Elektronische Handelssysteme in Europa und Entwicklungsmöglichkeiten für Russland
Electronic Trading Systems in Europe and development potentialities for Russia

Workshop:
Bank und Finanzbeziehungen in Europa und die Integration Russlands

Prof. Dr. Christoph Lattemann
Chair for Corporate Governance and E-Commerce
1. Theoretical Background (Market Microstructure Theory)

2. Structure in Germany

3. Structure in Europe

4. Structure in Russia (Discussion)
Impact of Liquidity and Degree of Automation on Efficiency

- Main goal of markets: Efficient resource allocation
- Measure of the market’s efficiency: *transaction and liquidity costs*
  
  - Development of efficient market models and trading platforms

**Theoretical Background – Market Microstructure Theory**

Transaction Costs

<table>
<thead>
<tr>
<th>Criteria for Efficiency</th>
<th>Evaluation</th>
<th>Factor for Efficiency</th>
<th>Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transparency</td>
<td>Price Steadiness</td>
<td>Information efficiency</td>
<td>Regional Concentration</td>
</tr>
<tr>
<td>Frequency</td>
<td>Legal Boundaries</td>
<td>Orderbook Transparency</td>
<td>Market Organization</td>
</tr>
<tr>
<td>Legal Boundaries</td>
<td></td>
<td>Computerization</td>
<td></td>
</tr>
</tbody>
</table>

Picot et al. [1996]
Figure 1: Exchange-influenced transaction costs for equity trading*

<table>
<thead>
<tr>
<th>Basis points</th>
<th>Deutsche Börse</th>
<th>Euronext **</th>
<th>NYSE ***</th>
<th>Madrid</th>
<th>Milan</th>
<th>LSE ****</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>9.0</td>
<td>9.5</td>
<td>14.9</td>
<td>15.3</td>
<td>17.8</td>
<td>12.3</td>
</tr>
<tr>
<td></td>
<td>1.2</td>
<td>1.3</td>
<td>0.6</td>
<td>1.5</td>
<td>1.4</td>
<td>25.0</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.2</td>
</tr>
</tbody>
</table>

Legend:
- Liquidity costs
- Trading, Clearing & Settlement and other fees

Notes:
* Country data taken as proxy for a country’s dominant stock exchange
** Weighted average of Paris (60 percent), Amsterdam (38 percent) and Brussels (2 percent) stock exchanges
*** Different trading system leads to low fees, but higher liquidity costs
**** Average of UK sell orders and UK buy orders; high cost of trading mainly due to stamp duty
***** Given high volume in New York, relatively high transaction costs in US

Figure 5: Transaction fee and trading volume development in Europe

Domestic transaction fees on European exchanges*, 1996 – 2000
Average, basis points

US$ trillion

* Nine of Europe’s largest exchanges; London excluded from transaction fee analysis because of the distorting effect of stamp duty.

Source: Elkins/McSherry data as reported in Institutional Investor, McKinsey analysis

The computerization of the Information-, Orderrouting-, Matching-, and Settlement-Phase leads to an efficient organization of the transactions process of security trading.

Insofar, from the point of efficiency, it is desirable to computerize all processes.

Picot et al. 1996, Börsen im Wandel
Agenda

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### Structure in Germany

**Market Share (Exchange traded equities)**
- Bremen (Nasdaq Deutschland) - 98%
- Hannover (Commodity Exchange) - 55%
- Frankfurt Xetra Eurex - 45%
- Munich - Bonds 10%, OTC 90%
- Leipzig (Power Exchange) - 10%

#### Exchange
<table>
<thead>
<tr>
<th></th>
<th>Exchange</th>
<th>OTC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Equities</td>
<td>55 %</td>
<td>45 %</td>
</tr>
<tr>
<td>Bonds</td>
<td>10 %</td>
<td>90 %</td>
</tr>
</tbody>
</table>
The Strategy of the regional exchanges

... focus on niche markets
... and develop their own trading systems

<table>
<thead>
<tr>
<th>Exchange</th>
<th>Specialization</th>
<th>Trading System</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hamburg and Hanover (BÖAG)</td>
<td>1500 Bonds, &gt; 250 Stock options Funds-X Turkish Stocks American Stocks</td>
<td></td>
</tr>
<tr>
<td>Munich</td>
<td>&gt; 800 Asian Stocks</td>
<td>MAX-ONE (since May 2003)</td>
</tr>
<tr>
<td>Berlin</td>
<td>➢10,000 international Stocks from more than 60 Countries ➢6000 US Stocks</td>
<td>Nasdaq Europe (since March 2003)</td>
</tr>
<tr>
<td>Bremen</td>
<td>Services for small and medium sized Companies</td>
<td>Nasdad Europe (ab März 2003)</td>
</tr>
<tr>
<td>Stuttgart</td>
<td>Options</td>
<td>EUWAX (automatic Orderrouting via Xontro, Matching by Market Maker)</td>
</tr>
<tr>
<td>Düsseldorf</td>
<td>Japanese Stocks</td>
<td>Quotrix (Autumn 2001)</td>
</tr>
</tbody>
</table>
Trend toward Internalization in Germany

<table>
<thead>
<tr>
<th></th>
<th>Nasdaq D</th>
<th>Quotrix</th>
<th>Max-One</th>
<th>Xtra Best</th>
<th>PIP/Maxblue</th>
<th>Xtra</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trading Hours</td>
<td>9-20 Uhr</td>
<td>8-23 Uhr</td>
<td>9-20 Uhr</td>
<td>9-20 Uhr</td>
<td>Referenzbörsen</td>
<td>9-20</td>
</tr>
<tr>
<td>Home Exchange</td>
<td>Bremen/Berlin</td>
<td>Düsseldorf</td>
<td>Munich</td>
<td>Frankfurt</td>
<td>Deutsche Bank</td>
<td>Frankfut</td>
</tr>
<tr>
<td>Official Price</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Access by banks</td>
<td>HypoV.,Dresd., Comdirekt, Consors, Commerzbank</td>
<td>S-Broker, Fimatex, 1822 direkt</td>
<td>Almost alle</td>
<td>Comdirekt, Commerzbank,Hypvereinsb., Santander</td>
<td>Max Blue</td>
<td>all</td>
</tr>
</tbody>
</table>

Competition due to Internalization

Quelle:: Faz-Sonntagszeitung, Nr. 11, 16.3.03 S. 45
Xetra provides a wide range of market models and functionalities on a single trading platform.

Trading Model for High & Medium Liquids

Continuous trading interacting with Auctions

Xetra Best

Retail Trading

Xetra XXL

Block Trading

Continuous auction

Warrant & Less Liquid Trading

Single/Multiple auction

Less Liquid Trading

Xetra OTC

OTC Trading/Reporting

… and therefore enables maximum flexibility for the market provider and the market participants

Source: German Exchange
Deutsche Börse Group – a “Markets Company”

Customers: issuers, investors, intermediaries, information vendors, exchanges

Deutsche Börse Group

- B2B Markets
- Third party technology services
- CashTrading
- Derivatives Trading
- Information Products

Deutsche Börse Systems

Clearinghouse/Central Counterparty (CCP) Eurex Clearing

Settlement and Custody

Source: German Exchange
Agenda

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Characteristics of the European Equity Market

- High degree of fragmentation
  - Differences in market practices
  - Language differences
  - Cultural differences

- Less developed equity culture as in the U.S.
  - Lower market capitalization
The European Landscape of Exchanges

Trading System and sophisticated IT Competence

Market Share

Source: Accenture 2000
No common platform and no common architecture in Europe

<table>
<thead>
<tr>
<th>Derivative Exchange</th>
<th>Cash Exchange</th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium</td>
<td>NSC</td>
</tr>
<tr>
<td>Denmark</td>
<td>SAX</td>
</tr>
<tr>
<td>Germany</td>
<td>Xetra</td>
</tr>
<tr>
<td>Finland</td>
<td>HETI</td>
</tr>
<tr>
<td>France</td>
<td>NSC</td>
</tr>
<tr>
<td>Greek</td>
<td>Own</td>
</tr>
<tr>
<td>UK</td>
<td>SETS</td>
</tr>
<tr>
<td>Irland</td>
<td>Xetra</td>
</tr>
<tr>
<td>Italy</td>
<td>Own</td>
</tr>
<tr>
<td>Netherlands</td>
<td>NSC</td>
</tr>
<tr>
<td>Norwegian</td>
<td>Own</td>
</tr>
<tr>
<td>Austria</td>
<td>Xetra</td>
</tr>
<tr>
<td>Portugal</td>
<td>Own</td>
</tr>
<tr>
<td>Sweden</td>
<td>SAX</td>
</tr>
<tr>
<td>Spain</td>
<td>SIBE</td>
</tr>
<tr>
<td>Swiss</td>
<td>EBS</td>
</tr>
</tbody>
</table>

There are 6 different trading platforms at the European derivative markets and 12 at the European Cash Exchanges
Drivers of Efficiency & Innovation
Trends in Europe

- Horizontal cross-border competition
  - Increasing competition across the entire Securities Industry
    - Cash equity markets (Dt. Börse; LSE)
    - Derivatives markets (Eurex; Liffe)
    - Cash bond markets (Eurex Bonds; BrokerTec; others)

- Competition between market organizers and intermediaries
  - Disintermediation policy of Market Organizers (Exchanges, CDSs, Clearing Houses)
  - Internalization policy of Intermediaries (Brokers, Custodians)

- Advanced technology and high innovation
  - Early introduction of electronic trading systems
  - Development of central counterparty for equity trading (ECPP) as the new industry standard

- Demutualization
Electronic Communication Networks and Internalization as Competitors for Exchanges

Platforms for Internalization by Broker/Dealer and Banks

Technological development

Customer needs

(De-)Regulation
The Development of ECN’s in Europe

- Jiway
- Knight
- MLX MarketEdge
- Prime Access
- TLX
- Posit
- E-Crossnet

Source: Accenture 2000
Demutualization—Change in the Governance Structure

- Listed for profit organizations
- Not listed for profit organizations
- Membership corporation

Timeline:
- 1986
- 1992
- 1993
- 1995
- 1996
- 1997
- 1998
- 1999
- 2000
- 2001
- 2002

湎合 Does not
 tangible
 assets

exchanges

- Soc. des Bourses Françaises
- Copenhagen SE
- Helsinki SE
- Stockholm SE
- Deutsche Börse AG
- Borsa Italiana
- Amsterdam SE
- LIFFE
- OM
- LSE
- Borsa Italiana
- Euronext
- Deutsche Börse AG
- (Nasdaq Inc.)
- London Metal Exchange
Most projects were not successful in Europe

- Failure of merger between LSE an German Stock Exchange (iX, September 2000)

- Failure of “pan-European“ Exchange for „young“ Companies (Easdaq, Brussels; Spring 2001)


- Failure of the Merger of the biggest European Settlement Institutions (Euroclear and Clearstream) (Spring 2002)

- Merger of Crest – LCH successful
- Merger of Cedel– German Kassenverein successful
- Merger of Suffix-DTB successful
### 3 Networks cover 75% of the Settlement volume in Europe

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Euroclear plc</td>
<td>145</td>
<td>7.424</td>
<td>31 %</td>
<td>Ca. 420 Mrd € (EUR 2,9 each transaction)</td>
<td>83,33 % Euroclear 16,67 % Sicovam AG with over 1500 Stockholders</td>
</tr>
<tr>
<td>Clearstream</td>
<td>153</td>
<td>7.420</td>
<td>31 %</td>
<td>Ca. 420 (EUR 2,75)</td>
<td>100% Deutsche Börse AG</td>
</tr>
<tr>
<td>The Settlement Network</td>
<td>88</td>
<td>4.000</td>
<td>16 %</td>
<td>Ca. 140 (EUR 1,6)</td>
<td>SIS und CrestCo AG with each over 100 stockholders</td>
</tr>
<tr>
<td>Rest of Europe (1999)</td>
<td>62,6</td>
<td>5.382</td>
<td>22 %</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The New Trend: Concept of Central Counterparty on Cash Markets in Europe

- Central Counterparty is established for long time at derivative markets
- At first at U.S. Cash Market (1977 NSCC)
- Now Proactive Initiatives for the introduction of CCP in Europa

Quelle: Deutsche Börse 2003
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<table>
<thead>
<tr>
<th>Market Capitalization in Mrd. USD in 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York Stock Exchange</td>
</tr>
<tr>
<td>NASDAQ</td>
</tr>
<tr>
<td>Tokyo Stock Exchange</td>
</tr>
<tr>
<td>London Stock Exchange</td>
</tr>
<tr>
<td>EURONEXT</td>
</tr>
<tr>
<td>Deutsche Börse</td>
</tr>
<tr>
<td>Swiss Exchange</td>
</tr>
<tr>
<td>Toronto Stock Exchange</td>
</tr>
<tr>
<td>Russia</td>
</tr>
</tbody>
</table>
Russian Equity Market at the MICEX, Moskau Stock Exchange and RTS

OTC Market is dominating the Stock Market
Main Problems in Russia – Discussion

- Efficient Settlement Procedures
- No Central Depository
- Investors Behavior (2% - 3% of population are investing in shares)
- Legal Framework
- Consolidation of markets

Solution:
- Cooperation with European Exchanges, Depositories (Xetra, Euronext, Clearstream)?
- Development of innovative Market Models (like RTS)
Innovative Market Models by RTS

Clearing der GAZPROM Aktien

RTS Plaza Trading System

Guaranteed Trading System (Transaktionen sind abgesichert durch Geld/Depots)

DCC-Abwicklungssystem

400 Aktien
50 Anleihen

500 Wechsel
10 Derivate

Reuters
Bloomberg
The European Landscape of Exchanges (incl. Clearing & Settlement)

Source: Federation of European Securities Exchanges – FESE (pozniak@fese.be)