 had become one of the world's leading wool futures markets. It is the largest financial futures exchange in the Oceania region, with an annual turnover of 54 million contracts and was the 21st largest futures exchange in 2004. All contracts from the New Zealand Futures and Options Exchange, already a wholly owned subsidiary of the SFE, were migrated to the SFE in March 2004. The Australian Stock Exchange trades electricity futures.

76. 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 28 million contracts, the world's 31st largest exchange in 2004, concentrating on financial instruments with trade in fuel commodities minimal at only a few thousand contracts a year. A smaller exchange, the Singapore Commodity Exchange (SICOM), offers rubber futures contracts.

77. Malaysia hosts the Bursa Malaysia Derivatives Berhad, part of the Bursa Malasyia Group and the product of multiple takeovers and mergers (see diagram 3 below). Trading 2.6 million

contracts in 2004 (the world's 49th largest derivatives exchange, and 20th largest commodity futures exchange, by trading volume), Bursa Malaysia Derivatives offers eight futures contracts, including two commodity contracts. In particular, it is a major centre for palm oil futures and indeed is the price reference for world palm oil trade. It is also notable for being one of a small number of developing country exchanges open to international users.

Diagram 3. Evolution of Malaysian exchanges



78. In **Indonesia**, the introduction of a commodity exchange has been under discussion since the early 1980s. After the signing of the necessary Presidential Decrees in 1997, the Jakarta Futures Exchange (JFX) was formed in 1999 and began trading coffee and palm oil in 2001. Owing 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.

79. In the Middle East, the launch of an aluminium futures market in **Abu Dhabi** (the Saadiyat Financial Futures and Options Exchange) is under consideration. Others are also looking at commodity exchange possibilities.

80. The formation of the **Dubai** Gold and Commodity Exchange (DGCX) was announced in November 2004.[29] Active parties include the Dubai Metals and Commodities Centre, the Multi

[29] *Khaleej Times*, 10 November, 2004, http://www.khaleejtimes.com/DisplayArticle.asp?xfile=data/business/2004/November/business_November123.xml&section=business

Commodity Exchange of India Ltd (MCX) and Financial Technologies (India) Limited. The exchange will commence operations in the second half of 2005, and the Dubai Financial Services Authority is likely to act as a regulatory body for it. After establishing gold contracts, the exchange intends to cater to a significant amount of trade in silver, steel, freight, cotton and energy products.

81. A second Dubai-based project, the Dubai Mercantile Exchange, was announced following a memorandum of understanding between Dubai Development and Investment Authority and the New York Mercantile Exchange (NYMEX), and 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. This, unlike DGCX, is expected to be an open outcry exchange.

82. There are two futures exchanges in the **Islamic Republic of Iran** – the Agriculture Stock Exchange, inaugurated in September 2004, and the Tehran Metals Exchange, inaugurated in September 2003, which trades mostly in steel with smaller volumes of aluminium, copper and zinc. A third exchange plans to commence trading by March 2006, and will be euro-denominated for trade in fuels and petrochemicals.

Chapter IV

EXCHANGES IN AFRICA

83. By absorbing the country's derivatives exchange, SAFEX, in August 2001, the JSE Exchange in **South Africa** became Africa's most active and important commodity exchange. SAFEX was established in 1988 and had been responsible for one of the leading emerging commodity markets. For a long time it traded only 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.

84. The JSE traded 38 million futures and option contracts in 2004 (2 million agricultural contracts and 36 million financial contracts, including single stock contracts), which made it the world's 17th largest commodity futures exchange (and the 25th largest futures exchange overall). SAFEX trades an average of 100,000 tonnes of product daily, including white and yellow maize, bread milling wheat, sunflower seeds and more recently soya beans. SAFEX is widely recognized as the price discovery mechanism for maize in the southern African region and as an efficient and effective price risk management facility for the grain industry. Its prices are quoted in several neighbouring countries.

85. 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. Such an exchange could become a centre for trade in diamonds, gold, platinum and cobalt amongst other commodities.

86. Maize contracts have also been traded on exchanges in **Zambia** and **Zimbabwe**, both of which have experienced failure owing to government policy. Farmers established the Zimbabwe Agricultural Commodity Exchange (ZIMACE) in 1994, in response to the gradual liberalization of state-controlled agricultural marketing. The exchange conducted spot and forward transactions and mostly handled agriculture produce, in particular maize, although the trading volumes of wheat contracts saw a steady increase. A policy reversal has de facto led to a halt to the exchange's operations. The Zambia Agricultural Commodity Exchange (ACE), founded in 1994, conducted spot and forward transactions in wheat, maize and other agricultural products. The success of ACE led to the development of the Kapiri Commodity Exchange in Zambia's central province and the Eastern Agricultural Commodity Exchange in Zambia's eastern province, both of which were launched in 1997. However policy reversals (government intervention in the maize market) led to the demise of these exchanges. In **Malawi**, an exchange modelled on ZIMACE saw the light of day in September 2005. **Nigeria's** Abuja Commodity Exchange was created as a result of the Government's converting the government-owned short-lived and controversial Abuja Stock Exchange, but factors including inappropriate trading software and staff training undermined its success; the exchange management is now looking for a viable business model. There is also interest from two different private sector groups in the establishment of a Nigerian commodity exchange.

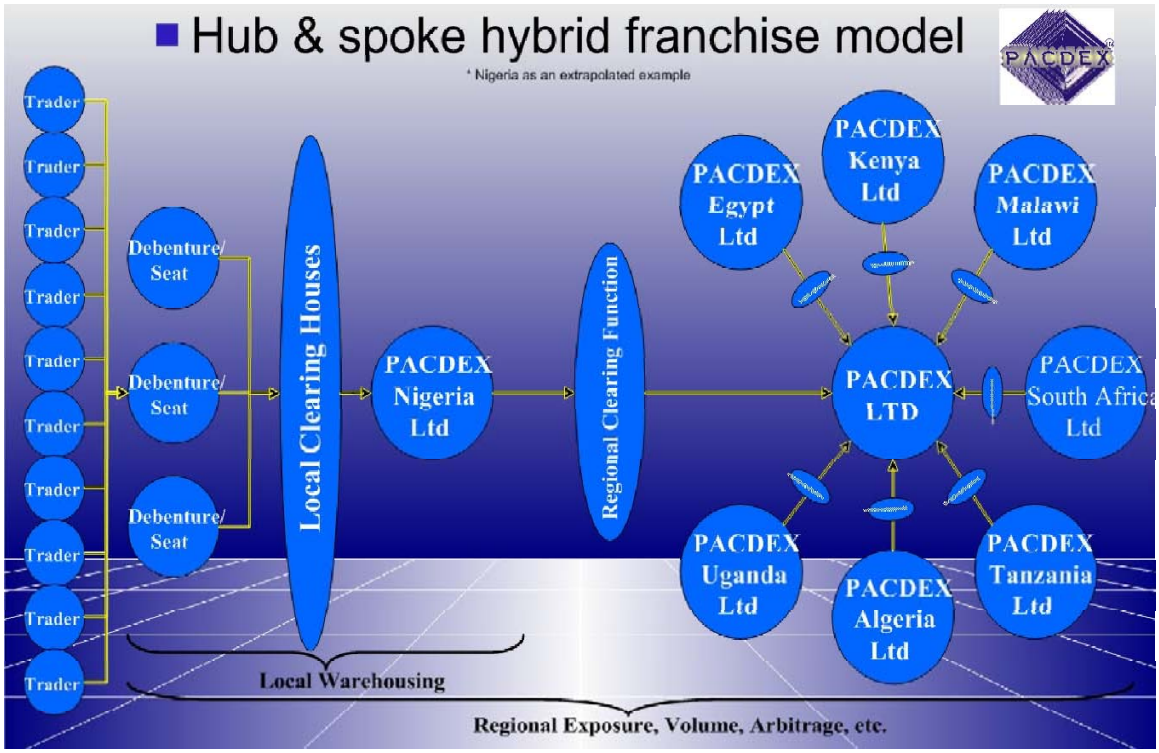
87. Other African exchanges have suffered setbacks due to a poor choice of business model. The **Kenya** Commodity Exchange (KACE) was set up in Nairobi in 1997 to provide the basic services of a commodity exchange. The products intended to be traded were agricultural commodities such as cereals, dairy products and cotton. In reality, trade has always been minimal. The exchange owners intelligently identified another potential flow of business, namely aid donors, and reoriented the "exchange" to become a provider of paid-for price information. With donor funds, it is surviving so far.

88. Three different initiatives in **Ghana** never found sufficient business support. In **Egypt**, discussion about the reintroduction of the Alexandria Cotton Exchange, abolished by the Government in the 1950s, is revived from time to time. In **Côte d'Ivoire**, there is a "Bourse"

for cocoa and coffee, but it has so far not managed to develop any real business. Two different initiatives in **Uganda**, one with clear (vocal) government support, did not reach the implementation stage. Africanlion, a web-based coffee exchange based in East Africa, has not built up volumes.

89. A Pan-African Commodities & Derivatives Exchange (PACDEX), trading agricultural products, metals, energy and currencies, is also in the process of establishment. A hub in Botswana will link together local exchange platforms as well as warehouses in various countries. The local exchanges will all use a common trading system and "back-office". Apart from enabling domestic trade, this shared platform will make it possible to match trades from commodity exchanges in different participating countries. Diagram 4 gives an overview of the structure, indicating some of the potential participating countries and elaborating (using the example of Nigeria) how each country "franchise" would look.

Diagram 4. The Pan-African Commodities & Derivatives Exchange hub and spoke model



90. This hub and spoke "franchising" model overcomes the problem of high set-up costs that small African markets may struggle to recuperate, whilst a common technology platform will generate greater liquidity and price discovery to better enable African commodity producers to market their commodities and manage their risk.

Summary of findings

91. With the liberalization of agricultural trade and the withdrawal of government support from agricultural producers outside the OECD, there is in many countries a new need for risk management, price discovery and even physical trading mechanisms. This requirement can often be addressed by commodity exchanges trading agricultural goods, metals and energy products.

92. It is in this context that the recent period has seen the rapid creation and growth of new commodity exchanges in developing countries. Some have progressed from offering spot and forward contracts to the level of futures trading. Others have just as quickly disappeared.

93. Developing countries in the **Asia-Pacific** region have enjoyed the greatest success in the advancement of their commodity exchanges. The new Indian national multi-commodity exchanges have exhibited dramatic volume growth since their establishment in 2002/3, driven by a dynamic high-tech, low-cost business model. From the late 1990s onwards, the three Chinese commodity exchanges – DCE, SHFE and ZCE – have assumed increasing importance and their future growth seems likely after recent government statements that they would be (partially) opened to international investors. In addition, recently established or restructured exchanges in Malaysia, Indonesia, Thailand and the Islamic Republic of Iran remain operational with varying degrees of success, and new exchanges are planned for Dubai, Pakistan and Viet Nam. With the region holding a 36 per cent share of the world's derivatives trade in 2004, and with the promise of continued strong growth in the years to come, it is likely that by 2006 five of the world's ten largest commodity futures exchanges will be in developing Asia.

94. In the 1990s, commodity exchanges were established across **Latin America**, mostly as a response to domestic liberalization. The financial crises that hit the region from the late 1990s onwards made a significant impact on these exchanges. In particular, two of Latin America's most prominent exchanges – BM&F of Brazil and MATba of Argentina – found their trading volumes greatly diminished, with the latter having to temporarily suspend operations in 2002. Both exchanges appear to be bouncing back strongly, however, with MATba's trading volumes increasing by 116 per cent in 2004 and BM&F's by 52 per cent.

95. **European transition economy** exchanges fall into three categories. Some, including those in Poland, Hungary and Slovenia, have established domestically oriented commodities futures exchanges. (Since February 2005, Turkey has also had a futures exchange trading in both commodity and financial futures.) Other futures exchanges in the Russian Federation, Romania and Kazakhstan trade in currency futures. Finally, a number of countries, including the Czech Republic, Slovakia, Yugoslavia, Bulgaria and Uzbekistan, have active commodity exchanges that trade spot and forward contracts for agricultural products, but not yet futures.

96. With the exception of SAFEX (now part of JSE) in South Africa, to date **Africa** has been the region with the least success in developing its commodities exchanges. Exchanges in Zimbabwe and Zambia have failed because of changes in government policy. Others in Nigeria and Kenya have also struggled to establish themselves as significant entities for facilitating price discovery and risk transfer. However, the Pan-African Commodities and Derivatives Exchange, with a hub and spoke model built upon a common technological platform, offers greater promise in overcoming the cost and liquidity hurdles that African exchanges have historically encountered.

97. Developed country exchanges still determine the prices at which most world market trade takes place – CBOT, NYBOT and LIFFE for agricultural goods, LME for metals, NYMEX for energy products and TOCOM in all three sectors. **North America** has experienced a revival in its volume share of world derivatives trade and NYMEX remains the world's largest

commodity exchange by some distance. In **Western Europe**, Eurex and Euronext.liffe both exhibited healthy growth in 2004. Meanwhile in **developed Asia**, three Japanese exchanges featured prominently in the world's top ten commodity exchanges by volume whilst KOFEX of the Republic of Korea, an exchange that trades predominantly in financial futures, is the world's largest futures exchange.

98. This study has identified three major trends in commodities exchanges in the recent period. The first is the rationalization or consolidation of commodity exchanges within countries, a process that has occurred as a result of privately coordinated mergers and acquisitions, but also, in a more restricted sense, through the sharing of common technology platforms. The second is the increased cooperation among exchanges with the signing of MOUs between commodity exchanges in different countries. These facilitate the sharing of "best practice" across various aspects of exchange management and governance. Finally, exchanges in both the developed and the developing worlds have looked to demutualize in order to establish their credentials for good governance, provide a framework for self-regulation and secure the confidence of investors and traders alike.

99. A document soon to be published by the UNCTAD secretariat will address the strategic issues facing commodities exchanges in developing countries, including an appraisal of the contribution made by commodities exchanges to their economic development.

Annex I

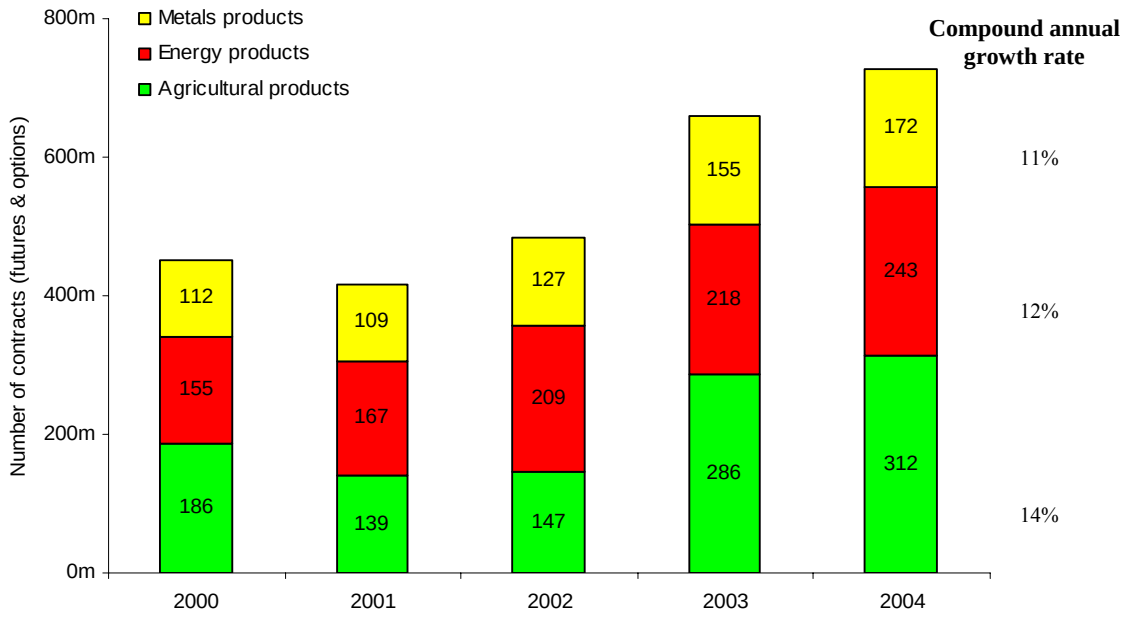
COMMODITY DATA

Table 1. The world's major commodity futures exchanges, ranked in order of total number of contracts traded in 2004 (in 000 of contracts)

		Energy		Metals		Agriculture		Total
		Futures	Options	Futures	Options	Futures	Options	F&Os
New York Mercantile Exchange (NYMEX)	Volume	97 030	21 917	23 792	5 907			148 646
	Annual change (%)	*11%*	*7%*	*20%*	*20%*			*12%*
Dalian Commodity Exchange (DCE)	Volume					88 034		88 034
	Annual change (%)					*17%*		*17%*
Chicago Board of Trade (CBOT)	Volume			727		68 067	17 082	85 876
	Annual change (%)			*304%*		*12%*	*37%*	*17%*
Tokyo Commodity Exchange (TOCOM)	Volume	39 205		33 510	64	1 733		74 512
	Annual change (%)	*-5%*		*-21%*	*N/A*	*-51%*		*-15%*
London Metals Exchange (LME)	Volume			67 172	4 735			71 907
	Annual change (%)			*-2%*	*27%*			*-1%*
Shanghai Futures Exchange (SHFE)	Volume	2 819		28 078		9 681		40 578
	Annual change (%)	*N/A*		*111%*		*-64%*		*1%*
International Petroleum Exchange (IPE)	Volume	35 467	74					35 541
	Annual change (%)	*7%*	*-11%*					*7%*
Central Japan Commodity Exchange (C-COM)	Volume	33 193						33 193
	Annual change (%)	*5%*						*5%*
New York Board of Trade (NYBOT)	Volume					20 592	7 535	28 127
	Annual change (%)					*26%*	*28%*	*27%*
Tokyo Grain Exchange (TGE)	Volume					25 703	39	25 742
	Annual change (%)					*22%*	*10%*	*22%*
Zhengzhou Commodity Exchange (ZCE)	Volume					24 237		24 237
	Annual change (%)					*-3%*		*-3%*
National Commodity & Derivatives Exchange (NCDEX)	Volume			3 800		6 540		10 340
	Annual change (%)			*N/A*		*N/A*		*N/a*
Chicago Mercantile Exchange (CME)	Volume					9 204	971	10 175
	Annual change (%)					*17%*	*-10%*	*13%*
LIFFE (Euronext)	Volume					7 024	516	7 540
	Annual change (%)					*21%*	*28%*	*21%*
National Multi-Commodity Exchange (NMCE)	Volume			69		3 644		3 713
	Annual change (%)			*N/A*		*N/A*		*N/a*
Kansas City Board of Trade (KCBT)	Volume					2 833	254	3 087
	Annual change (%)					*8%*	*-45%*	*0%*
Multi Commodity Exchange (MCX)	Volume			2 326		307		2 633
	Annual change (%)			*N/A*		*N/A*		*N/a*
JSE	Volume					1 459	434	1 893
	Annual change (%)					*-12%*	*-33%*	*-18%*
Minneapolis Grain Exchange (MGEX)	Volume					1 378	34	1 412
	Annual change (%)					*29%*	*-14%*	*28%*
Bursa Malaysia Derivatives	Volume					1 379		1 379
	Annual change (%)					*-4%*		*-4%*
Brazilian Mercantile & Futures Exchange (BM&F)	Volume			3	298	995	54	1 350
	Annual change (%)			*N/A*	*17%*	*35%*	*37%*	*31%*

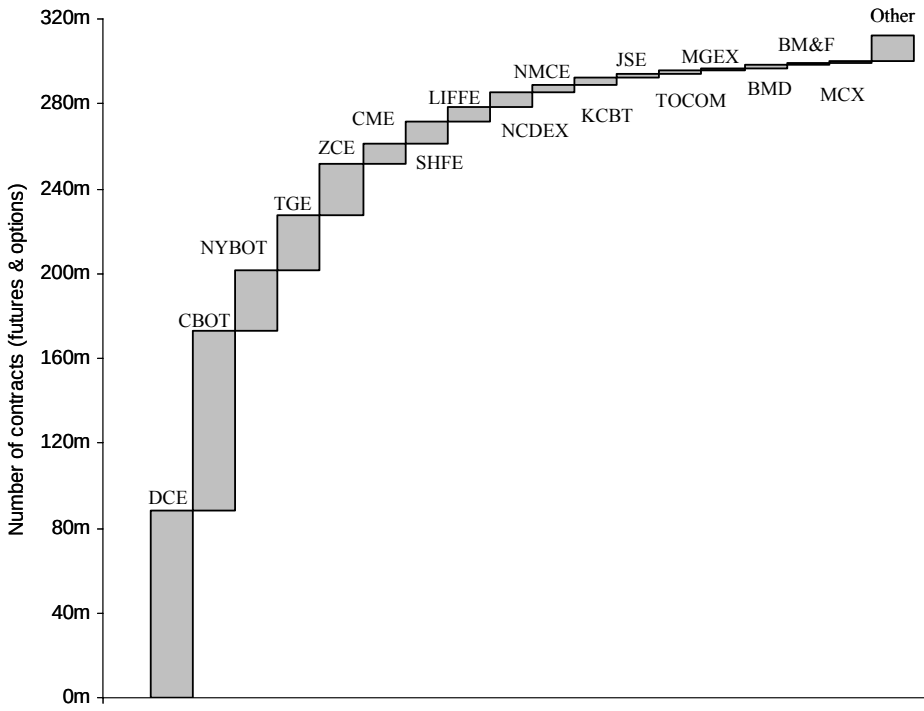
Source: Exchange data, except C-COM from the Futures Industry Association.
Note: C-COM energy data include eggs contracts.

Figure 7. Sectoral growth 2000-2004



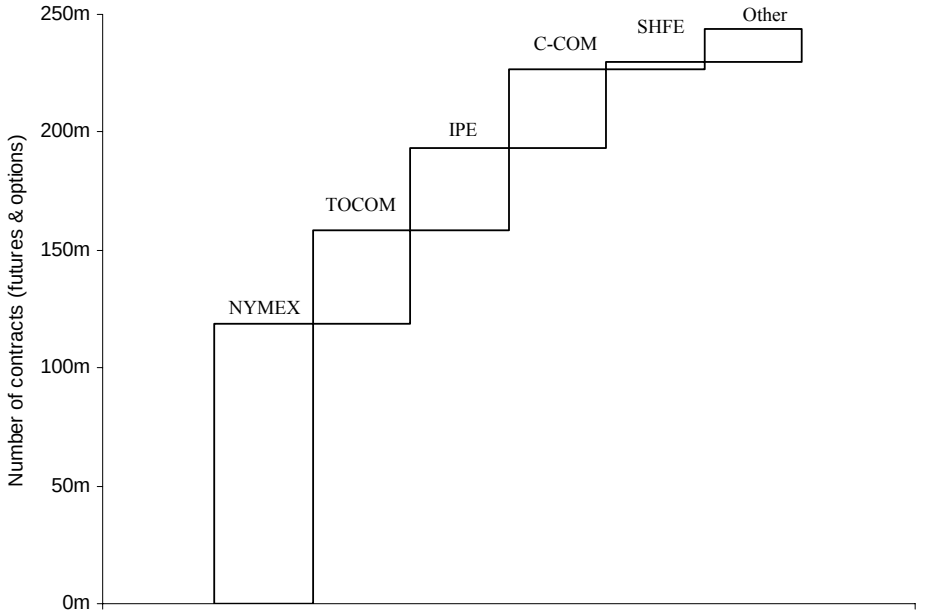
Source: Calculations made on the basis of information published by the Futures Industry Association (adjusted to include volume data provided by Indian national exchanges not captured by FIA).

Figure 8. Leading agricultural commodity exchanges, 2004 (total contracts: 312 million)



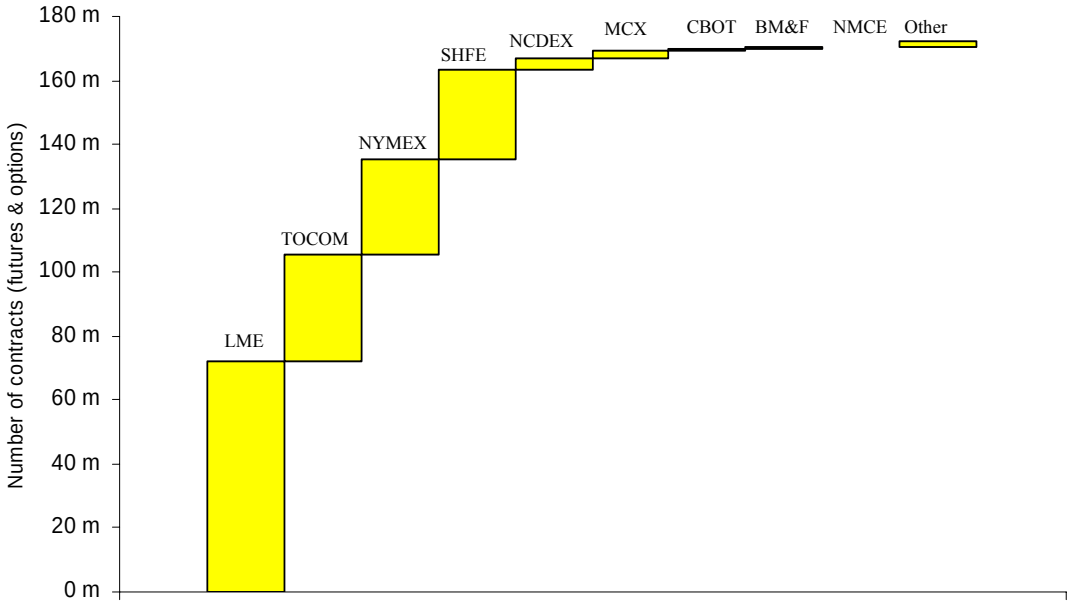
Source: Exchange data; total contracts calculated on the basis of information published by the Futures Industry Association (adjusted to include volume data provided by Indian national exchanges not captured by FIA).

Figure 9. Leading energy commodity exchanges, 2004 (total contracts: 243 million)



Source: Exchange data, except C-COM from the Futures Industry Association; total contracts calculated on the basis of information published by the Futures Industry Association.
Note: C-COM energy data include eggs contracts.

Figure 10. Leading metals commodity exchanges, 2004 (total contracts: 172 million)



Source: Exchange data; total contracts calculated on the basis of information published by the Futures Industry Association (adjusted to include volume data provided by Indian national exchanges not captured by FIA).

Annex II

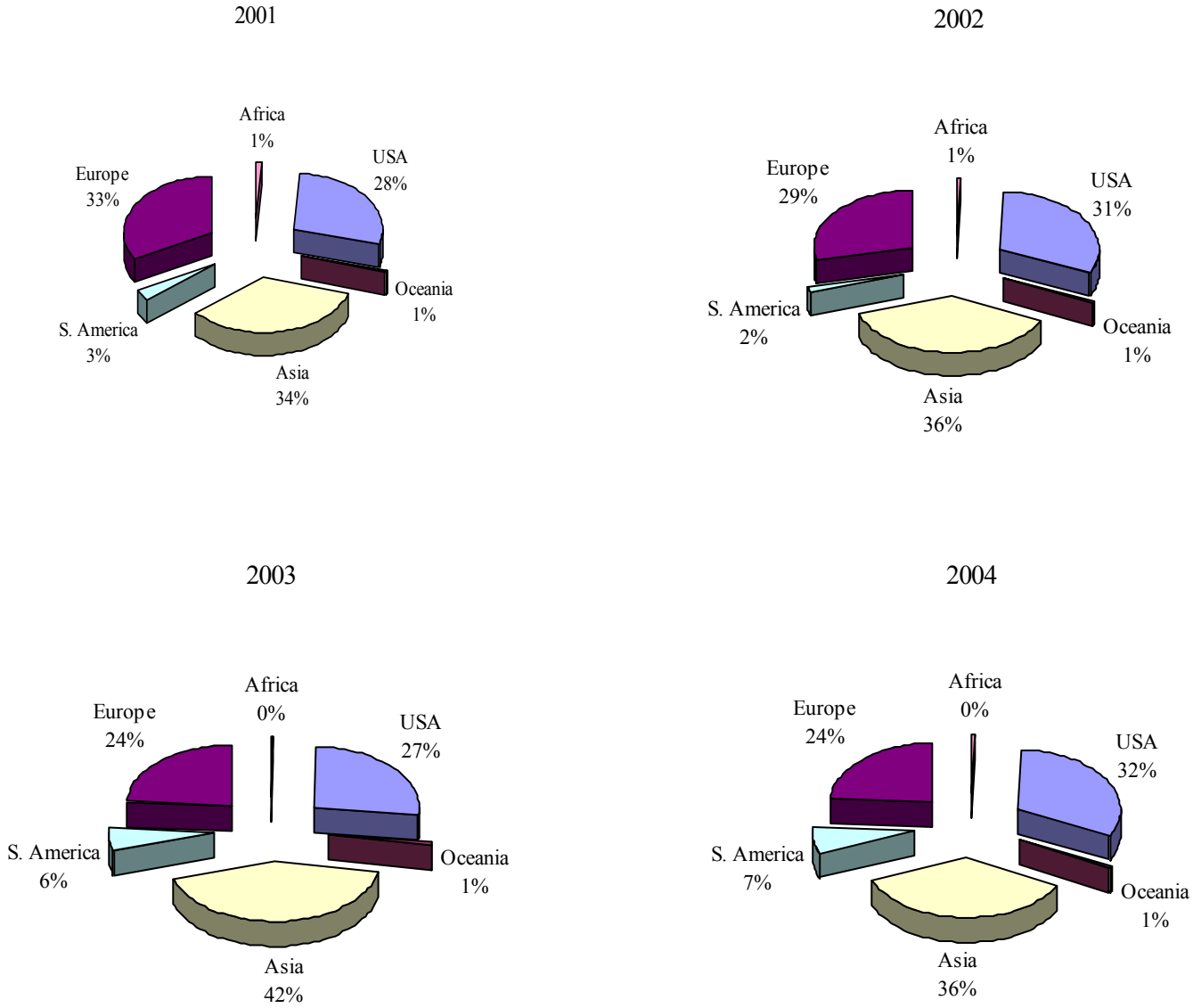
GLOBAL FUTURES AND OPTIONS DATA

Table 1
Top 15 World futures and options exchanges
Volume by calendar year (ranked by 2004 volume)

Rank 2004	Rank 2003	Exchange	Country	2000 Volume	2001 Volume	2002 Volume	2003 Volume	2004 Volume	% Change 2003-4
1	1	KFE	Rep. of Korea	213 495 588	854 791 792	1 932 691 950	2 912 894 034	2 586 818 602	-11.2%
2	2	EUREX	Rep. of Germany	364 833 663	674 157 863	801 200 873	1 014 932 312	1 065 639 010	5.0%
3	4	CME	USA	231 114 296	411 712 038	558 447 820	640 209 634	805 341 681	25.8%
4	3	EURONEXT.LIFFE	EU	311 687 790	614 456 513	696 323 560	694 970 981	790 381 989	13.7%
5	5	CBOT	USA	233 528 558	260 333 070	343 882 529	454 190 749	599 994 386	32.1%
6	6	CBOE	USA	47 440 139	306 667 851	267 616 496	283 946 495	361 086 774	27.2%
7	7	International Securities Exchange	USA		65 353 969	152 399 279	244 968 190	360 852 519	47.3%
8	9	Bovespa	Brazil			90 884 897	177 223 140	235 349 514	32.8%
9	10	Mexican Derivatives Exchange	Mexico			84 274 979	173 820 944	210 395 264	21.0%
10	8	American Stock Exchange	USA	1 997 798	205 103 884	186 039 445	180 074 778	202 680 929	12.6%
11	12	BM&F	Brazil	82 945 277	97 870 685	101 615 788	120 785 602	183 427 938	51.9%
12	11	NYMEX	USA	104 075 238	103 025 093	133 744 435	137 225 439	161 103 746	17.4%
13	13	Philadelphia Stock Exchange	USA	4 387 224	101 373 433	88 955 247	112 705 597	133 401 278	18.4%
14	15	Pacific Exchange	USA		102 701 752	85 426 649	86 152 637	103 262 458	19.9%
15	17	OMX Exchanges	Nordic/Baltic	23 176 697	62 735 817	60 920 817	74 105 690	94 382 633	27.4%
			Sub total	1 618 682 268	3 860 283 760	5 584 424 764	7 308 206 222	7 894 118 721	
			Total	2 022 410 893	4 382 715 198	5 993 380 024	8 137 628 554	8 866 510 000	

Source: Calculations made on the basis of information published by the Futures Industry Association.
Note: 2000 data exclude individual equities; where blank, data are not available.

Figure 11. Global futures and options volume by region 2001-2004



Source: Calculations made on the basis of information published by the Futures Industry Association.
Note: In figure 11, the USA has a share of 31 per cent, whereas in figure 4 its share stands at 30 per cent for the same year. This reflects an apparent discrepancy between different tables in the underlying FIA source data.